NORTHERN MICHIGAN UNIVERSITY

October 2017

FIVE-YEAR FACILITIES MASTER PLAN

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Section I

Mission

Mission Statement

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

Vision Statement

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

CORE VALUES

COMMUNITY

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

OPPORTUNITY

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

RIGOR

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

ENVIRONMENT

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

INCLUSION

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

CONNECTIONS

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

INNOVATION

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

Section II

Instructional Programming

Strategic Direction: Investing in Innovation

NMU has built an outstanding reputation on providing high-quality academic programs in a high-tech learning environment while never losing sight of its hallmark for personalized attention. 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 Network, 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 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
Anthropology Major
Applied Workplace Leadership Major
Art and Design
- *Concentrations*
- Ceramics
- Computer Art
- Digital Cinema
- Drawing/Painting
- Graphic Design
- Human-centered Design
- Illustration
- Metalsmithing/Sculpture
- Photography
- Woodworking/Furniture Design

Art and Design/Secondary Education
- *Concentrations*
- Ceramics
- Computer Art
- Digital Cinema
- Drawing/Painting
- Graphic Design
- Human-centered Design
- Illustration
- Metalsmithing/Sculpture
- Photography
- Woodworking/Furniture Design

Biology
- *Concentrations*
- Botany
- Ecology
- General Biology
- Microbiology
- Physiology
- Zoology

Chemistry (ACS Certified)
Clinical Health Science
- *Concentrations*
- Radiography
- Respiratory Therapy
- Surgical Technology

Clinical Laboratory Science
- *Concentrations*
- Anatomic Pathology
- Clinical Systems Analysts
- Diagnostic Genetics
- Laboratory Medicine
- Microbiology
- Science Technologist

Communication Studies
Community Health Education
Computer Science
Construction Management
Criminal Justice

Academic Programs

Baccalaureate Degree Programs
(*continued*)

Major

Earth Science
Economics
Electronics Engineering Technology
Elementary Education (2 minors)
Elementary Education Integrated Science Major
Elementary Education Language Arts Major
Elementary Education Mathematics Major
Elementary Education Social Studies Major
Elementary Education Special Education Major
Embedded Systems
English
English/Graduate Bound
English/Writing
Entrepreneurship
Environmental Science
- *Concentrations*
- Natural Resources
- Pollution Control and Remediation
- Renewable Energy Technologies
- Water Resources

Environmental Studies and Sustainability
Finance and Risk Management
- *Concentrations*
- Corporate Finance and Investment
- Risk Management and Insurance

Fisheries and Wildlife Management
- *Concentrations*
- Fisheries
- Wildlife

Forensic Biochemistry
French
Geomatics
German Studies
History
Hospitality and Tourism Management
Individually Created Programs (ICP)/Individualized Studies
Industrial Technology
Information Assurance/Cyber Defense
Information Systems
Integrated Science Major with Biology Minor (Option I)
Integrated Science Major with Chemistry Minor (Option II)
Integrated Science Major with Earth Science Minor (Option III)
Integrated Science Major with Physics Minor (Option IV)
International Studies
- *Concentrations*
- Africa
- Asian
- Europe
- Global
- Latin America
- Middle East

Liberal Arts and Sciences (currently not accepting students)
Loss Prevention Management
Management
Management of Health and Fitness
Marketing
Mathematics
- *Concentrations*
- Actuarial Sciences
- General Mathematics

Academic Programs

Baccalaureate Degree Programs (*continued*)

Major

Mechanical Engineering Technology
- *Concentrations*
  - Alternative Energies
  - Computer Numerical Control Technology
  - Manufacturing Engineering Technology
  - Mechanical Engineering Design
  - Mechatronics

Medicinal Plant Chemistry
Mobile and Web Application Development
Multi-media Journalism
Multimedia Production
Music
- *Concentrations*
  - Choral
  - Instrumental

Native American Studies Major
Neuroscience
- *Concentrations*
  - Cellular and Molecular
  - Behavioral and Cognitive

Nursing
Outdoor Recreation Leadership & Management
Paralegal
Philosophy
Physical Education Coaching
Physics
Political Science
- *Concentrations*
  - General Political Science
  - International
  - Pre-law
  - Public Administration

Pre-Chiropractic
Pre-Clinical Psychology Program
Pre-Dental
Pre-Engineering
Pre-Law
Pre-Medicine
Pre-Optometry
Pre-Pharmacy
Pre-Physical Therapy
Pre-Physician Assistant
Pre-Veterinary
Psychology
Psychology/Behavior Analysis
Public Relations
RN to Baccalaureate Nursing Major
Secondary Education Biology Major
Secondary Education Chemistry Major
Secondary Education Earth Science Major
Secondary Education English Major
Secondary Education French Major
Secondary Education Geography Major
Secondary Education History Major
Secondary Education Industrial Technology Major
Secondary Education Integrated Science Major
Secondary Education Mathematics Major
Secondary Education Music Major
Secondary Education Physical Education Major
Secondary Education Physics Major
Secondary Education Political Science Major
Secondary Education Social Studies Major
Secondary Education Spanish Major
Secondary Education Special Education Major
Ski Area Business Management
Social Work
Sociology
Spanish
Speech, Language and Hearing Sciences
Sports Science
Theatre and Entertainment Arts
- *Concentrations*
  - Design and Technology
  - Performance

Academic Programs

Associate Degree Programs

Major

Art and Design
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

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
- Electronics
- Emergency Medical Services
- Engineering Design
- English
- Environmental Studies
- Film Studies
- Gender and Sexuality Studies
- Geomatics
- Health and Nutrition
- History
- Hospitality Service Management
- Human Behavior
- Human Biology
- HVACR
- Industrial Electrical Technology
- Industrial Maintenance
- International Studies
- Journalism
- Loss Prevention Management
- Mathematics
- Media Production and New Technology
- Media Studies
- Music
- Native American Studies
- Outdoor Recreation
- Philosophy
- Physical Education – Coaching Emphasis
- Physics
- Political Science
- Pre-Law
- Psychology
- 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
- Wildlife Conservation Law & Policing
- Writing

Health Information Processing
- *Concentrations*
- Associate Degree Core
- Health Information Core

Hospitality Management
Industrial Maintenance
Information Systems
Insurance
Law Enforcement
Liberal Arts/Sciences
Office Information Assistant
Paralegal
Radiography
Respiratory Therapy
Surgical Technology

Certificate Programs

Advanced Law Enforcement Certificate
Assistant Behavior Analyst Certificate
Automotive Maintenance Certificate
Automotive Service Technology
Aviation Maintenance Technology
Clinical Assistant
Computer Numerical Control Technician
Cosmetology
Cosmetology Instructor
Deaf Studies
Electrical Line Technician
Esthetics
Geographic Information Systems
Heating, Air Conditioning/Refrigeration
Industrial Maintenance
Local Corrections
Manicure
Manufacturing Production Technician
Office Services
Post-Baccalaureate Paralegal
Practical Nursing Welding
Wildland Firefighting

Certifications

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

Academic Programs

Graduate Programs

Certificates

- Facilitating Training
- Health Informatics
- Performance Improvement
- Public Management
- 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
- Biology
- Business Administration
- Clinical Molecular Genetics - Track 1: Clinical Molecular Genetics
- Clinical Molecular Genetics - Track 2: Clinical Molecular Laboratory Education Track
- Criminal Justice
- Creative Writing
- Educational Administration/Supervision
  - American Indian Education
- English
  - American Indian Education
  - English/Literature
  - English/Pedagogy
  - English/Writing
  - Theatre and Entertainment Arts
- Educational Instruction
- Exercise Science
- Higher Education and Student Affairs
- Integrated Biosciences
- Learning Disabilities
- Post-Secondary Biology Education
- Psychological Science
- Public Administration
- Reading K-8
- Reading Specialist K-12
- Training and Performance Improvement

Academic Programs

Elementary Education Minors

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

Secondary Education Minors

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

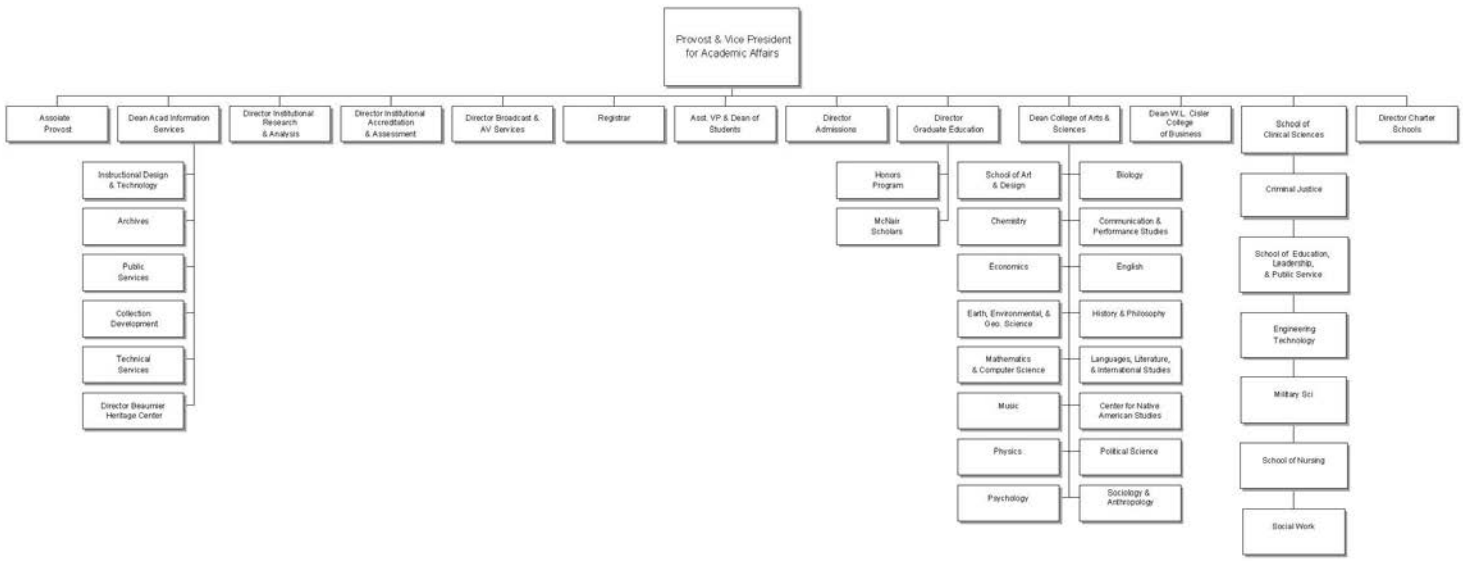
Non-Education Minors

Accounting
Actuarial Sciences
Alternative Energies
Anthropology
Applied Ethics
Applied Workplace Leadership
Art and Design
Art History
Automotive Service Technology
Biology
Business Administration
Chemistry
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 Integrative 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


Provost & Vice President for Academic Affairs
Associate Provost
Dean Acad Information Services
Director Institutional Research & Analysis
Director Institutional Accreditation & Assessment
Director Broadcast & AV Services
Registrar
Asst. VP & Dean of Students
Director Admissions
Director Graduate Education
Dean College of Arts & Sciences
Dean W.L. Cisler College of Business
School of Clinical Sciences
Director Charter Schools
Instructional Design & Technology
Archives
Public Services
Collection Development
Technical Services
Director Beaumier Heritage Center
Honors Program
McNair Scholars
School of Art & Design
Chemistry
Economics
Earth, Environmental, & Geo. Science
Mathematics & Computer Science
Music
Physics
Psychology
Biology
Communication & Performance Studies
English
History & Philosophy
Languages, Literature, & International Studies
Center for Native American Studies
Political Science
Sociology & Anthropology
Criminal Justice
School of Education, Leadership, & Public Service
Engineering Technology
Military Sci
School of Nursing
Social Work

Instructional Programming

Existing Academic Programs and Projected Programming Changes

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

Academic programs, student achievement and learning outcomes assessment have been the University's top priority. Evidence-based decision-making guides our planning activities for ultimate student success. Outcomes assessment continues to be part of the contractual agreement with our largest faculty union, the AAUP. This underscores the commitment of our faculty to continue to excel at teaching and learning. Additionally, as part of the university's accreditation process, primarily the Academic Quality Improvement Program (AQIP), an Action Project on campus-wide assessment of student learning was completed and has produced outstanding opportunities for NMU faculty and staff to identify and measure student learning outcomes for all students on campus. Through the Division of Extended Learning and Community Engagement, we 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 Academic Affairs dashboards as a mechanism to make data-drive decisions. The dashboards highlights our core values, to ensure the university is in alignment with Upper Peninsula and Michigan state priorities, program sustainability and vitality, student success and outcomes, and financial effectiveness. Additional analytics capabilities have been added to our dashboarding system allowing analysts to take deeper looks into student segments which helps with enrollment planning, retention programming, and other key performance targets.

Instructional Programming

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

We are actively involved in national initiatives for student learning and outcomes assessment, 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 centralized advising for all new students.

We have ten new programs starting in the fall of 2017, including four bachelor, four certificate and two associate degree programs. Highlights include a new BS in Anthropology that will integrate our new – and the first in the world – cold-weather forensic research outside station (FROST). A new Medicinal Plant Chemistry program, as well as a completely online Applied Leadership program are also groundbreaking for NMU. New certificate programs include: Behavior Analyst, Automotive, Manicure and Deaf Studies. The new programs resulted from close collaboration between faculty and administration and reflect our commitment to innovative high-quality programs.

Strategic Focus Areas:

Domestic and Global Outreach and Engagement

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

Instructional Programming

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

Student Success and Academic Excellence

The personal, social and intellectual maturity of NMU students is the ultimate benchmark of the achievement of the university's mission. A high-quality university education creates lifelong learners, contributing citizens and thoughtful neighbors. NMU will continue to develop 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 support Superior Edge and academic service learning programs.
- Emphasis academic service learning courses in the curriculum.
- Implement strategies to assist students to more effectively communicate the skills and competencies developed through their achievements in community engagement
- Continue to enhance our retention efforts including a new centralized advising program and the purchase of retention software (STARFISH).

Instructional Programming

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

Investment and Innovation

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

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

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

Instructional Programming

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

Outreach and Engagement

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

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

Initiatives / Academic Program Needs with Impact on Facilities

Instructional Programming

A major part of NMU's success is its high-tech learning environment. The campus is a connected learning community with over 7,655 notebook computers distributed, 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 (Wi-Fi) and WWAN (LTE) networking capabilities. Wireless Wi-Fi technology throughout campus provides improved student access in and out of the classroom for coursework, research, and provides greater efficiency in delivery of instruction and student services via the internet. 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 who live off campus in the Marquette area and surrounding cities. In 2015, NMU migrated its existing WiMAX network to LTE, providing NMU students, faculty and staff with true mobile and fixed broadband connectivity. As word of NMU's LTE service spread, requests from other educational institutions resulted in NMU's commitment to construct wireless broadband in surrounding Upper Peninsula communities. In 2017, NMU partnered with the Michigan Economic Development Corporation to begin construction of 64 LTE transmitters U.P wide. When complete, NMU's Educational Access Network will be the largest, carrier-grade broadband wireless network in the United States built specifically to serve the needs of K-16 education and the lifelong learners.

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

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

The University's public radio and television stations have completed their digital transition, including a switch to 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.

Initiatives / Academic Program Needs with Impact on Facilities

Instructional Programming: ***(continued)***

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 added 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 2017, NMU restructured the delivery of campus instructional audio-visual services by merging academic and administrative A-V support into the University's existing Audio-Visual department. Combining these support functions has resulted in greater efficiency in the delivery of services and also significantly impacted the planning, design, construction and maintenance of NMU's campus A-V support. NMU audio visual services are largely managed in-house by staff certified in a variety of software and hardware systems. Reducing the reliance on outside services has notably improved the response time to resolving A-V technology failures and reduces the high costs often associated with contracted services. Additionally, NMU has leveraged the continued industry development of A-V services over IP infrastructure by encouraging the University's Information Technology and Audio Visual departments to explore new ways of using common infrastructure to support data AND multi-media services. These collaborative efforts reduce overall cost and offer better quality of service to campus consumers.

Community Presence

Intercollegiate Athletics and Recreational Sports Facilities

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

The Superior Dome is home to NMU football, men's and women's soccer, lacrosse, cross country, 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 ceremonies are held in the Superior Dome each December and May.

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

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

Community Presence Activities

Intercollegiate Athletics

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

Northern Michigan University U.S. Olympic Training Site

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

Community Presence Activities

NORTHERN INITIATIVES
Prosperity. That's Our Business

Northern Michigan University annually invests in the work of Northern Initiatives (NI), a Community Development Financial Institution. The origins of NI began as an on-campus initiative in 1985, and evolved into a non-profit corporation in 1992. For most of its 25 years, NI has been on campus, currently residing at the Jacobetti Complex.

NI was begun in order to address the need to build a more diverse and resilient UP economy, and to that end it has made 700 loans that total $40M in the UP. In 2008, it expanded from 15 counties, to 51, including the five border counties of Wisconsin and 31 lower Michigan counties. During 2017, NI will begin doing its first urban lending, assisting organizations in Muskegon and Kent counties.

NI works to fill market gaps with one third of its 1,000 loans made supporting start-up businesses and currently 35% addressing the borrowing needs of diverse customers; minorities, women, LGBT, and veterans. All of its business customers have created 1,700 jobs and retained another 2,500 using in total $60M that NI loans have provided. It is ranked in the top 15 of the Small Business Administration's (SBA), Micro-lenders and Community Advantage lenders, nationwide.

Northern Michigan University students are a key piece of Northern Initiatives' work with small businesses. Typically, six or more NMU students work at NI supporting lenders with credit analysis and business coaches by designing websites, doing social media campaigns or market research for small business customers. NI coaches and the students cover this large and diverse customer base through the practice of blended learning, using the NI customer portal, *Initiate.*

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

Community Presence Activities

Community College and Meeting Needs of Business and Industry

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

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

NMU's Centers for Educational Development and Economic Education and the Seaborg Center for Math and Science Education provide a wide variety of professional development opportunities for teachers and administrators across the Upper Peninsula. NMU also 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 Northern Promise, which contains programs for high school students to complete NMU coursework in their own high schools, online, or on campus. In most cases, the coursework is offered at no cost to students and partner high schools receive a substantial discount on the cost of tuition.

With regard to online education, a focal point of the Educational Access Network is NMU's newly created Global Campus, which is a virtual campus that provides educational opportunities and support services tailored to online learner, many of whom are working adults. The Global Campus has focused on expanding online course and academic program offerings to be able to provide educational experiences that UP residents want in a format that provides them maximum access. To that end, the division of Extended Learning and Community Engagement is developing the Academic Accelerator, which will foster the rapid design and implementation of distance education programs that meet specific needs of the region. In addition, the Extended Learning and Community Engagement division has partnered with the Center for Teaching and Learning to develop and implement the Online Teaching Fellows program that trains faculty in best practices in online course design and delivery.

Community Presence Activities

Community College and Meeting Needs of Business and Industry

Distance Education and Instructional Support *(continued)*

Access to Global Campus academic programs and online personal and professional development offerings have increased significantly by the rapid development of NMU's unique wireless LTE network. The University migrated from its WiMAX wireless network to a carrier-grade LTE network that encompasses a seven-city area surrounding NMU. WiMAX technology was retired in 2016 and has been replaced with faster, more robust, LTE service that serves 12 U.P. communities. 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 received financial assistance from the Michigan Economic Development Corporation (MEDC) and partners with area K-12 schools, colleges and universities to deliver educational broadband to rural communities in an effort to engage learners of all ages in credit and non-credit educational experiences. When completed, this LTE network will consist of 64 transmitter facilities and provide broadband to over 100 rural communities. As a result, learners of all ages will be able to successfully earn high school and college credentials, receive continuing education needed in workforce development programs across the region, and engage in online personal enrichment learning modules.

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

Community Presence Activities

Public Broadcasting

NMU's public radio and television stations have completed their transition to digital broadcasting. 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.

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

NMU 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.pcsum.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 complementing their academic studies.

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

Economic Impact / Partnerships With Business and Industry

Center for Rural Community and Economic Development

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

The center recently coordinated research and delivery of a study in support of the Governor's Project Empire initiative designed to assist the communities of Negaunee and Ishpeming after the idling of the Empire Mine. The Center is collaborating with Continuing Education and Workforce Development in support of the Defense Industry Growth Initiative, a year-long $125,000 grant to identify and assist with capacity building of regional companies interested in entering certain industry sectors by providing goods and services to Defense and Homeland Security.

Partnerships with Business and Industry

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

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

Economic Impact / Partnerships With Business and Industry

Partnerships with Business and Industry (continued)

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

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

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

Internships for NMU students with business, industry, and service providers are critical to quality employment preparations. 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.

Economic Impact / Partnerships With Business and Industry

Partnership with UP Health System – Marquette

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

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

Cliffs Natural Resources, Inc.

A number of departments and programs within the College of Technology and Occupational Sciences, as well as Engineering Technology, work closely with Cliffs Natural Resources, Inc. (Cliffs) to prepare entry-level technical employees for 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.

Economic Impact / Partnerships With Business and Industry

Potlatch Corporation

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

U.P. Paper Company

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

Lundin Eagle Mine

NMU Continuing Education and Workforce Development has delivered over 350 hours of training to Eagle's employees. Eagle has reached out with needs for new millwrights, MSHA new miner training, including defensive driving and welding, as well as many soft skills training such as ethics and harassment and communications. Eagle International has donated equipment specific to their operations that will not only enhance training for their personnel, but will add to the student experiences for baccalaureate and associate degree programs in NMU's Industrial Maintenance and Industrial Technology programs.

Envoy Airlines (formerly American Eagle Airlines)

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

Enstrom Helicopter Corporation

A strong working relationship has been established over the years with Enstrom Helicopter Corporation based at Menominee-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 NMU Engineering Technology graduate Curt Tucker. He is a leading supporter of the SAE Baja racing team housed in the department, and his company has been instrumental in several intern and job placements for graduates, and partnered NMU with NASA to do some support research for their restraint systems.

RTI Surgical

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

Electrical Line Partnership

A joint venture between 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 Airport.

Economic Impact / Partnerships With Business and Industry

Argonics Engineered Polyurethane

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

Northern Initiatives (NI) and Marquette Food Co-Op

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

Continuing Education and Workforce Development

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

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

Workforce Training

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

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.

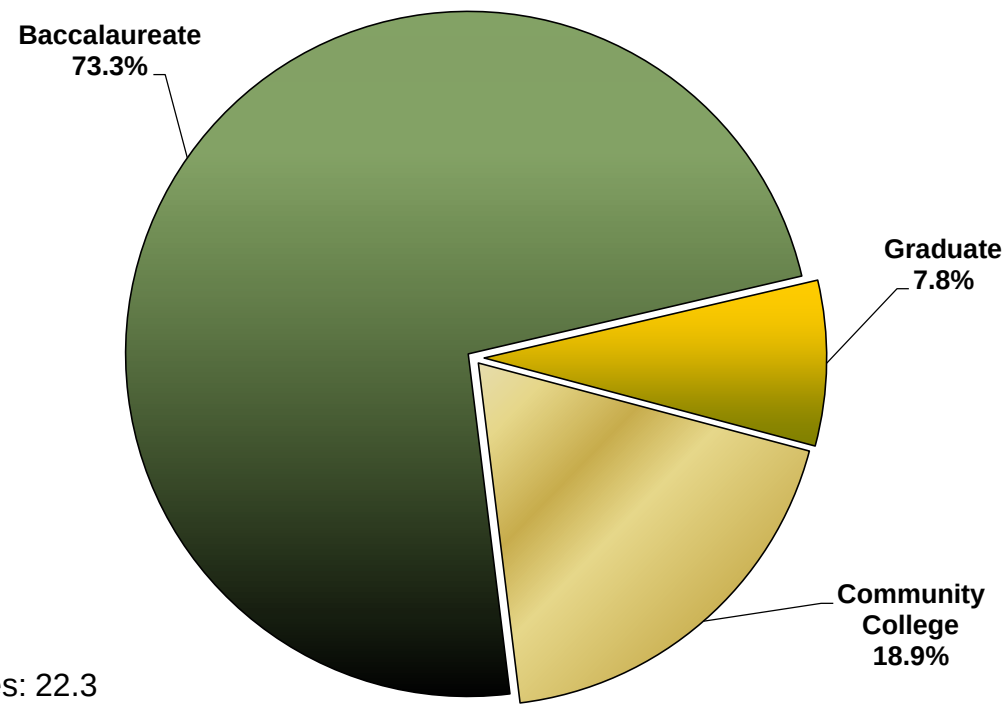
Section III

Enrollment and Staffing

Enrollment

Headcount

Fall 2017 (n = 7,612 – 10th Day of Class)



Average age

- Undergraduates: 22.3
- Graduates: 36.4
- Overall: 23.4

Other student statistics

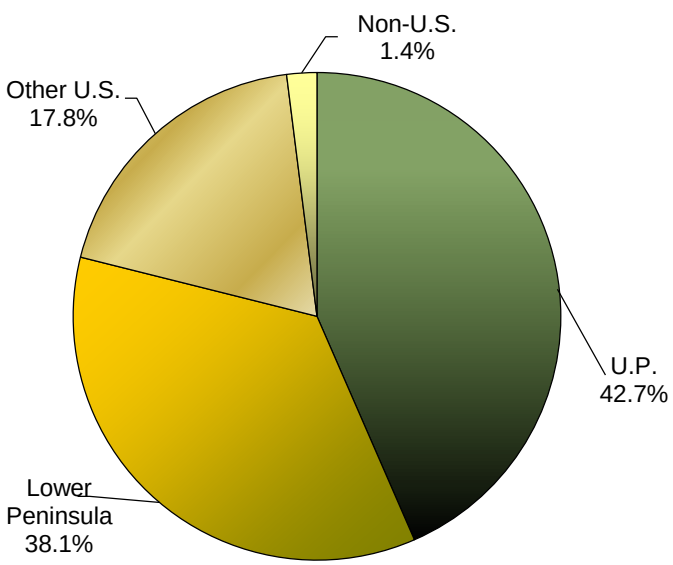
- At least one student from:
  - 83 of 83 Michigan counties
  - 46 different states
  - 34 different countries

Enrollment

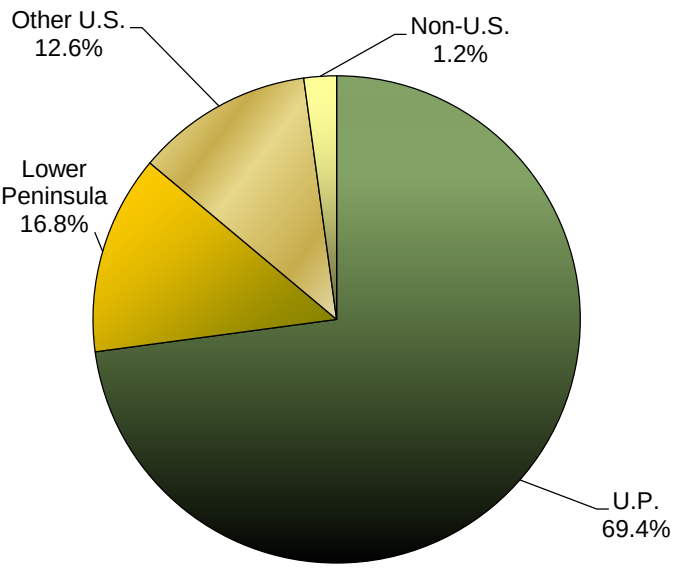
Recruiting Region

Fall 2017 (n = 7,612 – 10th Day of Class)

Undergraduate
(n = 7,018)

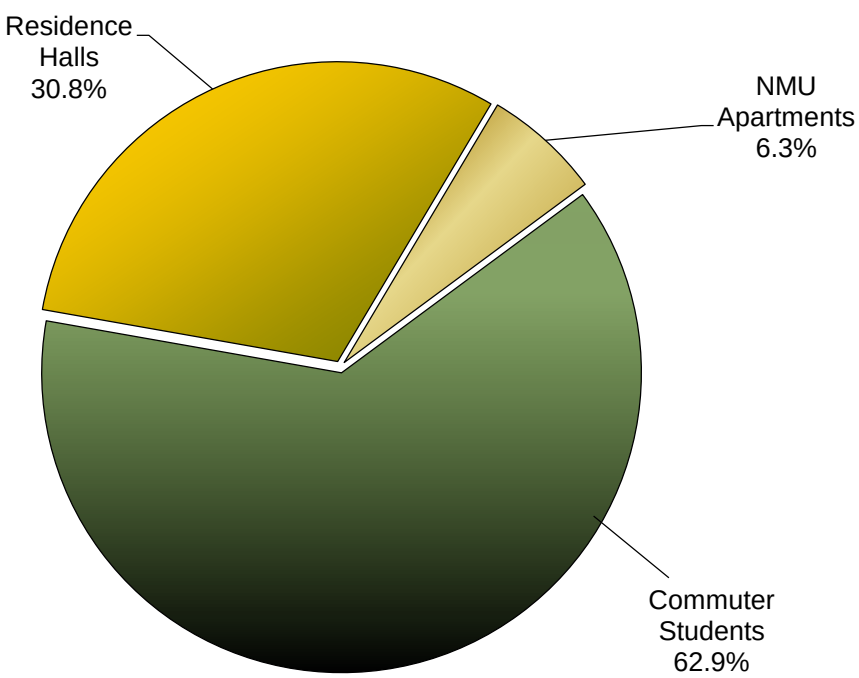


Graduate
(n = 594)



Enrollment

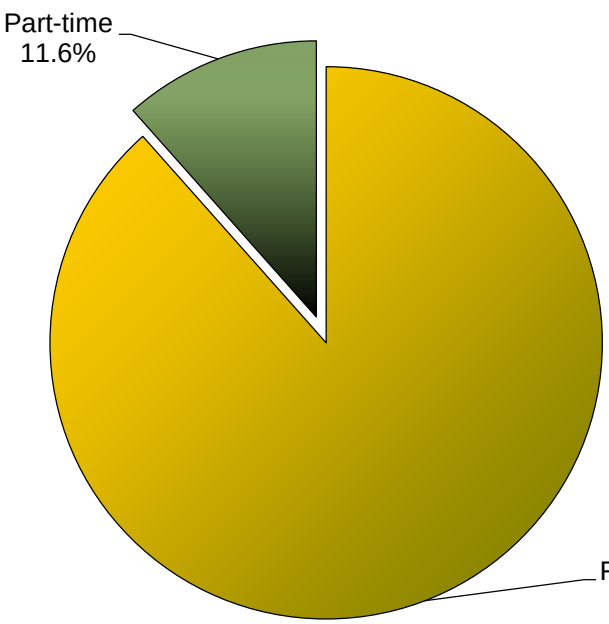
Where NMU Students Live
Fall 2017 (n = 7,612 – 10th Day of Class)



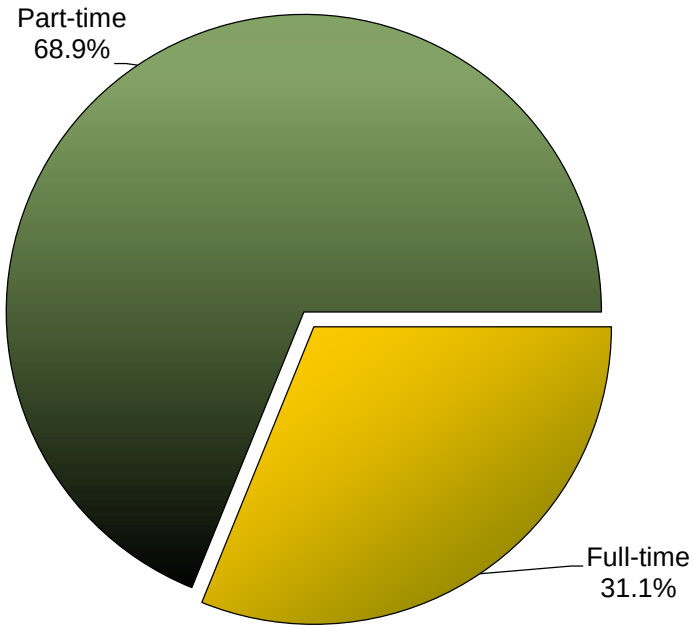
Enrollment

Full-time/Part-time Status
Fall 2017 (n = 7,612 – 10th Day of Class)

Undergraduate
(n = 7,018)

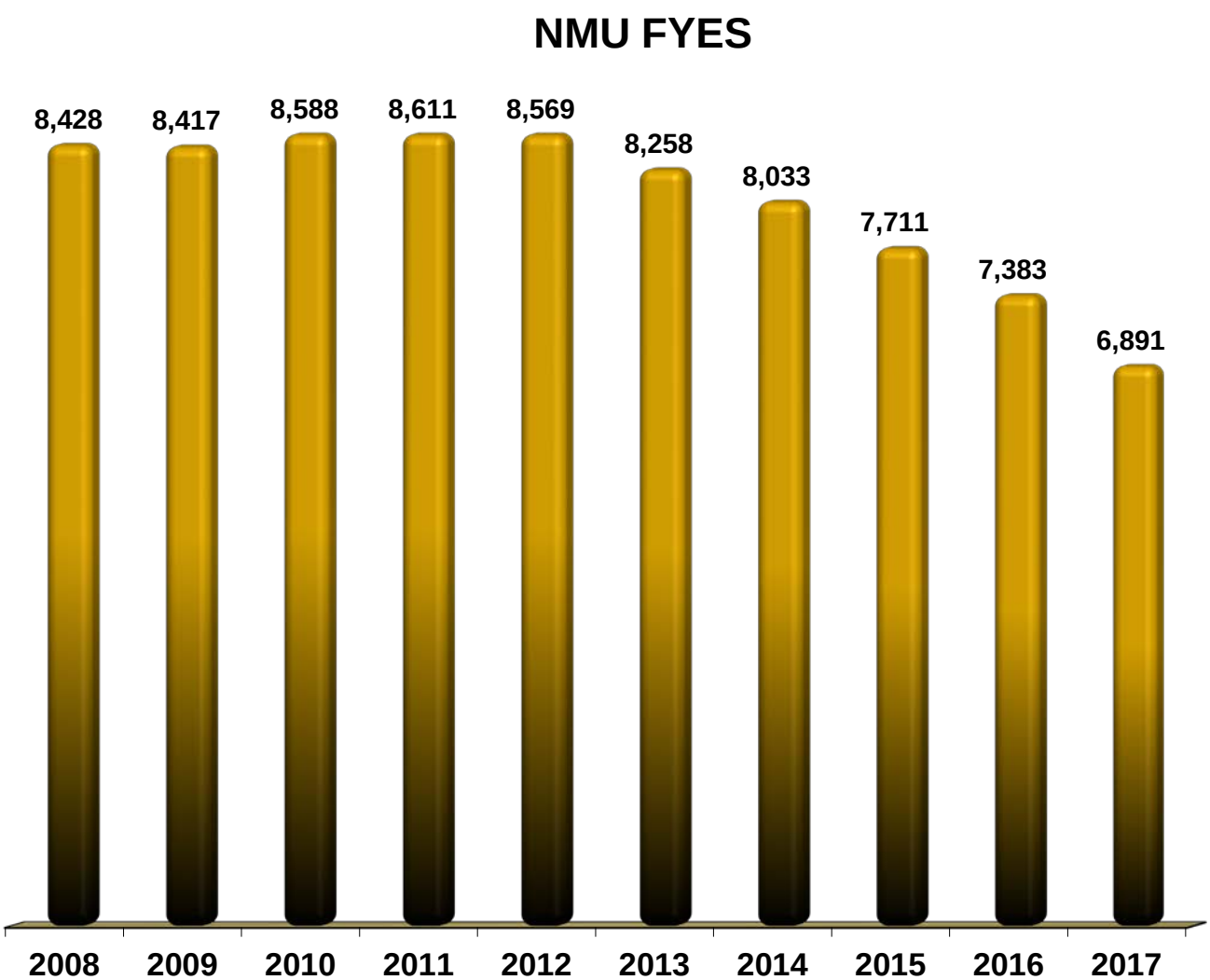


Graduate
(n = 594)



Enrollment

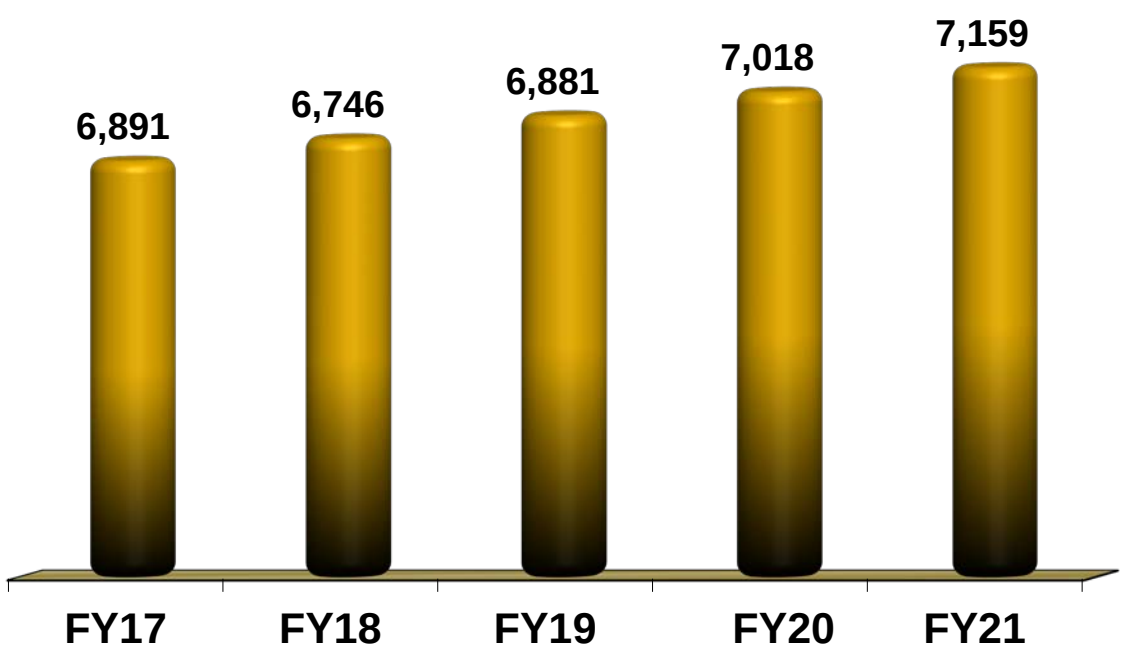
Full Year Equated Student Change



Enrollment

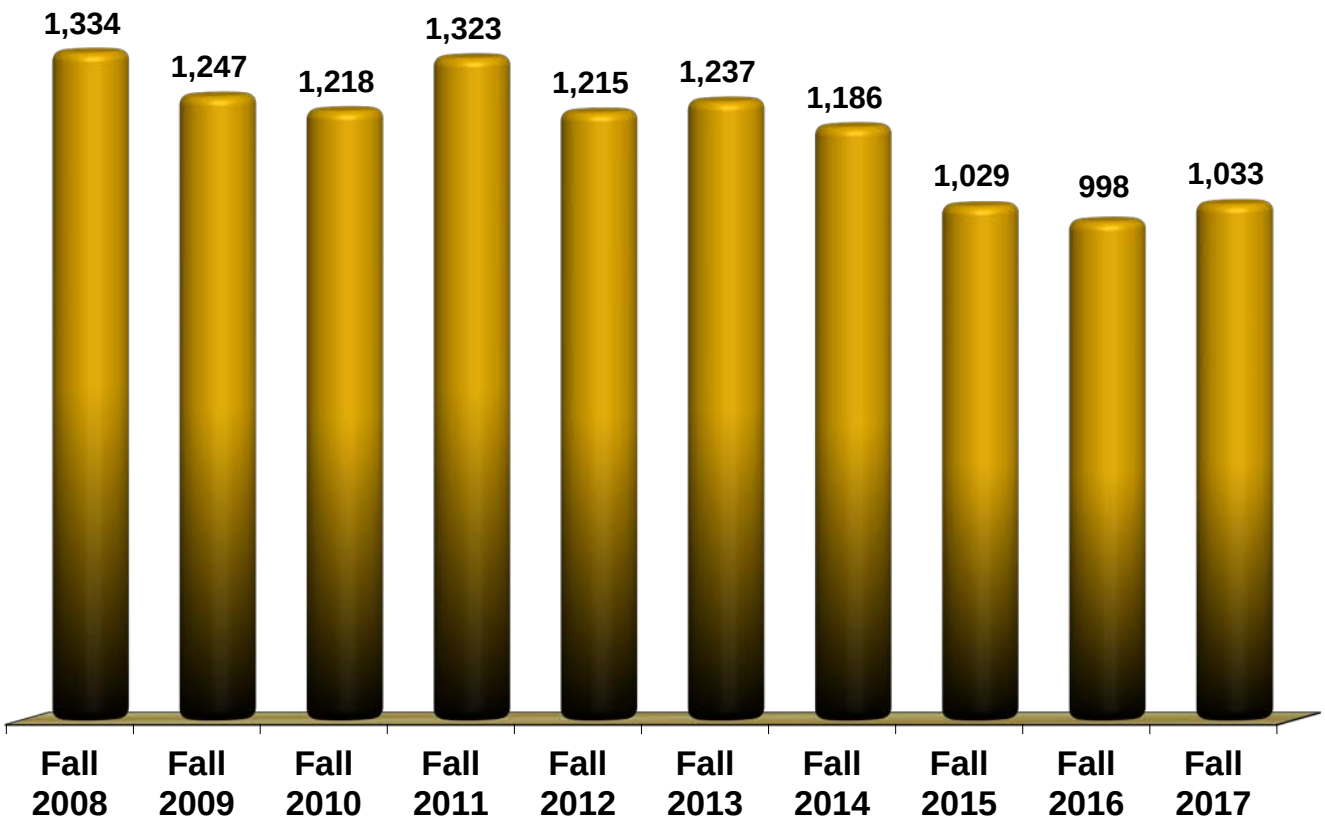
Full Year Equated Student Change (FYES)

5 Year Projection



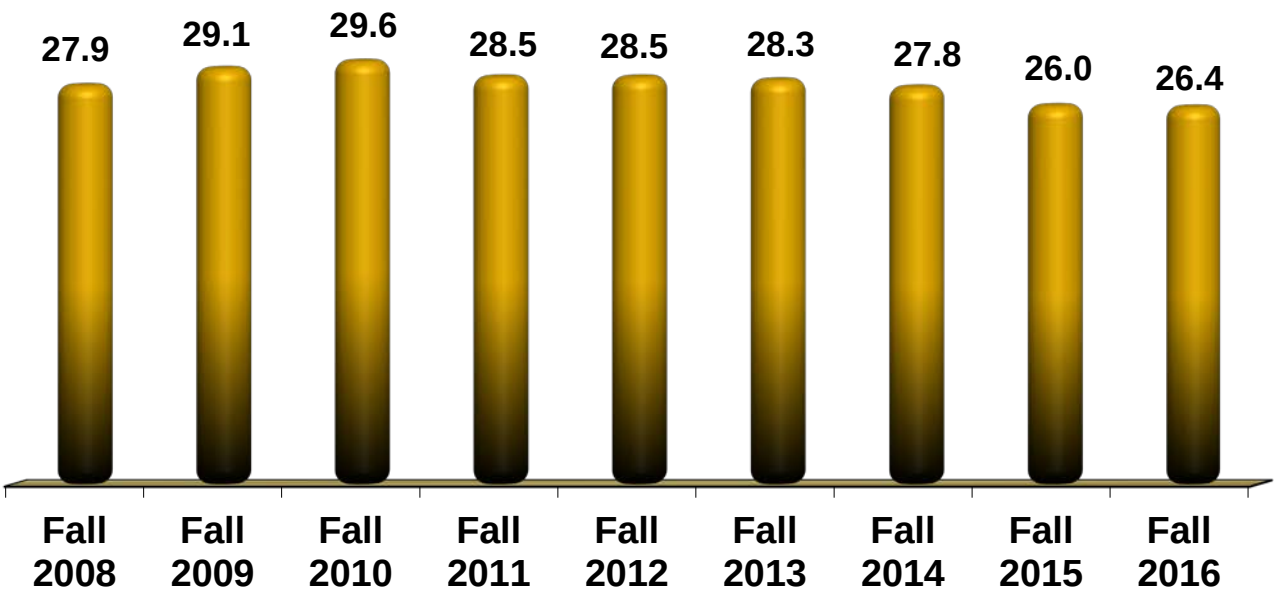
Enrollment

Baccalaureate First-Time, Full-Time New Freshmen



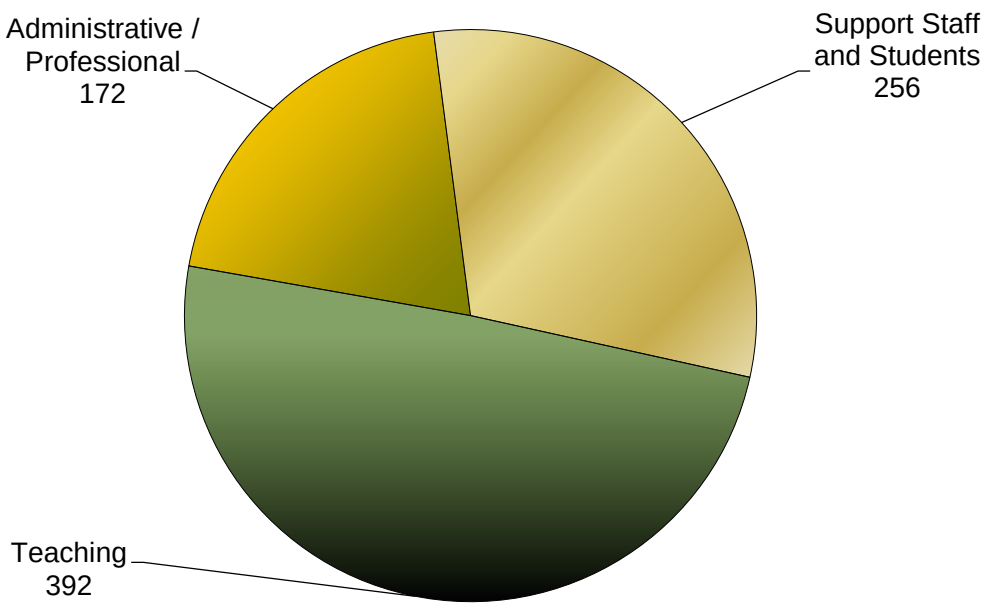
Enrollment

Average Lecture Class Size and Projected Average Class Size



Staffing

2016-2017 Full-Time Equivalent By Employee Category



Staff FTE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Instructional Staff	423	428	438	433	435	411	392	392	393	396	402
Administrative/Professional Staff	170	172	166	177	173	174	172	172	172	173	173
Service Staff and Students	262	258	262	268	272	262	256	256	256	257	258

Student (FYES) - to - Staff Ratios

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Instructional Staff	20.35	20.02	18.85	18.55	17.73	17.96	17.58	17.21	17.51	17.72	17.81
Administrative/Professional Staff	50.62	49.81	49.75	45.37	44.57	42.43	40.06	39.22	40.01	40.57	41.38
Service Staff and Students	32.85	33.21	31.52	29.97	28.35	28.18	26.92	26.35	26.88	27.31	27.75

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.

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

NMU and Sustainability

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

Energy

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

To better understand utility usage, 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. In July, 2017, 312 metal halide field light fixtures were replaced with 136 LED fixtures in the Superior Dome. The energy savings along with the utility company rebate provided for a six-year payback. NMU is also working with the Michigan Energy Office to identify funding for an Energy Waste Reduction Initiative of $4.475 million in LED lighting upgrades, retro-commissioning and energy management system upgrades. If these projects receive state funding, the result would be to reduce the university's electric usage by 10%.

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

NMU and Sustainability

Building Design
LEED® Green Building certification is being sought on capital projects through the specification of "green" building materials, wise management of materials during construction through reduction, reuse and recycling of construction and packaging materials, and design of efficient systems that require less energy and use 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 that 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 13 buildings in Fall 2017. Additionally, this process uses less chemicals and equipment that has HEPA filters reducing pollutants in the buildings. During the summer 2017, the operations staff began utilizing aqueous ozone to clean all surfaces replacing 95% of the chemical cleaners previously used. The environmental impact reaches far beyond just reducing chemicals in the buildings; it will reduce an estimated 500 gallon bottles annually from being recycled or entering the landfill, reduce on-site chemical inventory costs, and reduces training costs for employees.

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 2017, 13 buildings have adopted the new process. This process has trash/recycling "pods" placed in strategic locations throughout the building where occupants can empty their recycled materials. The intent of this is to make occupants more conscious of what is being recycled.

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, that includes 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 determined 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 Advisory Council was formed to help guide the campus community into becoming a greener place to work and live. The Council accomplished much their first year including hosting their first annual Zero Waste Challenge during the NMU vs. MTU men's and women's basketball game in January 2017. Waste was separated by compostable, recyclable and landfill items. NMU partnered with Marquette County Solid Waste Management Authority to remove, weigh and appropriately dispose of the event's waste. 93% of the event's waste was diverted from the landfill; 75% of the waste was compostable and only 5 pounds of trash went the to landfill. In a single night, the Zero Waste Challenge demonstrated all of Northern's core values: Community, Opportunity, Rigor, Environment, Inclusion, Connections and Innovation. Also, the council completed the Association for the Advancement of Sustainability in Higher Education's intensive Sustainability Tracking Assessment and Rating System inventory – or the STARS inventory – which garnered Northern provisional bronze status. A Sustainability Plan was developed with goals in five main categories: Institutionalize Sustainability, Cultivate Sustainability Leadership, Invest in Energy Innovations, Promote Sustainable Transportation, and Purchase Local Foods & Support Local Farms. As part of the plan, a comprehensive list of 50 recommended sustainability improvement measures for future implementation were identified many of which can move forward quickly. The rest will need time for discussion and consideration. The group's outstanding work supports the university's core value of protecting the environment and being a university of sustainability.

Facilities Assessment

- **NMU Physical Plant Overview**
  - 56 Buildings
    - 3.3 million square feet
  - 867 acres
    - 356 acres on main campus
    - 142 acres – English Property
    - 160 acres - Longyear Forest
    - 206 acres – South Marquette
    - 3 acres – FROST Property
  - 3.6 miles of roadway
  - 13.95 miles of sidewalk

Facilities Condition Cost Analysis by Priority Class For all State Buildings

Building Name	Immediate	Year One	Year Two to Five	Year Six to Ten	Grand Total
ADA B. VIELMETTI HEALTH CENTER		$5,984	$30,395	$102,904	$139,283
ART AND DESIGN NORTH		$101,379	$7,290	$1,029,281	$1,137,951
BERRY CENTER LINK		$1,956	$3,781	$50,797	$56,534
BUS GARAGE		$448	$22,643	$4,354	$27,445
BUTLER BUILDING		$26,144	$50,123		$76,268
C. B. HEDGCOCK				$592,465	$592,465
DOME / PEIF LINK			.	$23,396	$23,396
EVENTS CENTER	$256,101			$615,278	$871,379
FOREST ROBERTS THEATRE		$516,841	$870,367	$169,850	$1,557,057
GLENN T. SEABORG SCIENCE COMPLEX	$3,790	$67,410	$105,365	$1,114,023	$1,290,589
HARRY D. LEE HALL	$161,063	$390,029	$5,333,583	$239,828	$6,124,503
JACOBETTI COMPLEX		$214,472	$277,344	$3,719,119	$4,210,934
JACOBETTI STORAGE		$26,147	$5,217	$69,109	$100,472
KAYE HOUSE			$47,594	$2,425	$50,019
LEARNING RESOURCE CENTER	$113,859	$808,894	$13,741,497	$3,263,275	$17,927,524
LRC/WS LINK		$3,433	$9,577	$26,065	$39,075
McCLINTOCK BUILDING		$174,233	$685,509	$999,408	$1,859,149
PHYSICAL EDUCATION INSTRUCTION FACILITY		$2,031,936	$2,599,013	$1,871,122	$6,502,071
RIPLEY HEATING PLANT		$5,873	$182,070	$46,437	$234,380
SAM M. COHODAS ADMINISTRATIVE CENTER	$12,988	$63,887	$3,583,570	$4,937,128	$8,597,572
SERVICES BUILDING			$146,295	$306,449	$452,744
SUPERIOR DOME			$1,908,262	$1,773,575	$3,681,838
THOMAS FINE ARTS		$549,266	$649,636	$1,329,516	$2,528,418
UC/GRIES LINK		$12,417		$64,099	$76,516
WALTER F. GRIES HALL		$459,957	$2,364,276	$1,319,145	$4,143,378
WHITMAN HALL				$269,747	$269,747
Grand Total	**$547,800**	**$5,460,705**	**$32,623,407**	**$23,938,795**	**$62,570,707**

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	$47,890	$383,378	$4,110,077	$535,157	$5,076,501
CHARLES C. SPOONER RESIDENCE HALL	$110,721		$6,959,890	$493,507	$7,564,117
DON H. BOTTUM UNIVERSITY CENTER	$175,958	$103,571	$15,901,154	$2,831,590	$19,012,273
GANT HALL	$74,897	$95,900	$6,399,432	$1,870,088	$8,440,317
GUNTHER C. MEYLAND RESIDENCE HALL		$54,032		$236,632	$290,664
LINCOLN STREET APARTMENTS	$146,852	$518,169	$5,340,124	$1,522,981	$7,528,126
LUCIAN F. HUNT RESIDENCE HALL		$44,594	$253,681		$298,276
MAGERS HALL		$90,685		$253,681	$344,366
MAUDE L. VAN ANTWERP RESIDENCE HALL		$44,594		$253,681	$298,276
NORWOOD STREET APARTMENTS	$64,261	$1,024,556	$4,474,786	$153,409	$5,717,011
QUAD 1	$19,218	$176,635	$1,943,469	$357,419	$2,496,741
QUAD 2	$100,090	$874,863	$4,183,588	$657,521	$5,816,061
SPALDING HALL	$137,928	$485,637	$1,839,324	$6,056,630	$8,519,518
SUMMIT STREET					$3,016,865
WILBUR D. WEST RESIDENCE HALL	$77,601	$163,741	$6,526,769	$569,262	$7,337,373
WILKINSON HOUSE			$185,522		$185,522
WOODLAND PARK APARTMENTS		$152,192		$358,176	$510,368
Grand Total	**$955,416**	**$4,212,546**	**$58,117,814**	**$16,149,735**	**$82,452,376**

Facility Assessment Summary

Building	Service Area	2017-2018 Replacement Cost	Year Constructed	Construction Type	Gross Square Footage	Net Square Footage	Use Code	Standards	Accessibility	Electrical	Exterior	Fire	Health	HVAC	Interior	Plumbing	Security	Site	Maintenance Project Total
1020 Wright Sreet - Fab Shop	Academic/Admin	$456,847			4,000	4,000	ST	1											
1020 Wright Street - Industrial Piping	Academic/Admin	$395,859			3,400		AD	1											
1020 Wright Street - Storage	Academic/Admin	$365,478			3,200	2,900	ST	1											
1400 Presque Isle	Academic/Admin	$432,187			4,762			1											
1422 Presque Isle	Univeristy Center	$1,245,948	1972		6,000	4,256	RS	1											
1500 Wilkinson Avenue	Housing	$959,380	1952	F	4,623	2,742	RS	1		$ 67,925	$ 37,203			$ 2,366	$ 26,530	$ 9,569		$ 41,928	$185,521
1716 Presque Isle Building	Univeristy Center	$1,308,245	1960	FR	6,300	6,300	RS	1											
1804 Tracy Avenue	Univeristy Center	$115,183	1954	FR	2,230	2,230	RS	1											
Art & Design North	Academic/Admin	$26,759,691	1996	FR	101,428	83,550	CL	1	$ 19,621	$ 78,295	$ 489,491	$ 20,805		$ 158,392	$ 338,423	$ 16,846		$ 16,079	$1,137,952
Berry Events Center	Intercollegiate Athletics/Rec.	$35,105,144	1999	FR	133,060	75,740	CG	1						$ 535,320	$ 336,059				$871,379
Bus Garage - 1901 Enterprise	Academic/Admin	$283,246		ST	2,480	2,437	ST	1			$ 4,354	$ 1,302		$ 14,966	$ 5,215	$ 1,608			$27,445
Butler Building	Academic/Admin	$728,671	1950	FR	6,380	6,411	ST	1		$ 11,086	$ 2,177	$ 63,005							$76,268
C.B. Hedgcock	Academic/Admin	$30,800,767	1958 /2005	M	116,745	99,210	AD	1							$ 592,465				$592,465
C.C. Spooner Hall	Housing	$12,594,372	1957	FR	55,136	38,637	RS	1	$ 1,945,110	$ 972,546	$ 172,580	$ 211,916		$ 1,761,921	$ 575,490	$ 1,844,760	$ 28,890	$ 50,904	$7,564,117
Center Street Apartments	Housing	$8,839,999	1967	M	38,700		RS	1	$ 573,330	$ 946,560	$ 509,652	$ 405,286		$ 749,185	$ 775,986	$ 1,063,968	$ 34,245	$ 18,289	$5,076,501
D. J. Jacobetti Vocational Skill Center	Academic/Admin	$55,187,576	1980	FR	209,179	193,817	CL	1	$ 568,954	$ 104,350	$ 686,963	$ 55,006		$ 1,171,429	$ 1,201,411	$ 262,820		$ 160,001	$4,210,934
Dome Storgae	Intercollegiate Athletics/Rec.	$479,690	1998		2,800	2,592	ST	1											
Dome/PEIF Link	Intercollegiate Athletics/Rec.	$726,033	1991	NC	2,760	2,466	BC	1		$ 13,839	$ 2,963			$ 6,594					$23,396
Don H. Bottum University Center	Univeristy Center	$39,227,743	1959 / 1996	NC	148,686	133,362	AD,SU,FS	1	$ 562,865	$ 2,616,710	$ 2,385,971	$ 279,529	$ 512,936	$ 5,237,129	$ 4,373,641	$ 3,023,303		$ 20,190	$19,012,274
Dow Storage	Intercollegiate Athletics/Rec.	$296,037	2002		1,728	1,728	ST	1											
E.L. Harden Learning Resource Center	Academic/Admin	$342,220	1969	FR	198,781	175,246	CL,LB,SU	1	$ 136,744	$ 2,577,871	$ 1,213,296	$ 1,323,404		$ 5,727,545	$ 2,996,106	$ 3,944,717		$ 7,843	$17,927,526
Forest A. Roberts Theatre	Academic/Admin	$8,100,618	1964	FR	30,704	22,510	TH	1	$ 99,147	$ 294,498	$ 33,963	$ 213,864		$ 840,482	$ 8,179	$ 48,934		$ 17,990	$1,557,057
G.C. Meyland Residence Hall	Housing	$14,549,907	1966 / 2006	FR	63,697	58,849	RS	1				$ 54,032			$ 236,632				$290,664
G.A. Spalding Residence Hall	Housing	$12,780,080	1964	FR	55,929	48,078	RS	1	$1,807,128	$1,072,890	$536,583	$523,640		$1,708,790	$941,278	$1,848,800	$41,574	$38,835	$8,519,518
Harry D. Lee Hall	Academic/Admin	$11,214,598	1949	M	42,507	36,395	AD	1	$ 1,092,736	$ 776,020	$ 530,580	$ 465,819		$ 1,360,030	$ 1,078,684	$ 802,515	$ 18,118		$6,124,503
Hedgcock/TFA Link	Academic/Admin	$829,744	2004		3,145	2,977	BC	1											
Jacobetti Storage	Academic/Admin	$1,602,764	1988	ST	6,075	5,820	ST	1	$ 1,099		$ 14,168	$ 26,147			$ 29,832			$ 29,227	$100,473
John X. Jamrich Hall	Academic/Admin	$31,210,990	2014	FR	133,000	117,575	CH	1											
Kaye House-Official Residence	Academic/Admin	$2,333,634	1980	FR	8,173	6,599	RS	1		$ 11,158	$ 1,000			$ 1,465	$ 36,396				$50,019
L.F. Hunt Residence Hall	Housing	$14,517,472	1967 / 2008	FR	63,555	50,349	RS	1				$ 44,594			$ 253,681				$298,275
L.O. Gant Residence Hall	Housing	$12,775,512	1964	FR	55,929	48,078	RS	1	$ 2,261,727	$ 1,072,537	$ 336,914	$ 165,472		$ 1,708,153	$ 966,684	$ 1,848,422	$ 41,574	$ 38,835	$8,440,318
L.S. West Science Building	Academic/Admin	$51,858,947	1966	FR	159,319	138,241	CL	1,4											
Lincoln Street Apartments	Housing	$19,023,133	1980	F	84,336	65,122	RS	1	$ 2,343,908	$ 1,422,614	$ 131,608	$ 624,065			$ 1,047,563	$ 1,788,378	$ 15,288	$ 154,702	$7,528,126
LRC/West Science Link	Academic/Admin	$1,789,818	1996	NC	6,784	5,376	BC	1	$ 10,828			$ 3,433			$ 24,814				$39,075
M.K. Magers Residence Hall	Housing	$14,294,529	1966 / 2005	FR	62,579	50,794	AD	1				$ 90,685			$ 253,681				$344,366
M.L. Vanantwerp Residence Hall	Housing	$14,534,146	1967 / 2007	FR	63,628	53,481	RS	1				$ 44,594			$ 253,681				$298,275
Microwave Link (Stl) Morgan Mead	Academic/Admin	$171,318	1972	FR	1,000	1,000	PP	1											
New Science Facility	Academic/Admin	$40,557,779	2000	FR	124,600	109,538	CL,CH	1,3	$ 2,541		$ 98,479	$ 54,824			$ 1,111,483	$ 23,262			$1,290,589
Norwood Street Apartments	Housing	$8,025,440	1967	M	35,134	33,324	RS	1	$ 755,211	$ 1,077,047	$ 395,711	$ 469,411		$ 946,229	$ 780,711	$ 1,241,958	$ 50,734		$5,717,012
PEIF/Berry Events Center Link	Intercollegiate Athletics/Rec.	$47,390,889	1999	NC	10,092	8,936	BC	1	$ 3,781	$ 1,956					$ 50,797				$56,534
Phys. Ed. Instruction Facility	Intercollegiate Athletics/Rec.	$26,759,691	1976	FR	179,627	161,298	CG	1	$ 76,470	$ 1,165,544	$ 838,839		$ 12,244	$ 452,404	$ 1,520,338	$ 2,436,231			$6,502,070
Quad I Common Area	Housing	$19,715,181	1964	FR	74,727	72,473	FS	1	$ 50,378	$ 147,560	$ 216,479	$ 183,195	$ 96,658	$ 816,749	$ 498,361	$ 474,352		$ 13,010	$2,496,742
Quad II Common Area	Housing	$21,356,201	1966	FR	80,947	70,156	RS	1	$ 109,010	$ 834,812	$ 396,653	$ 486,793		$ 3,060,897	$ 874,387	$ 47,491		$ 6,018	$5,816,061
R. Thomas Fine Arts Building	Academic/Admin	$23,767,602	1964	FR	90,087	64,217	CH	1	$ 53,650	$ 388,183	$ 696,379	$ 272,762		$ 534,991	$ 547,917	$ 31,214		$ 3,322	$2,528,418
Ripley Heating Plant	Academic/Admin	$31,711,638	1965 / 2013	FR	35,190	27,634	PP	1		$ 10,297	$ 172,209	$ 6,044		$ 26,701	$ 5,907	$ 13,221			$234,379
Salt Barn	Academic/Admin	$508,928	1996	F	4,456	4,115	ST	1											
Sam M. Cohodas Hall	Academic/Admin	$27,704,465	1975	FR	105,009	92,376	AD	1	$ 389,353	$ 373,743	$ 1,963,218	$ 514,179		$ 4,352,406	$ 986,736			$ 17,937	$8,597,572
Services Building	Academic/Admin	$24,807,354	1996	M	94,028	91,225	PP	1		$ 47,833	$ 34,548				$ 359,736	$ 9,627		$ 1,000	$452,744
Storage Building	Academic/Admin	$49,681	1998	ST	3,760	3,760	ST	1											
Summit Street Apartments	Housing	$3,613,208	1958	M	30,816		RS	1											$3,016,865
Superior Dome	Intercollegiate Athletics/Rec.	$12,594,372	1991	F	251,436	213,296	CG	1	$ 34,884	$ 1,567,991	$ 255,870			$ 149,648	$ 1,557,836	$ 111,247		$ 4,360	$3,681,836
Transmitter Site-Ely Township	Academic/Admin	$342,122	1972	FR	1,997		PP	1											
UC/Gries Link	Academic/Admin	$804,416	1995	NC	3,049	2,740	BC	1	$ 36,408		$ 25,370	$ 12,417			$ 2,321				$76,516
Vielmetti Health Center	Academic/Admin	Included with Gries Hall	1961 / 2001		7,838	7,038	AD		$ 22,087	$ 1,000		$ 11,771			$ 99,440	$ 1,000		$ 3,985	$139,283
W. B. McClintock Building	Academic/Admin	$8,858,074	1964	M	33,575	32,382	CH	1	$ 54,116	$ 111,037	$ 523,927	$ 57,377		$ 636,956	$ 399,936	$ 51,680		$ 24,120	$1,859,149
W.D. West Residence Hall	Housing	$13,259,542	1960	FR	58,048	49,594	RS	1	$ 2,196,843	$ 1,092,034	$ 422,220	$ 220,244			$ 1,153,505	$ 2,156,225	$ 36,641	$ 59,661	$7,337,373
W.F. Gries Hall	Academic/Admin	$15,361,733	1961	FR	58,226	48,564	AD	1,2	$ 1,306,838	$ 1,103,323	$ 287,127	$ 179,957		$ 474,982		$ 778,655		$ 12,495	$4,143,377
Whitman Hall	Academic/Admin	$9,471,476	1953 / 2003		35,900	31,000	CH,AD	1											$269,747
Woodland Park Apartments	Housing	$23,984,493	2006		105,000	94,757	RS	1				$ 152,192			$ 358,176				$510,368
The Woods - Birch West	Housing	$12,337,946	2017		55,475		RS	1											
The Woods - Cedar West	Housing	$12,337,946	2017		55,475		RS	1											
CAMPUS SECURITY																	$ 553,723		$553,723
HARDSCAPE									$ 16,911									$ 1,230,073	$1,246,984
UTILITY INFRASTRUCTURE										$ 1,578,584	$ 337,258			$ 28,215,473		$ 315,452			$30,446,767
																		Total	**$177,270,556**

Deferred Maintenance total has been updated based on project completed in 2016 and remaining projects adjusted by 4.96% 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

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

Facility Assessment

Long-Term Maintenance

Since September 2016, Northern has addressed long-term maintenance needs of $5.36 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:

- *801 Center St. & 800 & 801 Summit St. Apartments Demolition*
- *Beaumier Alumni Welcome and U.P. Heritage Center*
- *Berry Event Center Scoreboard Replacement*
- *Cohodas First Floor Renovations*
- *Cosmetology Lab Renovations*
- *Fieras HVAC System Upgrades*
- *Fire Alarm System Replacement in Multiple Buildings*
- *Forest Roberts Theatre Lobby Renovations*
- *Gries Hall Academic Department Renovations*
- *Gries Hall Chiller Replacement*
- *Halverson Hall Demolition*
- *Learning Resource Center Transformer Replacement*
- *New Science Facility Phoenix Controls Upgrades*
- *Parking Lot Repairs*
- *PEIF Satellite Recreation Center*
- *Recreation Complex Locker Room Renovation*
- *Security System Cameras*
- *Services Building Chiller Replacement*
- *Superior Dome Field Lighting Replacement and Energy Savings Project*
- *University Center Dishwasher Replacement*
- *Wayfinding/Building Sign Replacement*
- *West Science Nursing Simulation Lab Renovation*
- *West Science Radiography and Seaborg Storage Renovation*

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

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

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

Below is a summary of *General Use Classroom Utilization* by building for Fall 2017 (Monday/Friday – 10 a.m. - 3 p.m.)

Building	# of General Use Classrooms	Average Room Utilization %	Average Seat Utilization %
Edgar L. Harden Learning Resources	4	59%	69%
John X. Jamrich Hall	24	83%	66%
Luther S. West Science Building	16	67%	72%
New Science Facility	2	69%	90%
Russell Thomas Fine Arts	6	56%	69%
Wayne B. McClintock Building	7	69%	62%
Whitman Hall	2	77%	68%
Total	***61***	***72%***	***67.5%***

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

Space Distribution

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-inch water main was installed to serve both the Jamrich Hall Replacement Project and the Learning Resource Center. During the summer of 2014, 335 feet of new water main was installed around the McClintock building to replace an old municipal main that ran under the building's foundation. During Summer 2016, 1,900 feet of water main was replaced and relocated as part of NMU's new residence hall project. Also, 1,400 feet of 3-inch water main has been abandoned with the demolition of 801/821 Center and 800/801 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.

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. Also, 1,050 feet of steam and condensate line have been abandoned with the demolition of 801/821 Center and 800/801 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 2016-2017, a 12.47 kV feed to Payne and Halverson Hall from the Quad I complex has removed as part of building demolition. In 2017, a new primary service from the Marquette Board of Light and Power was installed to feed The Woods residence hall complex.

Gas

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

Phone

The existing Avaya MCC1 phone system cabinets, installed in 1997, were replaced in 2017 with the more efficient Avaya G450 gateways by NMU, with the exception of the Learning Resource Center cabinet, which is slated to be completed by year's end. The DC plants and battery strings for MCC1 cabinets were also eliminated. All of the new G450 Gateways use AC power and are connected to emergency generators for continued operation during emergency situations. The core of the phone system, basically the central processing point of the phone switch, was upgraded in 2014. With the completion of the 2017 upgrade project, both the core and cabinet components of the phone system are considered to be in very good condition.

Existing campus phone lines (19,629 feet) were installed in 1985 by ATT Technologies. The buried lines are fiber optic and 24-gauge copper twisted pair. The existing fiber optic ring provides a redundant path between the main server rooms on campus. The wiring plant of the phone system, both copper and fiber, is also in very good condition with a few noted exceptions. The copper wire that serves the UC was damaged when its conduit was crushed during a reconfiguration/repaving of the UC parking lot. The situation will require a permanent fix and is set to be replaced as part of

Assessment of Campus Utilities System

Phone (continued)

the UC renovation. The copper line serving the apartments west of Lincoln Avenue has been damaged and spliced nearly a dozen times over the last 20 years by various construction projects and snow plows. A replacement, including an improved data service to that area, needs to be addressed within the next two years. Finally, with the retirement of the Summit apartments, the copper plant that feeds those apartments from the Learning Resource Center will be abandoned in place from the first pedestal on the east side of Tracey Avenue.

Storm

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

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

Sanitary

There are 43,332 feet of sanitary sewer lines on campus. Aging sanitary sewer lines are updated with new construction, as permitted. During the 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.

Utility System	*Need Year*	*Estimated Cost*	
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-foot access drive was constructed to the Sports and Recreation Complex to improve vehicle ingress and egress to the site. During the summer of 2017, 1,300 feet of on-campus roads were reconstructed at the Sports and Athletics Campus and in the Academic Core of campus.

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

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

Assessment of Campus Infrastructure

Parking (6,609+ 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 inch 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, 190 and 58 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.

During the summer of 2017, both minor and major reconstruction was completed in parking lots 5, 11, 13, 22, 60, and 62.

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 sites eNB's have replaced all existing 802.16e Mobile WiMAX base stations, 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 is also being expanded across the Upper Peninsula with the addition of 64 new sites to meet the needs of the entire educational community. Any university, community college, or K-12 student that lives in the Upper Peninsula and resides in an area covered by NMU LTE network can purchase service to access the educational services provided by their educational institution. This expansion will be complete by the end of 2019.

Building Bonds

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

Fiscal Year	Principal	Interest	Total
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
2022	4,660,000	2,994,041	7,654,041
Total Five Years	24,235,000	17,301,568	41,536,568
Thereafter			
2023-2027	24,210,000	11,647,169	35,857,169
2028-2032	23,960,000	6,049,156	30,009,156
2033-2037	11,615,000	1,579,359	13,194,359
2038-2039	1,160,000	58,750	1,218,750
Total	85,180,000	$36,636,002	$121,816,002
Deferred charge on refunding, net	(2,804,226)		
Deferred re-offering premium	1,817,764		
Total	$84,193,538		

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

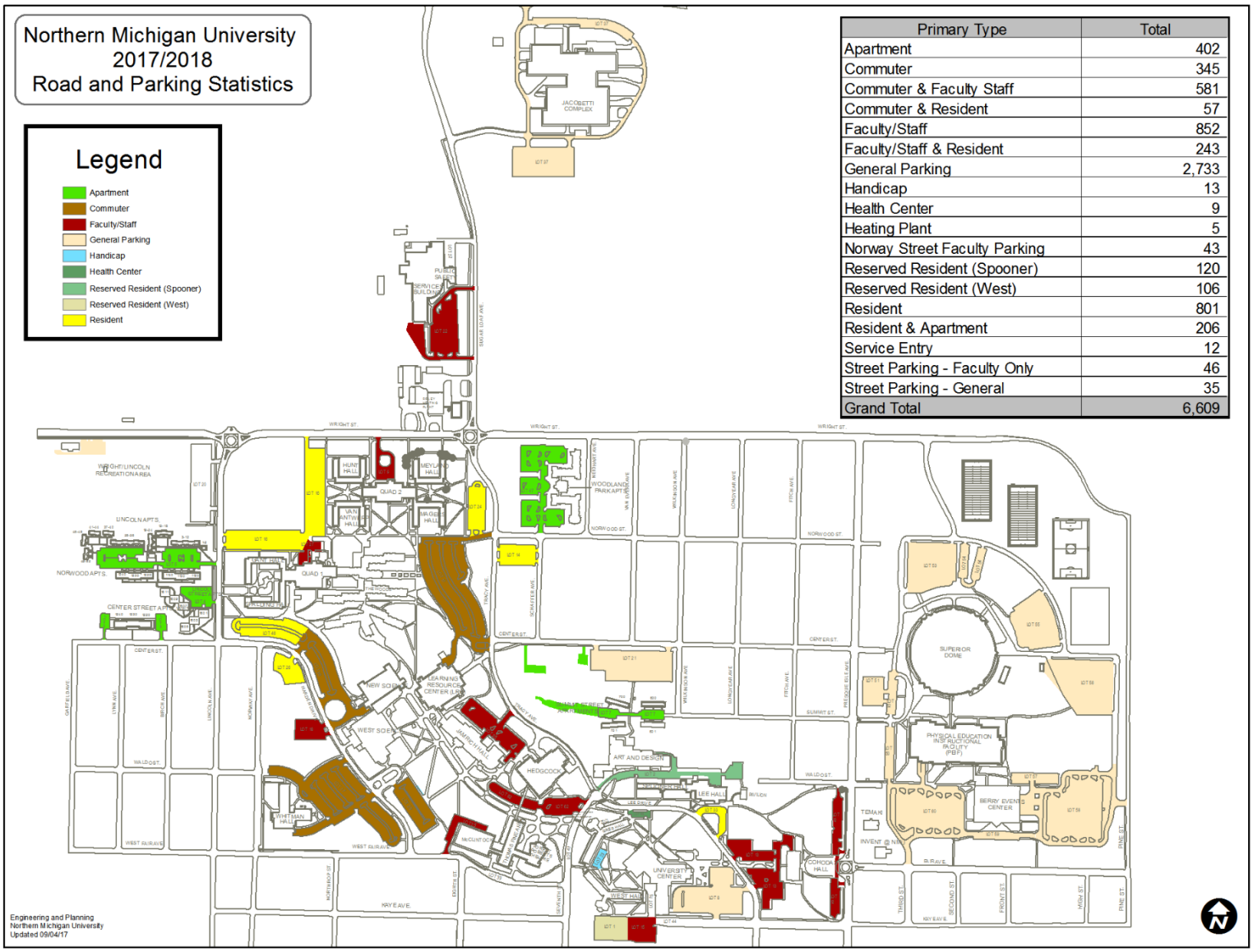
Glen T. Seaborg Science Complex Renovation and Addition
Phase 1 100% obligated Expires 35 years from March 1, 2001, unless earlier terminated
Phase 2 100% obligated Expires 35 years from November 1, 2001, unless earlier terminated

Fine and Practical Arts Project – Art and Design and Russell Thomas Fine Arts
100% Obligated Expires 35 years from November 1, 2005, unless earlier terminated

Student Services Building Project
100% Obligated Expires 35 years from November 1, 2005, unless earlier terminated

John X. Jamrich Hall
100% Obligated Expires 35 years August 31, 2015, unless earlier terminated

Northern Michigan University
2017/2018
Road and Parking Statistics



Primary Type	Total
Apartment	402
Commuter	345
Commuter & Faculty Staff	581
Commuter & Resident	57
Faculty/Staff	852
Faculty/Staff & Resident	243
General Parking	2,733
Handicap	13
Health Center	9
Heating Plant	5
Norway Street Faculty Parking	43
Reserved Resident (Spooner)	120
Reserved Resident (West)	106
Resident	801
Resident & Apartment	206
Service Entry	12
Street Parking - Faculty Only	46
Street Parking - General	35
Grand Total	6,609

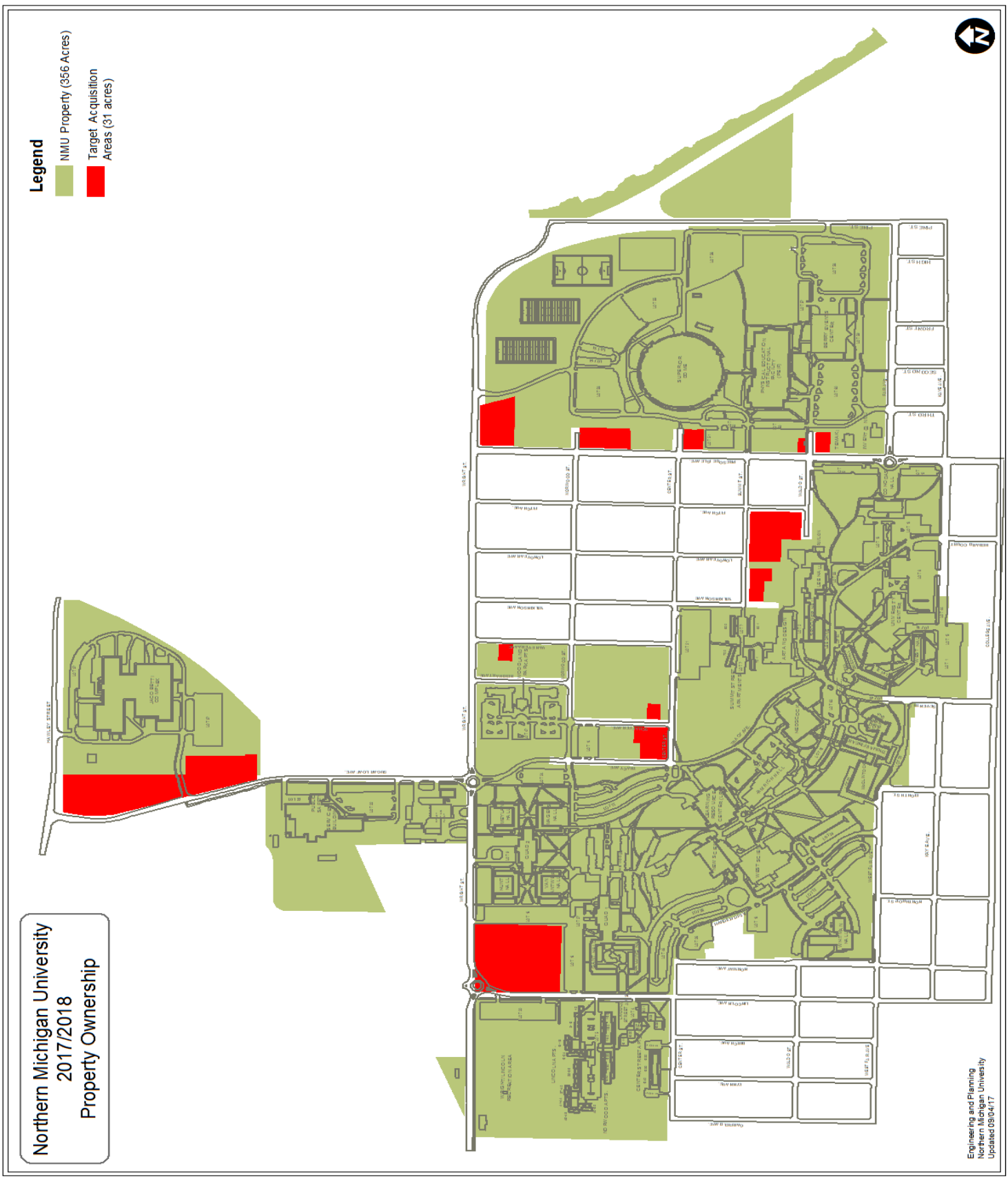
Engineering and Planning
Northern Michigan University
Updated 09/04/17

NORTHERN MICHIGAN UNIVERSITY

ASSESSMENT OF UNIVERSITY LAND

University Land

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


Legend
NMU Property (356 Acres)
Target Acquisition Areas (31 acres)
Northern Michigan University
2017/2018
Property Ownership
Engineering and Planning
Northern Michigan University
Updated 09/04/17

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 118th birthday on September 19, 2017. 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 2019 Capital Outlay Project Priorities

Career Tech and Engineering Technology Facility

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

Academic Teaching and Business Innovation Center

The new Academic Teaching and Business Innovation Center will breathe new life into an old academic building (McClintock) and create an economic development center that can create products, jobs, businesses and, perhaps, even industries for the Upper Peninsula of Michigan. The Center will not only provide a state-of-the-art home for the 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 2019 Capital Outlay Project Priorities

Career	*Total Project Cost (in thousands)*
Career Tech and Engineering Technology Facility	$26,500
Academic Teaching and Business Innovation Center	$12,500

NORTHERN MICHIGAN UNIVERSITY

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Institution Name:	Northern Michigan University
Project Title:	*Career Tech and Engineering Technology Facility*
Project Focus:	☒Academic ☐Research ☒Administrative/Support
Type of Project:	☒Renovation ☐Addition ☐New Construction
Program Focus of Occupants:	*STEM programs and Vocational-Technical Programs*
Approximate Square Footage:	113,000
Total Estimated Cost:	*$26,500,000*
Estimated Start/Completion Dates:	May 2019/August 2021

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 three primary goals of the project are:

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

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

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

This $26.5 million building renewal project will build on NMU's success in the use of technology and provide graduates and those being retrained with greater opportunities for success through a collaborative learning environment. The project is specifically intended to target programs in the technology, industrial and service-related fields 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, it will also allow for future program diversification and the ability to quickly configure the labs. It will also transform the building itself into a working laboratory. The building's infrastructure – its mechanical and electrical systems – will become part of the teaching environment. By creating "windows" into the building's HVAC and electrical systems, this facility will encourage students to pose questions, construct and interpret ideas, and elaborate on thoughts of others both in and outside of traditional classrooms and laboratories, greatly enhancing the impact this project will have on our future workforce.

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 Career Tech and Engineering Technology Facility include career-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 and power plant mechanics in regional and statewide industries such as mining operations, aircraft repair facilities, construction, manufacturing, hospitality and paper and pulp production.

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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 that 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 careers, and fulfill personal development goals. This project will build on our success in technology implementation and provide graduates with a greater understanding of subject matter through a collaborative, high-tech learning environment for on-campus instruction and when the subject matter permits, our LTE network will provide NMU with the ability to deliver education and training from this newly renovated facility to the rural areas of Michigan providing a broader range of skills adding value to the local, regional and state economy.

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

NMU is an important part of the Marquette and the Upper Peninsula economy. The renovation project will assist 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.

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

Describe the Scope of The Project:

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

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

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

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

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

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

The unique structure of the new College of Technology and Occupational Sciences provides an academic environment 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.

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

Ten of Michigan's Top 25 Emerging/Future In-Demand Occupations are associated with programs located in the building that will benefit from renovations as part of this project. Occupations such as CNC machine programmers, HVAC mechanics and installers, 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.

CNC Machine Programmers, Metal & Plastic	37.9% growth
Industrial Machinery Mechanics	25.3% growth
1st-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 job loss due to reductions within the mining and anticipated losses in the energy industry, programs within the Career Tech and Engineering Technology Facility are supporting economic diversification and helping to retrain those in need of new careers.

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

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

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

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

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

All programs taught in the building through NMU's College of Technology and Occupational Sciences and the Department of Engineering Technology are hands-on, applied instruction focused on students engaged in 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 economically. The programs' applied nature differs from the more theoretical focus of most traditional four-year institutions, which do not usually include the same real-world application, using industry-skilled tradespeople to teach the programs.

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

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

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

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

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

This project is a direct investment into an aging, early 1980’s industrial arts teaching facility. This re-purposing will utilize the existing structure, but modernize the building’s support systems and transform its classroom and laboratories to the meet the current academic and training needs of 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.

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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?

Utilization Measurement

NMU has taken a very aggressive approach to evaluating and improving space utilization. Through formal university adopted guidelines, the university has been able to meet new programmatic space needs within its existing campus footprint. This has been accomplished through the implementation of space scheduling and optimization software allowing NMU to continually track space utilization. These reports identify opportunities for scheduling improvement by academic departments and are provided and reviewed by all academic deans and department heads. Current average classroom utilization Monday through Friday is 72%, which aligns with the national standard. Utilization increases substantially to 95% for the same time period Monday through Thursday.

Proposed Project

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

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

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

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

7. Are matching resources currently available for the project? If yes, what is the source of the Match resources? If no, identify the intended source and the estimated timeline for securing said resources?

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

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

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

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

The project will have no impact on tuition.

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

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

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

The existing facility is structurally sound but fails to meet the special needs of the academic programs taught within this building. The planned renovations intend to utilize majority of the existing structure in its current configuration. 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.

NORTHERN MICHIGAN UNIVERSITY

FISCAL YEAR 2019
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 2019/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:

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

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

FISCAL YEAR 2019
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 2019
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 2019
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 2019
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.

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FISCAL YEAR 2019
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 2019
CAPITAL OUTLAY PROJECT REQUEST

Academic Teaching and Business Innovation Center *(continued)*

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

The project will have no impact on tuition.

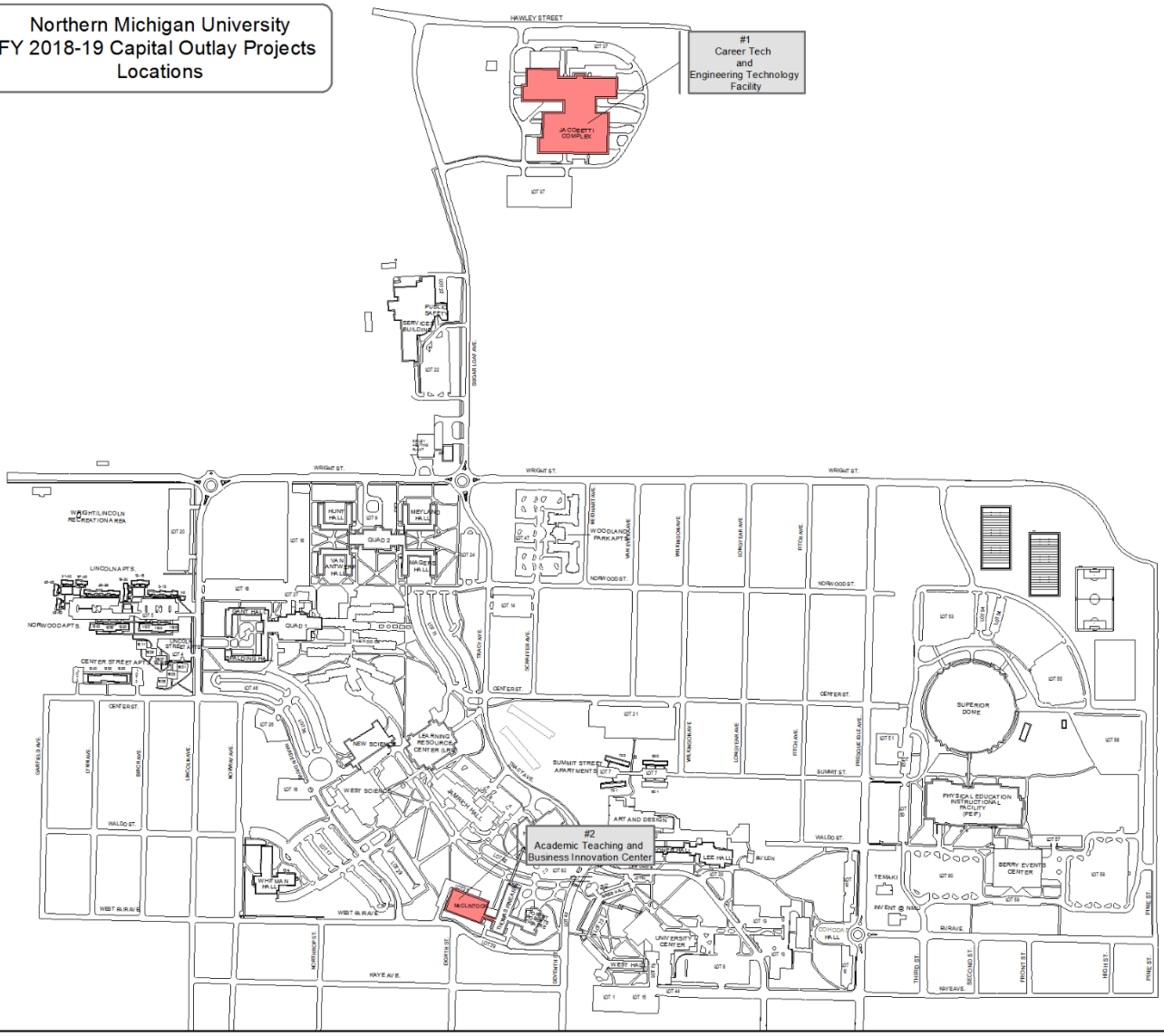
11. If this project is not authorized, what are the impacts to the institution and its students?

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

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

The construction of a new facility was considered; however, cost/benefit analysis illustrated the adaption of the existing space with an addition would be a more prudent use of resources. 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 2018-19 Capital Outlay Projects
Locations



Status of "In-Progress" State Building Authority Projects

NMU does not currently have any State Building Authority Projects.

University Projects
Completed – November 1, 2016 to November 1, 2017
With a Total Cost between $500,000 – $1,000,000

PEIF Satellite Recreation Center

Underutilized space in Quad II was renovated to create a student recreation center with free weights, cardio equipment and group exercise room. Construction was completed in September, 2017 for a project budget of $500,000 that was funded by designated funds.

Halverson Hall Demolition

Demolition of a 50-year-old residence hall, Halverson Hall, was completed to accommodate a new residence hall complex. Demolition was completed in July, 2017 for a project budget of $540,000 that was funded by capital reserves.

University Projects
Projects Planned November 1, 2017 to November 1, 2018
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 phases. Phase one consisted of two halls completed 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

Renovate facility to provide modern venue with ability to host larger events for up to 1,000 guests, new signature exterior façade, adequate pre-function/networking space, renovated break-out and meeting spaces, and greater visibility for Student Enrichment offices and student organizations. Address outstanding long-term maintenance and incorporate new venue(s) to attract students and community members. With the new design, the revitalized facility will meet university, community and regional needs. Estimated project budget is $21.8 million with construction being phased over two years.

Dining Services Marketplace Renovation

Relocate the dish room and convenience store to reconfigure the servery area and make it more open and welcoming. Renovations will expand the seating area and upgrade the exterior façade to tie to new housing complex. Estimated project budget is $5.8 million, with an additional $600,000 of annual equipment replacement.

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

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

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
2019 to 2023
With a Total Cost Over $1,000,000

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

	2019	2020	2021	2022	2023	Total
Fire Alarm Mass Notification - Housing	$ 1,058,000					$ 1,058,000
Total	$ 1,058,000					$ 1,058,000

Maintenance Projects
2019 to 2023
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 19 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 13 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 2019; 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 19 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
2018
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 2018

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 2018 are indicated on the following page.

Long-Term Maintenance Projects – 2018
With a Total Cost Less than $1,000,000

2018 Long Term Maintenance List	General Fund Budget	Auxiliary Fund Budget	Total Project Budget
Academic, Administrative and Recreation Buildings			
(Art & Design, Berry Events Center, Cohodas Hall, Learning Resources Center, New Science, PEIF, Superior Dome, West Science, Whitman Hall, other campus buildings)			
Interior Finishes Upgrades			
Drywall Repairs	$35,000		
Toilet Partition Replacement	$30,000		
Portable Floor Replacement	$150,000		
Locker Rooms Tile Regrouting	$50,000		
Elevator Upgrades	$70,000		
Miscellaneous	$100,000		
Interior Finishes Subtotal	**$435,000**		
Mechanical/Plumbing System Upgrades			
Air Handling Unit Replacement	$100,000		
Upgrade Phoenix Hood Control System Phase 2	$75,000		
Boiler Burner Replacement	$30,000		
Chiller Replacement	$120,000		
Swimming and Dive Pools Upgrades	$225,000		
Miscellaneous	$75,000		
Mechanical/Plumbing System Upgrades Subtotal	**$625,000**		
Electrical System Upgrades			
120/208 Volt Main Transformer Replacement	$69,500		
Lecture Halls Electrical Upgrades	$75,000		
Interior & Exterior LED Lighting Replacement	$155,000		
Sound System Replacement Study	$25,000		
Miscellaneous	$50,000		
Electrical System Upgrades Subtotal	**$374,500**		
Hardscape Infrastructure (Concrete, Asphalt, Irrigation, Landscaping, etc.)	**$75,000**		
Utility Infrastructure (Water, Sanitary, Storm, Steam, Electric, Gas, Telecom, etc.)	**$100,000**		
Building Envelope (Tuckpointing, Sealing Brick, Painting Exterior Doors, Repair EIFS, etc.)	**$100,000**		
Total General Fund Projects	**$1,709,500**		**$1,709,500**
Auxiliary Services Buildings			
(University Center/Dining Services/Marketplace)			
Interior Upgrades (stair treads)		$20,000	
Furnishings/Equipment Replacement		$50,000	
Equipment Replacement		$600,000	
Total Auxiliary Services Projects		**$670,000**	**$670,000**
Residence Life/Housing Buildings			
(Lincoln/Center/Norwood)			
Apartment Upgrades		$1,100,000	
Total Residence Life/Housing Projects		**$1,100,000**	**$1,100,000**
Total Budget	**$1,709,500**	**$1,770,000**	**$3,479,500**

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.

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 and Counseling Center. This change 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. 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 and two of the filter tanks will need to be replaced in the next few years. This interim maintenance project cost approximately $200,000 for the piping and $225,000 for the filter tanks.

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

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

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

During 2016 and 2017, the remainder of the NMU's building identifier signs and pedestrian kiosk signs, along the primary walking route throughout campus, were replaced and/or installed. The remaining phase of this project includes parking lot designator signs, vehicle guide signs and additional campus entry signs associated with roadway work being undertaken by the City of Marquette.

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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