



NORTHERN MICHIGAN UNIVERSITY



November 2016
FIVE-YEAR FACILITIES MASTER PLAN



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NORTHERN MICHIGAN UNIVERSITY

Section I

Mission



Mission Statement

Northern Michigan University challenges its students and employees to think independently and critically, develop lifelong learning habits, acquire career skills, embrace diversity and become productive citizens in the regional and global community.

September 2008

Vision Statement

Northern Michigan University will become the university of choice in the Midwest for students seeking a quality academic program with individualized attention in a high-tech learning environment.



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.



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.



NORTHERN MICHIGAN UNIVERSITY

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. These elements helped to shape the strategic initiatives of the university's Road Map to 2015 strategic plan. Since 2014 and the beginning of Dr. Fritz Erickson's presidency, considerable work has been done on a new strategic planning effort.

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 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 that 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 continue 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 address 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 and services and as role models for higher education during this period of massive change in educational delivery. Academic departments, in particular, 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 transformationally 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, including 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 NMU Educational Access Initiatives, which includes Northern's online global campus and Education for Life program (non-degree personal and professional development courses) over Northern's new state-of-the-art LTE educational broadband network with its uniquely FCC-approved expansion across the Upper Peninsula.

During the strategic planning discussions, Northern stakeholders identified three innovation strategies for each of the university's seven core values. Initiatives based on several of these strategies have been proposed and some are already being implemented on a campus-wide scale, and these core value strategies will also help to guide the individual unit strategic plan development. One example is the strategy of the core value of environment that states, "Emphasize the unique assets of the Upper Peninsula and its natural environment." Northern is using this strategy in its exploration of potentially offering a new forensic anthropology program, which is the science of analyzing human remains to determine an individual's identity and the timing and manner of death. NMU's program will include a secured outdoor research station that would become only the eighth one in existence worldwide and the first cold-weather facility. Relatively little information exists on the effects of freezing and thawing on human decomposition.

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



Academic Programs

Baccalaureate Degree Programs

Major

Accounting
Accounting/Corporate Finance
Accounting/Information Systems
Art and Design

Concentrations

Ceramics
Computer Art
Digital Cinema
Drawing/Painting
Furniture Design
Graphic Communications
Human-Centered Design
Illustration
Metal Crafts
Photography
Printmaking
Sculpture
Woodworking

Art and Design/Secondary Education

Concentrations

Ceramics
Digital Cinema
Drawing/Painting
Electronic Imaging
Environmental Design
Furniture Design
Graphic Communications
Illustration
Metal Crafts
Photography
Printmaking
Product Design
Sculpture
Woodworking

Art History
Athletic Training
Biochemistry
Biology

Concentrations

Botany
Ecology
General Biology
Microbiology
Physiology
Zoology

Biology/Secondary Education
Chemistry (ACS Certified)
Chemistry/Secondary Education
Clinical Health Science

Concentrations

Radiography
Respiratory Therapy
Surgical Technology

Clinical Laboratory Science

Concentrations

Anatomical Pathology
Clinical Systems Analysts
Diagnostic Genetics
Laboratory Medicine
Microbiology
Science Technologist

Cognitive Impairment/Elementary Education
Cognitive Impairment/Secondary Education
Communication Studies
Community Health Education
Computer Science
Construction Management
Criminal Justice



Academic Programs

Baccalaureate Degree Programs

(continued)

Major

Earth Science
Earth Science/Secondary Education
Economics
Electronics Engineering Technology
Elementary Education (2 minors)
Emotional Impairment/Elementary Education
Emotional Impairment/Secondary Education
English
English/Graduate Bound
English/Secondary Education
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
French Education
General Psychology
Geography/Secondary Education
Geomatics
German Studies
History
History/Secondary Education
Hospitality and Tourism Management
Individualized Studies
Industrial Technology
Industrial Technologies/Secondary Education
Information Assurance/Cyber Defense
Information Systems
Integrated Science/Elementary Education
Integrated Science/Secondary Education
International Studies
Concentrations
Africa
Asian
Europe
Global
Latin America
Middle East
Language Arts/Elementary Education
Liberal Arts and Sciences
Loss Prevention Management
Management
Management of Health and Fitness
Marketing
Mathematics
Concentrations
Actuarial Sciences
General Mathematics
Mathematics/Elementary Education
Mathematics/Secondary Education



Academic Programs

Baccalaureate Degree Programs (*continued*)

Major

Mechanical Engineering Technology

Concentrations

Alternative Energies

Computer Numerical Control Technology

Manufacturing Engineering Technology

Mechanical Engineering Design

Mechatronics

Media Production and New Technology

Mobile and Web Application Development

Multi-media Journalism

Music

Concentrations

Choral

Instrumental

Music/Secondary Education

Concentrations

Choral

Instrumental

Neuroscience/Behavioral and Cognitive

Neuroscience/Cell and Molecular

Nursing

Outdoor Recreation Leadership and
Management

Paralegal

Philosophy

Physical Education/Secondary Education

Physical Education Coaching

Physics

Physics/Secondary Education

Political Science

Concentrations

General Political Science

International

Pre-law

Political Science/Secondary Education

Pre-Architecture

Pre-Chiropractic

Pre-Dental

Pre-Engineering

Pre-Law

Pre-Medicine

Pre-Optometry

Pre-Pharmacy

Pre-Physical Therapy

Pre-Physician Assistant

Pre-Veterinary

Psychology/Behavior Analysis

Psychology/Graduate School Preparation

Public Administration

Public Relations

Ski Area Business Management

Special Education/Undeclared

Social Studies/Elementary Education

Social Studies/Secondary Education

Social Work

Sociology

Sociology in Liberal Arts

Spanish

Spanish Education

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



Academic Programs

Associate Degree Programs

Major

Sociology
Speech, Language & Hearing Science
Sustainability
Theatre and Entertainment Arts
Welding
Wildland Firefighting
Health Information Processing
Concentrations
Coding/Insurance
General
Medical Transcription
Industrial Maintenance
Information Systems
Concentrations
Computer Retail
Networking/Microsoft NT
Networking/Novell
Networking/Unix
Law Enforcement
Liberal Arts/Sciences
Office Information Assistant
Radiography
Surgical Technology

Certificate Programs

Automotive Service Technology
Aviation Maintenance Technology
Clinical Assistant
Computer Numerical Control Technician
Cosmetology
Geographic Information Systems
Heating, Air Conditioning/Refrigeration
Industrial Maintenance

Office Services
Pre-Practical Nursing
Practical Nursing
Special Studies
Welding
Wildland Firefighting

Diploma Programs

Advanced Law Enforcement
Cosmetology Instructor
Electrical Line Technician
Local Corrections
Manufacturing Production Technician

Certifications

English as a Second Language
Police Academy



Academic Programs

Graduate Programs

Certificates

- Facilitating Training
- Performance Improvement
- Teaching English to Speakers of Other Languages

Doctorate

- Family Nurse Practitioner

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
- Biochemistry/Biology
- Biology
- Business
- Clinical Molecular Genetics
- Creative Writing
- Educational Administration/Supervision
 - American Indian Education
- English
 - American Indian Education
 - English/Literature
 - English/Pedagogy
 - English/Writing
 - Theatre and Entertainment Arts
- Exercise Science
- Family Nurse Practitioner
- General Psychology
- Higher Education in Student Affairs
- Individualized Studies
- Instruction
- Instructional Leadership
- Learning Disabilities
- Post-Secondary Biology Education
- Public Administration
 - Criminal Justice Administration
 - Human Resource Administration
 - Public Management
 - State and Local Government
- Reading (BT)
- Reading Specialist (BR)
- Training and Performance Improvement



Academic Programs

Elementary Education Minors

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

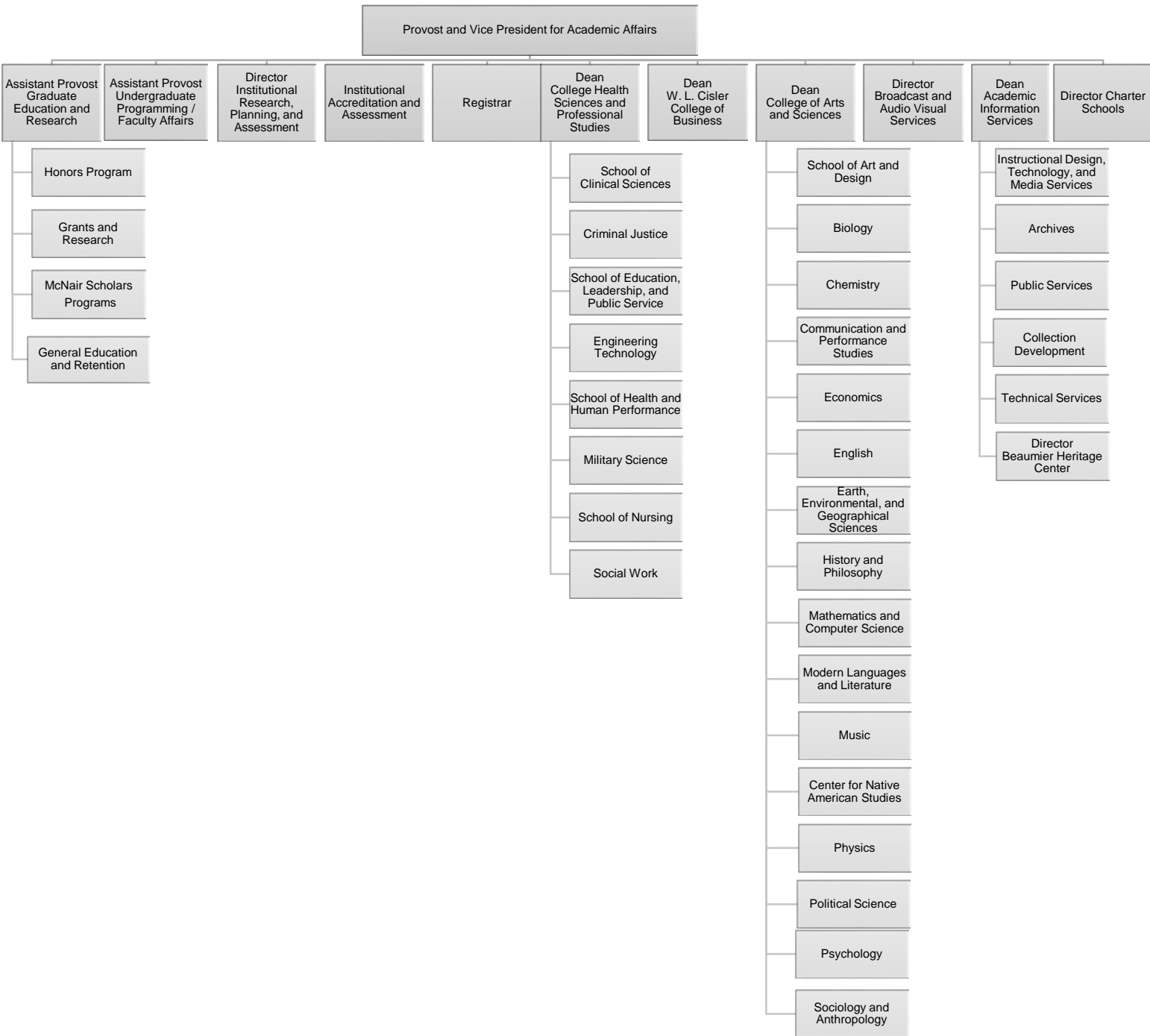
Accounting
Actuarial Sciences
Alternative Energies
Anthropology
Applied Ethics
Art and Design
Art History
Automotive Service Technology
Biology
Business Administration
Chemistry
Child Care Services
Clinical Laboratory Techniques
CNC Technology
Communication Studies
Computer Science
Construction Systems
Contracted Minor (Engineering Technology)
Criminal Justice
Dance
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
German
Gerontology
Group Science
Health and Nutrition
Health Education Cluster
Heating, Ventilation, Air Conditioning, and Refrigeration
History
Hospitality Service Management
Human Behavior Cluster
Human Biology
Human Services
Industrial Electrical Technology
Industrial Maintenance
Information Assurance/Cyber Defense
Information Systems
Integrated Science
International Studies
Interpretation and Outdoor Education
Journalism
Latin American Studies
Loss Prevention Management
Management
Marketing
Mathematical Statistics
Mathematics
Media Production and New Technology
Media Studies
Military Science
Music
Native American Studies
Office Services
Outdoor Leadership
Outdoor Recreation
Outdoor Recreation Leadership Management Cluster
Philosophy
Physical Education/Coaching
Physics
Political Science
Pre-Law
Pre-Professional Science
Psychology
Public Administration
Public History
Public Relations
Religious Studies
Research Analyst
Social Services
Sociology
Spanish
Speech, Language, and Hearing Sciences
Sports Science Cluster
Sustainability
Teaching English to Speakers of Other Languages (TESOL)
Theatre and Entertainment Arts
Welding
Wildland Firefighting
Wildlife Conservation Law and Policing
Writing





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, general education review, academic program review, and the student learning outcomes assessment. New within the last three years is the Center for Teaching and Learning (CTL) that was established to provide classroom and instructional support with educator-scholar expertise. The Center reaches out to serve the institution with advanced technology in extensive and convenient hours. The university's General Education Council, a standing Academic Senate committee comprised of elected faculty representatives and administrators, has been leading and inspiring campus-wide involvement to re-innovate our general education programs.

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 distance education and learning was completed and has produced effective training programs for instructors who teach online courses and for students who take online classes. Through the division of Extended Learning and Community Engagement, we are currently launching new online training and certification for both our students and faculty, to ensure continued top-quality instruction and student readiness for online learning. We have also made a long-term investment in our distance education by becoming a SARA institution.

We continue to utilize our Academic Affairs dashboard as a mechanism to make data-drive decisions. The dashboard highlights our core values, to ensure NMU is in alignment with Upper Peninsula and Michigan state priorities, program sustainability and vitality, student success and outcomes, and financial effectiveness. We are actively involved in national initiatives for student learning and outcomes assessment, 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, such as the requirement of all students to participate in our first year experience program, and have successfully transitioned to centralized advising for all new students.



Instructional Programming

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

Our seven new programs started in 2014 have seen great success, as have our new Doctorate in Nursing Practice students, international students and minority/underrepresented students. The continued declining size of the K-12 population in the Upper Peninsula continues to be a significant challenge to the institution. We continue to work with our faculty, through mutually agreed upon collective bargaining language that facilitates the creation of strategies and programs that will spur enrollment, while maintaining high-quality, affordable instruction.

The university experience is predicated on a blend of a number of intellectual and organizational enterprises. Northern must reinvigorate the standards and processes that will sustain successful programs, create new ones, eliminate programs with declining enrollment, and reflect the creativity of campus talents. The curriculum must remain relevant and meaningful, and our teaching must be contemporary and effective.

Strategic Focus Areas:

Domestic and Global Outreach and Engagement

- Integrate global engagement and diversity learning experiences throughout the academic curriculum.
- Continue implementation of the faculty-mix model and faculty enhancement positions in growth programs.
- 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.
- Cultivate new programs and growth initiatives through a Program Investment Fund (PIF).
- Continue 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, such as the new Manufacturing Production Technician diploma.



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 those programs and employ those practices that maximize the opportunity for all students to succeed in their university experience and to 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 invest in the Superior Edge and academic service learning programs.
- Significantly increase the number of NMU students who participate in the Superior Edge, academic service learning and other leadership development opportunities
- Improve the alignment of the curriculum with the Superior Edge and academic service learning initiatives
- Implement strategies to assist students to more effectively communicate the skills and competencies developed through their achievements in community engagement



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 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

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.



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 7,562 notebook computers distributed, 825 to faculty and staff, and 6,268 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 (WiFi) and WWAN (LTE) networking capabilities. Wireless WiFi 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. Since 2008 the University has expanded the wireless networking to provide community-wide access using WiMAX technology that has provided wireless access from campus directly to more than 5,500+ students that live off campus in the Marquette area and surrounding cities. The existing off-campus WiMAX network was replaced by a new faster LTE technology based network in time for the start of the Fall 2016 semester.

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 (as noted by *Computerworld Magazine*) 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.



Initiatives / Academic Program Needs with Impact on Facilities

Instructional Programming: (continued)

The University's public radio and television stations have completed their digital transition, including a switch to IP-based studio-to-transmitter (STL) links. Unique to WNMU was its selection of a "common protocol" automation system that dramatically lowers operating costs and reduces the need for proprietary hardware. All of the digital conversion initiatives directly impact the station's ability to offer instructional course content to area residents and K-12 schools. Specifically, WNMU-TV uses its new digital television production capacity to program one standard definition and two high definition channels. These channels allow more specialized programming to be aired at various times throughout the day. In addition, WNMU is continuing to develop its sports and entertainment curriculum and in 2016 will add large-venue I-MAG projection capability to its broadcast equipment inventory. This new capability will allow NMU to train students for careers in sports multi-media.

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 2016, NMU successfully completed the construction of three, new active learning classrooms specifically designed to capture multi-media content used for the delivery of web-based instruction. These classrooms follow the template used in the construction of NMU's Jamrich Hall and feature full, two-way interactive IP-based video and audio technology. Course content created in these classrooms is used by faculty for their EduCat-based instruction modules and use all digital technology. Video is produced in the 1080P format and allows faculty full editing capability to make content changes as required.



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 & 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, and 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 on an annual basis. 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 the many trade shows and conferences hosted in the Superior Dome. NMU Commencement activities 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 & 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 NCAA events 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, 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 59 Olympic medals. Currently, there are over 80 Greco-Roman wrestling and weightlifting athletes training at the Site that are also students at NMU.



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





Community Presence Activities

Northern Initiatives



NORTHERN INITIATIVES
is a non-profit
community development
corporation

NMU invests annually in Northern Initiatives (NI), a non-profit Community Development Financial Institution, created by NMU in 1992 and housed on the NMU campus at the Jacobetti Complex. NI serves 51 rural counties; originally the fifteen counties of the Upper Peninsula and beginning in 2008, 31 additional Northern Michigan counties and the 5 border counties of Wisconsin. NI supports the launching and growing of small businesses primarily through filling capital gaps in the market. It does this work by making available capital in the form of loans and complimenting those loans with knowledge building services to start up and growing businesses. Since 1994, NI has loaned nearly \$53,000,000 to 910 businesses. Roughly one third have been start ups and 40% have been women owned businesses. In total NI borrowers have created over 1500 jobs and retained 2,200. Loan borrowers take advantage of NI's Business Advancement Center services where Northern Michigan University students are employed to assist business coaches and NI customers through performing market research, credit analysis and e-commerce solutions. NI is also an affiliate of the Michigan Manufacturing Technology Center and provides bottom line services (lean, quality, process improvement) to strengthen the performance of UP manufacturers.

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 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.



Community Presence Activities

Community College and Meeting Needs of Business and Industry *(continued)*

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 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 via online and other electronic formats. NMU's off-campus initiatives include the newly created Northern Promise, which contains a program for high school students to complete NMU coursework in their own high schools, delivered by familiar high school faculty. The coursework is offered at no cost to students and partner high schools receive a substantial discount on the cost of tuition. In addition, NMU is finalizing plans to offer coursework off-site in Escanaba and Menominee. With regard to online education, a focal point of the Educational Access Network is NMU's efforts to expand its 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. To that end, the Extended Learning and Community Engagement division has partnered with the Center for Teaching and Learning to promote the development of ideas and the rapid design and implementation of academic programs that meet specific needs of the region.

To provide 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 and are used as expert resources in providing students with 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. A key component of the University's technology portfolio has been the University's migration from its WiMAX wireless network to a carrier-grade LTE network that encompasses a seven-city area surrounding NMU. WiMAX technology is being retired in 2016 and has been replaced with faster, more robust, LTE service that covers the communities of Marquette, Marquette Township, Harvey, Sawyer, Gwinn, Ishpeming, Big Bay, and Negaunee. More than 6,300 students use the LTE network to manage course 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 is now spreading throughout Michigan's Upper Peninsula and Northeastern Wisconsin as the University begins 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 partnered with area K-12 schools, colleges and universities to deliver educational broadband to rural communities in an effort to engage learners of all ages. This broadband network will assist students as they earn traditional high school and college degrees as well as continuing education needed in workforce development programs across the region.



Community Presence Activities

Public Broadcasting

NMU's public radio and television stations have completed their transition to digital broadcasting. In 2016, WNMU-FM replaced its analog production capability with digital facilities which provide enhanced program audio quality, provide greater flexibility for maintaining program archives and allow NMU students involved with internships and directed studies to learn skills that make them more valuable upon graduation.

Also in 2016, WNMU-TV completed its conversion of the station's main channel to HD broadcasting and replaced all studio-to-transmitter links with new microwave services that use IP technology. New digital equipment included enhanced program encoders, storage systems and automation systems. These changes, now offer higher quality programming to viewers, improve station reliability and enable enhanced capabilities to the University's information technology (IT) systems.

NMU intends to use 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. WNMU has been designated as the primary emergency alert facility for the Central Upper Peninsula Region and provides 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 Northern Michigan University 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. Economic data from a new report by the Anderson Economic Group commissioned by the President's Council, State Universities of Michigan indicates that NMU accounts for \$227 million in spending (2012), the bulk of which (\$123 million) comes from students. NMU recorded earnings of \$81 million and supplies approximately 1,300 jobs.

(www.pcsun.org)

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 complimenting their academic experiences.

Invent@NMU focus' on low investment and quick to market, practical, smartly designed, manufactured products. The program assists the inventor/entrepreneur control the organizational expenses which 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. Invent@NMU also partners with the new Marquette Smart Zone for client referral and technical assistances, providing another level of assistance to student and local entrepreneurs.



Economic Impact / Partnerships With Business and Industry

Center for Rural Community and Economic Development

The University's portal, where community, industry, or government can go to connect with a question or need that would benefit from expertise or assistance from within the university.

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.

Partnerships with Business and Industry

The newly established College of Technology and Occupational Sciences (CTOS) includes many of the one and two year vocational/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.

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 as well as the Marquette Smart Zone in assisting entrepreneurs especially with product prototyping and manufacturing support.



Economic Impact / Partnerships With Business and Industry

Internships for NMU students with business, industry, and service providers are critical to quality employment preparations. From programs across campus, among 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, Envoy Airways and Power Construction.

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 are enrolled in 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 certified and licensed health professionals in the region and nationally and implementation of the Affordable Care Act. HRSA and Bureau of Labor Statistics report the increased need in numbers of health care professionals through 2025 includes the health care needs of the aging baby boomer generation, the large number of retiring baby boomer aged health care professionals, and the implementation of the Affordable Care Act which has resulted in many more people with access to health care.



Economic Impact / Partnerships With Business and Industry

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 both the Tilden and Empire mining/processing operations. Associate degree programs in Electrical Technology and Industrial Maintenance, along with baccalaureate degree programs in Mechanical Engineering Technology, Industrial Technology, and Electronics 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.

The company partners closely to assist NMU in acquiring much of the needed lab equipment. This level of cooperation is dependent on, and evidence of, a close working relationship between academics and industry.

Lundin Eagle Mine

NMU Continuing Education and Workforce Development has delivered over 350 hours of training to Eagle's new millwrights, soft skills training to Lundin office staff and MSHA new miner training including defensive driving and welding. NMU Continuing Education and Workforce Development continues to deliver training to Eagle personnel on a variety of topics. 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.

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 in Menominee-Marinette 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 Engineering Technology graduate Curt Tucker. He is a leading supporter of the SAE Baja racing team housed in the department, has been instrumental in several intern and job placements for graduates and partnered us with NASA to do some support research for their restraint systems just as a few examples.

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 Northern Michigan University, 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.

Continuing Education and Workforce Development

Continuing Education and Workforce Development continues to develop and improve upon various local, state and national relationships that provide business professionals, general industry and the public with quality education and training.

Workforce Training

The University 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

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.



Economic Impact / Partnerships With Business and Industry

Professional Education

The University 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 for, 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 for-credit 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 – Northern Michigan University 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 – Northern Michigan University 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. Continuing Education's 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 Northern Michigan University 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 first wildlife photographers, will be highlighted.

Motorcycle Safety Training

Northern Michigan University 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.



Section III

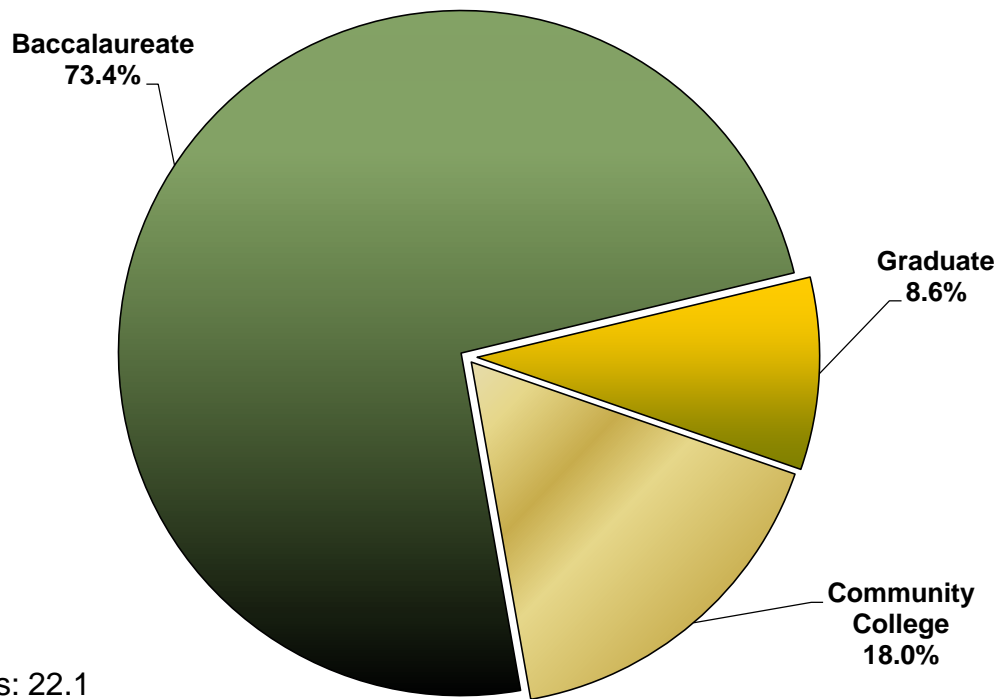
Enrollment and Staffing



Enrollment

Headcount

Fall 2016 (n = 7,750 – 10th Day of Class)



Average age

- ▶ Undergraduates: 22.1
- ▶ Graduates: 37.2
- ▶ Overall: 23.4

Other student statistics

- ▶ At least one student from:
 - ▶ 83 of 83 Michigan counties
 - ▶ 45 different states
 - ▶ 37 different countries



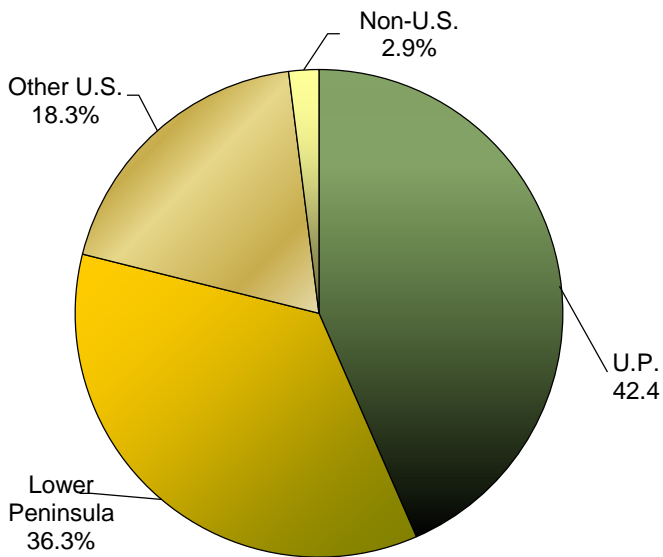
Enrollment

Recruiting Region

Fall 2016 (n = 7,750 – 10th Day of Class)

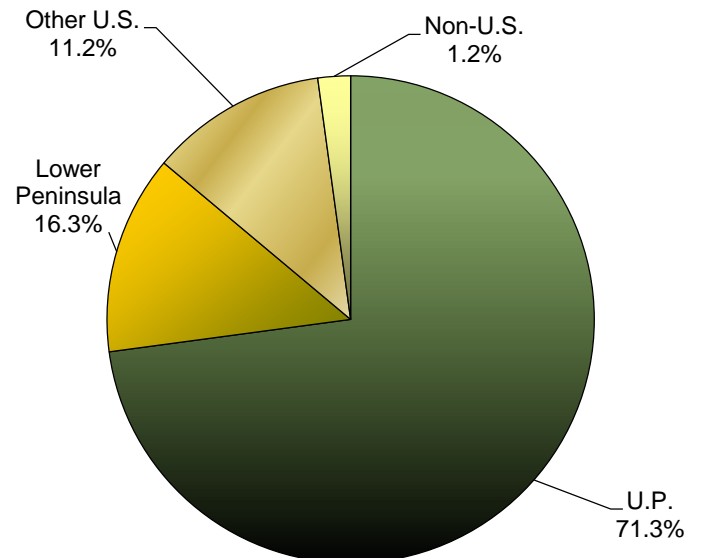
Undergraduate

(n = 7,082)



Graduate

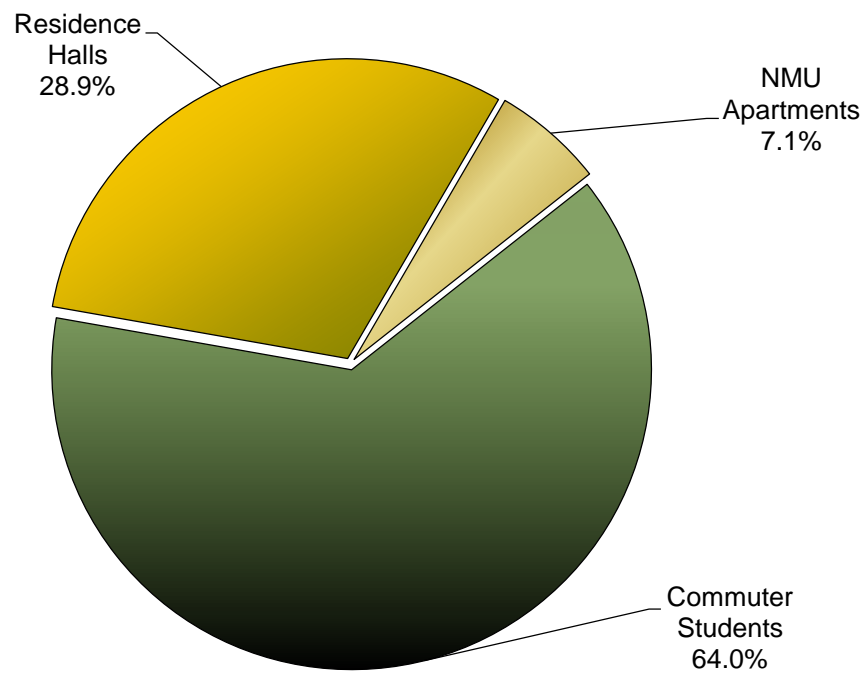
(n = 668)





Enrollment

Where NMU Students Live Fall 2016 (n = 7,750 – 10th Day of Class)

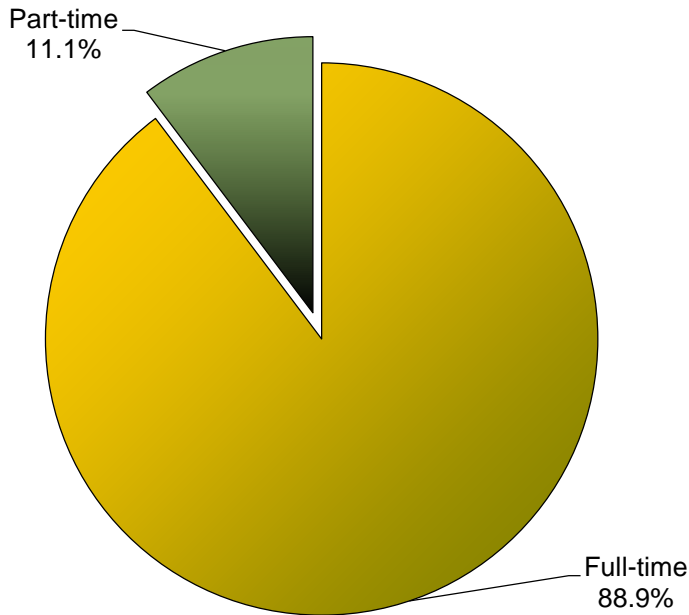




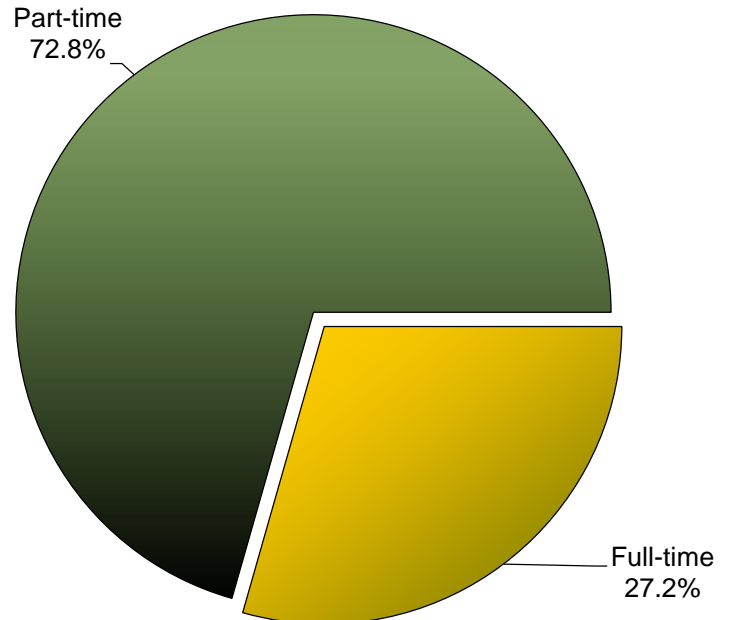
Enrollment

Full-time/Part-time Status Fall 2016 (n = 7,750 – 10th Day of Class)

Undergraduate (n = 7,082)



Graduate (n = 668)

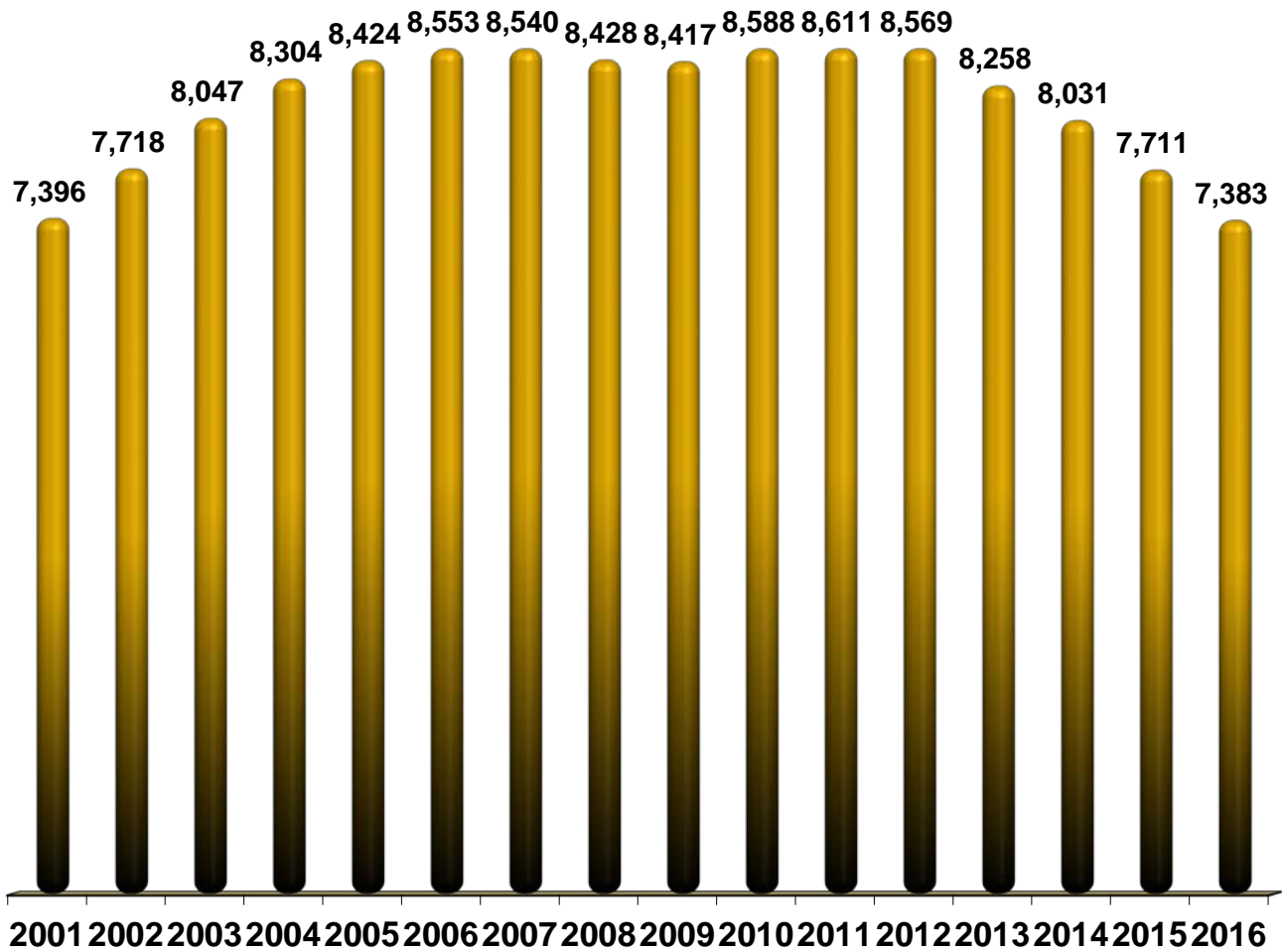




Enrollment

Full Year Equated Student Change

NMU FYES

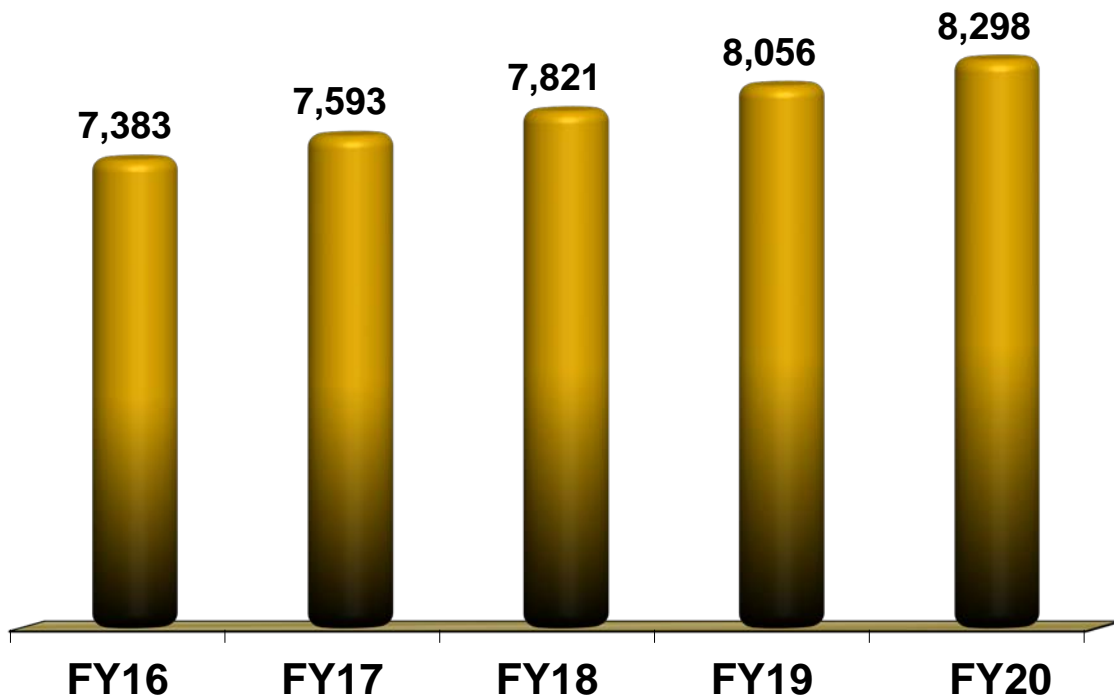




Enrollment

Full Year Equated Student Change (FYES)

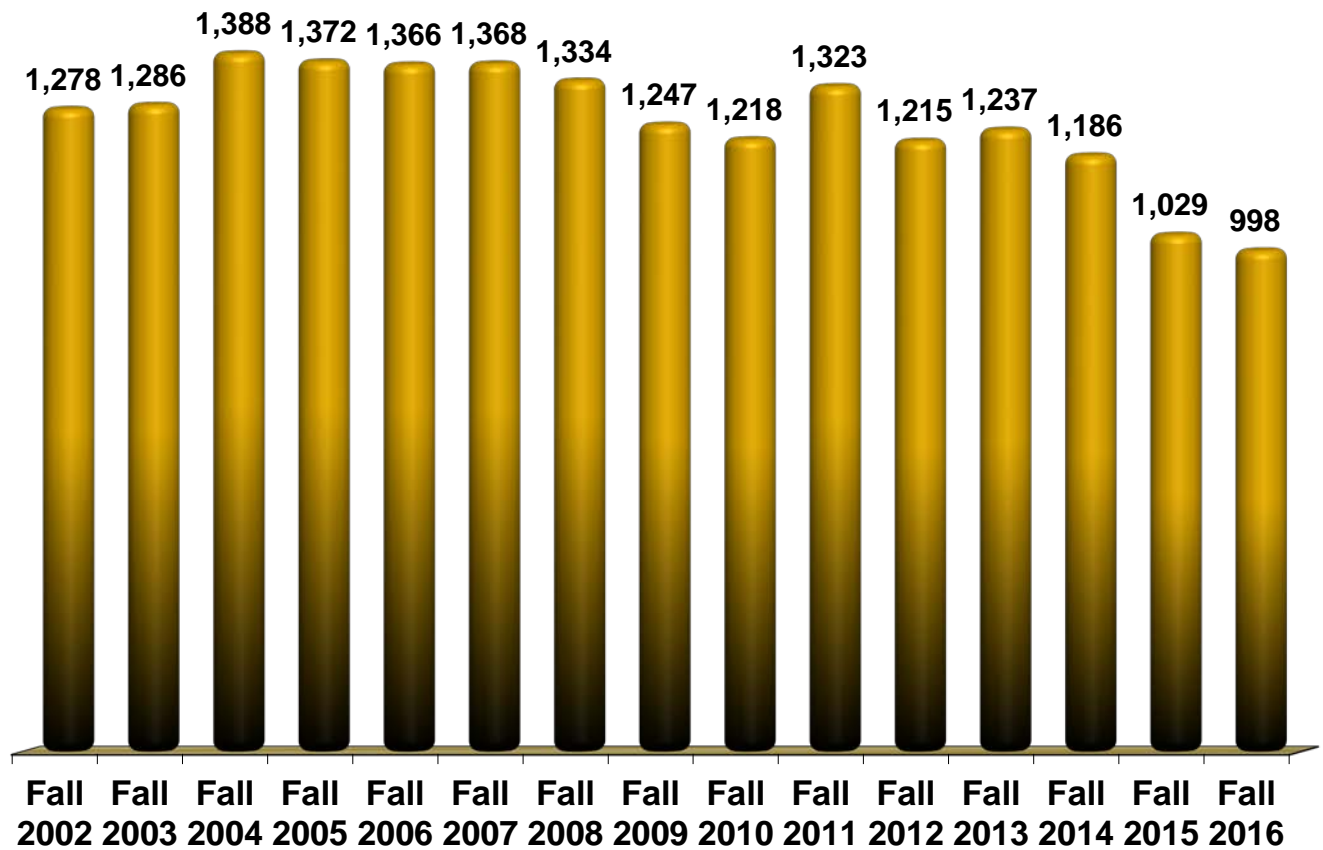
5 Year Projection





Enrollment

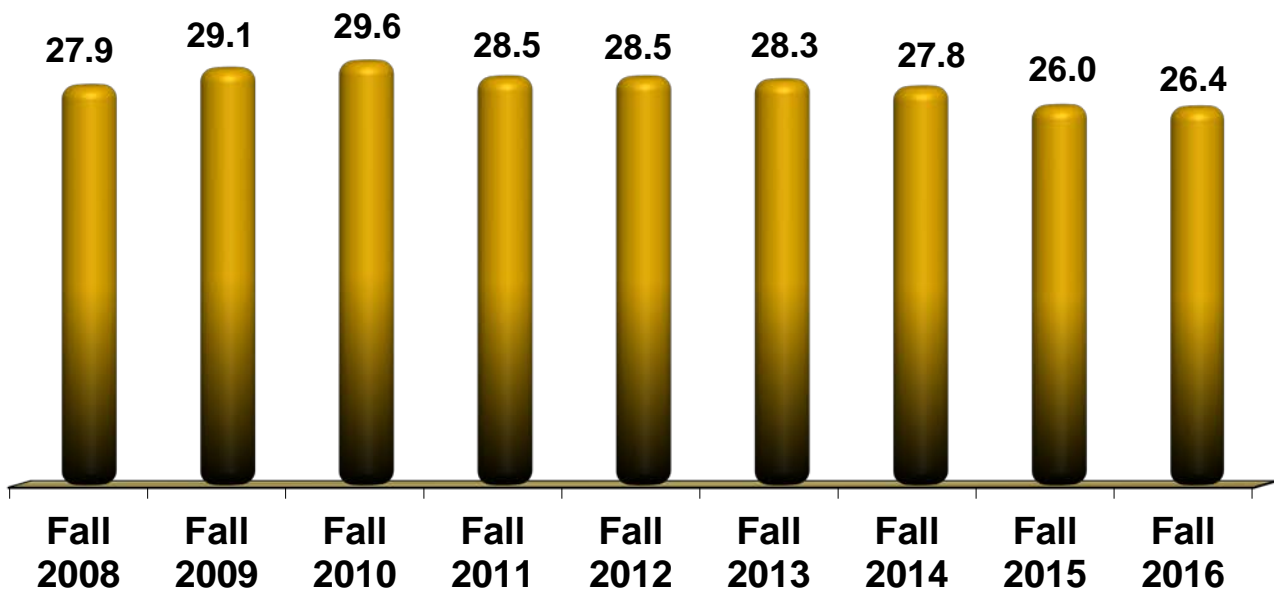
Baccalaureate First-Time, Full-Time New Freshmen





Enrollment

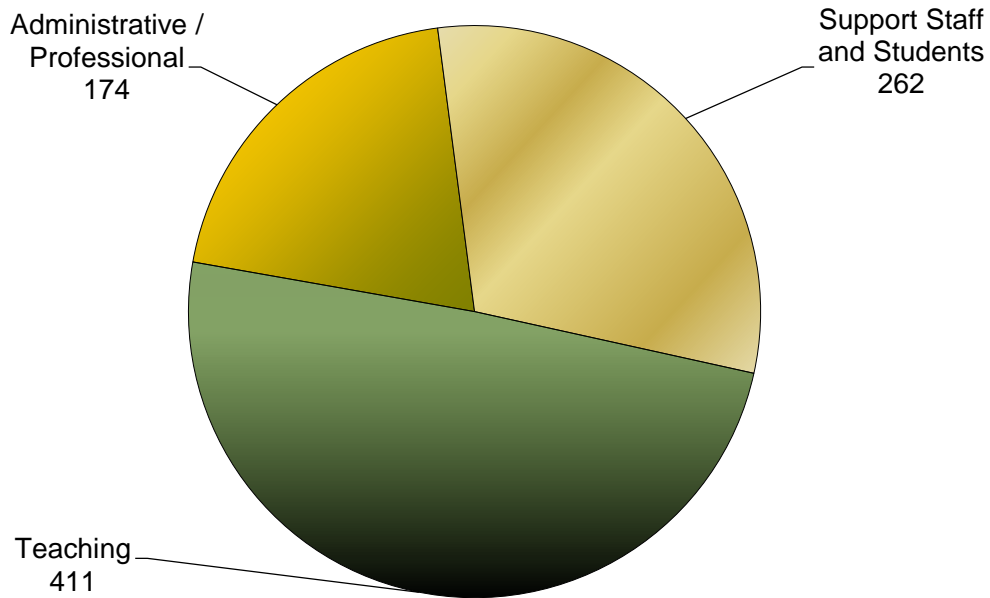
Average Lecture Class Size and Projected Average Class Size





Staffing

2015-2016 Full-Time Equivalent By Employee Category



Staff FTE

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
Instructional Staff	417	423	428	438	433	435	411	411	415	419	426
Administrative/Professional Staff	172	170	172	166	177	173	174	174	175	178	182
Service Staff and Students	267	262	258	262	268	272	262	262	263	265	269

Student (FYES) - to - Staff Ratios

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
Instructional Staff	20.58	20.35	20.02	18.85	18.55	17.73	17.96	18.47	18.85	19.23	19.48
Administrative/Professional Staff	49.98	50.62	49.81	49.75	45.37	44.57	42.43	43.64	44.69	45.26	45.59
Service Staff and Students	32.20	32.85	33.21	31.52	29.97	28.35	28.18	28.98	29.74	30.40	30.85



Section IV

Facility Assessment



Introduction

In 2001, the University contracted to develop a comprehensive Facility Condition Analysis, or benchmark, for 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. Each year, the Facilities Department staff updates these reports to ensure current maintenance needs are identified and projected costs are kept current.

The Facility Condition Analysis reports are used to prioritize, budget, and plan yearly maintenance projects to be completed by both internal departments and external contractors.





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, the University is in the process of enhancing its utility meters to provide reliable data to improve budget development, billing accuracy, and energy saving analysis. In the spring of 2009, an energy consultant was contracted to broadly survey each stateside building. This report provided estimates on construction cost with resultant projected savings and return on investment. Several projects have been implemented, such as the installation of variable frequency drives on fans and feed water pumps at the Ripley Heating Plant, campus-wide steam trap replacement, and WiMAX power reduction in residence halls, along with multiple boiler replacements in campus apartments. The University has applied for energy incentive rebates on several of these projects.

In the spring of 2010, an energy services company was contracted with to conduct an energy audit and conditions assessment of the Jacobetti Complex and the University Center buildings. The two facilities presented a significant opportunity for savings through HVAC and lighting upgrades, water conservation improvements, and installation of a new facility management systems to provide optimal control during occupied and unoccupied times. Phase I improvements were completed in fall 2010, and significant energy reduction has been observed. The consultant was retained to measure and verify the savings for five years after completion.

Phase II of this project focused on the highest utility consuming buildings on campus. The energy services company again performed comprehensive energy conservation audits, determined the energy consumption and operational characteristics of the facilities and identified the facility improvement measures (FIMs), procedures, and other services that could be implemented in order to reduce NMU's energy and other operating costs for the facilities. Construction began in the



NMU and Sustainability

spring of 2011 and was completed in August 2012. The energy savings, operational savings, and cost avoidance achieved from the improvement measures in both phases are approximately \$600,000 for a return on investment over a period of 12 years or less, using a 5% interest rate. The performance of the FIMs, services, and reduced energy consumption were guaranteed by the energy services company.

The University has evaluated Phase III and moved forward with replacing the facility management system in the Superior Dome in 2014. The replacement of the facility management system in the Fine Arts Complex is being phased in over time to capture additional energy savings.

The Facilities staff continues to review building systems and determine energy saving improvements. One such improvement was the installation of LED lighting in the Superior Dome field area to provide general lighting and allow the higher wattage HID field lighting to be off during building low use times. The energy savings along with the utility company rebate provided for a six month payback.

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 8:00 am and 5:00 pm 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 of 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. As further commitment, two NMU staff members have attained the status of LEED Accredited Professional to help guide building design efforts. The new Jamrich Hall has achieved a LEED Certified endorsement.

In Fall 2016, construction began on a four story, six building residence hall complex which will replace four existing residence halls. This project will seek LEED Silver Certification.

Facility Operations

The Facilities Department has adopted a new cleaning method titled "Process Cleaning." This system provides building occupants with a cleaner and healthier work environment. This process started in Fall 2014 and has grown to ten campus buildings in Fall 2016. Additionally, this process uses less chemicals and equipment that has HEPA filters reducing pollutants in the buildings.

Recycling

Since 1992, the university has diverted more than 12,000 tons of material from the landfill through its recycling program. In 2007, this effort was expanded to include used batteries, along with a "single sort" program, to make first-line recycling efforts easier for students, faculty, and staff. Fluorescent lamps, computer components, waste oil, and antifreeze are products that are also recycled by the university. The university's housing operations have instituted an extensive sustainability and recycling program within its residence halls that has been well embraced by students. The battery recycling program has expanded through an agreement with the county landfill that utilizes a hammer-mill to pulverize the household batteries and recycle the material as it is separated.

All building renovation and construction projects require participants to record tonnage of recycled metal, cardboard, and organic building materials. This information is essential to the LEED certification process.

A new trash and recycling process was phased into four buildings beginning Summer 2015. As of Fall 2016, ten buildings have adopted the new process, with additional buildings to follow in Winter 2016. 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.



NMU and Sustainability

Product Selection/Operational Policies

NMU is examining the products it purchases as part of its sustainability effort. The use of biodegradable “spudware,” cutlery manufactured from 80% potato starch and 20% soy oil, drink containers made from corn starch that biodegrade 60 days after use, and recycled paper napkins, plates, and cups have all been implemented in the university’s dining halls. Also, a food pulper was installed in one of the dining halls to reduce food waste volume. This waste product can be composted and the University has been in discussion with the Marquette County Landfill, which has built a certified composting site to accept the waste product. Dining Services has changed operational policies to going trayless within campus dining halls to help reduce waste. The university also utilizes green cleaning products for most of its applications. In 2010, the NMU Golf Course began using soy biobased products for its operation which include multi-purpose grease, lubricants, coolants and penetrating oils. They tested RePLAY, a soy-based asphalt preservation agent on cart paths.

Grounds Maintenance

In Spring 2016, Northern Michigan University adopted a “No Mow” program. Under this program the campus grounds were evaluated to determine areas where use of mechanical mowing could be eliminated. Six locations across campus were selected. These areas were 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 and to improve community awareness, the Facilities Department has produced a Sustainability website displaying recent energy and utility consumption, along with tips to help conserve energy. In Fall 2016, a university Sustainability Committee was formed to help guide the campus community into becoming a greener place to work and live. The first year the committee will create an inventory of all the sustainable efforts that have been done across campus.



Facilities Assessment

◆ NMU Physical Plant Overview

- ▶ 58 Buildings
 - ▼ 3.3 million square feet
- ▶ 864 acres
 - ▼ 356 acres on main campus
 - ▼ 142 acres – English Property
 - ▼ 160 acres - Longyear Forest
 - ▼ 206 acres – South Marquette
- ▶ 3.6 miles of roadway
- ▶ 13.95 miles of sidewalk





Facilities Condition Cost Analysis by Priority Class For all State Buildings

Building Name	Immediate	Year One	Year Two to Five	Year Six to Ten	Grand Total
ADA B. VIELMETTI HEALTH CENTER		\$6,749	\$28,959	\$98,808	\$134,516
ART AND DESIGN NORTH		\$96,588	\$6,946	\$980,642	\$1,084,176
BERRY CENTER LINK		\$1,864	\$3,602	\$34,747	\$40,213
BUS GARAGE		\$427	\$21,573	\$4,148	\$26,148
BUTLER BUILDING		\$24,909	\$47,754		\$72,663
C. B. HEDGCOCK				\$564,467	\$564,467
CAMPUS SECURITY			\$445,657		\$445,657
DOME / PEIF LINK			\$284	\$22,290	\$22,575
EVENTS CENTER	\$244,860	\$0	\$19,134	\$586,203	\$850,197
FOREST ROBERTS THEATRE		\$492,417	\$613,986	\$161,824	\$1,268,227
GLENN T. SEABORG SCIENCE COMPLEX	\$3,611	\$64,966	\$100,386	\$1,061,379	\$1,230,342
HARDSCAPE	\$10,592	\$18,806	\$190,738	\$1,218,112	\$1,438,248
HARRY D. LEE HALL	\$153,452	\$371,598	\$5,081,539	\$228,495	\$5,835,083
JACOBETTI CENTER		\$204,337	\$264,237	\$3,879,056	\$4,347,630
JACOBETTI STORAGE		\$24,911	\$4,971	\$65,843	\$95,724
KAYE HOUSE			\$45,306	\$2,311	\$47,617
LEARNING RESOURCE CENTER	\$108,478	\$770,669	\$12,956,403	\$3,109,065	\$16,944,615
LRC/WS LINK		\$3,271	\$9,124	\$24,833	\$37,228
McCLINTOCK BUILDING		\$165,999	\$653,114	\$952,180	\$1,771,293
PHYSICAL EDUCATION INSTRUCTION FACILITY		\$1,935,914	\$2,442,935	\$1,782,700	\$6,161,550
RIPLEY HEATING PLANT		\$5,596	\$173,466	\$44,243	\$223,304
SAM M. COHODAS ADMINISTRATIVE CENTER	\$12,374	\$60,868	\$3,372,225	\$4,699,618	\$8,145,084
SERVICES BUILDING			\$139,316	\$291,968	\$431,284
SUPERIOR DOME			\$1,818,085	\$1,865,876	\$3,683,961
THOMAS FINE ARTS		\$523,309	\$618,937	\$1,266,688	\$2,408,935
UC/GRIES LINK		\$11,830		\$61,070	\$72,900
UTILITY INFRASTRUCTURE	\$232,026	\$121,951	\$28,219,318	\$434,677	\$29,007,972
WALTER F. GRIES HALL		\$518,625	\$2,252,550	\$1,236,993	\$4,008,168
Grand Total	\$765,393	\$5,425,602	\$59,530,546	\$24,678,236	\$90,399,777



Facilities Condition Cost Analysis by Priority Class For all Auxiliary Buildings

Building Name	Immediate	Year One	Year Two to Five	Year Six to Ten	Grand Total
CENTER STREET APARTMENTS	\$50,020	\$400,434	\$4,292,932	\$558,966	\$5,302,353
CHARLES C. SPOONER RESIDENCE HALL	\$105,489		\$6,704,580	\$470,185	\$7,280,254
DON H. BOTTUM UNIVERSITY CENTER	\$167,643	\$109,793	\$16,072,547	\$2,678,807	\$19,028,791
GANT HALL	\$71,358	\$91,368	\$6,097,020	\$1,781,715	\$8,041,461
GUNTHER C. MEYLAND RESIDENCE HALL		\$87,000		\$225,450	\$312,450
HALVERSON HALL	\$199,488	\$23,225	\$5,575,187	\$1,787,163	\$7,585,062
LINCOLN STREET APARTMENTS	\$139,912	\$493,682	\$5,135,251	\$1,451,011	\$7,219,857
LUCIAN F. HUNT RESIDENCE HALL		\$88,880	\$241,693		\$330,573
MAGERS HALL		\$86,400		\$241,693	\$328,093
MAUDE L. VAN ANTWERP RESIDENCE HALL		\$88,400		\$241,693	\$330,093
NORWOOD STREET APARTMENTS	\$61,225	\$976,139	\$4,263,325	\$146,159	\$5,446,848
QUAD 1	\$18,310	\$166,727	\$1,851,628	\$340,529	\$2,377,193
QUAD 2	\$97,096	\$933,521	\$4,101,453	\$651,449	\$5,783,518
SPALDING HALL	\$131,410	\$462,688	\$5,770,417	\$1,752,404	\$8,116,919
SUMMIT STREET					\$3,832,400
WILBUR D. WEST RESIDENCE HALL	\$73,934	\$183,721	\$6,184,739	\$542,361	\$6,984,755
WILKINSON HOUSE			\$176,755		\$176,755
WOODLAND PARK APARTMENTS		\$145,000		\$341,250	\$486,250
Grand Total	\$1,115,884	\$4,336,978	\$66,467,527	\$13,210,836	\$88,963,626

FACILITIES ASSESSMENT SUMMARY

Building	Service Area	2016-2017 Replacement Cost	Year Constructed	Gross Square Footage	Net Square Footage	Use Code	Standards	Accessibility	Electrical	Exterior	Fire	Health	HVAC	Interior	Plumbing	Security	Site	Maintenance Project Total
Vielmetti Health Center	Academic/Admin	Included with Gries Hall	1961 / 2001	7,838	7,038	AD		\$21,044	\$583		\$12,977			\$94,741	\$1,375	\$3,796		\$134,516
L.S. West Science Building	Academic/Admin	\$52,014,992	1966	159,319	136,241	CL	1,4											
New Science Facility	Academic/Admin	\$40,679,818	2000	124,600	109,538	CL,CH	1,3	\$2,421	\$741	\$93,825	\$52,233			\$1,058,959		\$22,163		\$1,230,342
Ripley Heating Plant	Academic/Admin	\$31,807,060	1965 / 2013	35,190	27,634	PP	1		\$9,811	\$164,071	\$5,759		\$25,440	\$5,628	\$12,596			\$223,305
John X. Jarrich Hall	Academic/Admin	\$31,304,905	2014	133,000	117,575	CH	1											
C.B. Hedcock	Academic/Admin	\$30,893,447	1958 / 2005	116,745	99,210	AD	1							\$564,467				\$564,467
Sam M. Cohodas Hall	Academic/Admin	\$27,787,828	1975	105,009	92,376	AD	1	\$370,954	\$356,081	\$1,870,444	\$489,881		\$4,146,728	\$893,907		\$17,090		\$8,145,085
Art & Design North	Academic/Admin	\$26,840,212	1996	101,428	83,550	CL	1	\$18,693	\$74,595	\$466,359	\$19,822		\$150,907	\$322,430	\$16,050	\$15,319		\$1,084,175
Services Building	Academic/Admin	\$24,882,000	1996	94,028	91,225	PP	1		\$45,572	\$32,915				\$342,737	\$9,172	\$888		\$431,284
R. Thomas Fine Arts Building	Academic/Admin	\$23,839,119	1964	90,087	64,217	CH	1	\$51,115	\$369,839	\$663,471	\$259,872		\$509,709	\$522,024	\$29,739	\$3,165		\$2,408,934
W.F. Gries Hall	Academic/Admin	\$15,407,957	1961	58,226	48,564	AD	1,2	\$1,225,268	\$1,051,184	\$273,559	\$171,453		\$532,940		\$741,859	\$11,905		\$4,008,168
Harry D. Lee Hall	Academic/Admin	\$11,248,343	1949	42,507	36,395	AD	1	\$1,041,098	\$739,348	\$505,507	\$443,806		\$1,295,761	\$1,027,710	\$764,592	\$17,262		\$5,835,084
Whitman Hall	Academic/Admin	\$9,499,976	1953 / 2003	35,900	31,000	CH,AD	1											\$0
W. B. McClintock Building	Academic/Admin	\$8,884,728	1964	33,575	32,382	CH	1	\$51,559	\$105,789	\$499,168	\$54,665		\$606,859	\$381,037	\$49,238	\$22,980		\$1,771,295
Forest A. Roberts Theatre	Academic/Admin	\$8,124,993	1964	30,704	22,510	TH	1	\$94,462	\$280,581	\$32,358	\$203,757		\$585,515	\$7,793	\$46,621	\$17,140		\$1,268,227
Kaye House-Official Residence	Academic/Admin	\$2,340,656	1980	8,173	6,599	RS	1		\$10,630	\$915			\$1,396	\$34,676				\$47,617
LRC/West Science Link	Academic/Admin	\$1,795,204	1996	6,784	5,376	BC	1	\$10,316			\$3,271			\$23,641				\$37,228
Jacobetti Storage	Academic/Admin	\$1,607,587	1988	6,075	5,820	ST	1	\$1,047		\$13,498	\$24,911			\$28,422		\$27,846		\$95,724
Hedcock/TFA Link	Academic/Admin	\$832,241	2004	3,145	2,977	BC	1											
UC/Gries Link	Academic/Admin	\$806,837	1995	3,049	2,740	BC	1	\$34,687		\$24,172	\$11,830			\$2,211				\$72,900
Butler Building	Academic/Admin	\$730,864	1950	6,380	6,411	ST	1		\$10,562	\$2,074	\$60,027							\$72,663
Salt Barn	Academic/Admin	\$510,459	1996	4,456	4,115	ST	1											\$0
1020 Wright Sreet - Fab Shop	Academic/Admin	\$458,222	Unknown	4,000	4,000	ST	1											
1400 Presque Isle	Academic/Admin	\$432,187	1997	4,762			1											
1020 Wright Street - Industrial Piping	Academic/Admin	\$397,050	Unknown	3,466	5,341	AD	1											
1020 Wright Street - Storage	Academic/Admin	\$366,578	Unknown	3,200	3,200	ST	1											
1020 Wright Street - Storage	Academic/Admin	\$366,578	Unknown	3,200	2,900	ST	1											
E.L. Harden Learning Resource Centre	Academic/Admin	\$343,250	1969	198,781	175,246	CL,LS,SU	1	\$130,282	\$2,313,826	\$1,162,460	\$1,260,865		\$5,456,883	\$2,854,522	\$3,758,305	\$7,472		\$16,944,615
Transmitter Site-Ely Township	Academic/Admin	\$343,151	1972	1,997		PP	1											
Bus Garage - 1901 Enterprise	Academic/Admin	\$284,098	Unknown	2,480	2,437	ST	1							\$14,259	\$4,969	\$1,532		\$26,148
D. J. Jacobetti Vocational Skill Center	Academic/Admin	\$284,098	1980	209,179	193,817	CL	1	\$541,725	\$99,419	\$664,500	\$62,407		\$1,481,864	\$1,144,637	\$220,639	\$152,440		\$4,347,631
Microwave Link (Sty) Morgan Mead	Academic/Admin	\$171,833	1972	1,000	1,000	PP	1											
1020 Wright Street - Storage	Academic/Admin	\$165,189	Unknown	1,442	1,707	ST	1											
Storage Building	Academic/Admin	\$49,830	1998	3,760	3,760	ST	1											
Woodland Park Apartments	Housing	\$24,056,663	2006	105,000	94,757	RS	1				\$145,000			\$341,250				\$486,250
Quad II Common Area	Housing	\$21,420,462	1966	80,947	70,156	RS	1	\$161,160	\$805,362	\$377,909	\$513,789		\$2,961,251	\$908,067	\$50,247	\$5,734		\$5,783,519
Quad I Common Area	Housing	\$19,774,505	1964	74,727	72,473	FS	1	\$47,997	\$140,587	\$206,249	\$172,976	\$92,090	\$778,153	\$474,811	\$451,936	\$12,395		\$2,377,194
Lincoln Street Apartments	Housing	\$19,080,375	1980	84,336	65,122	RS	1	\$2,201,644	\$1,344,887	\$278,551	\$594,574			\$934,219	\$1,704,024	\$147,391	\$14,566	\$7,219,856
G.C. Meyland Residence Hall	Housing	\$14,593,688	1966 / 2006	63,697	58,849	RS	1				\$87,000			\$225,450				\$312,450
M.L. Vanantwerp Residence Hall	Housing	\$14,577,880	1967 / 2007	63,628	53,481	RS	1				\$88,400			\$241,693				\$330,093
L.F. Hunt Residence Hall	Housing	\$14,561,155	1967 / 2008	63,555	50,349	RS	1				\$88,880			\$241,693				\$330,573
M.K. Magers Residence Hall	Housing	\$14,337,542	1966 / 2005	62,579	50,794	AD	1				\$86,400			\$241,693				\$328,093
W.D. West Residence Hall	Housing	\$13,299,440	1960	58,048	49,594	RS	1	\$2,093,029	\$1,040,429	\$402,267	\$237,555			\$1,098,995	\$2,020,730	\$56,842	\$34,910	\$6,984,757
G.A. Spalding Residence Hall	Housing	\$12,818,536	1964	55,949	48,204	RS	1	\$1,721,730	\$1,022,190	\$511,226	\$498,895		\$1,628,039	\$896,797	\$1,761,433	\$37,000	\$39,609	\$8,116,919
L.H. Halverson Residence Hall	Housing	\$12,818,536	1965	55,949	48,049	RS	1	\$1,670,713	\$1,022,190	\$331,529	\$268,299		\$1,628,039	\$826,251	\$1,761,433	\$37,000	\$39,609	\$7,585,063
L.O. Gant Residence Hall	Housing	\$12,813,954	1964	55,929	48,078	RS	1	\$2,154,847	\$1,021,853	\$320,993	\$157,652		\$1,627,432	\$921,002	\$1,761,073	\$37,000	\$39,609	\$8,041,461
C.C. Spooner Hall	Housing	\$12,632,269	1957	55,136	38,637	RS	1	\$1,853,192	\$926,587	\$190,674	\$249,239		\$1,678,660	\$548,295	\$1,757,584	\$48,498	\$27,525	\$7,280,254
Center Street Apartments	Housing	\$10,900,418	1967	26,144		RS	1	\$598,837	\$988,672	\$532,326	\$423,317	\$782,516	\$810,510	\$1,111,303	\$19,103	\$35,769		\$5,302,353
Norwood Street Apartments	Housing	\$8,049,588	1967	35,134	33,324	RS	1	\$719,523	\$1,026,150	\$377,011	\$447,229		\$901,513	\$743,817	\$1,183,268		\$48,336	\$5,446,847
Summit Street Apartments	Housing	\$7,248,160	1958	47,659		RS												\$3,832,400
1500 Wilkinson Avenue	Housing	\$962,267	1952	4,623	2,742	RS	1		\$64,715	\$35,445			\$2,255	\$25,277	\$9,117	\$39,947		\$176,756
PEIF/Berry Events Center Link	Intercollegiate Athletics/Rec.	\$47,533,489	1999	10,092	8,936	BC	1	\$3,602	\$1,864					\$34,747				\$40,213
Berry Events Center	Intercollegiate Athletics/Rec.	\$35,210,776	1999	133,060	75,740	CG	1		\$142	\$19,134	\$719		\$510,023	\$320,178				\$850,196
Phys. Ed. Instruction Facility	Intercollegiate Athletics/Rec.	\$26,840,212	1976	179,627	161,298	CG	1	\$72,856	\$1,110,465	\$783,108		\$11,666	\$431,025	\$1,431,325	\$2,321,104			\$6,161,549
Superior Dome	Intercollegiate Athletics/Rec.	\$12,632,269	1991	251,436	213,296	CG	1	\$33,236	\$1,670,007	\$243,779			\$142,577	\$1,484,219	\$105,990	\$4,154		\$3,683,962
Dome/PEIF Link	Intercollegiate Athletics/Rec.	\$728,218	1991	2,760	2,466	BC	1		\$284	\$13,185	\$2,823		\$6,283					\$22,575
Dome Storage	Intercollegiate Athletics/Rec.	\$481,133	1998	2,800	2,592	ST	1											
Dow Storage	Intercollegiate Athletics/Rec.	\$296,928	2002	1,728		ST	1											
Don H. Botton University Center	University Center	\$39,345,780	1959 / 1996	148,686	133,362	AD,SU,FS	1	\$539,002	\$2,504,172	\$3,193,303	\$266,319	\$488,697	\$4,989,642	\$4,166,960	\$2,861,460	\$19,236		\$19,028,791
1716 Presque Isle Building	University Center	\$1,312,182	1960	6,300	6,300	RS	1											
1422 Presque Isle	University Center	\$1,249,697	1972	6,000	4,256	RS	1											
300 Waldo	University Center	\$343,250	1909 / 2003	1,648	1,648	RS	1											
1804 Tracy Avenue	University Center	\$115,530	1954	2,230		RS	1											
Hardscape								\$16,112			\$10,592							\$1,438,248
Campus Security																		\$445,657
Utility Infrastructure																		\$29,007,973

Deferred Maintenance total has been updated based on project completed in 2015 and remaining projects adjusted by 5% for inflation.

- 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
- UI Utility Infrastructure
- HS Hardscape
- CS Campus Security



Facility Assessment

Long-Term Maintenance

Since September 2015, Northern has addressed long-term maintenance needs of \$5.25 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:

- *821 Center St. & 821 Summit St. Apartments Demolition*
- *Beaumier Alumni Welcome and U.P. Heritage Center*
- *Berry Event Center Exterior Wall Restoration*
- *Berry Event Center Scoreboard Replacement*
- *Cosmetology Lab Renovations*
- *Fire Alarm System Replacement in Multiple Buildings*
- *Forest Roberts Theatre Lobby Renovations*
- *Forest Roberts Theatre Mechanical System Upgrades*
- *Forest Roberts Theatre Roof and Smoke Damper Replacement*
- *Gries Hall Chiller and Energy Management System Replacement*
- *Lincoln Street Townhouse and Apartment Renovations*
- *New Science Facility Heat Recovery Coil Replacement*
- *Parking Lot Repairs*
- *Payne Hall Demolition*
- *PEIF Heat Exchanger Bundle Replacement*
- *Security System Cameras*
- *Wayfinding/Building Sign Replacement*
- *West Hall Exterior Façade and Heating System Upgrades*

When buildings are renovated, long term maintenance projects are incorporated whenever possible. This fiscal year, general fund monies totaling \$1,709,500 have been allocated to address long term maintenance items.

Space Utilization Initiatives

NMU's room scheduling/utilization software has been utilized since the fall 2007 semester for majority of all class scheduling. This tool allows the university to optimize course scheduling and evaluate/improve both room and building utilization.

To help direct the utilization of space on campus, the university has established a Space Utilization Committee. This committee helps identify space deficiencies, provide the administration with space utilization information, and develop recommendations to effectively manage campus facilities. During the fall of 2009, the committee recommended the adoption of priority and consolidation scheduling.



Facility Assessment

Space Utilization Initiatives (continued)

This effort requires close coordination between the Registrar's office and the Facilities Department to concentrate evening and weekend courses to select buildings or select areas within buildings allowing heating, cooling, and lighting systems to be turned off or down reducing energy/operational costs. NMU successfully implemented this scheduling practice during the Winter 2010 semester and each subsequent semester with positive results.

As part of the Jamrich Hall Replacement Project, NMU conducted a comprehensive review of campus classroom and administrative space. The results revealed an average classroom utilization rate of 22 weekly room hours (WRH's), well below the national standard of 28.5 to 31.5 WRH's. The review also indicated that approximately 77% of course offerings had an enrollment of 40 or less; while only 28% of the classroom stock had a matching capacity. This indicated that room capacity was not being maximized. As a result of the evaluation, the new Jamrich Hall was constructed with fewer large lecture halls, more 30 and 40 seat classrooms better aligning the classroom inventory with current course demand, and fostered the development and implementation of standard scheduling patterns to maximize classroom utilization.



Facility Assessment

Space Report

Space Utilization reports for general use facilities have been developed; however, these reports reflect formally scheduled classes only. Events such as open lab hours are not reflected in the current reports, reducing the reported classroom utilization rates. To improve the University's reporting capability and better manage its space, the University implemented a new schedule software system during Winter Semester 2016 that will enable all campus 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 2016 (Monday/Friday - 10:00am – 3:00pm)

Building	# of Classrooms	Average Room Utilization %	Average Seat Utilization %
Edgar L. Harden Learning Resources	4	73%	83%
John X. Jamrich Hall	24	79%	86%
Luther S. West Science Building	16	73%	80%
New Science Facility	2	64%	77%
Russell Thomas Fine Arts	6	73%	62%
Wayne B. McClintock Building	7	71%	66%
Whitman Hall	2	64%	96%
Total	61	74%	81%

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

Space Distribution

To help develop many of the building initiatives outlined in the Campus Master Plan, the University classified all of its existing space and then compared the spatial distributions with similar institutions to identify opportunities for expansion or the repurposing of existing space to improve space utilization. This benchmarking of existing space, and comparing it with peer institutions, identified space deficiencies: study/library space and general use/student union space. This data supports the need voiced by students and staff, and reaffirms many of the future building opportunities identified in the Campus Master Plan and those identified in Section V of this plan.



Assessment of Campus Utilities System

Water

NMU has 79,247 linear feet of water lines on campus and tries to update aging water mains during new construction, as permitted. Since 1996, 4,718 feet of water main has been replaced or installed in conjunction with various projects. Also, NMU, in cooperation with the City of Marquette, installed seven master water meters around the university to simplify and ease the reading required for university usage. In addition to these meters, the university calibrates and maintains all building meters and compares the readings to the master meters to verify the City's billing statements and help detect water loss. During the summer of 2012, 800 feet of new 10" 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, 570 feet of 3" water main was abandoned with the demolition of 821 Center and 821 Summit Street Apartments.

Steam

In 1996, NMU completed a major update to its aging main steam distribution system. A total of 27,078 linear feet of un-insulated line was replaced with 13,236 feet of new insulated steam and condensate lines, servicing all major academic buildings on campus. In addition, during the 2000 fiscal year, approximately 500 feet of new line was installed to service the campus apartments on the east portion of campus. NMU installed 875 feet of new steam line servicing the Quad I and 175 feet servicing West Hall during the 2002-2003 fiscal year.

Recent upgrades to the Ripley Heating Plant include the replacement of one 30,000 lbs/hr and one 70,000 lbs/hr boiler with two new 70,000 lbs/hr units. These boilers were operational fall of 2006.

On August 1, 2013, a new combined heat and power plant was completed and fully operational. The wood fired boiler produces steam to supply existing campus heating, cooling, and domestic hot water loads and to produce electricity via a new steam turbine generator. Also, approximately 240 feet of new steam and condensate lines were installed to serve the new Jamrich Hall in 2013. During Summer 2016, 525 feet of steam and condensate line have been abandoned with the demolition of 821 Center and 821 Summit Street Apartments.





Assessment of Campus Utilities System

Electric

During 2003, the university installed approximately 61,000 feet of high voltage cable to update the primary conductors, replaced three oil-filled loop switches, and all existing 15KV switchgear had new fault indicators and fuses installed.

In 2006, the university replaced the original 40 year old electric switchgear in the Ripley Heating Plant that serves the majority of buildings on campus. The change has increased system reliability, provided capacity to split the campus electrical distribution loops to meet future expansions, and provided better coordination with utility protection.

In 2014, the underground high voltage cables were removed feeding the former Jamrich Hall and new cables were run to the new Jamrich Hall.

In 2015, thirty exterior 400 watt metal halide street poles and light fixtures along the Jacobetti Complex roadway were replaced with new LED fixtures.

In 2016, the 12.47 kV feed to Payne Hall was removed with its building demolition.

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.

Phone

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 current plant system is considered to be in very good condition with existing infrastructure for a fiber optic ring to provide a redundant path between the main server rooms on campus.

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.



Assessment of Campus Utilities System

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 2004 construction season, a section of aging sewer pipe and three new sanitary manholes serving the new Student Services Center, the newly renovated Thomas Fine Arts building, and the new Art and Design addition were replaced/installed to help alleviate an existing maintenance problem of an aging line, and to allow access to an inaccessible section of pipe. 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		\$ 3,020,914



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' access drive was constructed to the Sports and Recreation Complex to improve vehicle ingress and egress to the site.

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 ten 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.



Assessment of Campus Infrastructure

Parking (6,603+ spaces total)

Improvements:

Current parking lot conditions vary on campus and construction type range from paved parking with curb and gutter to unimproved gravel lots. During the 2004 construction season, Lots 28 and 62 were re-constructed to serve the newly renovated Hedgcock Building, Learning Resources Center, and the Fine Arts complex. These two parking lots have been dedicated to faculty and staff to reduce vehicle turnover and help eliminate vehicular and pedestrian conflicts in the core of campus. During the summer of 2012, parking Lot 52 was milled and resurfaced with a new 1 ½" wear course. Asphalt repairs were also made in Lot 8, 12 and 50 and, as a preventive measure, crack sealing was performed in Lot 8, 13, 17, 22 and 58.

During the fall of 2012, parking lot 29 was constructed in association with the Jamrich Hall Replacement project to replace the space displaced with the new building.

During the summer of 2014, Lot 28 was completely reconstructed as part of the Jamrich Hall replacement project.

During the summer of 2015, one hundred 90-degree and fifty eight on-street parking stalls were resurfaced in Lot 37 at the Jacobetti Complex.

During the summer of 2016, Northern Michigan University sold 2.9 acres to the City of Marquette to facilitate the construction of a new Service Center. This parcel contained a 272 space resident student parking lot. The location for the replacement of this parking lot will be determined once the University's new residence hall project has been completed.

Conditions:

Because of the northern proximity of the university, significant amounts of snowfall occur on campus each year. As a result of the harsh winter climate, the campus hardscape structures endure more severe exposure and subsequent deterioration and damage as a result of the operation of snow clearing equipment. The streets and sidewalks are cleared of snow and ice before classes begin each morning. With the average annual snowfall generally being above 150 inches, the clearing of snow from sidewalks and streets are a top priority of the campus operations staff. In 2011, the university maintenance staff evaluated all campus parking lots using the State of Michigan Phaser system to prioritize parking lot repairs. Based on this survey, a long term repair schedule with cost estimates as been developed for parking lot rehabilitation.

Lot #12 (Cohodas) is in the worst condition, followed by Lot #14 (Tracy Avenue).



Assessment of Campus Infrastructure

Sidewalk

There is 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. In 2010, 1,370 feet of 10-foot wide sidewalk between Lot 11 and 36 and between West Hall and the University Center was replaced. 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 the summer of 2013, approximately 600 square feet of sidewalk was replaced near Lee Hall.

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. The majority of the campus currently has 4 single-mode fiber strands and 12-60 multi-mode fiber strands connecting each building, depending on its data requirements. In turn, each individual building is wired internally with Cat 5, Cat 5e, or Cat 6 cable, depending on when the cable was installed; and each individual building also has 802.11 abgn or 802.11ac wireless access points installed.

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, data wiring cable will be Cat 6 or better quality, and wireless access points will be 802.11ac.

In addition to the 802.11ac wireless access points, LTE access points will replace existing 802.16e Mobile WiMAX base stations, or be added as needed, to ensure adequate outdoor and mobile access to the NMU network throughout the campus, the surrounding City of Marquette, and cities surrounding Marquette where students, faculty, and staff live. LTE network coverage will also be expanded to meet the needs of the university community that live outside the City of Marquette within the NMU WiMAX GSA (Geographic Service Areas), a 35 mile radius of the city.



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
2017	\$4,830,000	\$4,172,706	\$9,002,706
2018	4,440,000	3,928,956	8,368,956
2019	4,740,000	3,700,206	8,440,206
2020	5,120,000	3,458,381	8,578,381
2021	5,275,000	3,219,984	8,494,984
Total Five Years	24,405,000	18,480,233	42,885,233
Thereafter			
2022-2026	24,335,000	12,751,816	37,086,815
2027-2031	24,930,000	7,185,931	32,115,931
2032-2036	14,640,000	2,260,478	16,900,478
2037-2041	1,700,000	130,250	1,830,250
Total	90,010,000	\$40,808,710	\$130,818,710
Deferred charge on refunding, net	(3,045,180)		
Deferred re-offering premium	2,038,540		
Total	\$89,003,360		

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

Heating Plant Addition/Services Building

100% obligated Expires 35 years from February 1, 1997, unless earlier terminated

Fine and Practical Arts Project – Art and Design North 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 Building

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

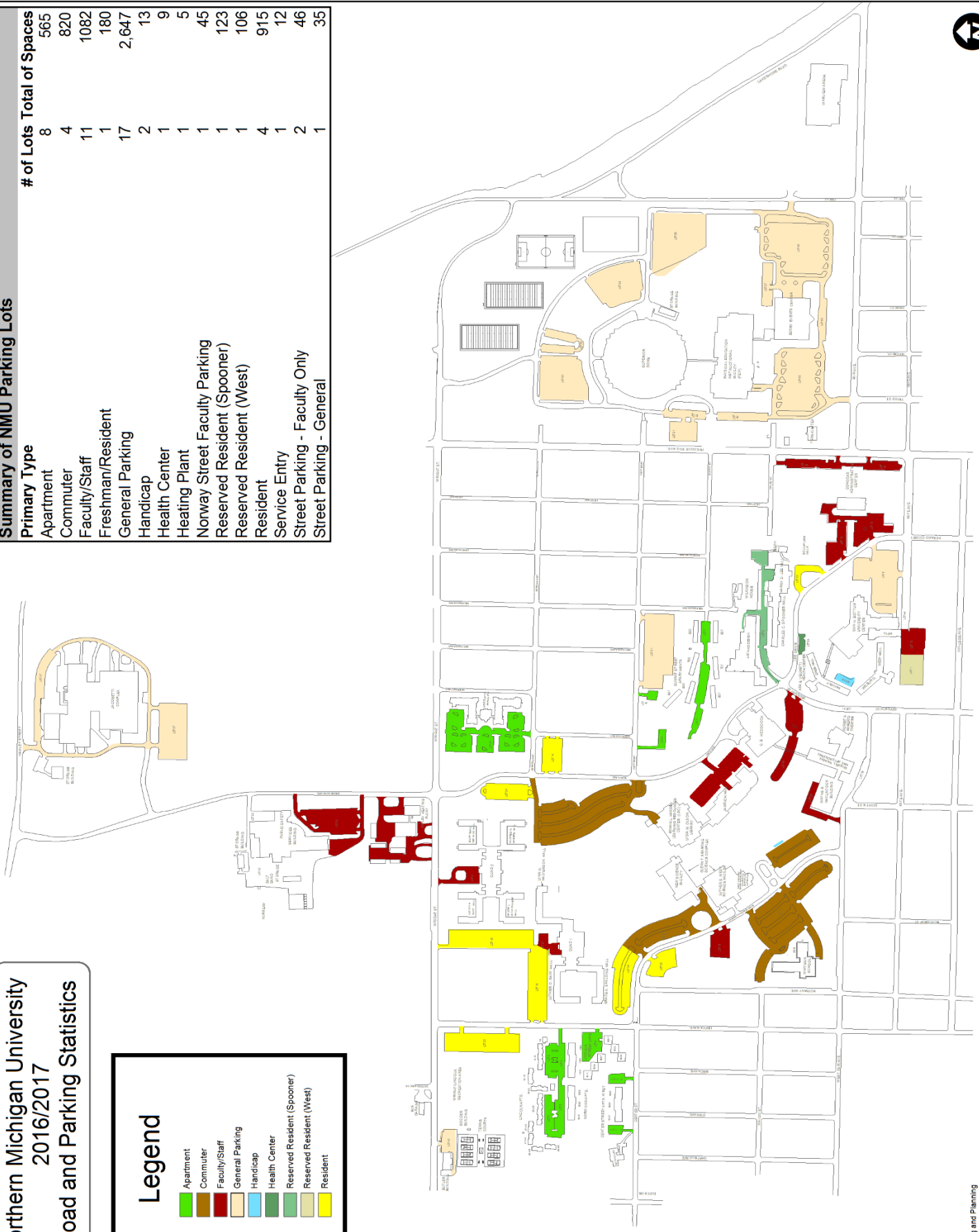
Northern Michigan University 2016/2017 Road and Parking Statistics

Legend

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

Summary of NMU Parking Lots

Primary Type	# of Lots	Total of Spaces
Apartment	8	565
Commuter	4	820
Faculty/Staff	11	1082
Freshman/Resident	1	180
General Parking	17	2,647
Handicap	2	13
Health Center	1	9
Heating Plant	1	5
Norway Street Faculty Parking	1	45
Reserved Resident (Spoonier)	1	123
Reserved Resident (West)	1	106
Resident	4	915
Service Entry	1	12
Street Parking - Faculty Only	2	46
Street Parking - General	1	35





NORTHERN MICHIGAN UNIVERSITY

ASSESSMENT OF UNIVERSITY LAND



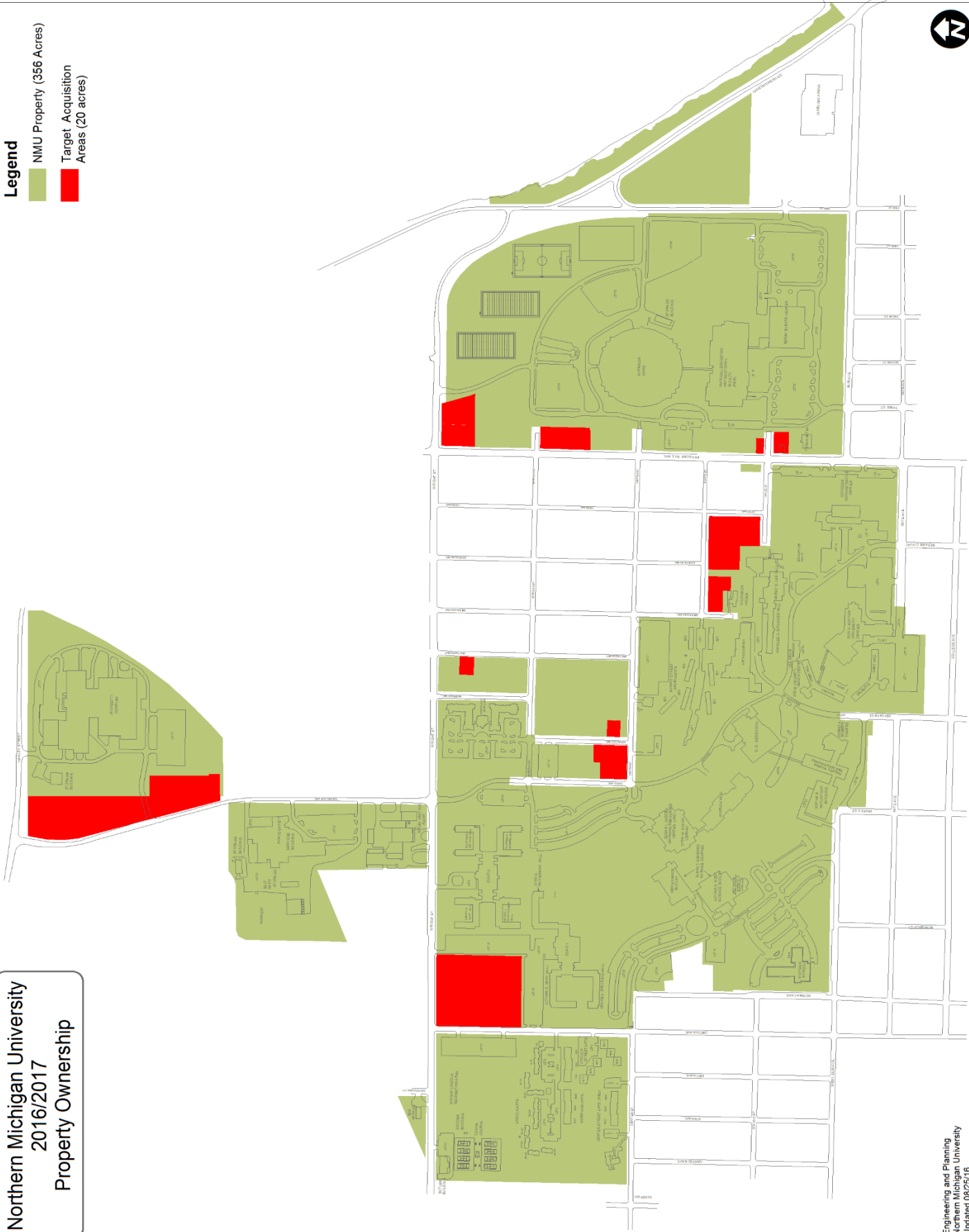
University Land

The University owns 864 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 and 142 acres in Chocolay Township known as the English 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.



Northern Michigan University
2016/2017
Property Ownership

- Legend**
- NMU Property (356 Acres)
 - Target Acquisition Areas (20 acres)





NORTHERN MICHIGAN UNIVERSITY

Section V

Facilities Implementation Plan



Introduction

Northern Michigan University (NMU) is one of the oldest public universities in the State of Michigan, having celebrated our 115th birthday on September 19, 2014. Reaching this milestone is an indication of our past success. Our physical plant was primarily built in the 1960s and 1970s to meet the needs of our students of the past. While great strides have been accomplished in modernizing several of NMU's core campus facilities, the effort of transforming the remaining buildings must continue to accommodate the programmatic needs of today through the development of a state-of-the-art learning environment. 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 Capital Outlay Project Priorities

Technical Career and Engineering Technology Facility

Through this capital outlay request, Northern Michigan University (NMU) plans to revitalize approximately 113,000 square feet of lab, classroom and public space into a vibrant, modern high-tech teaching facility for future engineers and technical career professionals. This renovated facility will not only provide degree seeking students the academic training needed to be successful in industrial, engineering and service related careers, but also the space and equipment required to keep the skill set of those working in these fields up-to-date on current technologies. A distinctive aspect of this facility will be the creation of a “manufacturing design center” utilizing the tools and expertise within its walls to assist upper Michigan entrepreneurs design and develop new products. When complete this facility will educate Michigan’s up-and-coming workforce, maintain the talent of our existing workers and develop new and innovative products all helping to drive Michigan’s economic growth. Finally, Northern Michigan University recognizes a potential opportunity to team with the State of Michigan and the Michigan National Guard to use a portion of this facility as a regional training center for Upper Peninsula National Guard units. The facility improvements for this collaboration have been taken into consideration in the formulation of the request, but are not included.

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 Northern Michigan University College of Business, but would also provide space to enable us 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 2018 Capital Outlay Project Priorities

<i>Priority</i>	<i>Career</i>	<i>Total Project Cost (in thousands)</i>
1	Technical Career and Engineering Technology Facility	\$26,500
2	Academic Teaching and Business Innovation Center	\$12,500



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Institution Name: Northern Michigan University

Project Title: *Technical Career and Engineering Technology Facility*

Project Focus: Academic Research Administrative/Support

Type of Project: Renovation Addition New Construction

Program Focus of Occupants: *Classrooms, Laboratories and Academic Office Space*

Approximate Square Footage: 113,000

Total Estimated Cost: \$26,500,000

Estimated Start/Completion Dates: May 2018/August 2020

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

Is the requested project the top priority in the Five-Year Capital Outlay Plan? Yes No

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

Describe the project purpose:

Through this capital outlay request, Northern Michigan University (NMU) plans to revitalize approximately 113,000 square feet of lab, classroom and public space into a vibrant, modern high-tech teaching facility for future engineers and technical career professionals. This renovated facility will not only provide degree seeking students the academic training needed to be successful in industrial, engineering and service related careers, but also the space and equipment required to keep the skill set of those working in these fields up-to-date on current technologies. A distinctive aspect of this facility will be the creation of a “manufacturing design center” utilizing the tools and expertise within its walls to assist upper Michigan entrepreneurs design and develop new products. When complete this facility will educate Michigan’s up-and-coming workforce, maintain the talent of our existing workers and develop new and innovative products all helping to drive Michigan’s economic growth. Finally, Northern Michigan University recognizes a potential opportunity to team with the State of Michigan and the Michigan National Guard to use a portion of this facility as a regional training center for Upper Peninsula National Guard units. The facility improvements for this collaboration have been taken into consideration in the formulation of the request, but are not included.



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Technical Career and Engineering Technology Facility *(continued)*

This \$27 million building renewal project will build on NMU's success in the use of technology and provide graduates and those being retrained with a greater understanding of subject matter through a collaborative learning environment. The project is specifically intended to target programs in the technology, industrial and service related fields that are currently taught in labs designed in late 1970's. The vision for this project will not only modernize the current teaching spaces for these programs with fresh, high tech facilities, but it will also transform the building itself into a working laboratory. The building's infrastructure – it's 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 of traditional classrooms and laboratories greatly enhancing the impact this project will have on our future work force.

Northern Michigan University plays an integral role in economic development in the region by offering the widest variety of degrees possible. Programs taught within the Technical Career and Engineering Technology Facility include vocational-technical education and STEM programs. Programs within this facility can result in a diploma, certificate, associate degree or baccalaureate degrees depending on the 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 & power plant mechanics in regional and statewide industries such as mining operations, aircraft repair facilities, construction, manufacturing, hospitality and paper and pulp production.

Also located within the facility is the NMU Public Safety Institute. Northern Michigan University's Public Safety Institute 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 47 companies which involved 975 individuals, participating in 877 hours of training.

Northern Michigan University has always been an innovator with implementing technology. NMU 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 career, 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 and when the subject matter permits, our LTE network will provide NMU with the ability to deliver education and training from this new facility to the rural areas of Michigan providing a broader range of skills adding value to the local, regional and state economy.



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Technical Career and Engineering Technology Facility *(continued)*

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 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 our university to continue 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.

Describe the Scope of The Project:

The modernization of NMU's Technical Career 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 by creating ways to expose the buildings HVAC, electrical and building controls systems for students to see and study.
- Improve the building environmental comfort by upgrading the building's thermal envelope, HVAC, air handling and lighting.
- Provides space that is 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.



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Technical Career and Engineering Technology Facility *(continued)*

- Supports active learning pedagogies and changing industry technology requirements.
- Better utilization 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.

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

Programs within the *Technical Career and Engineering Technology Facility* include STEM programs as well as vocational-technical programs, many of which are defined as economic “drivers” and support the state's economic and workforce strategies such as those contained in the recently published State of Michigan Workforce Innovation and Opportunity Act (WIOA) Unified State Plan (July 1, 2016 through June 30, 2020). Engineering Technology produces technicians and engineers that fuel Michigan's economic resurgence by providing trained workers for manufacturing and service industries critical to sustaining growth. Post-secondary career and 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 as well as adult learners, while supporting workforce development by providing demand-driven programs.

The unique structure of the new College of Technology and Occupational Sciences provides an academic environment that will allow for even more flexibility and adaptability to meet the local, regional and statewide workforce needs. Leadership 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 technologies in industry to meet their needs regionally and across the state.

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, 1st-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.



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Technical Career and Engineering Technology Facility *(continued)*

CNC Machine Programmers, Metal & Plastic	37.9% growth
Industrial Machinery Mechanics	25.3% growth
1 st -Line Supervisors of Constr. 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 the anticipated need to adapt to job loss due to reductions within the mining and energy industries, programs within the *Technical Career and Engineering Technology Facility* are uniquely positioned to support economic diversification and help 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 Northern Michigan University'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 vocational-technical and the STEM programs in the Technical Career and Engineering Technology Facility are important to the economy of the region and the state. Regional studies as well as 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 percent and it results in increases in the real wages per worker by 17.8 percent. The return on this renovation will include the not only the increases in the regional economy due to the additional number of students obtaining a post-secondary education but will help to reduce the cost of college to families for those whose high school children attend NMU as dual enrolled or middle college students.

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

The proposed project is integral to the core academic mission of Northern Michigan University. As a regional comprehensive university, our core values include: 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 vocational, technical, or STEM subjects. The student base is primarily regional, supplying Upper Peninsula industry with necessary workers, who, as graduates, have acquired skill sets defined and articulated by regional employers to help grow their companies and improve the region



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Technical Career and Engineering Technology Facility *(continued)*

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. Enhancing that, industry-skilled tradespeople who worked in, and, very often, are still connected with, those industries are used to teach the programs.

Other core values this project will address are Rigor; Opportunity; and Innovation. Flexible labs and 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.

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 utilized for educational collaborations with the local K12 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.



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Technical Career and Engineering Technology Facility *(continued)*

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 meet the current academic and training needs of industry. This new facility will greatly expand the original spirit of the building and adapt it to meet modern technological needs of industry at less than half the cost of construction of a new building.

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

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

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?

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 university 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 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



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Technical Career and Engineering Technology Facility *(continued)*

(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 existing building was designed in the late 1970's and included instructional space for programs that are not part of our current curriculum. New uses have adapted to these spaces with minor updates. While this approach has met program needs, it is less than ideal and created inefficiencies and program fragmentation. While some spaces have high utilization rates ranging from 70% to 72%, others in the building are much lower. This indicates an opportunity to improve adjacencies, increase building efficiency and identify space to be repurposed for other uses.

For example, programs such as welding, industrial maintenance and manufacturing technology will be collocated 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.

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 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 "Certified" will be sought. 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.



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Technical Career 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, if necessary.

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.

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. 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 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. As such, the construction of a replacement facility was not considered for this project. The State of Michigan benefits through the renovation and reuse of this existing facility; optimizing current campus facilities in lieu of the extensive cost for constructing new comparable facilities.



FISCAL YEAR 2018 CAPITAL OUTLAY PROJECT REQUEST

Institution Name: Northern Michigan University

Project Title: Academic Teaching and Business Innovation Center

Project Focus: Academic Research Administrative/Support

Type of Project: Renovation Addition New Construction

Program Focus of Occupants: General Classrooms, Laboratories and Academic Office Space

Approximate Square Footage: 60,350

Total Estimated Cost: \$12,500,000

Estimated Start/Completion Dates: May 2018/August 2019

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

Is the requested project the top priority in the Five-Year Capital Outlay Plan? Yes No

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

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 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 2018 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 2018 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 enhance Michigan's job creation, talent enhancement, 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 2018 CAPITAL OUTLAY PROJECT REQUEST

Academic Teaching and Business Innovation Center (*continued*)

2. *How does the project enhance the core academic 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 professional 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 are being 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 life/safety deficiencies relative to existing facilities? If yes, please explain.*

Yes, a primary focus of this capital outlay project is to address all life/safety issues identified in the current facility assessment including improved fire suppression, exit and emergency lighting etc. The project will address over \$1.9 million 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 2018 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 university 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 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.

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 2018 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 2018 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 ten 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. As such, the State of Michigan will benefit through the renovation and reuse of this existing facility optimizing current campus facilities in lieu of the extensive cost for constructing completely new comparable facilities.

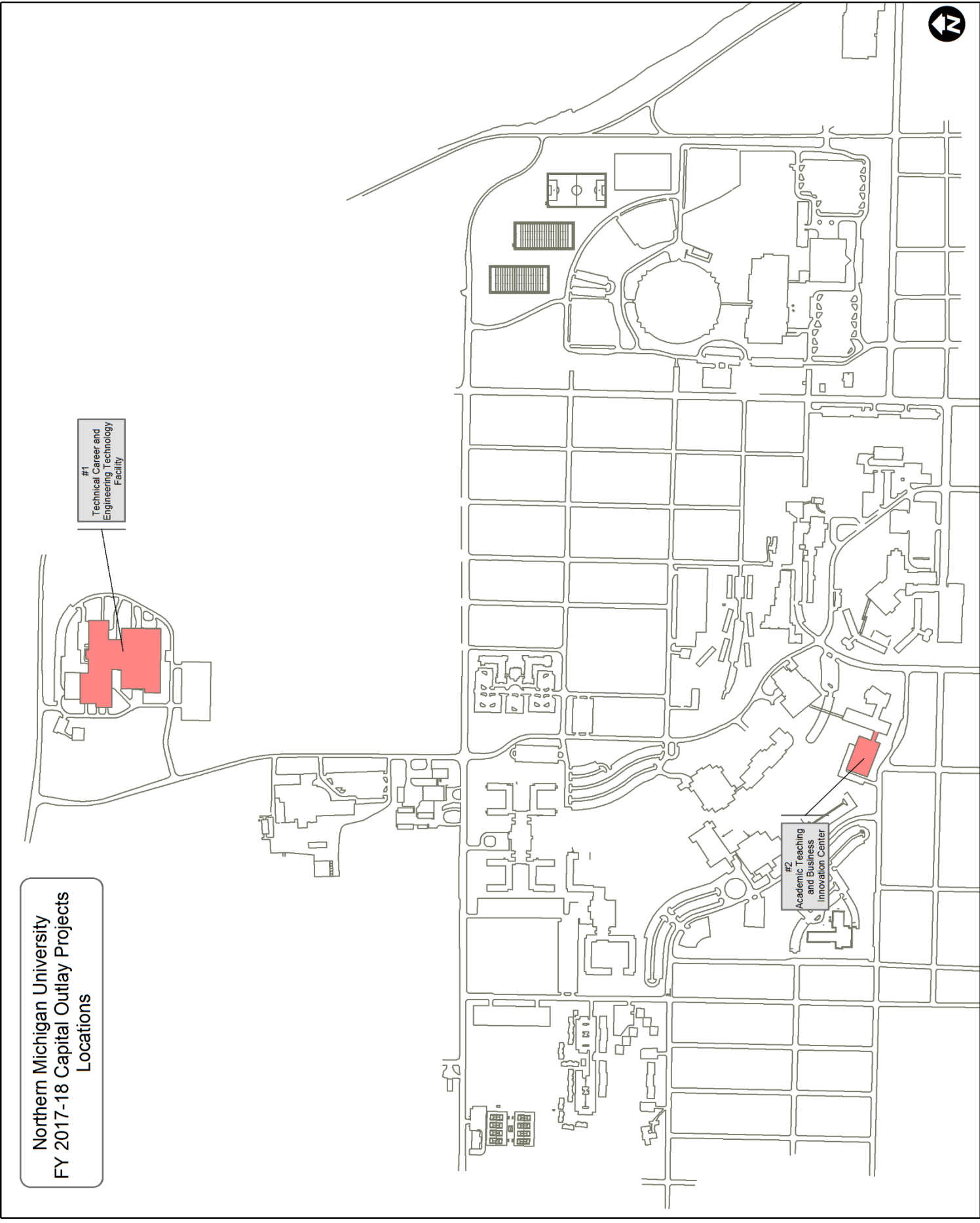




Northern Michigan University
FY 2017-18 Capital Outlay Projects
Locations

#1
Technical Career and
Engineering Technology
Facility

#2
Academic Teaching
and Business
Innovation Center





Status of “In-Progress” State Building Authority Projects

John X. Jamrich Hall Replacement

- **Project Total Cost: \$33.4 million**
- **Public Act 192 of 2012 Construction Authorization Approval**
- **Building was substantially complete on July 28, 2014; building has been in operation for two years.**
- **Project has been completed and closed out as of May, 2016.**

A modern, high-tech classroom facility that improves academic delivery, maximizes building use, and reduces operational and maintenance costs has been constructed to replace the aged Jamrich Hall. As part of a university funded project, the existing facility was demolished in 2014 and green space was constructed in its place enhancing the academic mall.

The new facility has the proper mix of classrooms that are highly flexible and adaptable to changing innovations in teaching pedagogies. The latest wireless technologies provides highly collaborative instructional space for students and faculty. Informal learning spaces are distributed throughout the facility for improved opportunities for students and faculty to interact outside the classroom. A new enclosed pedestrian link connects the new facility to another instructional complex, the Learning Resources Center, allowing for improved barrier free accessibility, and direct access to technology support services.

The new Jamrich Hall has received rave reviews by faculty, staff, and students.





University Projects Completed – November 1, 2015 to November 1, 2016 With a Total Cost between \$500,000 – \$1,000,000

Fire Alarm System Replacement Phase II

The existing fire alarm system in six buildings were replaced and upgraded to incorporate mass notification. The buildings included New Science, West Science, Hedgcock, Whitman Hall, Temaki and Tea, and Invent. Construction was completed in November, 2016 for a project budget of \$850,000 that was funded by capital reserves.

Payne Hall Demolition

Demolition of a 50-year-old residence hall, Payne Hall, was completed to accommodate a new residence hall complex. Demolition was completed in September, 2016 for a project budget of \$634,000 that was funded by capital reserves.



University Projects Projects Planned November 1, 2016 to November 1, 2017 With a Total Cost Over \$1,000,000

New Student Housing

The four existing Quad I residence halls will be replaced by a new six-building, four-story, 1,229 bed residence hall complex. The room types will include doubles, semi-private doubles and single options and the halls will maintain NMU's current "house" model. The buildings will be interconnected and create a living-learning focus with two academic classrooms, open lounges, study rooms, and laundry rooms. The project is a public private partnership with our chosen development partner, EdR, Inc. who will invest over \$75 million to build the new residence hall complex. The university will contribute \$3.97 million from housing reserves toward construction costs for connectors, live learn classrooms, and student union type space. Construction will be completed in three phase. Phase one consisting of two halls began in July, 2016 with its expected completion in August, 2017. Two additional halls will be completed in January, 2018 and the final two halls in August, 2018.

University Center Conference Center Upgrades

Prior studies have shown existing conference space in the University Center is in need of modernization including technology and sound system upgrades, improved lighting, higher ceilings, and an enhanced floor plan. This potential project would include renovations associated with existing conference, office, and public space. This renovation will provide opportunities to improve and expand the current level of service provided to conference customers and facility users. Estimated project budget is \$17.5 million with construction being phased over two years.

Performance Contracting Phase III

To continue the effort to further reduce energy/operational costs, Phase III of this project focuses on housing facilities, fine arts complex, and Superior Dome. The energy services company has performed comprehensive energy conservation audits, determined the energy consumption and operational characteristics of the facilities, and identified the facility improvement measures (FIMs), procedures, and other services that could be implemented in order to reduce NMU's energy and other operating costs for the facilities. The energy savings, operational savings, and cost avoidance achieved from the selected improvement measures for this phase will fund this project based on a period of 12 years or less, assuming a 5% interest rate. The performance of the FIMs, services, and reduced energy consumption will be guaranteed by the energy services company. The cost of the selected facility improvement measures have yet to be determined.



Maintenance Projects 2018 to 2022 With a Total Cost Over \$1,000,000

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

	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2022</i>	<i>Total</i>
Fire Alarm Mass Notification - Housing	\$ 1,058,000					\$ 1,058,000
Total	<u>\$ 1,058,000</u>					<u>\$ 1,058,000</u>



Maintenance Projects 2018 to 2022 With a Total Cost Over \$1,000,000

Project Descriptions

Security, Door Access, Fire Alarm, Mass Notification, and Energy Management System

Replacement. The existing Honeywell fire alarm, door access, security, and energy management system installed in nineteen buildings on campus has reached the end of its useful life. The system is no longer supported by the manufacturer and replacement parts are difficult to acquire. Through three separate projects, the existing system will be separated into three independent systems that have the latest technology and problems on one system would not affect another.

- 1) Security/Door Access: The CBORD security/card access system has been completed throughout the academic, administrative, and auxiliary buildings on campus. Building exterior doors were installed on the new system to allow Public Safety to perform an all-building lockdown in the event that there is an active shooter on campus as well as lock/unlock doors with building schedules. In addition, the project results have increased reliability; simplified operational, maintenance, and personnel training needs by standardizing to one system for all campus facilities; and improved cross departmental support
- 2) Fire Alarm/Mass Notification: The existing Honeywell FS90 system has been replaced with a new fire alarm system in the thirteen Stateside and Auxiliary buildings. The new system incorporates the NFPA Part 12 recommendations for mass notification within campus facilities. The existing Simplex fire alarm systems have been replaced in four Stateside buildings to incorporate mass notification. The remaining Simplex systems installed in several Housing units on campus are planned to be replaced in 2018; they will also will incorporate mass notification. This replacement project will consist of the following Housing units: Quad II residence halls, Spooner Hall, and Woodland Park apartments at \$1.058 million. The existing systems will be removed in the Quad I residence halls when each hall is demolished. The new residence halls being constructed will have fire alarm and detection systems installed that tie back to Public Safety Dispatch and will have mass notification incorporated.
- 3) Energy Management: The existing energy management system is planned to be replaced in nineteen Stateside and Auxiliary buildings. The new system will increase reliability; improve the controllability of mechanical and electrical systems to generate energy savings; simplify operational, maintenance, and personnel training needs by standardizing to one system for all campus facilities; and allow system access through the Internet so that problems could be diagnosed remotely by university staff and the energy management company. Some of this work has been incorporated on a building-by-building basis as part of the Performance Contracting project. In 2010, the energy management systems in Jacobetti and University Center were converted and expanded with the new energy management system. In 2012 as part of the Phase II performance contract, the systems have been replaced in Art & Design, Cohodas, Learning Resources Center, West Science, PEIF, and Services Building. The existing energy management systems were expanded in the Berry Event Center, Hedgcock, New Science, and Whitman. The replacement of the facility management system in the Fine Arts Complex is being phased in over time with mechanical system upgrades. The existing system will need to be replaced in the remaining residence halls in the future similar to the plan for the fire alarm system upgrades in these buildings.



Long-Term Maintenance Projects 2017 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 Maintenance for 2017

Each year the university provides base budget and auxiliary funds to address long-term 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 2017 are indicated on the following page.



Long-Term Maintenance Projects – 2017 With a Total Cost Less than \$1,000,000

2017 Long Term Maintenance List	General Fund Budget	Auxiliary Fund Budget	Total Project Budget
<i>Art & Design:</i>			
Mechanical System Upgrades	\$85,000		
<i>McClintock/Thomas Fine Arts:</i>			
Condensate Receiver	\$50,000		
<i>New Science Facility:</i>			
Upgrade Phoenix Hood Control System Phase I	\$100,000		
<i>Gries Hall:</i>			
Water heater and controls replacement	\$35,000		
7th Street Building Entrance Replacement	\$45,000		
<i>Learning Resources Center:</i>			
480 Volt Main Transformer Replacement	\$60,500		
<i>West Science:</i>			
Heating Coil Replacement	\$300,000		
<i>PEIF:</i>			
Pool Underground Piping Replacement	\$250,000		
Gender Neutral Restroom	\$50,000		
<i>Superior Dome:</i>			
SW Main Entrance Doors Replacement	\$75,000		
Field Lighting Replacement (Phase II)	\$284,000		
Interior Finishes (Paint; Carpet; Ceiling, Wall, and Floor Tile; Stair Treads; Door Hardware; Blinds, etc.)	\$100,000		
Hardscape Infrastructure (Concrete, Asphalt, Irrigation, Landscaping, etc.)	\$25,000		
Utility Infrastructure (Water, Sanitary, Storm, Steam Electric, Gas, Telecom, etc.)	\$50,000		
Building Envelope (Tuckpointing, Sealing Brick, Painting Exterior Doors, Repair EIFS, etc.)	\$100,000		
Mechanical/Electrical/Plumbing Infrastructure (Equipment, meters, and control system repairs)	\$100,000		
Total General Fund Projects	\$1,709,500		\$1,709,500
University Center			
Interior Upgrades (Doors, floor covering, folding partitions, stair treads)		\$50,000	
Furnishings/Equipment Replacement		\$25,000	
Dining Services (Wildcat Den, Marketplace, Fiera's, Temaki & Tea)			
Interior Upgrades (Dishwasher, cooler compressors, floor covering, serving line rework)		\$245,000	
Equipment replacement		\$210,000	
Fieras HVAC System Upgrades		\$150,000	
Golf Course: Equipment replacement		\$15,000	
Total University and Dining Services Projects		\$695,000	\$695,000
Apartment Annual Upgrades (Lincoln/Center/Norwood)		\$440,000	
Furniture Replacement (Woodland Park)		\$60,000	
Total Housing Projects		\$500,000	\$500,000
Total Budget	\$1,709,500	\$1,195,000	\$2,904,500



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.

Future Student Housing Projects

Since 2005, four residence halls connected to Quad II have been renovated and replacement beds are under construction for the four Quad I residence halls. The University is reviewing the other housing complexes, both residence halls and apartments, to determine how best to meet the future needs of students. The possibilities being discussed are renovating or replacing some or all of the remaining two residence halls and the aging apartment complexes.

Dining Services Marketplace Renovation Phase V

As noted above, the university is constructing new residence halls that will be connected to the Marketplace. As a result, the Marketplace will be updated to provide a better dining experience and align service delivery to the reconfigured housing campus. Exterior façade improvements will be completed to aesthetically tie with the new residence halls. Construction is planned for summer 2018 with the completion of the new housing complex.

Quad II Recreation Area

Quad II will be renovated to provide new venues that will enhance student life such as a satellite student recreation center, group exercise room, and student lounge. The building services shop for the Housing Department would also be relocated from Quad I to Quad II to better serve the residence halls. Construction is planned for summer 2017.

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.

Department Relocations

Several academic departments were relocated from Cohodas Hall to Gries Hall to concentrate academic functions and promote a compact, walkable academic core that results in greater synergy between faculty and students per the Campus Master Plan. With this relocation, the vacated space within Cohodas Hall can be repurposed for possibly the Health Center, Counseling Center, and Human Resources. These changes will enable the east wing of Gries Hall to be demolished increasing space efficiency and reducing facility operation costs.



Future University Projects

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 to including the potential of a forensic research lab. Support services such as Grants, Honors, Student Fellows, and Institutional Research may also be located within the facility.

PEIF Vandament Arena Renovation

The existing arena would be renovated to accommodate basketball as well as volleyball. Work would include new bleacher system, digital scoreboards, and new wood flooring. An addition is planned to the south for a new concession stand, ticket booth, public restrooms, and cross country ski team locker rooms.

Physical Educational Instructional Facility Pool

The university is developing conceptual designs for a Natatorium addition to the PEIF for swimming, diving, and related amenities. The building should reinforce the architecture and character, create visibility from Presque Isle Avenue, and embrace future adjacent mixed-use elements. This addition will also address increased maintenance issues with the existing pool, meet current state and federal regulations, and NCAA requirements. To keep the current pool functional, the existing below slab piping will need to be replaced in the next few years. This interim maintenance project cost approximately \$200,000.

NMU Golf Course Clubhouse

In conjunction with the NMU Construction Management 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.



Future University Projects

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 has 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 the summer and fall of 2016, the remainder of the NMU's building identifier signs and pedestrian kiosk signs along the primary walking route through campus were replaced. The remaining phase of this project includes parking lot designator signs and vehicle guide signs.

Bike Paths

As part of the Campus Master Plan update, a comprehensive review of many existing studies related to campus planning were reviewed, including the Bicycle Feasibility Study conducted in 2001. The 2008 Campus Master Plan illustrates a number of potential paths and identifies key design principles for pedestrian networks.

MIR Roadway Improvements

NMU has been working with the Michigan Department of Transportation (MDOT) on a possible Michigan Institutional Roadway (MIR) request: the inner-most ring road north of the Superior Dome. Not all of the costs for this project would be covered by MIR funds; however, by participating in these programs, the University can leverage state funds to help improve its infrastructure. The MDOT is providing both design and construction estimates at no cost to the University for each potential project. Below is a brief description of the project:

- 1) The ring road directly north of the Superior Dome was constructed in 1990 and is in fair condition; however, the original plans called for curb the entire length of this roadway. This was eliminated as a cost savings measure during construction. The elimination of this curb has created a number of drainage issues that have been exemplified since parking has been expanded and the access road to Wright Street constructed. This project would provide and install approximately 1,200 feet of new curb and resurface 1,200 feet of roadway. The only portion of this project that does not qualify for MIR funding is the loading dock area. Estimated cost to resurface the roadway and loading dock area: **\$255,000 (MDOT \$225,000; NMU \$30,000)**.



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