



**NORTHERN MICHIGAN UNIVERSITY**

# **FIVE-YEAR FACILITIES MASTER PLAN**



**October 2022**



# Table of Contents

## Section I – University Mission

Mission and Vision .....	4
Core Values.....	5

## Section II – Instructional Programming

Strategic Direction: Preparing for the Future .....	7
Academic Programs .....	10
Academic Affairs Division Organizational Chart .....	18
Existing Academic Programs and Projected Programming Changes.....	19
Initiatives / Academic Program Needs with Impact on Facilities.....	25
Community Presence Activities .....	27
Economic Impact / Partnerships with Business and Industry .....	33

## Section III – Enrollment and Staffing

### Enrollment – Fall 2022

Headcount.....	46
Recruiting Region .....	47
Where Students Live.....	48
Full-time / Part-time Status.....	49
Full Year Equated Student (FYES) Change.....	50
Freshmen Change .....	52
Class Size .....	53

### Staffing

FTE by Employee Category .....	54
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## Section IV – Facility Assessment

### Facility Overview

Introduction .....	56
NMU and Sustainability.....	57
Physical Plant Overview.....	64
Facilities Condition Cost Analysis by Priority Class – State Buildings.....	65
Facilities Condition Cost Analysis by Priority Class – Auxiliary Buildings .....	66
Facility Assessment Summary .....	67
Long-Term Maintenance and Space Utilization Initiatives .....	72
Assessment of Campus Utilities System.....	74
Assessment of Campus Infrastructure .....	77
Building Bonds .....	82
Map – Road and Parking Statistics .....	83

### Assessment of University Land

University Land .....	85
Map – Property Ownership .....	86



## Table of Contents

### **Section V – Facilities Implementation Plan**

Introduction .....	88
FY 2024 Capital Outlay Project Priority .....	89
Map – Project Location.....	103
Status of “In-Progress” State Building Authority Projects .....	104
University Projects – Completed .....	105
University Projects – Planned.....	106
Maintenance Projects.....	108
Future University Projects .....	112



NORTHERN MICHIGAN UNIVERSITY

# Section I

## Mission



## Mission Statement

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

## Vision Statement

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





## CORE VALUES

### COMMUNITY

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

DISTINCTLY NORTHERN  
CORE VALUES



### OPPORTUNITY

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

### RIGOR

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

### ENVIRONMENT

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

### INCLUSION

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

### CONNECTIONS

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

### INNOVATION

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



NORTHERN MICHIGAN UNIVERSITY

# Section II

## Instructional Programming



## Strategic Direction: Preparing for the Future

The NMU 2022 Interim Strategic Plan, approved by the NMU Board of Trustees in December 2021, both positions Northern today for a healthy transition of leadership and sets the University up for the future. The interim strategic plan helps to tell the story of Northern Michigan University, while at the same time will guide new leadership as they begin to learn about all that makes Northern distinct in its higher education and regional leader missions. The plan is meant to serve the Northern community for the next 18-24 months.

The interim plan will act as a guidepost supporting all the members of the NMU community—students, staff, faculty and administrators—in building toward a shared vision. Transitions in leadership positions such as the president, provost, and chief diversity officer will mean significant change for the future of NMU. With a new president in place, a timeline for developing a more long-term plan will be established.

The interim plan has five focus areas:

- Diversity, Equity, Inclusion and Belonging
- Builders of a Culture of Sustainability
- Emergency Focus Area: COVID-19
- New markets, new supports
- Rural roots

**DIVERSITY, EQUITY, INCLUSION and BELONGING** will create and embrace a university-wide culture of inclusion and belonging for all members of the NMU community.

NMU acknowledges that historical patterns of oppression in US society—beginning with colonization, and continuing with racial and ethnic discrimination, and mistreatment of LGBTQIA+ people and people with disabilities and other marginalized populations—also exist on college campuses. NMU must commit to understanding those patterns and work to create a more just university and society. We must recognize that diversity, equity, inclusion and belonging (DEIB) do not simply exist with a statement but rather must be sewn into the fabric of our university culture and values. NMU must ensure the sustainability of the comprehensive, transformative work of diversity, equity, inclusion and belonging, and understand the long journey that will create a community where everyone feels safe, supported, and included. Some of the goals in this area include:

- Launching collaborations across our campus to create, foster, and continuously strengthen a comprehensive, university-wide, long-term DEIB action plan
- Recruiting and retaining faculty and staff of diverse backgrounds at all levels of employment
- Recruiting and retaining students of diverse backgrounds
- Integrating diversity, equity, accessibility, and inclusion in academics





## Strategic Direction: Preparing for the Future

**BUILDERS OF A CULTURE OF SUSTAINABILITY** will enhance and grow sustainability efforts and education throughout the planning, operations, education, research and service aspects of the university.

Sustainable actions are commonly defined as those that meet the needs of the present without compromising the ability of future generations to meet their own needs. Most definitions of sustainability emphasize the intersection of environmental protection, economic development and social equity. Thus, a focus on sustainability reinforces other focus areas such as diversity, equity and inclusion and rural roots. Building a culture of sustainability will require a comprehensive strategy that infuses sustainability considerations into all university-wide decision-making, curricula and outreach efforts. This coordinated approach builds on existing goals outlined in NMU's 2030 Sustainability Plan and Campus Energy Master Plan, which have been developed in consultation with the Sustainability Advisory Council, the Carbon Neutrality Task Force and the efforts of many students, staff and faculty across campus. Coordinating these efforts will bring NMU's performance in this area to the next level, and will promote NMU's reputation as a regional leader in sustainability. Some of the goals in this area include:

- Emphasizing sustainability in operations and in campus-wide policies
- Implementing first steps towards achieving carbon neutrality by 2050
- Improving waste and recycling efforts
- Providing a sustainable dining experience
- Creating new, interdisciplinary sustainability curricula, including hands-on learning experiences
- Educating students and community about different sustainability principles and practices
- Building local and regional partnerships to expand educational opportunities
- Supporting applied sustainability-related research

**EMERGENCY FOCUS AREA: COVID-19** ensures long-term emergency planning success by reflecting on what we have learned during the COVID-19 pandemic.

Thoughtful and careful emergency pre-planning helped us establish a strong mitigation response during COVID-19. As we plan for a shift to an endemic state, it is important to reflect and make updates to our traditional emergency planning and training practices based on what the COVID-19 pandemic has taught us about planning for long-term crises. Some of the goals in this area include:

- Transitioning from COVID-19 pandemic to endemic state
- Identifying those adaptations that were put into place in response to COVID-19 that should be retained and incorporated into the University's academic and general operations as ongoing good practice to meet the needs and expectations of post-COVID students, faculty, and staff



## Strategic Direction: Preparing for the Future

**NEW MARKETS, NEW SUPPORTS** will grow and support our student body by identifying new markets, developing new academic offerings, and supporting our students' mental and physical health.

NMU recognizes the necessity for highly effective recruitment and retention programming. Demographic and other external factors will create strains on enrollment and resources in the coming decade. In order to plan for these challenges, significant investments in enrollment and student success strategies are needed. Goals in this area include:

- Increasing NMU's competitive edge in attracting students
- Leveraging the unique programs offered by NMU to attract students
- Increasing diversity of the student body
- Engaging in proactive advising, leveraging student success technology and student-centered analytics
- Strengthening support for mental health and physical well-being
- Driving academic innovation of new and existing programs to attract new students
- Employing new, flexible and adaptive methods of content delivery to better meet the needs of current and future students

**RURAL ROOTS** leverage our unique rural location and expertise to serve rural communities by providing health services, economic models, workforce talent, and continuing education opportunities.

According to the U.S. Census Bureau and Office of Management and Budget, all communities within the Upper Peninsula are rural, and because of its location and the students that it serves, NMU is considered a rural-serving institution, according to the criteria set forth by the Alliance for Research on Regional Colleges. NMU is located on the ancestral and current homelands of the Anishinaabe Three Fires Confederacy and serves rural communities throughout the Upper Peninsula. Northern is uniquely positioned to leverage its geographic location and provide educational programs and research focused on rurality and rural issues. As an important community partner, NMU has a responsibility to contribute to the economic strength and sustainability of the U.P. in a manner that honors its connection to the land, its people and its rich cultural history while fostering the physical and mental health, and the education and employment needs of its residents. Some goals in this area include:

- Developing and expanding academic programs with a rural focus and infuse rural and regional topics into current curricula
- Leveraging our long history of providing access by expanding continuing education opportunities for rural residents and employers
- Increasing and supporting faculty and student research on rurality
- Coordinating, expanding and increasing health initiatives in the Upper Peninsula, especially to those that reach out to residents whose rural location hinders their ability to live healthy lives
- Improving internet access and digital security throughout the region
- Serving as a catalyst for regional economic and workforce development



## Academic Programs

### Baccalaureate Degree Programs

#### Major

Accounting

Acting

Anthropology

Concentrations

Archaeology

Forensic Anthropology

General Anthropology

Sociocultural Anthropology

Applied Exercise Science and Health

Concentrations

Clinical Exercise Science

Community Health

Sport and Fitness Management

Sport Performance and Fitness Leadership

Applied Workplace Leadership

Art and Design Education

Art and Design

Concentrations

Ceramics

Computer Art

Digital Cinema

Drawing/Painting

Graphic Design

Human Centered Design

Illustration

Metalsmithing/Sculpture

Photography

Woodworking/Furniture Design

Athletic Coaching Education

Biochemistry

Biology

Concentrations

Botany

Ecology

General Biology

Microbiology

Physiology

Zoology

Business Analytics

Chemistry (ACS Certified)

Clinical Health

Concentrations

Radiography

Respiratory Therapy

Surgical Technology

Clinical Laboratory Science

Concentrations

Anatomic Pathology

Clinical Systems Analyst

Diagnostic Genetics

Medical Laboratory Science

Microbiology

Science Technologist

Communication Studies

Concentrations

Health and Environmental Communication

Interpersonal/Intercultural Communication

Organizational Communication

Public Communication and Social Influence

Computer Science

Construction Management

Controlled Environment Agriculture

Criminal Justice

Dance

Data Science

Earth Science

Economics

Electrical Engineering Technology

Elementary Education (2 minors)

Elementary Education Integrated Science

Elementary Education Language Arts

Elementary Education Mathematics

Elementary Education Social Studies

Elementary Education Special Education

Embedded Systems



## Academic Programs

### Baccalaureate Degree Programs *(continued)*

#### Major

English

Concentrations

Literature

Writing

Entrepreneurship

Environmental Science

Concentrations

Natural Resources

Pollution Control and Remediation

Renewable Energy Technologies

Water Resources

Environmental Studies and Sustainability

Financial Management

Fisheries and Wildlife Management

Forensic Biochemistry

French

Geographic Information Science & Technology (GIST)

German Studies

History

Concentrations

Global History

Traditional History

Hospitality Management

Human Resource Management

Individually Created Programs (ICP)/Individualized Studies

Industrial Technologies

Information Assurance/Cyber Defense

Insurance and Risk Management

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

Asia

Europe

Global

Latin America

Middle East

Loss Prevention Management

Management

Marketing

Mathematics

Concentrations

Actuarial Sciences

General Mathematics

Mechanical Engineering Technology

Concentrations

Advanced Mathematics

Renewable Energies

CNC Technology

Manufacturing Engineering Technology

Mechanical Engineering Design

Mechatronics

Medicinal Plant Chemistry

Mobile and Web App-Development

Multi-media Journalism

Multi-media Production

Music

Music with Elective Studies in an

Outside Field

Concentrations

Entrepreneurship

Marketing and Publicity

Multimedia Production

Music Management

Musical Theatre

Native American Studies



## Academic Programs

### Baccalaureate Degree Programs (*continued*)

#### Major

Neuroscience

Concentrations

Cellular and Molecular Neuroscience

Behavioral and Cognitive Neuroscience

Nursing

Outdoor Recreation Leadership and Management

Paralegal

Philosophy

Physics

Political Science

Concentrations

General Political Science

International

Pre-law

Public Administration

Pre-Athletic Training

Pre-Chiropractic

Pre-Clinical Psychology Program

Pre-Dental

Pre-Engineering

Pre-Law

Pre-Medical

Pre-Occupational Therapy

Pre-Optometry

Pre-Pharmacy

Pre-Physical Therapy

Pre-Physician Assistant

Pre-Veterinary

Psychology

Concentrations

Brain and Behavior

Cognitive and Behavioral

Developmental Psychology

Interdisciplinary Psychology

Mental Health/Pre-Clinical Psychology

Social/Personality Psychology

Psychology/Behavior Analysis (*currently not accepting students*)

Public Relations

RN to Baccalaureate Nursing

Secondary Education Biology

Secondary Education Chemistry

Secondary Education Earth Science (*currently not accepting students*)

Secondary Education English

Secondary Education French

Secondary Education Geography (*currently not accepting students*)

Secondary Education Health and Physical Education

Secondary Education History

Secondary Education Industrial Technology

Secondary Education Integrated Science

Secondary Education Mathematics

Secondary Education Music

Secondary Education Physics

Secondary Education Political Science (*currently not accepting students*)

Secondary Education Social Studies

Secondary Education Spanish

Secondary Education Special Education

Ski Area Business Management

Social Media Design Management

Social Work

Sociology

Spanish

Speech, Language and Hearing Sciences

Sports Science

Sustainable Business and Enterprise Creation

Theatre and Entertainment Arts

Theatre Technology and Design





## Academic Programs

### Associate Degree Programs

#### Major

Art and Design  
Automotive Service Technology  
Aviation Maintenance Technology (*currently not accepting students*)  
Building Technology  
Cannabis and Plant-Based Wellness Operations  
Climate Control Technology  
Clinical Laboratory Technology  
Concentrations  
    Medical Laboratory Technician  
    Science Technician  
Computer Numerical Control Technology  
Criminal Justice  
Dance  
Electrical Technology  
Concentrations  
    Electrical Power Technician  
    General Electronics  
    Industrial Electrical  
Engineering Design  
General Business  
Health Information Processing (*currently not accepting students*)  
Indoor Agriculture  
Industrial Maintenance Technology  
Information Assurance and Cyber Defense  
Insurance  
Law Enforcement  
Native American Community Services  
Office Information Assistant (*currently not accepting students*)  
Paralegal  
Radiography  
Restaurant Operations  
Surgical Technology  
Theatre Performance  
Theatre Technology  
Welding Technology



## Academic Programs

### Certificate Programs

Advanced Law Enforcement  
Applied Workplace Leadership  
Assistant Behavior Analyst (*currently not accepting students*)  
Automotive Maintenance  
Automotive Service  
Aviation Maintenance Technology (*currently not accepting students*)  
Cannabis Operations  
Computer Numerical Control Technician  
Cosmetology  
Cosmetology Instructor  
Cyber Defense  
Deaf Studies  
Electrical Line Technician  
Esthetics  
Geographic Information Systems  
Heating, Ventilation, Air Conditioning and Refrigeration (HVACR)  
Hospitality and Tourism Management (*currently not accepting students*)  
Industrial Maintenance  
Local Corrections  
Manicure  
Manufacturing Production Technician  
Medical Laboratory Assistant  
Office Services (*currently not accepting students*)  
Plant-Based Wellness  
Post-Baccalaureate Paralegal  
Practical Nursing (*currently not accepting students*)  
Welding  
Wildland Firefighting (*currently not accepting students*)  
Workplace Intercultural Competency

### Certifications

Advanced Study in French  
Advanced Study in German  
Advanced Study in Spanish  
Basic Study in Chinese  
Basic Study in French  
Basic Study in German  
Basic Study in Russian  
Basic Study in Spanish  
Competency: German-Speaking Cultures  
Intermediate Study in French  
Intermediate Study in German  
Intermediate Study in Spanish  
Native American Education  
Teaching English to Speakers of Other Languages (TESOL)



## Academic Programs

### Graduate Programs

#### Certificate

Applied Behavior Analysis  
Clinical Molecular Diagnostics  
Health Informatics  
Teaching English to Speakers of Other Languages (TESOL)

#### Doctorate

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

#### Education Specialist

Administration and Supervision (Ed.S.)

#### Certification and Professional/Personal Development Programs for Educators

##### Certification

Administrator: K-12 Principal  
Central Office  
Professional  
Standard

##### Endorsement

Early Childhood  
Learning Disabilities  
Reading K-8

#### Masters

Administration of Outdoor Recreation and Nature-based Tourism  
Applied Behavior Analysis  
Athletic Training  
Biology  
Business Administration  
Clinical Molecular Diagnostics (Graduate Certificate)

### Masters *(continued)*

Clinical Molecular Diagnostics - Track 1:

#### Concentrations

Human Genetics  
Infectious Disease

Clinical Molecular Diagnostics - Track 2: Clinical Molecular Laboratory Education Track

Computer Science

Creative Writing

Early Childhood Education

Early Childhood Endorsement

Educational Administration: Administration and Supervision

Educational Administration: Native American Education Administration and Supervision

Educational Instruction

English

#### Concentrations

Literature

Literature and the Environment

Writing and Literacy Studies

Exercise Science

Higher Education and Student Affairs

*(Discontinued Fall 2020)*

Interdisciplinary Studies

Integrated Biosciences

Learning Disabilities

Learning Disabilities Endorsement

Mathematics

Nursing

Postsecondary Biology Education

Psychological Science

Public Administration

Reading K-8

Reading Specialist K-12

Social Work

#### Concentrations

Clinical

Policy, Planning and Administration

4+1 Business Administration with a concentration in Accounting



## Academic Programs

### Elementary Education Minors

Early Childhood  
French  
German  
Integrated Science  
Language Arts  
Mathematics  
Reading  
Spanish

### Secondary Education Minors

Biology  
Chemistry  
Earth Science (*currently not accepting students*)  
Economics (*currently not accepting students*)  
English  
French  
Geography (*currently not accepting students*)  
German  
History  
Mathematics  
Physics  
Political Science (*currently not accepting students*)  
Spanish

### Non-Education Minors

Accounting  
Actuarial Sciences  
Anthropology  
Applied Ethics  
Applied Statistics  
Applied Workplace Leadership  
Art and Design  
Art History  
Automotive Service Technology  
Biology  
Business Administration  
Business Foundations (MBA Prep)  
Cannabis Operations  
Chemistry  
Citizenship Studies

### Non-Education Minors (*continued*)

Clinical Exercise Science  
Clinical Laboratory Techniques  
CNC Technology  
Communication Studies  
Community Health  
Computer Science  
Construction Systems  
Contracted Minor (Engineering Technology)  
Criminal Justice  
Dance  
Data Science  
Deaf Studies  
Earth Science  
Earth, Environmental, and Geographical Sciences Cluster  
Economics  
Electronics  
Emergency Medical Services  
Engineering Design  
English  
Entrepreneurship  
Environmental Studies  
Film Studies  
Food, Environment, and Society  
French  
Gender and Sexuality Studies  
Geographic Information Science & Technology (GIST)  
German  
Gerontology (*currently not accepting students*)  
Group Science  
Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR)  
History  
Hospitality Systems



## Academic Programs

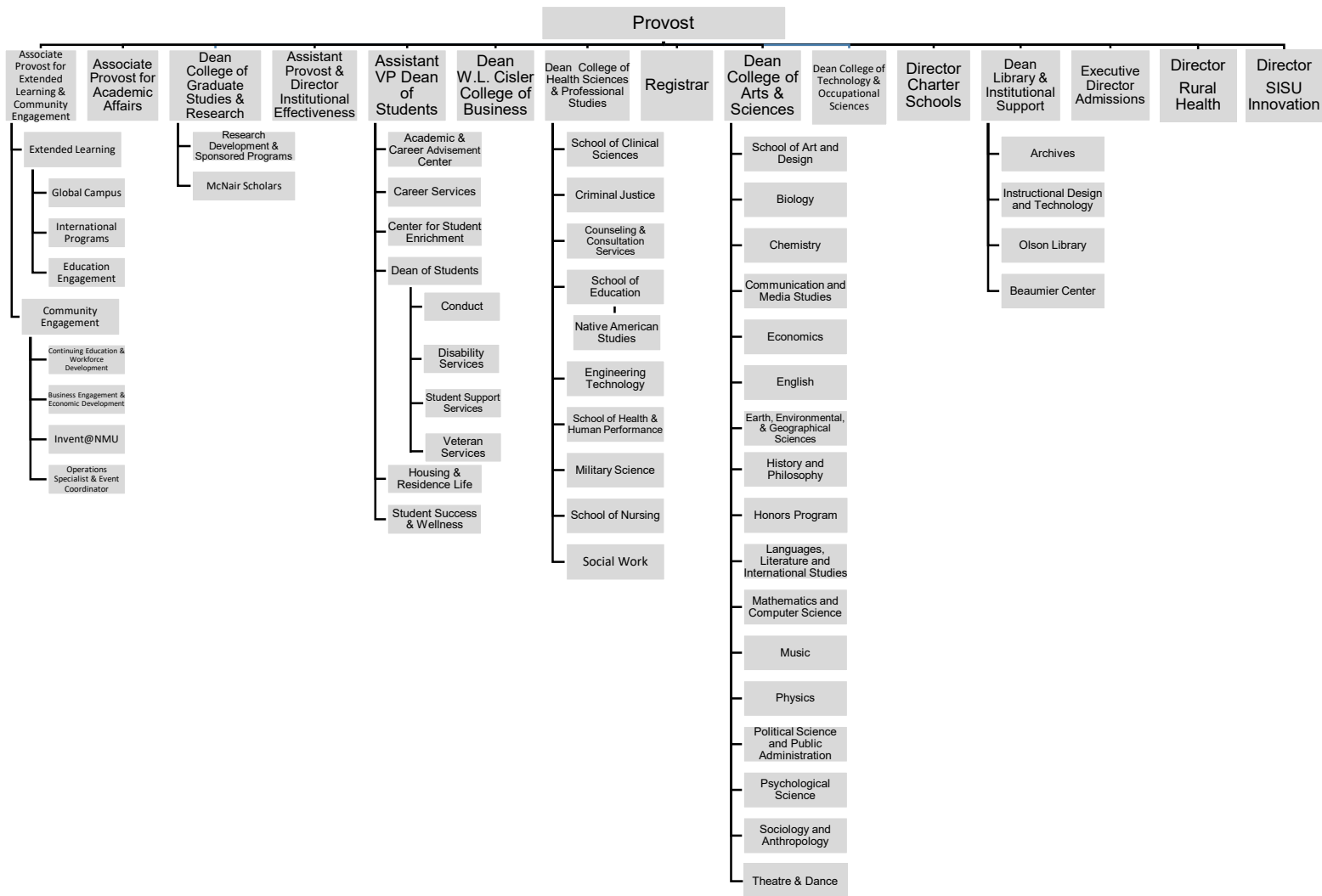
### Non-Education Minors (*continued*)

Human Behavior Cluster  
Human Biology  
Human Services  
Indoor Agriculture  
Industrial Electrical Technology  
Industrial Maintenance Technology  
Information Assurance/Cyber Defense  
Information Systems  
Integrative Science  
International Business  
International Studies  
Interpretation and Outdoor Education  
Journalism  
Latin American Studies  
Loss Prevention Management  
Management  
Marketing  
Mathematical Statistics  
Mathematics  
Media Studies  
Military Science  
Multimedia Journalism  
Multimedia Production  
Music  
Native American Community Services  
(NACS)  
Native American Studies  
Nutrition  
Office Services (*currently not accepting  
students*)  
Outdoor Recreation  
Philosophy  
Physical Education - Coaching  
Physics  
Plant-Based Wellness  
Political Science  
Pre-Law  
Pre-Professional Science  
Psychology  
Public Administration  
Public Relations  
Religious Studies  
Renewable Energies  
Research Analyst  
Social Service  
Sociology  
Spanish  
Speech, Language, and Hearing Sciences  
Sport and Fitness Management  
Sport Performance and Fitness Leadership  
Sports Science Cluster  
Substance Use  
Sustainability  
Teaching English to Speakers of Other  
Languages (TESOL)  
Theatre and Entertainment Arts  
Welding  
Wildland Firefighting (*currently not accepting  
students*)  
Wildlife Conservation Law and Policing  
Workplace Intercultural Competency  
Writing





## Academic Affairs Division Organizational Chart





## Instructional Programming

### Existing Academic Programs and Projected Programming Changes

Northern Michigan University (NMU) continually strives to be the comprehensive university of choice in the Midwest where students receive individualized attention in a high tech learning environment. NMU competes by pursuing programs and initiatives aimed at continuous quality improvement. We focus on integrating student learning outcomes into curricular processes, including co-curricular development, contemporary general education, continuous academic program review, and the student learning outcomes assessment. The Center for Teaching and Learning (CTL) continues to provide classroom and instructional support with educator-scholar expertise. The CTL serves the institution with its advanced technology, up-to-date training and extensive hours. Also, in conjunction with 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. Additionally, the university's General Education Council's general education program had a successful launch in the fall of 2017, and the Council is working on creating sustainable outcomes assessment.

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 is part of the contractual agreement with both of our faculty unions. This underscores the commitment of our faculty to continue to excel at teaching and learning. Additionally, NMU is accredited on Higher Learning Commission's Open Pathway, which is focused on quality assurance and institutional improvement. Fostering a culture of continuous quality improvement is essential to continuing to meet Open Pathway expectations. NMU's Assurance Review was in 2020-21, year four of the ten-year accreditation cycle. In February 2021, HLC notified NMU that we had successfully completed the Assurance Review, finding that all 18 Core Components of the Criteria for Accreditation are "met." Through the Extended Learning and Community Engagement, we continue to offer new online training and certification for both students and faculty to ensure continued top-quality instruction and student readiness for online learning. We continue to invest in our distance education by being active members of the State Authorization Reciprocity Agreement (SARA).

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



## Instructional Programming

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

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

We continue to find success in our retention initiatives, centralized advising for all new students- and advising by embedded student success specialists after the first year.

Several new programs have been approved and include: A Master's in Administration of Outdoor Recreation & Nature-based Tourism, a Graduate Certificate in Applied Behavior Analysis, a Bachelor's in Acting, a Bachelor's in Controlled Environment Agriculture, a Bachelor's in Dance, a Bachelor's in Data Science, an Associate's in Cannabis & Plant-Based Wellness Operations, a Certificate in Plant Based Wellness, a Certificate in Cannabis Operations, and a Certificate in Workplace Intercultural Competency

Highlights include receiving accreditation in the Master's of Social Work and continued growth of the Master's of Science in Nursing program. Both programs have done extensive work for accreditation, programming, and recruiting. 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, including cybersecurity.
- Continue to develop new Career and Technical Education (CTE) programs.
- Foster belonging by engaging students in university activities and promoting student contributions to the university community.
- Identify and train diversity & inclusion liaisons for each college and division within Academic Affairs.



## Instructional Programming

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

#### Student Success and Academic Excellence

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

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

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



## 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, its academic programs, and other campus operations make up the human capital of the university community. Both are instrumental in sustaining the university's collective efforts to maintain a standard of excellence in practice, managing costs, and the institutional mission. Key among these are ongoing work to:

- Create an enhanced infrastructure (Educational Access Network & Broadcast ATSC 3.0) that will continually expand the availability and variety of new technological tools and services for NMU students, faculty and staff.
- Continue to work with and refine our Global Campus that provides reliable, convenient access to online courses and other essential student services.

#### Outreach and Engagement

Partnership, collaboration, and service within our communities are among the university's core values and strategic objectives as a regional comprehensive institution. NMU works closely with local communities, schools, government entities, non-profit organizations, foundations, and both public and private sector 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 university's wireless LTE system embedded in its Educational Access Network.
- The Center for Rural Community and Economic Development, Director of Corporate Engagement, and university leadership routinely participate in statewide, regional, and community-based economic development initiatives that advance opportunities for collaboration with university programs and deploy scholarship and resources to enhance prosperity in Michigan's Upper Peninsula.





## Instructional Programming

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

#### Outreach and Engagement *(continued)*

- Collaborate with cybersecurity industry partners, regional K-12 institutions, economic development organizations, business associations, and other institutions of higher education to advance the mission and objectives of the U.P. Cybersecurity Institute on the regional and state economies by providing opportunities for career exploration, skill development, internships, and digital career opportunities through the NMU-led U.P. Cybersecurity Talent Consortium.
- Grow the recently established NMU Center for Rural Health, which was established to advance integrated health care solutions to serve residents of the Upper Peninsula. As a collaborating center of the Michigan Center for Rural Health (MCRH), the NMU Center for Rural Health received a \$100,000 federal development grant to focus on diabetes prevention and treatment as well as access to emergency medical services across the Upper Peninsula. The Center also received a \$1.43M grant with nine other partners to develop a community health worker training facility, re-establish a paramedic program at UP Health Systems and build a community paramedicine program.
- Continued development and community engagement with the recently instituted SISU Institute for Innovation and Transformational Education. The SISU Institute was formed to encourage the cultivation of ideas leading to relevant and sustainable university services and academic programs.
- Explore with the Michigan Public Service Commission, Michigan Department of Environment, Great Lakes & Energy, Michigan Department of Economic Development, U.P. universities, and alternative energy companies to make the Upper Peninsula a nationally recognized alternative energy and technology corridor.
- Continued and strategic engagement with industry partners and the scientific community in the growth and development of academic programs focused on scholarship and career opportunity in the growing cannabis industry. In addition to Northern's first-in-the-nation baccalaureate program in Medicinal Plant Chemistry, Northern recently instituted an interdisciplinary associate degree program in Indoor Agriculture, a baccalaureate degree in Controlled Environment Agriculture, a credit certificate, an associate degree, and non-degree online credentials pertaining to cannabis careers. The university has cultivated and continues to grow partnerships with industry leaders and the scientific community in the growth and development of these programs.



## Instructional Programming

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

#### Outreach and Engagement *(continued)*

- Expand the university's approach to strategic engagement with business, community, and institutional leaders in the Marquette community and throughout the Upper Peninsula. Building off of the university's "front door" community engagement model, Northern will establish a holistic and centralized approach for partnerships with mission-aligned businesses and organizations, including talent pipeline strategies, academic partnerships, sponsored programs, and institutional thought leadership on local and regional economic development strategies. This new approach will allow Northern 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.
- Accelerate the implementation of the "60-Year-Curriculum," a model for lifelong learning that provides students with educational pathways that involves coordination and articulation between credit education, continuing (non-credit) education, and workforce learning experiences.



## 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 8,210 notebook computers distributed, 1,434 to faculty and staff, and 6,776 distributed to students as part of the students' tuition and fees (the second most affordable tuition and fees in the state, including the notebook computer). These notebook computers have built-in wired and wireless, WLAN (Wi-Fi) and WWAN (LTE) networking capabilities. Wireless Wi-Fi technology throughout campus provides improved student access in and out of the classroom for coursework, research, and provides greater efficiency in delivery of instruction and student services via the internet.

In 2015, NMU migrated its existing WiMAX network to LTE, providing NMU students, faculty and staff with true mobile and fixed broadband connectivity. As word of NMU's LTE service spread, requests from other educational institutions resulted in NMU's commitment to construct wireless broadband in surrounding Upper Peninsula communities. Today, NMU operates one of the nation's largest, self-deployed, educational LTE network covering significant portions of the 18,866 square miles of rugged terrain in Michigan's rural Upper and Lower Peninsulas. NMU offers its educational broadband service throughout Michigan's Upper Peninsula over a ten Geographic Service Area (GSA) region, primarily in areas where commercial broadband is unavailable and currently covers 115 rural communities. NMU is currently in the process of replacing all of the existing LTE broadband network with 5G-ready wireless equipment utilizing the FCC Rip and Replace program. When complete in late 2024, this facility upgrade will provide upper Michigan learners with more reliable and affordable internet service.

The growth of NMU's LTE network has opened new opportunities for NMU to address educational broadband access concerns throughout its multiple-GSA region. In 2016, NMU launched its Educational Access Network ("EAN") as a means of extending learning opportunities to K-12 students needing Internet access and non-degree students of all ages who seek help with basic life or career / technical skills. The EAN offers families with school-aged children a Child Internet Protection Act ("CIPA") compliant, filtered service that delivers, to the home, an Internet connection identical to the one used in their children's public school. The EAN also provides individuals interested in non-credit education with Internet access and learning modules covering a wide range of self-help and workforce development topics as part of their access. Accessed through a web portal, the EAN online link takes students directly to degree and non-degree programs, offering them a "one-stop shop" for on-line learning. The University's EAN provides critical broadband access to over 4,801 K-12 and College families, 3,319 community members and families, veterans, and all current NMU college students, faculty and staff, in underserved rural areas of the Upper Peninsula. In addition to serving a number of small townships and municipalities, NMU has also established LTE transmitter sites that serve five Native American tribal communities.



## Initiatives / Academic Program Needs with Impact on Facilities

### Instructional Programming: (continued)

Northern is a leader in the development and use 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 its 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 workforce that is among the nation's most technologically advanced and leadership-oriented.

The university continues to focus on the 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, WNMU-TV and WNMU-FM, have completed their digital transition, including redundant Internet Protocol (IP)-based studio-to-transmitter (STL) links. Coincidental to this change, WNMU has installed infrastructure allowing the station to migrate to American Television Standards Committee (ATSC) 3.0 broadcasts when technology now in development is adopted by consumers. This digital conversion initiative directly impacts the station's ability to offer instructional course content to university students, area residents and K-12 schools. Specifically, WNMU-TV's switch to ATSC 3.0 will allow WNMU to offer unlimited internet-protocol (IP) program streams. These new capabilities will directly support customized instruction and afford viewers a more efficient means of streaming course content. NMU is aggressively working to coordinate these new broadcast capabilities with its EAN service to appropriately leverage the strengths of LTE transmissions (one-to-one communications and ATSC 3.0 broadcasts (one-to-many broadcasts)). Efficient use of wireless spectrum is a national priority and NMU is uniquely positioned to use these and other technologies in connecting its students with the educational content they need to be successful.

The initiatives noted above, and the projected programming changes identified in NMU's strategic plan, will have an impact on our facilities as they are implemented. We will continue to evaluate and plan for necessary changes in our capital infrastructure to meet the needs of proposed curriculum changes. One example is a partnership with Instructional Design and Technology to renovate the AV systems in two classrooms and add two way interactivity for Hyflex teaching.

In 2019, NMU continued leveraging its restructured campus audio-visual administrative and instructional services to plan and implement a renovation of all classroom AV technologies. Now in year five of this ongoing project, the renovation replaces existing analog projector, sound and control technologies with digital components that feature laser projection, enhanced room audio, and more reliable equipment control in each classroom. This project also adds remote management support that will provide improved repair and maintenance services handled by the AV staff. These annual, incremental upgrades provide document cameras, wireless laptop display support and the ability to incorporate legacy audio and video content as well as streaming media from the web while allowing NMU to keep instructional technologies up-to-date.



## Community Presence Activities

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

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

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





## Community Presence Activities



### Intercollegiate Athletics

Northern Michigan University offers eighteen (18) NCAA intercollegiate men's and women's sports. Approximately 450 student-athletes compete in NCAA intercollegiate athletics annually. An average of 120 visiting 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 National Training Site

NMU is home to a National Training Site (NTS) 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 60 Greco-Roman wrestling and weightlifting student-athletes training at the National Training Site.



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**NATIONAL TRAINING SITE  
NORTHERN MICHIGAN UNIVERSITY**



## Community Presence Activities



Northern Michigan University annually invests in the work of Northern Initiatives (NI), a Community Development Financial Institution. NI began as an on-campus initiative in 1985, and evolved into a non-profit corporation in 1992. For many of its 30 years, NI offices were on the campus of NMU and in 2021 moved to an economic development hub in downtown Marquette, with offices and employees throughout the state of Michigan.

NI was established to support the building of a more diverse and resilient Upper Peninsula economy, and has made 872 loans that total \$50M in the U.P., and of that total 352 loans were made in Marquette County totaling \$19M.

In 2008, NI expanded from 15 to 51 counties, and in 2017, further expanded and now work in all 83 Michigan counties.

NI works to fill market gaps. In 2021, two-thirds of loans were granted to start-up businesses, and lending to diverse entrepreneurs jumped 60%. Northern Initiatives also pioneered technical assistance solutions, including the Initiate Portal, an online knowledge portal used at small businesses in 34 states, with 100% of its resources available in English and Spanish.

NMU students are a key piece of NI's work with small businesses. Typically, three or more NMU students work at NI supporting lenders with credit analysis, and business coaches by designing websites, or running social media campaigns and market research for small business customers. The Initiate Portal is the creation of four NMU (11 in total) graduates who now work for NI.

NI understands that access to capital is only a portion of the equation, and provides business owners with one-on-one personal coaching, resources, and tools such as unlimited access to the Initiate Portal, to help achieve their goals.

NI supports businesses in under-invested communities, building community wealth, improving the quality of life, and creating positive sustainable change.



## Community Presence Activities

### **Community College and Meeting Needs of Business and Industry**

In addition to its function as a regional comprehensive university with a wide variety of baccalaureate, graduate, and doctorate degree programs, NMU serves the role of a traditional community college for the citizens of Marquette and Alger Counties. NMU's community college programs offer students an array of associate degrees, certificate programs, diploma programs, and certifications in 50 areas of study.

Northern maintains extensive partnerships with K-12 schools through outreach activities, student teaching positions, and professional development for teachers and administrators. NMU serves this role as the fiscal agent and leader for the Upper Peninsula Center for Educational Development, a collaborative effort of all seven Intermediate School Districts, three public universities and three community colleges in the Upper Peninsula. Nearly every school district in the Upper Peninsula has recently hosted NMU student teachers. These partnerships provide experience with all class-levels in public, private, and charter educational settings. To further the value of these experiences, NMU has extended its LTE wireless network signal to student teachers in K-12 schools. In addition, NMU is partnering with industry, economic development organizations, 18 school districts, and four intermediate school districts to build opportunities for cybersecurity career exploration and talent development throughout the U.P.'s K-12 system.

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

### **Distance Education and Instructional Support**

In order to provide greater access to higher education for the citizens of the Upper Peninsula, NMU has created numerous opportunities for people who cannot travel to campus to learn. This means offering educational experiences off-campus as well as online and using other synchronous and asynchronous 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 Global Campus, which is a virtual campus that provides educational opportunities and support services tailored to online learners, many of whom are working adults. The Global Campus has focused on expanding online course and academic program offerings in order to provide educational experiences that U.P. residents want in a format that provides them maximum access.



## Community Presence Activities

### **Distance Education and Instructional Support (continued)**

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. The most recent developments in distance education and instructional support include the creation of online media production studio with light board technology and investment in virtual and augmented reality technology for use as teaching tools.

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 the entire U.P. and the north eastern portion of the lower peninsula. WiMAX technology was retired in 2016 and has been replaced with faster, more robust, LTE service that serves 115 rural communities. More than 7,000+ NMU students and thousands of additional K-12 and personal/professional development students (over 8,000 households) use the LTE network to manage education-related activities and research, including bandwidth intensive applications such as streaming media, video conferencing, and large data file transfers. NMU's success with LTE in the Marquette County area has spread throughout Michigan's Upper Peninsula, Northeastern Wisconsin, and now the north eastern portion of the lower peninsula, as the University continues construction of LTE broadband sites in Michigan. Licensed by the Federal Communications Commission (FCC) to serve 8 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. As a result of the EAN, learners of all ages will be able to successfully earn high school and college credentials, receive continuing education needed in workforce development programs across the region, and engage in online personal enrichment learning modules.

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



## Community Presence Activities

### Public Broadcasting

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

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

NMU uses its digital television and radio transmissions to offer Michigan's Upper Peninsula residents high-definition broadcasts, plus additional standard-definition program streams that contain classroom and course content especially designed for higher education and K-12 instruction. NMU Public Broadcasting is also working with NMU's Extended Learning and Education departments to aid in the delivery of education services to K-12 and students using remote learning in a COVID-19 environment. In 2021, WNMU-TV added a 4<sup>th</sup> channel to its broadcasting service, the Michigan Learning Channel. This 24 x 7 service delivers K-12 standards-based instructional content to teachers, schools and home learners needing help with grade-level math, language arts and social-emotional learning. WNMU's technical infrastructure is also heavily used to support the university's emerging LTE operations. Carrier grade tower facilities, standby power, and IP links to the main university campus assist in providing a robust technical infrastructure that avoids costly facility duplication. Additionally, as WNMU continues with its proposed 5-year migration to ATSC 3.0, the station is exploring how its regional broadcasts work in conjunction with NMU LTE services to make the delivery of on-line course content more efficient. WNMU and WNMU-FM have been designated as the primary emergency alert facility for the Central Upper Peninsula Region and provide emergency messaging services to area broadcasters as needed. Both stations continue to provide service learning opportunities for NMU students with hands-on production, multimedia journalism, social media, graphics, and electronic engineering opportunities. Over the last several years, WNMU has joined NMU in retooling its experiential learning opportunities to give students stronger skill sets that make them more valuable to employers following graduation. As an example of its commitment to state-of-the-art experiential learning opportunities, Broadcast & AV Services acquired an “ESPN-3” certified mobile production unit that offers enhanced cameras, audio mixing and instant replay capability. Along with these new DTV production facilities, 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 is a comprehensive Rural Serving Institution that works to advance partnerships with business, community, and economic development leaders that benefit and grow the regional economy. From an operational standpoint alone, NMU is among the largest employers in the Upper Peninsula, employing approximately 1,100 faculty and staff. In fiscal year 2020-21, NMU's annual payroll was \$95M and the university purchased \$35M in supplies and services and \$6M in utilities, most of which was purchased locally. Additionally, \$150M was spent on university construction projects over the past five years, from the combined efforts of NMU, the State of Michigan, and private developers for on-campus projects. The University also began providing communities that are unserved and underserved with wireless broadband. The economic impact today for the 115 communities now being served by Northern's Educational Access Network (EAN) is \$15M, according to the Michigan Council of Advisory Network standards.

### Invent@NMU and the Innovate Marquette SmartZone

Consistent with Northern's strategic mission to "Invest in Innovation," Invent@NMU is an innovation and entrepreneurial program designed to provide NMU students with hands-on experience in assisting real-world clients with 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, this program has positively impacted the local and regional economy in a meaningful way by assisting 683 clients with their ideas, commercializing 14 new products, applying for 15 patents, 4 of which have been issued, facilitating one licensing agreement, and bringing 13 new products/businesses to market since the program's inception.

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 customer discovery and 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's focus is on low investment and quick-to-market, practical, smartly designed manufactured products, but it also provides basic small business support such as the free services provided to regional businesses adjusting to the impacts of the COVID-19 pandemic as part of the university's #WildcatsMeanBusiness initiative.





## Economic Impact / Partnerships With Business and Industry

### **Invent@NMU and the Innovate Marquette SmartZone (continued)**

The program also assists entrepreneur clients with business planning, including planning for difficult various barriers that may prevent her from successfully launching 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 that often prevent entrepreneurs from pursuing their business idea. NMU received a \$1.15 million grant from the Michigan Economic Development Corporation (MEDC) to implement a collaborative operating agreement between Invent@NMU and the Innovate Marquette SmartZone. The grant-funded partnership enables this collective work, further enhancing the services provided to inventors, innovators, and entrepreneurs in the Upper Peninsula.

In 2020, the university's partnership with the Innovate Marquette SmartZone matured to focus on the region's value proposition for the growing digital economy. Examples include the Innovate Marquette's promotion of NMU's cybersecurity education initiatives and the joint partnership with the national Center on Rural Innovation (CORI) in making Marquette one of only 25 member communities of the Rural Innovation Initiative. These partnerships have led to joint grant partnership proposals to the U.S. Economic Development Administration and collaboration on mutually-aligned initiatives to promote the region's digital economy, such as the "Future is Digital Challenge" free credential program in partnership with CORI and Udacity. In 2021, Innovate Marquette and NMU Foundation collaborated on a successful grant application to the U.S. Economic Development Administration to build a modern capital support structure for entrepreneurs and regional startups. The university's Director of Corporate Engagement both serve on the Board of Directors for the SmartZone, which provides for seamless communication and collaboration.

In 2021, the NMU Foundation and Invent@NMU received a \$150,000 gift from a private foundation to support Invent@NMU's desire to expand entrepreneurial services and programming throughout the Upper Peninsula region. This program will deliver Invent@NMU services in conjunction with signature events in each of the region's 15 counties in a mobile outreach format. Invent@NMU is acquiring two recreational style vans that will be retrofitted and branded to promote the mobile outreach programming in the style of "van life" that also aligns with the joint focus of NMU and Innovate Marquette in supporting innovation in outdoor recreation products.



## Economic Impact / Partnerships With Business and Industry

### **Invent@NMU and the Innovate Marquette SmartZone (continued)**

Consistent with the mission of supporting product innovation of this sort, Innovate Marquette and Invent@NMU are working with industry leaders, including Ford Motor Company, to develop new product innovations that will compliment this “Vanbassador” program, including a new solar-power awning system invention. While supply chain disruptions have postponed the program launch until late 2022 and the summer of 2023, the program is expected to further Invent@NMU’s mission of supporting entrepreneurs throughout the Upper Peninsula region.

In 2022, Innovate Marquette and Invent@NMU joined other local and regional economic development organizations, including InvestUP, Northern Initiatives, the Lake Superior Community Partnership, and the Northern Michigan PTAC to collocate office and meeting spaces in the newly renovated “Kaufman Block” in downtown Marquette. This arrangement establishes a collaborative and more accessible economic support ecosystem for the Marquette community and Upper Peninsula region. By aligning common yet distinct approaches, this arrangement serves our common goal of promoting regional economic development and supporting entrepreneurs.

### **Corporate and Institutional Engagement**

In 2018 Northern established a centralized office to facilitate the university’s strategic engagement with corporations, small businesses, and other mission-aligned institutions and NGOs (e.g., foundations). This is the university’s first effort to establish a holistic approach for aligning the university’s value proposition with business and industry to achieve mutually beneficial outcomes. Priority areas of focus include talent pipeline partnerships (e.g., U.P. Cybersecurity Talent Consortium and U.P. Manufacturing Talent Consortium, internship and other experiential learning programs, and alignment with on-campus recruiting programs and alumni networks), program evolution and new program development (establishing and coordinating industry advisory committees), academic partnerships (e.g., Shimadzu Analytical Core Laboratory for Medicinal Plant Sciences), entrepreneurial and interdisciplinary program partnerships (e.g., the Sustainability Hub for Innovation and Environment’s (“SHINE”) *Good for Upper Peninsula* initiative to support regional businesses), brand and market exposure partnerships, and project alignment for corporate/foundation grant proposals.

The director of this office also works cooperatively with university leadership to advance the institution’s economic development and community engagement mission.



## Economic Impact / Partnerships With Business and Industry

### Partnerships with Business and Industry

NMU's College of Technology and Occupational Sciences (CTOS) includes one and two-year career-technical programs that naturally lend themselves to industry partnerships to meet the needs of existing businesses and emerging industries while also supporting working adults in furthering educational attainment and career objectives. The College also works closely with K-12 school districts in the region to provide career exploration initiatives for students as well as employer-endorsed dual enrollment programs, such as the Marquette-Alger Technical Middle College. 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, as well as helping to expand upon and create new sectors in the region.

Some of the CTOS partnerships include the Industrial Maintenance and Welding program partnerships with Cliffs Natural Resources and Lundin Mining's - Eagle Mine, as well as the Electrical Line Technician Program, which is a joint venture between the university, the Lake Superior Community Partnership Foundation, and numerous electrical companies, both utility and contractor, developed to help fill an employment void within the regional electrical power distribution industry. In 2020, the college developed an Indoor Agriculture program that partners with local farmers and grocers around growing and distributing food locally in cold weather climates. Most of the CTOS programs have active advisory groups made up of leaders and experts within their respective industries.

The Engineering Technology Department at NMU houses mechanical and electrical engineering programs that play a critical role in the workforce development needs of regional industry, including high demand for Computer Numeric Control (CNC) machining skills, which is particularly acute with growing medical device manufacturers in the region. Key industry partners include Able Medical Devices (a J.M. Longyear, LLC company), Resolve Surgical Products, Cleveland-Cliffs, Inc., Precision Edge Surgical Products, Van Aire, Inc., Independent Machine, Eagle Mine, Argonics, Inc., Team Tech Motor Sports, and many others. The university's Business Engagement and Economic Development Office is currently working with several of these employers to develop a experiential learning program that integrates with the department's academic curriculum, which will allow students to achieve work-based experience to compliment their academic studies while getting paid.

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 Cleveland-Cliffs, Inc., Eagle Mine, Potlatch Deltic, Graymont, Resolve Surgical Products, WE Energies, Northcross Group, and Novacoast, Inc. Northern is also in the process of developing another campus-based internship program with TriMedia Environmental & Engineering Services, Inc. through the university's Sustainability Hub for Innovation and the Environment ("SHINE").



## Economic Impact / Partnerships With Business and Industry

### Partnerships with Business and Industry (continued)

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

Internships for NMU students with business, industry, and service providers are critical to quality employment preparations. NMU's most well-known internship sponsors are Northcross Group, 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.

Northern continues to explore best practices for offering internships and other forms of student experiential learning. In 2022, the university began discussions about collaboration on this topic with InvestUP, a privately funded and governed non-profit that aims to drive prosperity across the Upper Peninsula. InvestUP and the university are working towards establishing a strategic and collaborative process for promoting and placing student internships with the organization's members and other regional employers. Internships are also currently sponsored by numerous employers in programs such as Construction Management, Information Assurance and Cyber Defense, Computer Science, Art & Design, Indoor Agriculture, Earth, Environmental, and Geographical Sciences, Clinical Lab Sciences, Political Science and Public Administration, Biology, and more. The NMU College of Business also facilitates a robust internship program in partnership with a variety of corporate partners, which is in part facilitated through the Dean's Advisory Council.

The NMU College of Business and the university's director for Business Engagement and Economic Development, partnered with the U.S. Department of Commerce and Michigan Economic Development Corporation in bringing the ExportTech program to Northern. The program pairs export and supply chain experts with university faculty and a team of students to develop support and solutions for regional companies seeking to grow product exports.

Northern also convenes two consortia formed under the State of Michigan's Marshall Plan for Talent: The U.P. Cybersecurity Talent Consortium and the U.P. Manufacturing Talent Consortium. In partnership with U.P. K-12 institutions, intermediate school districts, industry, economic development, business association, and other non-governmental organizations, these consortia were convened with separate missions to develop novel training and educational programming to advance career opportunities for students pursuing high-demand and high-paying jobs.



## Economic Impact / Partnerships With Business and Industry

### **Partnerships with Business and Industry (continued)**

The U.P. Cybersecurity Talent Consortium was ultimately the only cyber/I.T.-focused initiative in the state funded and received \$2.47 million to support a region-wide K-12 micro-credentialing program to advance skill-development in cybersecurity competencies. The grant also included equipment and operational support for the Upper Peninsula Cybersecurity Institute at Northern, which is the only civilian cyber hub on the Michigan Cyber Range located north of Grand Rapids. The U.P. Manufacturing Talent Consortium was also awarded \$1.3 million for equipment to support a collective plan for advancing high-demand manufacturing competencies among K-12, community college, and university students. The UPCI has held numerous career exploration, teacher development, and industry certification training sessions since its inception, including, most recently a three-day symposium that attracted dozens of industry experts, education partners, and the National Cyber Director, the President's chief advisory on cybersecurity matters.

### **Partnership with UP Health System – Marquette**

The School of Clinical Sciences collaborates with UP Health System – Marquette for specialized training of students studying 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.





## Economic Impact / Partnerships With Business and Industry

### **Cleveland-Cliffs, Inc.**

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

### **Potlatch Corporation**

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

### **U.P. Paper Company**

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

### **Eagle Mine**

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





## 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.

### **Resolve 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.

### **J.M Longyear | Able Medical Devices**

J.M. Longyear's Able Medical Devices is another surgical product manufacturer that has realized growth with support of NMU alums from the Engineering Technology program. Able's managing staff serve as adjunct faculty in the program and have built a productive relationship to advance the program's capabilities and career opportunities for students and alumni. Most recently Northern and Able Medical Devices led a public-private partnership with Tsugami Corporation and its supplier, Morris Midwest, and the U.P. Manufacturing Talent Consortium to develop a high precision Swiss Turn laboratory in the Department of Engineering Technology. This partnership was supported by a generous gift by J.M. Longyear, a gift-in-kind by Tsugami and Morris Midwest, and a grant through the U.P. Manufacturing Talent Consortium derived from the state of Michigan's Marshall Plan for Talent.



## Economic Impact / Partnerships With Business and Industry

### Cybersecurity Cluster Growth

Since the development of the Information Assurance and Cyber Defense program within the College of Business, Northern has led numerous initiatives in collaboration with industry and economic development partners to advance career opportunities in digital economy jobs like cybersecurity. In 2018, Northern partnered with the Michigan Economic Development Corporation, the Michigan Defense Center, and Merit to establish the U.P. Cybersecurity Institute as a training and career exploration hub on the Michigan Cyber Range, which is the only such asset located north of Grand Rapids. Parallel to this initiative, Northern convened the U.P. Cybersecurity Talent Consortium, which developed a cybersecurity career training initiative that was awarded \$2.47 million through the State of Michigan's Marshall Plan for Talent. The university has also established an advisory committee of cybersecurity industry professionals, including experts and CIOs across the country. The university's first graduates of the Information Assurance and Cyber Defense program are assuming key CISO and I.T. security roles at regional banks, global mining companies, cybersecurity start-ups, and global technology companies.

Just recently, a technology and cybersecurity services firm based in Arlington, VA and Portland, ME announced its intent to establish a regional office in Marquette that will be aligned with an academic partnership with Northern and focused on the university's cybersecurity talent pipeline. These efforts have been highlighted by the Center on Rural Innovation a national "action tank" that works to advance digital opportunity in Rural America.

### Electrical Line Partnership

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

### 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.



## Economic Impact / Partnerships With Business and Industry

### **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**

Continuing Education and Workforce Development offers non-credit workforce development training for individuals and organizations.

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

### **Workforce Training**

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

### **Professional Education**

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



## Economic Impact / Partnerships With Business and Industry

### **Professional Education (continued)**

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

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

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

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

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

### **Personal Enrichment**

Northern Center for Lifelong Learning (NCLL) 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. NCLL is a member-directed, self-supporting nonprofit.



## Economic Impact / Partnerships With Business and Industry

### **Motorcycle Safety Training**

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

### **Commercial Driver's License (CDL) Truck Driving Program**

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

### **Upper Peninsula Cybersecurity Institute**

Opened in the spring of 2019, the Upper Peninsula Cybersecurity Institute at Northern Michigan University is the only facility of its kind in the U.P. and one of six statewide. The institute offers non-degree and industry credentials relevant to emerging careers in cybersecurity. It also augments NMU's existing cyber defense bachelor's degree and provides additional career exploration and training opportunities with U.P. K-12 school districts and postsecondary institutions.



# Section III

## Enrollment and Staffing

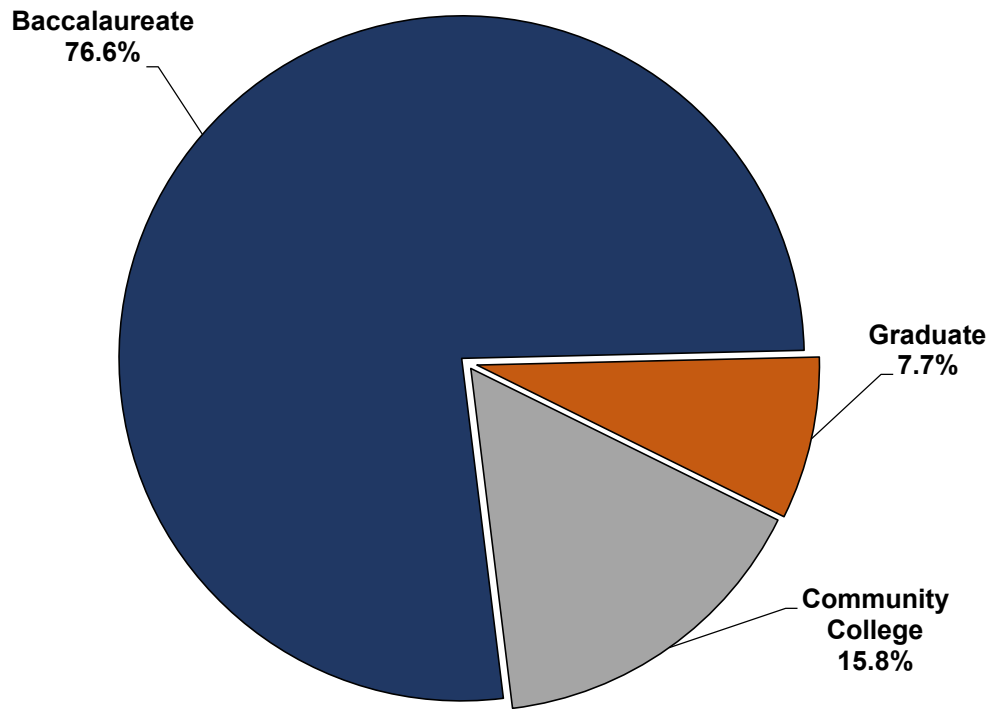




## Enrollment

### Headcount

Fall 2022 (n = 6,970 – 10<sup>th</sup> Day of Class)



#### Average age

- Undergraduates: 22.5
- Graduates: 34.0
- Overall: 23.4

#### Other student statistics

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

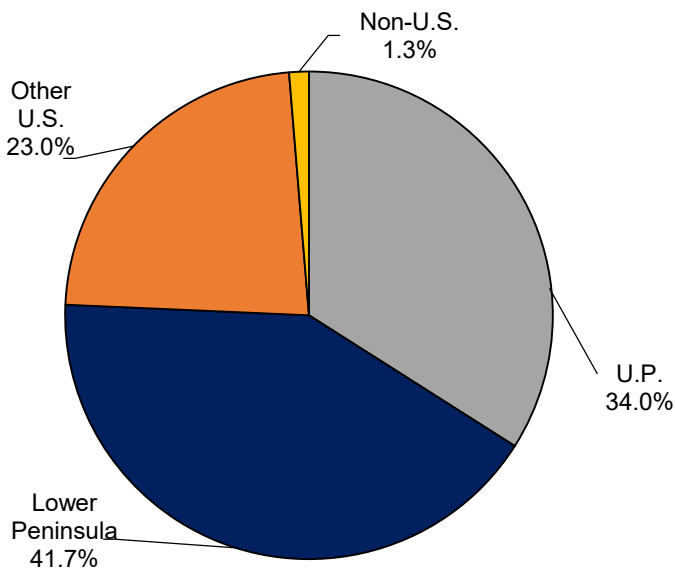


## Enrollment

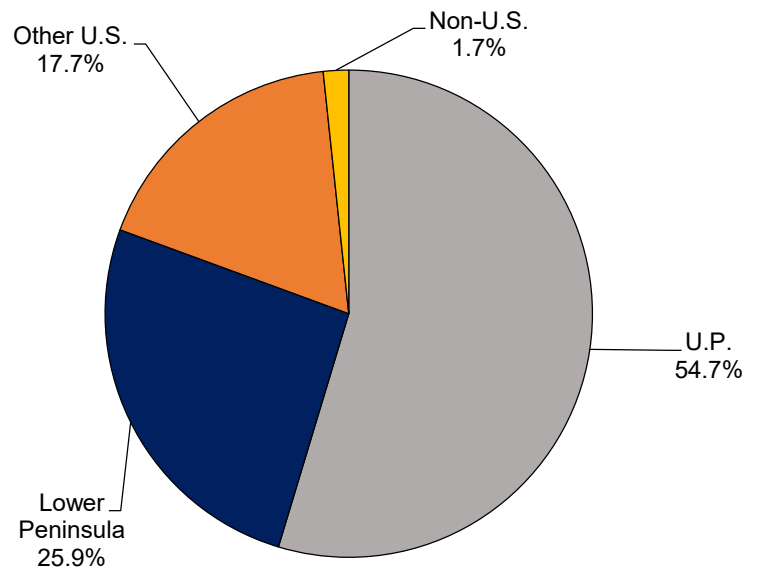
### Recruiting Region

Fall 2022 (n = 6,970 – 10<sup>th</sup> Day of Class)

#### Undergraduate (n = 6,434)



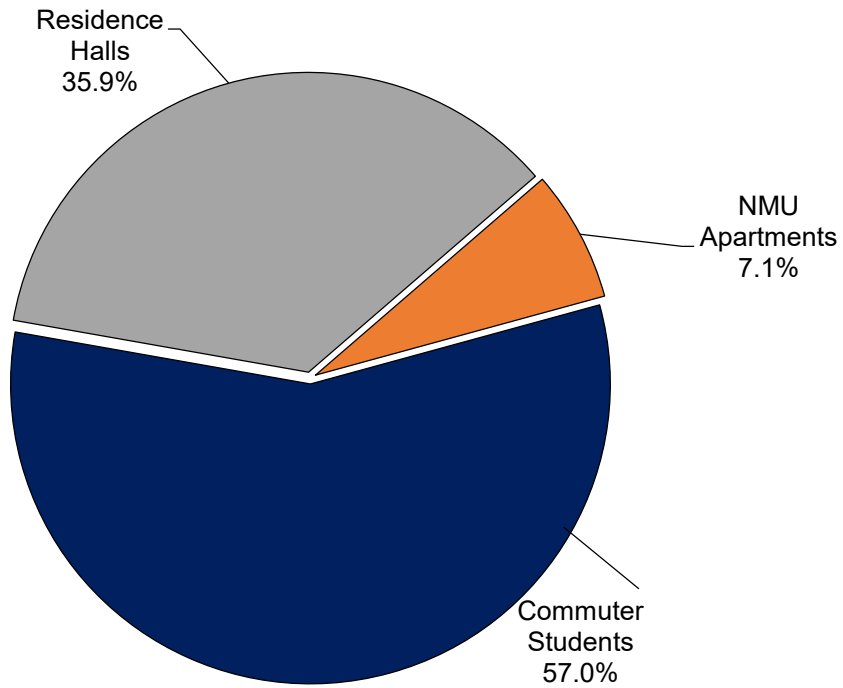
#### Graduate (n = 536)





## Enrollment

### Where NMU Students Live Fall 2022 (n = 6,970 – 10<sup>th</sup> Day of Class)

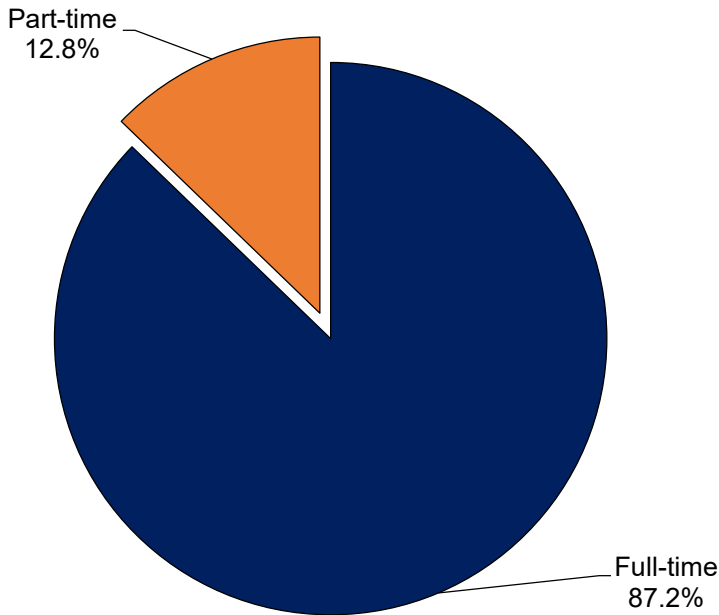




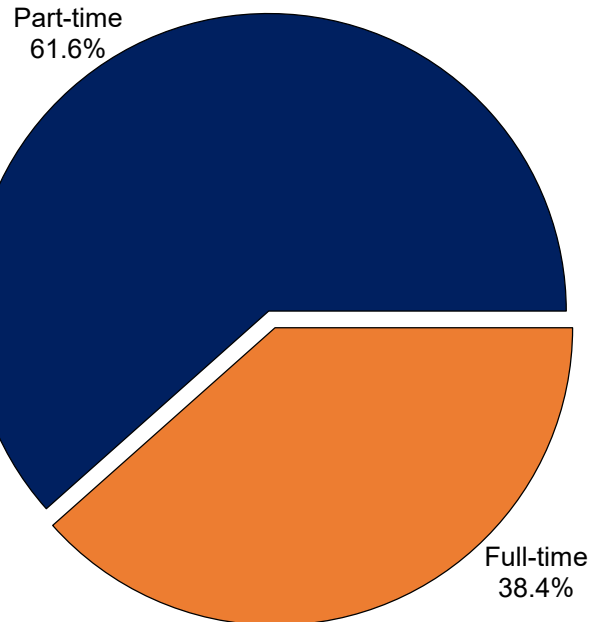
## Enrollment

### Full-time/Part-time Status Fall 2022 (n = 6,970 – 10<sup>th</sup> Day of Class)

#### Undergraduate (n = 6,434)



#### Graduate (n = 536)

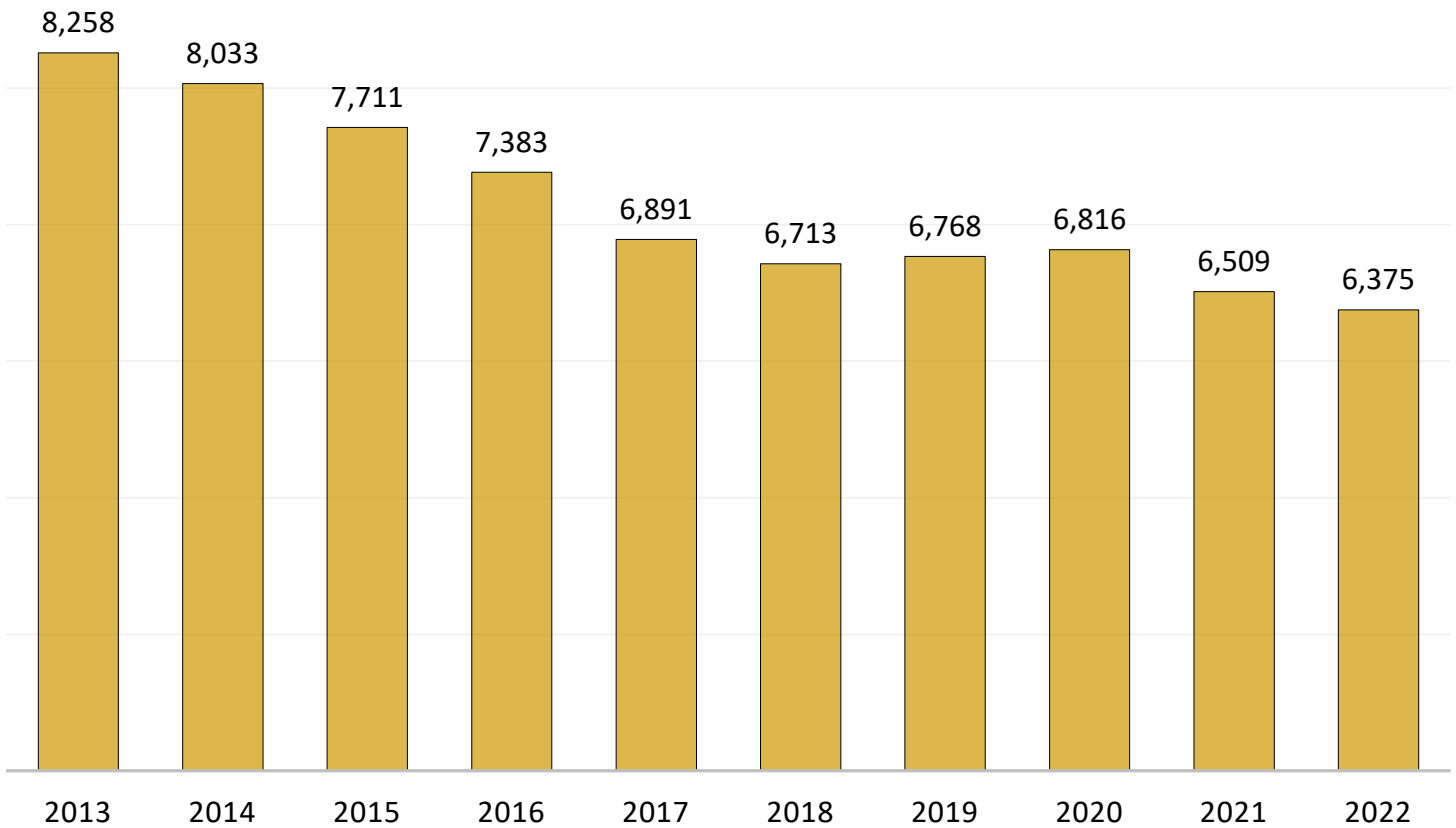




## Enrollment

### Full Year Equated Student Change

#### NMU FYES

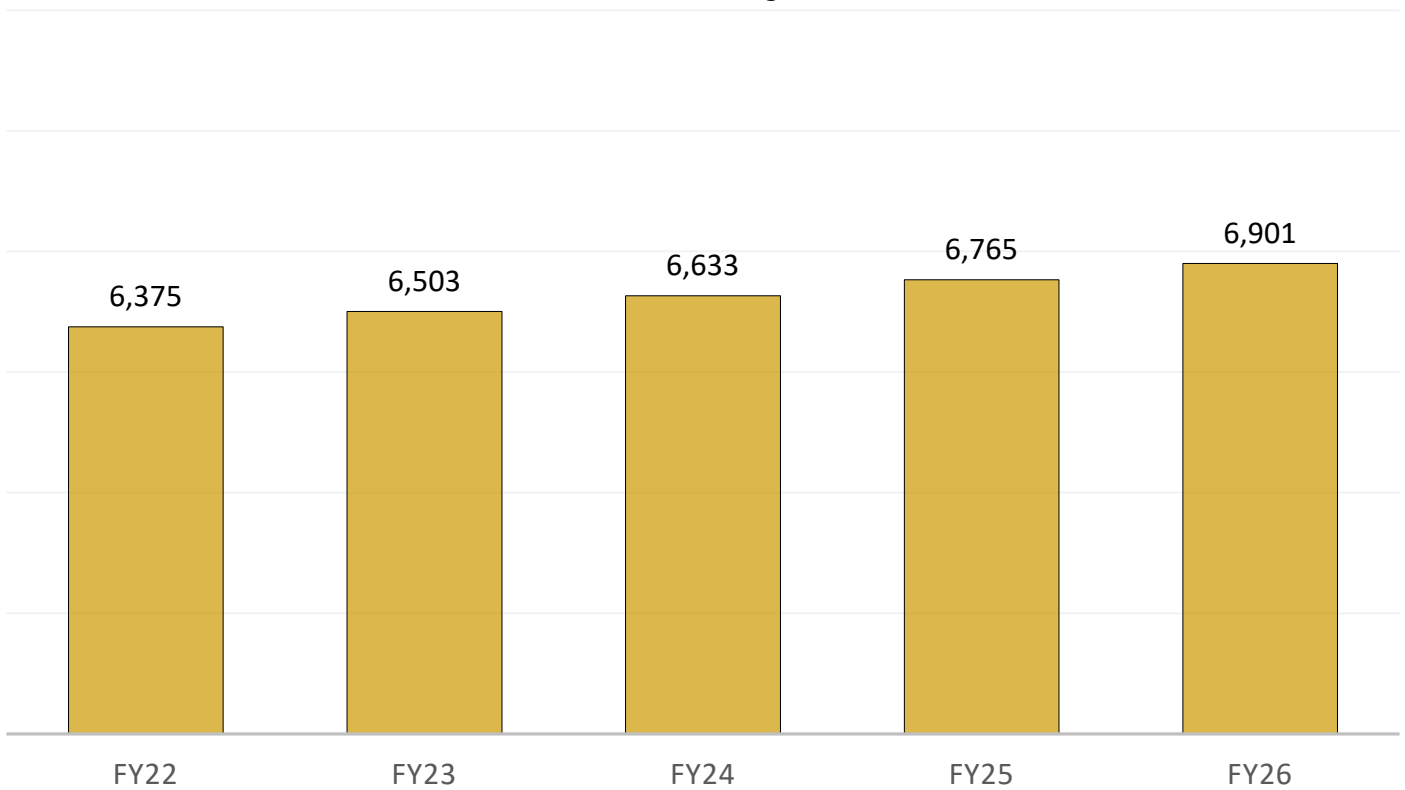




## Enrollment

### Full Year Equated Student Change (FYES)

#### 5 Year Projection

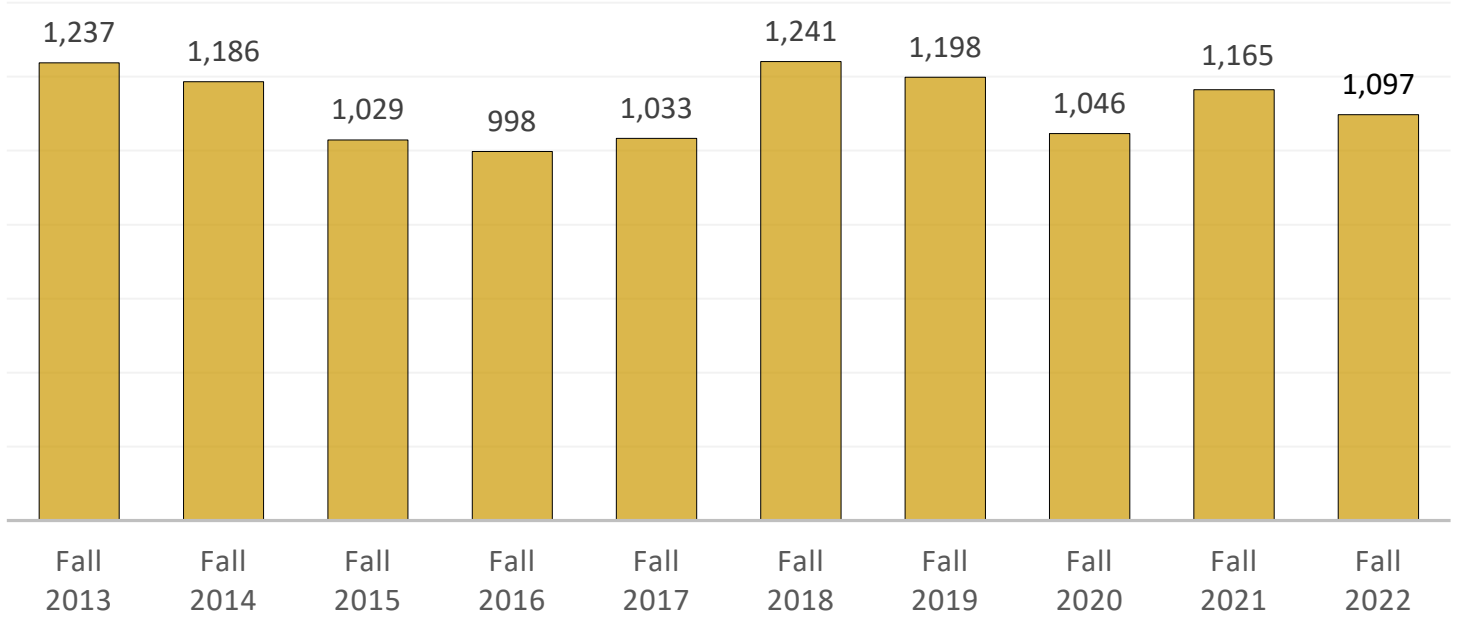






## Enrollment

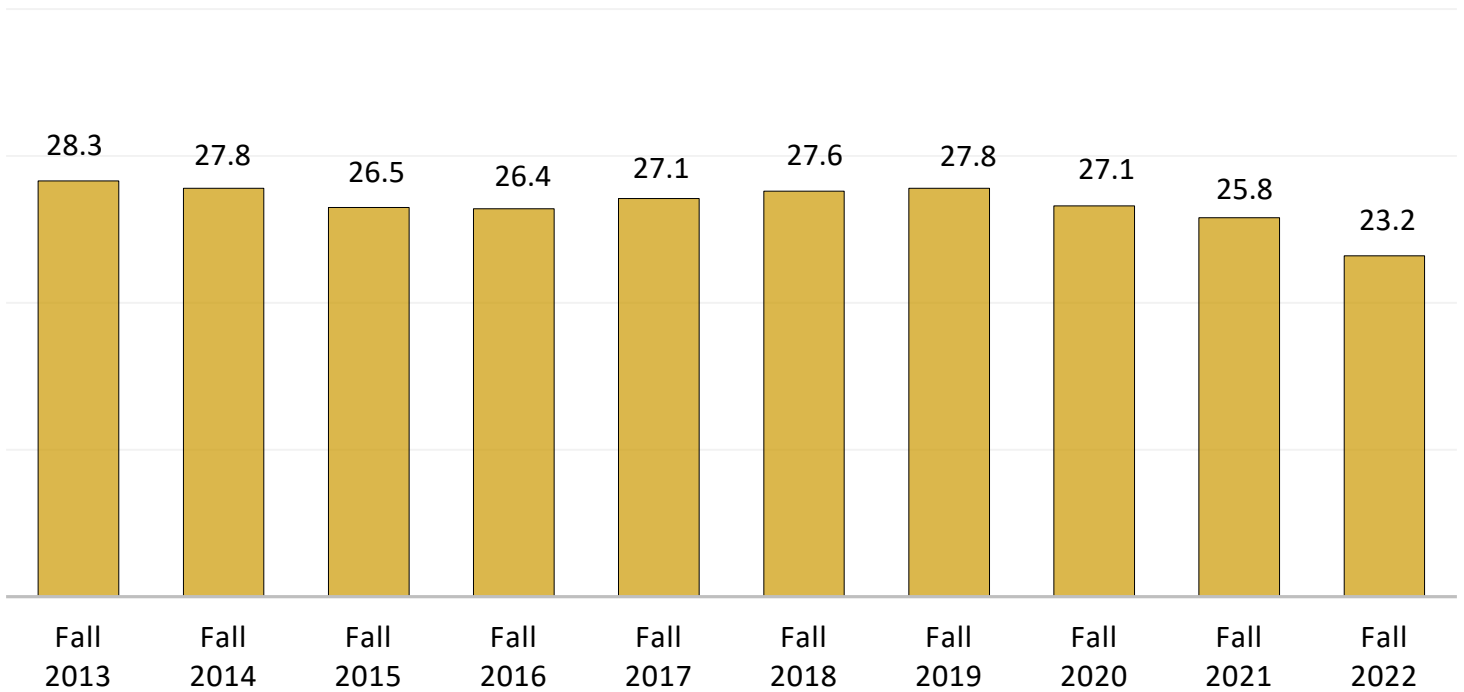
### Baccalaureate First-Time, Full-Time New Freshmen





## Enrollment

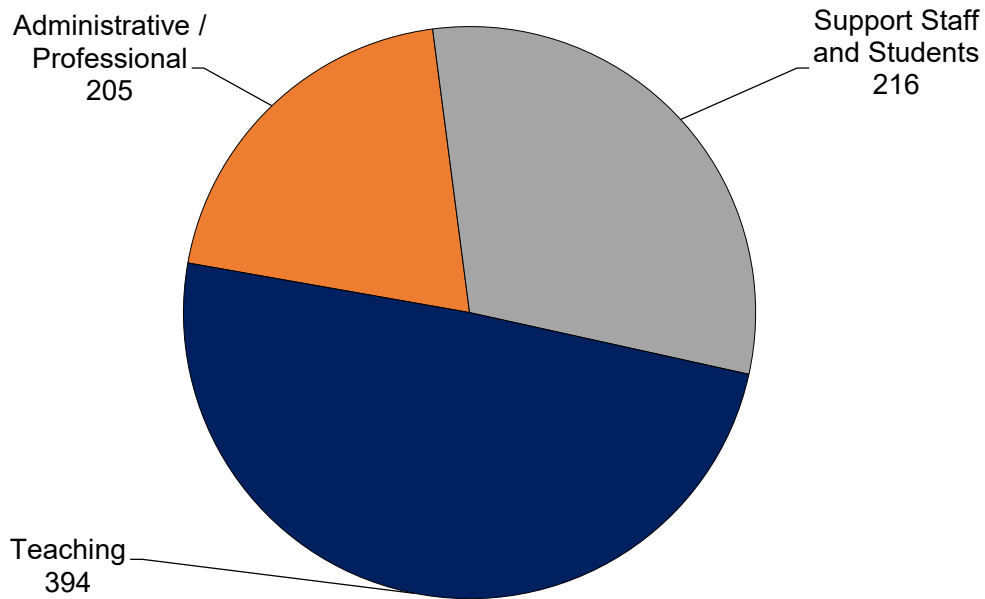
### Average Lecture Class Size and Projected Average Class Size





## Staffing

### 2021-2022 Full-Time Equivalent By Employee Category



### Staff FTE

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Instructional Staff	411	392	393	394	395	389	394	395	400	405	410
Administrative/Professional Staff	174	172	177	181	191	194	205	207	210	210	210
Support Staff and Students	262	256	250	256	244	216	216	220	230	235	240

### Student (FYES) - to – Staff Ratios

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Instructional Staff	17.96	17.58	17.08	17.18	17.26	16.73	16.18	16.46	16.58	16.70	16.83
Administrative/Professional Staff	42.43	40.06	37.93	37.39	35.69	33.55	31.10	31.42	31.59	32.21	32.86
Support Staff and Students	28.18	26.92	26.85	26.44	27.93	30.13	29.51	29.56	28.84	28.79	28.75



# Section IV

## Facility Assessment



## Introduction

In 2018, the university contracted with Sightlines, Inc. to update the university's Facility Condition Assessment noting the existing condition of all campus building systems, hardscape and infrastructure. This assessment was constructed as an electronic tool that categorizes all short and long term maintenance needs and can be updated annually to allow user-defined summaries of maintenance need by system, replacement year, building or building type. This planning tool allows the university to evaluate multiple criteria to identify necessary levels of annual maintenance funding and prioritize capital investments over a 20 year period while considering the university's strategic goals, 2019 Campus Master Plan, Five Year Facilities Master Plan and annual capital outlay requests. This system guides the maintenance, adaptation and use of the university facilities for all campus departments.





## NMU and Sustainability

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

### **Energy**

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

To better understand utility usage, NMU continues to monitor and replace its utility meters as necessary to provide reliable data to improve budget development, billing accuracy, and energy saving analysis. The data has been used to determine projects that would result in utility savings and have a return on investment such as the installation of variable frequency drives on mechanical equipment, steam trap replacement, boiler replacements, LED lamp installations, water conservation improvements, installation of new facility management systems, etc. The energy savings, operational savings, and cost avoidance achieved from the improvement measures have been over \$600,000 for a return on investment over a period of 12 years or less, using a 5% interest rate. The university has also received energy incentive rebates on these projects.

The Facilities staff continues to review building systems and determine energy saving improvements. The main infrastructure improvement initiative focused on replacing parking lot lighting with LED fixtures and fluorescent lamps with LED lamps in spaces that have long hours of operation such as the public spaces, classrooms and corridors.

### **Facility Efficiency**

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





## NMU and Sustainability

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. Over the last ten years, the university has demolished underutilized and inefficient facilities such as the former Summit and Center St. apartment buildings, three of the four Quad I residence halls, Carey Hall, West Hall, Jamrich Hall and 25% of Jacobetti Complex totaling over 481,000 square feet.

### Building Design

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

### Facility Operations

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

- No-Touch Cleaning systems are used in the restrooms. This is a multipurpose system that helps eliminate unnecessary equipment and prevents employees from contacting cleaning chemicals.
- Backpack vacuums are certified by the Carpet and Rug Institute's green label utilizing HEPA filters which reduce pollutants in buildings.
- Premium walk-off matting are installed at building entrances reducing pollutants being tracked into buildings.
- Window washing machines are used that employ the reverse osmosis deionizing technology. The machines produce mineral free water, which cleans windows spot free without the use of cleaning agents.
- Aqueous Ozone is used to clean all surfaces replacing 95% of the chemical cleaners previously used in buildings. This has reduced an estimated 500 gallon bottles annually from being recycled or entering the landfill, on-site chemical inventory costs, and reduces training costs for employees. This was expanded to the sports and recreation facilities as well as the Northern Center and Northern Lights Dining in summer 2019 and to the residence halls and Woodland Park Apartments in summer 2021.



## NMU and Sustainability

- EcoSmart paper towel – 50% post-consumer fiber and 100% recycled fiber. This product is GreenSeal and EcoLogo certified.
- Use of EcoSmart Compact Coreless toilet paper – 20% post-consumer recycled fiber. Utilizes 95% less packaging in their products.
- All hand soap is GreenSeal certified.

### Recycling

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

### Grounds Maintenance

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

### Community Awareness

Sustainability and conservation efforts are a university goal. In Fall 2016, a university Sustainability Advisory Council was formed to help guide the campus community into becoming a greener place to work and live. Since their formation, the council has accomplished much including hosting Zero Waste Challenges during NMU basketball and hockey games and twice completing the Association for the Advancement of Sustainability in Higher Education’s intensive Sustainability Tracking Assessment and Rating System inventory – or STARS inventory. NMU’s STAR’s rating in 2020 was silver advanced from bronze in 2017. The rating system measures institutions’ sustainability performance and factors in academics and research, operations, administration/planning and engagement.

In 2017, the council developed a Sustainability Master Plan 2020, with goals in five main categories: institutionalize sustainability, cultivate sustainability leadership, invest in energy innovations, promote sustainable transportation, purchase local foods and support local farms. An update to the master plan was produced by students in the environmental justice class and supported by the Sustainability Advisory Council. The proposed updated plan included recommendations to strive for carbon neutrality, improve waste and recycling, promote fresh water, promote education and awareness and build local partnerships. In 2021, the council prepared an annual report of its accomplishments and recommended support of the proposed updated master plan to the NMU President.



## NMU and Sustainability

### **Green Fund**

Students voted for the establishment of a Green Fund, an optional \$5 fee, charged each semester to support campus-wide sustainability initiatives. The 2020-2021 academic year was the first year the campus Green Fund went into effect. The student group, NMU EcoReps, invites students, staff, faculty and community members (working individually or in small teams) to submit proposals for Green Fund initiatives. Projects can range from student awareness programs to behavior-changing campaigns to infrastructure upgrades or installations (e.g., demonstration solar garden, composting innovation, tree planting, etc.), transportation, energy efficiency, upcycling and waste management. Proposal submissions include an estimated project budget that addresses the actual cost to implement the idea, potential cost savings, environmental impacts, and any other financial information necessary to consider the long-term impact of the proposed idea on NMU's campus. These proposals are forwarded by the EcoReps to the Sustainability Advisory Council for review and submission to the university administration for funding consideration through the Green Fund.

Five projects were awarded green funds in 2022 to advance sustainability on campus including a solar array on Fair Avenue, rain garden, clover lawn on the former West Hall site, Dining Services composting initiative and a beekeeping program.

### **Sustainability Hub for Innovation & Environment (SHINE)**

SHINE was launched in August 2021 as a virtual hub that serves as an arm of the Sustainability Advisory Council and beginning in Fall of 2022 has a physical home on Presque Isle Avenue. SHINE serves to advance sustainability within the NMU campus and throughout the community through the embodiment of two of NMU's core values: Innovation and the Environment. SHINE advocates for change and facilitates action by collaborating with partners across campus and the region to strategically address issues of environmental impact, social justice and economic equity.

In addition to collaborating with regional partners and providing thought leadership, SHINE will work to implement action items in NMU's 2030 Sustainability Plan. Specifically, SHINE will promote awareness, responsibility and inspire innovative sustainable solutions on campus. It will work with NMU's Sustainability Advisory Council to complete the biannual campus-wide sustainability audit, the STARS rating certified by AASHE. Additionally, SHINE's peer-to-peer education program, EcoReps, offers students the resources and knowledge to solve sustainability issues and make a collective difference on campus. SHINE will facilitate access to resources for classes, research and community partners. It will also foster student-led efforts such as Eco Reps and Sustainable NMU.

SHINE's ultimate mission is to foster collaboration on transformational sustainability projects by providing recommendations based on research, strategy and big picture ideas.



## NMU and Sustainability

### Carbon Neutrality by 2050 Plan

The university is preparing a plan to achieve carbon neutrality by 2050. A Carbon Neutrality Task Force was formed in Fall 2021 with broad campus representation including faculty, staff and the ASNMU president. To begin the process, the task force referenced the recommendations in the Northern 2030 Sustainability Plan to guide the development of the university's carbon neutrality plan. The specific areas focusing on carbon neutrality identified in the Northern 2030 Sustainability Plan include:

- Renewable Energy Investment
- Improvement of campus infrastructure and increasing the energy efficiency in existing and future facilities on campus
- Replacing NMU's current transportation fleet with electric/hybrid vehicles

Next the task force identified the following goals for the carbon neutrality plan:

- Achieve carbon neutrality by 2050 in the most financially responsible way possible.
- Identify top opportunities for working toward carbon neutrality.
- Provide opportunity for academics to be involved with initiatives.
- Develop authentic carbon neutrality plan with transparent measurement and reporting system.

Through the process, the task force has learned that initiatives to become carbon neutral are different from energy saving initiatives in that they do not typically result in utility savings that have a short financial payback. Typically, the emissions reduction initiatives are at a significant cost increase. As such, the task force felt it was important that the recommended solutions not place a heavy burden on students in the way of tuition increases; instead the recommended solutions must be done in a way that keeps the university financially sound. For instance, existing infrastructure should not be replaced prematurely at significant costs solely for reducing carbon emissions. Instead infrastructure would be replaced with a new system when it has reached the end of its useful life so that the university only incurs the incremental difference in cost from what they would have paid anyway.

The second goal of identifying the top opportunities that will have the greatest benefit to the university will consider the university's unique circumstances such as its cold climate, northern latitude, size of campus, existing infrastructure and financial resources. Next, being a university, opportunities for faculty and students to be involved in all steps of the process is important, one area may include faculty and students measuring and reporting on the impact of implemented solutions. The fourth goal of developing an authentic plan refers to reducing the university's emissions on campus and not by primarily purchasing renewable energy credits that support reduction efforts elsewhere such as a solar installation in Arizona that does not provide electricity directly to NMU. This goal includes developing a transparent measurement and reporting system to be able to share the results of the university's efforts broadly.



## NMU and Sustainability

As part of the process, an engineering consultant was hired to assist the task force and Facilities team with the development of the carbon neutrality plan. They began their work in January 2022. The work to date includes analyzing the university's energy data, reviewing the condition of the university's existing infrastructure and developing a baseline energy model to use for comparing the operation of current systems to that of potential alternative technologies. Next, they cast a broad net and identified potential alternative energy technologies for consideration. These technologies were new ways of providing heating, cooling and/or electricity to campus facilities. These potential technologies were analyzed on a high level as compared to the university's carbon neutrality plan goals and operations and maintenance logistics.

A few of the challenges that were realized when considering some of the new technologies for campus include:

- The fact that our existing steam system is well maintained and has significant life remaining. The oldest part of the system is the underground steam lines which were installed in the mid 1990s. The gas boilers were installed in 2006 and the CHP plant was built in 2013. Utility grade systems typically have a 40-50 year life so the piping and boilers should not need to be replaced for another 20-30 years.
- With the great size and complexity of the existing campus infrastructure, in order to have a meaningful impact, potential projects result in substantial costs, logistics issues with phasing of construction and significant campus disruption to utility services and landscape.
- Many potential technologies require building mechanical systems or equipment to be upgraded in most, if not all, existing buildings.
- While the university infrastructure is significant, it is still smaller than utility grade systems so there is a lack of economies of scale when it comes to some energy technologies like a solar system.
- Some of the potential energy technologies would have a greater impact on future maintenance needs including staffing levels and skills.
- The university's remote location presents challenges when considering availability of resources and support services for new or unique energy technologies.
- Finally, the campus' cold climate places a greater need on the reliability and size of thermal sources so it eliminates the consideration of some potential energy technologies. For instance, the great imbalance between heating and cooling needs eliminates geothermal systems.



## NMU and Sustainability

The energy technologies that the consultant recommended evaluating as highly probable for implementation over the next 5-10 years included the impact of the energy saving and reduction initiatives resulting from the planned \$94 million capital projects, solar photovoltaic installations and alternative fuels for the boilers at the Ripley Plant. These initiatives are being further evaluated from an engineering, constructability and cost standpoint.

Once the deeper analysis has been completed, these preliminary carbon neutrality ideas will be shared with various campus constituency groups for feedback and a preliminary carbon neutrality report will be completed with recommendations and a timeline for implementation in Fall 2022. It will include capital cost estimates, operation and maintenance costs, pros and cons and alignment with university goals. The final carbon neutrality report will be submitted to the President and Executive Council with plans to submit the 2022-23 carbon neutrality investment proposals to the Board of Trustees.

### **Photovoltaic Solar System**

The university has entered into a contract for the installation of a 16.5 kW photovoltaic solar system installation at 1400 Presque Isle Avenue. The solar system will be a ground mount system installed in the green space to the east of the building and will be highly visible driving north on Third Street. The building is the home of the Sustainability Hub for Innovation & Environment (SHINE). As part of the hub, a solar installation will not only support the electrical needs of the building but will also provide a hands-on active demonstration for the campus community to learn and observe from. This solar installation supports the NMU's goal to become carbon neutral by 2050 and is supported by the students' green funds.

### **Hybrid Vehicles**

The university has begun to replace its transportation fleet with hybrid vehicles in support of its carbon neutrality goal. In 2021, the Police Department purchased two police cars and Plant Operations ordered a hybrid pickup.





## Facilities Assessment

### NMU Physical Plant Overview

- 66 Buildings
  - 3.54 million Gross Square Feet
- 868 acres
  - 357 acres on main campus
  - 142 acres – English Property
  - 160 acres - Longyear Forest
  - 206 acres – South Marquette
  - 3 acres – FROST Property
- 3.6 miles of roadway
- 13.95 miles of sidewalk





## Facilities Condition Cost Analysis by Priority Class For all State Buildings

Building	1 - 3 Years	4 - 7 Years	8 - 10 Years	Grand Total
Art & Design	\$ 401,337	\$ 707,789	\$ 464,166	\$ 1,573,292
Berry Events Center	\$ 8,381,914	\$ 1,411,731	\$ 537,253	\$ 10,330,898
Butler Building	\$ 33,594	\$ 64,111		\$ 97,706
C.B. Hedgcock			\$ 1,112,973	\$ 1,112,973
Campus Wide	\$ 3,898,123	\$ 3,359,433	\$ 2,920,912	\$ 10,178,467
Cohodas Hall	\$ 2,440,077	\$ 5,070,399	\$ 8,307,545	\$ 15,818,020
Dome/PEIF Link	\$ 64,111		\$ 30,773	\$ 94,885
Forest A. Roberts Theatre	\$ 1,841,277	\$ 2,738,836	\$ 193,616	\$ 4,773,729
Gries Hall	\$ 1,150,157	\$ 2,429,819	\$ 4,490,357	\$ 8,070,333
Harden Hall	\$ 6,911,200	\$ 6,998,671	\$ 9,743,638	\$ 23,653,509
Harden/The Science Building Link	\$ 12,822	\$ 21,798		\$ 34,620
Harry D. Lee Hall	\$ 5,789,252			\$ 5,789,252
Health Center	\$ 107,707	\$ 179,512	\$ 188,487	\$ 475,706
Jacobetti Complex	\$ 4,921,185	\$ 4,340,336	\$ 948,848	\$ 10,210,369
Jacobetti Storage	\$ 34,877	\$ 18,208	\$ 74,125	\$ 127,209
John X. Jamrich Hall			\$ 510,326	\$ 510,326
McClintock Building	\$ 848,834	\$ 980,903	\$ 1,988,733	\$ 3,818,470
NC/Gries Link			\$ 79,498	\$ 79,498
P.E.I.F.	\$ 19,322,522	\$ 8,058,830	\$ 733,434	\$ 28,114,785
PEIF/BEC Link	\$ 112,836		\$ 64,111	\$ 176,947
Ripley Heating Plant		\$ 37,185	\$ 503,915	\$ 541,100
Services Building	\$ 1,352,749	\$ 219,261	\$ 1,932,315	\$ 3,504,325
Superior Dome	\$ 38,467	\$ 6,243,160	\$ 5,793,092	\$ 12,074,719
Thomas Fine Arts	\$ 737,280	\$ 1,341,209	\$ 1,219,397	\$ 3,297,886
The Science Building	\$ 44,878	\$ 492,375	\$ 1,579,703	\$ 2,116,956
Weston Hall	\$ 110,271	\$ 435,300	\$ 1,704,919	\$ 2,250,491
Whitman Hall		\$ 106,565	\$ 1,619,452	\$ 1,726,017
<b>Grand Total</b>	<b>\$ 58,555,471</b>	<b>\$ 45,255,429</b>	<b>\$ 46,741,588</b>	<b>\$ 150,552,488</b>



## Facilities Condition Cost Analysis by Priority Class For all Auxiliary Buildings

Building	1 - 3 Years	4 - 7 Years	8 - 10 Years	Grand Total
Center Apartments	\$ 1,390,095	\$ 882,334	\$ 1,628,428	\$ 3,900,857
Hunt Hall	\$ 180,794	\$ 343,637	\$ 1,128,359	\$ 1,652,790
Lincoln Apartments	\$ 1,269,404	\$ 2,329,805	\$ 5,804,604	\$ 9,403,813
Lincoln Street Laundry Building	\$ 1,282	\$ 2,564	\$ 67,958	\$ 71,805
Magers Hall	\$ 296,194	\$ 593,671	\$ 1,210,422	\$ 2,100,287
Meyland Hall	\$ 415,441	\$ 721,893	\$ 1,002,701	\$ 2,140,036
Northern Center	\$ 3,172,228	\$ 2,018,957	\$ 2,571,536	\$ 7,762,721
Norwood Apartments	\$ 2,029,948	\$ 2,492,648	\$ 850,116	\$ 5,372,712
Quad I Common Area	\$ 134,634	\$ 865,503	\$ 623,162	\$ 1,623,299
Quad II Common Area	\$ 5,381,504	\$ 2,617,024	\$ 624,444	\$ 8,622,973
Spalding Hall	\$12,818,417	\$ -	\$ 143,609	\$12,962,027
Spooner Hall	\$ 5,390,480	\$ 1,578,421	\$ 1,827,173	\$ 8,796,073
Van Antwerp Hall	\$ 167,972	\$ 418,006	\$ 1,010,394	\$ 1,596,372
Wilkinson		\$ 238,109		\$ 238,109
Woodland Park Apartments	\$ 610,633	\$ 1,666,894	\$ 529,560	\$ 2,807,087
<b>Grand Total</b>	<b>\$33,259,027</b>	<b>\$16,769,467</b>	<b>\$19,022,465</b>	<b>\$69,050,959</b>



## Facility Assessment Summary

Building	Service Area	2022-2023 Replacement Cost	Year Constructed	Construction Type	Gross Square Footage	Net Square Footage	Use Code	Standards
251 Center Street - Rental	Academic/Admin	38,600,000		F	1,958			
1020 Wright Street - Fab Shop	Academic/Admin	516,043			4,000	4,000	ST	1
1020 Wright Street - Forensic Anthropology Research Facility	Academic/Admin	615,618			3,400		AD	1
1020 Wright Street - Storage	Academic/Admin	412,835			3,200	2,900	ST	1
1400 Presque Isle - Invent	Academic/Admin	486,723			4,762			1
1422 Presque Isle - TeMaki	Northern Center	1,407,392	1972		6,000	4,256	RS	1
1500 Wilkinson Avenue	Housing	1,083,692	1952	F	4,623	2,742	RS	1
1636 Presque Isle - Rental	Academic/Admin	356,000		FR	4,823			
1700 Tracy - Rental	Academic/Admin				1,344			
1716 Presque Isle Building - Commercial Rental	Northern Center	1,477,761	1960	FR	6,300	6,300	RS	1
1804 Tracy Avenue - Rental	Northern Center	130,108	1954	FR	2,230	2,230	RS	1
1738 Presque Isle - Rental	Academic/Admin	455,000	1959	FR	6,000		RS	1
Art & Design	Academic/Admin	30,227,084	1996	FR	101,428	83,550	CL	1
Berry Events Center	Intercollegiate Athletics/Rec.	39,653,901	1999	FR	133,060	75,740	CG	1
Bus Garage - 1901 Enterprise	Academic/Admin	319,948		ST	2,480	2,437	ST	1
Butler Building	Academic/Admin	823,089	1950	FR	6,380	6,411	ST	1
C.B. Hedgcock	Academic/Admin	34,791,783	1958 / 2005	M	116,745	99,210	AD	1
Center Street Apartments	Housing	9,985,444	1967	M	38,700		RS	1
Cohodas Hall	Academic/Admin	31,294,277	1975	FR	105,009	92,376	AD	1
Dome Storage	Intercollegiate Athletics/Rec.	541,846	1998		2,800	2,592	ST	1
Dome/PEIF Link	Intercollegiate Athletics/Rec.	820,109	1991	NC	2,760	2,466	BC	1
Dow Storage	Intercollegiate Athletics/Rec.	334,396	2002		1,728	1,728	ST	1
Forest Roberts Theatre	Academic/Admin	9,150,257	1964	FR	30,704	22,510	TH	1
Gries Hall	Academic/Admin	17,352,233	1961	FR	58,226	48,564	AD	1,2
Harden Hall	Academic/Admin	59,239,755	1969	FR	198,781	175,246	CL, LB, SU	1
Harden/The Science Building Link	Academic/Admin	2,021,734	1996	NC	6,784	5,376	BC	1
Health Center	Academic/Admin	-	1961 / 2001		7,838	7,038	AD	
Hedgcock/TFA Link	Academic/Admin	937,258	2004		3,145	2,977	BC	1
Hunt Hall	Housing	16,398,577	1967 / 2008	FR	63,555	50,349	RS	1
Jacobetti Complex	Academic/Admin	62,338,518	1980	FR	209,179	193,817	CL	1
Jacobetti Storage	Academic/Admin	1,810,442	1988	ST	6,075	5,820	ST	1
John X. Jamrich Hall	Academic/Admin	35,255,161	2014	FR	133,000	117,575	CH	1
Lee Hall	Academic/Admin	12,667,732	1949	M	42,507	36,395	AD	1
Lincoln Street Apartments	Housing	21,488,060	1980	F	84,336	65,122	RS	1
Magers Hall	Housing	16,146,746	1966 / 2005	FR	62,579	50,794	AD	1
McClintock Building	Academic/Admin	10,005,861	1964	M	33,575	32,382	CH	1
Meyland Hall	Housing	16,435,214	1966 / 2006	FR	63,697	58,849	RS	1
Microwave Link (Stl) Morgan Mead	Academic/Admin	193,517	1972	FR	1,000	1,000	PP	1
NC/Gries Link	Academic/Admin	908,648	1995	NC	3,049	2,740	BC	1
Northern Center	Northern Center	46,120,016	1959 / 1996	NC	155,982	139,421	AD, SU, FS	1
Norwood Street Apartments	Housing	9,065,338	1967	M	35,134	33,324	RS	1
P.E.I.F.	Intercollegiate Athletics/Rec.	53,531,574	1976	FR	179,627	161,298	CG	1
PEIF/Berry Events Center Link	Intercollegiate Athletics/Rec.	3,007,569	1999	NC	10,092	8,936	BC	1
Quad I Common Area	Housing	22,269,780	1964	FR	74,727	72,473	FS	1
Quad II Common Area	Housing	24,123,435	1966	FR	80,947	70,156	RS	1
Ripley Heating Plant	Academic/Admin	35,820,680	1965 / 2013	FR	35,190	27,634	PP	1
Salt Barn	Academic/Admin	574,872	1996	F	4,456	4,115	ST	1
Services Building	Academic/Admin	28,021,772	1996	M	94,028	91,225	PP	1
Spalding Hall	Housing	14,436,062	1964	FR	55,929	48,078	RS	1
Spooner Hall	Housing	14,226,290	1957	FR	55,136	38,637	RS	1
Storage Building	Academic/Admin	56,118	1998	ST	3,760	3,760	ST	1
Superior Dome	Intercollegiate Athletics/Rec.	74,931,745	1991	F	251,436	213,296	CG	1
The Woods - Birch East	Housing	16,262,719	2017		64,734		RS	1
The Woods - Birch West	Housing	16,234,833	2018		60,623		RS	1
The Woods - Cedar East	Housing	14,692,822	2018		58,485		RS	1
The Woods - Cedar West	Housing	13,936,638	2017		55,475		RS	1
The Woods - Maple East	Housing	14,263,731	2018		56,777		RS	1
The Woods - Maple West	Housing	14,225,797	2018		56,636		RS	1
Thomas Fine Arts Building	Academic/Admin	26,847,294	1964	FR	90,087	64,217	CH	1
Transmitter Site-Ely Township	Academic/Admin	386,453	1972	FR	1,997		PP	1
Van Antwerp Hall	Housing	16,417,411	1967 / 2007	FR	63,628	53,481	RS	1
The Science Building	Academic/Admin	58,578,581	1966	FR	159,319	138,241	CL	1,4
Weston Hall	Academic/Admin	45,813,062	2000	FR	124,600	109,538	CL, CH	1,3
Whitman Hall	Academic/Admin	10,698,745	1953 / 2003		35,900	31,000	CH, AD	1
Woodland Park Apartments	Housing	27,092,289	2006		105,000	94,757	RS	1

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

**Required Standards:**

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



## Facility Assessment Summary (Continued)

Building	Cooling	Electrical	Exterior Shell	Grounds	Heating	HVAC	Interior Shell	Mechanical	New Construction	Plumbing	Safety/Code	Grand Total
Art & Design	\$42,313	\$525,713	\$37,185	\$147,456	\$284,654	\$434,675	\$96,167	\$5,129		\$1,573,292		\$1,573,292
Berry Events Center	\$8,148,549	\$689,756	\$630,883		\$192,334	\$883,454	\$89,756			\$96,167		\$10,330,888
Butler Building		\$14,104	\$2,821								\$80,780	\$97,706
C.B. Hedgcock	\$32,056						\$1,073,223			\$7,683		\$1,112,973
Campus Wide		\$1,282,226	\$1,282,226	\$4,014,956	\$0		\$1,282,226			\$2,316,832		\$10,178,467
Center Apartments	\$7,693	\$759,078	\$518,019	\$5,129	\$611,784	\$438,521	\$438,521			\$1,387,531	\$173,101	\$3,900,657
Conodas Hall	\$178,229	\$2,243,896	\$2,223,381	\$23,080	\$57,700	\$6,075,664	\$1,733,570	\$97,449		\$2,406,739	\$778,311	\$15,818,020
Dome/PEIF Link		\$17,951	\$67,958		\$8,976							\$94,885
Forest A. Roberts Theatre		\$434,675	\$144,892	\$23,080	\$43,596	\$1,496,358	\$1,086,046			\$750,102	\$794,980	\$4,773,729
Gries Hall	\$175,665	\$2,332,370	\$1,025,781	\$15,387	\$71,805	\$307,734	\$948,848	\$138,480		\$1,966,935	\$1,087,328	\$8,070,333
Harden Hall	\$237,212	\$3,894,122	\$149,588	\$3,847	\$2,733,707	\$6,320,805	\$2,319,548	\$269,268		\$4,872,460	\$2,852,954	\$23,653,509
Harden/Science Link		\$21,798					\$12,822					\$34,620
Harry D. Lee Hall							\$5,789,252					\$5,789,252
Health Center		\$57,700		\$5,129		\$55,136	\$160,278	\$29,491		\$112,836	\$55,136	\$475,706
Hunt Hall	\$80,780	\$101,296			\$12,822	\$108,989	\$783,440			\$351,330	\$214,132	\$1,652,790
Jacobetti Complex		\$920,639	\$173,101	\$6,411	\$756,514	\$2,441,359	\$82,062			\$3,013,232	\$144,892	\$10,210,369
Jacobetti Storage			\$18,208	\$35,658			\$38,467					\$127,209
John X. Jamnich Hall							\$503,915			\$6,411		\$510,326
Lincoln Apartments		\$2,659,338	\$1,459,139		\$1,136,053	\$487,246	\$598,800			\$2,181,067	\$682,172	\$9,403,813
Lincoln Street Laundry Building		\$32,056	\$12,822							\$26,927		\$71,805
Magers Hall	\$80,780	\$294,912			\$133,352	\$108,989	\$782,158			\$407,748	\$292,348	\$2,100,287
McClintock Building		\$553,922	\$603,929		\$452,626	\$857,809	\$511,608	\$2,564		\$797,545	\$38,467	\$3,818,470
Meyland Hall	\$80,780	\$423,135			\$383,386	\$102,578	\$783,440			\$71,805	\$294,912	\$2,140,036
NC/Gries Link			\$32,056				\$39,749				\$7,693	\$79,498
Northern Center	\$64,111	\$1,646,440	\$210,285		\$64,905	\$398,772	\$526,507	\$301,323		\$3,973,497	\$576,880	\$7,762,721
Nonwood Apartments		\$1,723,312	\$1,029,628	\$15,387	\$666,942		\$519,302			\$1,236,066	\$182,076	\$5,372,712
P.E.I.F.	\$211,567	\$515,455	\$1,706,643			\$1,045,640	\$2,029,801	\$67,958	\$14,820,000	\$7,681,818	\$35,902	\$28,114,785
PEIF/BEC Link			\$25,645				\$64,111	\$79,498				\$176,947
Quad I Common Area	\$102,578	\$278,243	\$405,184		\$101,296	\$76,934	\$442,368	\$10,258		\$84,627	\$121,812	\$1,623,299
Quad II Common Area	\$96,167	\$1,706,643	\$463,908		\$96,167	\$3,924,895	\$560,333	\$57,700		\$1,598,936	\$128,223	\$8,622,973
Ripley Heating Plant	\$19,233		\$484,682			\$19,233				\$17,951		\$541,100
Services Building	\$84,827		\$1,788,706	\$30,773	\$153,867	\$660,347	\$732,151	\$53,854				\$3,504,325
Spalding Hall		\$89,756	\$0	\$0	\$0	\$12,615,826	\$0	\$0		\$0	\$256,445	\$12,962,027
Spooner Hall	\$33,338	\$388,515	\$823,189	\$20,516	\$846,269	\$2,587,533	\$1,564,316	\$19,233		\$2,186,196	\$326,968	\$8,796,073
Superior Dome	\$51,289	\$1,736,135	\$537,253	\$2,564,453		\$3,333,789	\$1,827,166	\$107,707		\$1,495,076	\$421,852	\$12,074,719
Thomas Fine Arts	\$89,756	\$283,372	\$3,847	\$8,976	\$8,976	\$251,316	\$577,002	\$85,909		\$1,260,429	\$737,280	\$3,297,886
Van Antwerp Hall	\$80,780	\$102,578		\$153,867		\$108,989	\$783,440			\$71,805	\$294,912	\$1,596,372
The Science Building			\$619,315			\$44,878	\$1,255,300	\$48,725		\$148,738		\$2,116,956
Weston Hall	\$44,878		\$538,535			\$591,947	\$943,062			\$132,069		\$2,250,491
Whitman Hall	\$64,111		\$1,171,955			\$106,565	\$333,379			\$50,007		\$1,726,017
Wilkinson		\$87,191	\$47,699	\$53,854		\$3,077	\$33,979					\$238,109
Woodland Park Apartments	\$67,958	\$571,873	\$66,676		\$445,226	\$302,605	\$577,002			\$179,512	\$596,235	\$2,807,087
Grand Total	\$9,984,697	\$25,068,869	\$19,263,189	\$6,858,690	\$9,067,289	\$32,526,978	\$48,030,445	\$1,637,403	\$14,820,000	\$40,907,527	\$11,418,360	\$219,603,448



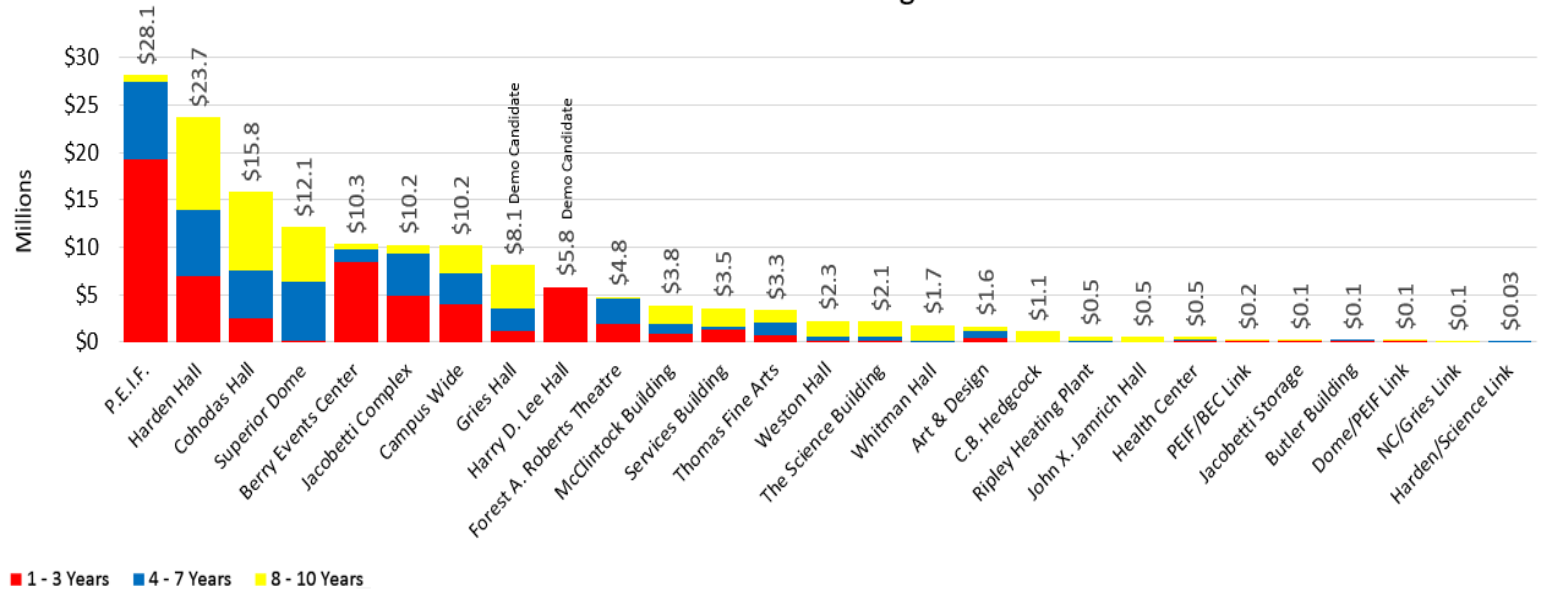


## Facility Assessment Summary (Continued)

### Statewide Building Needs Over 10 Years

Project List as of September 1, 2022

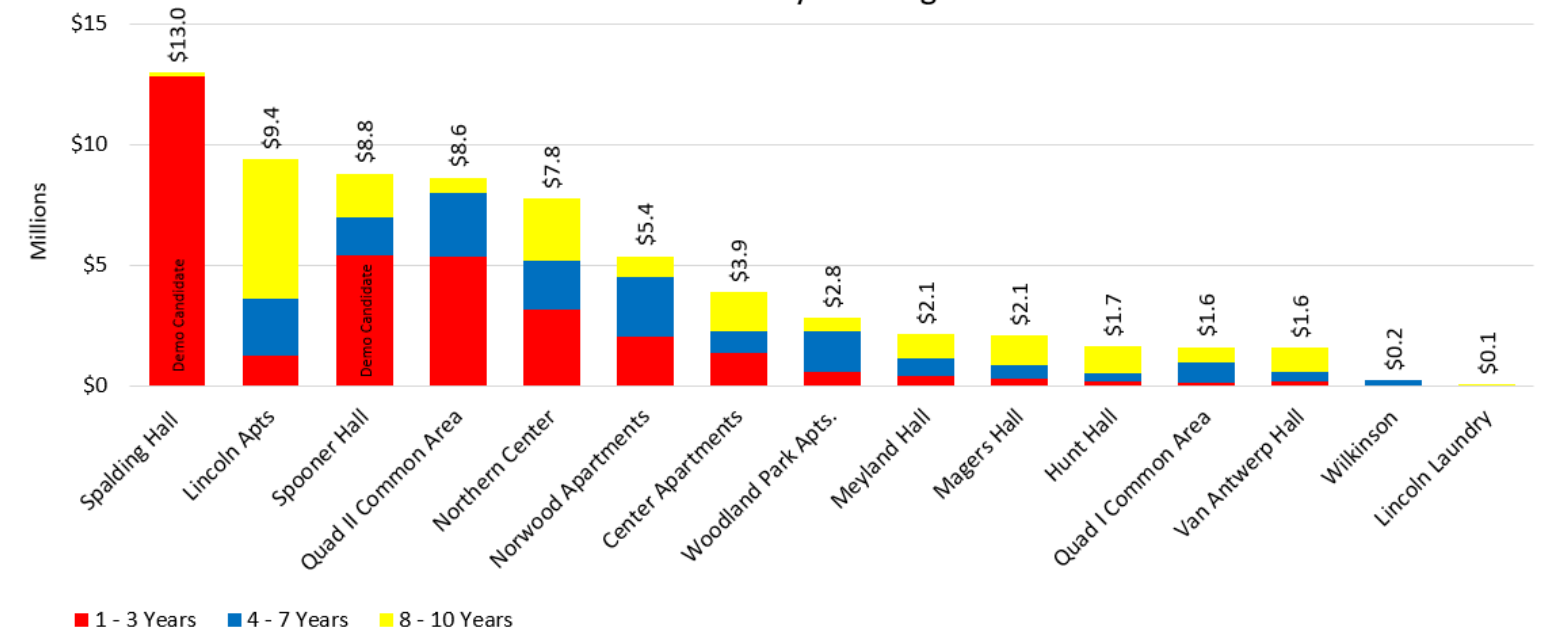
#### Total Statewide Building Need



### Auxiliary Building Needs Over 10 Years

Project List as of September 1, 2022

#### Total Auxiliary Building Need

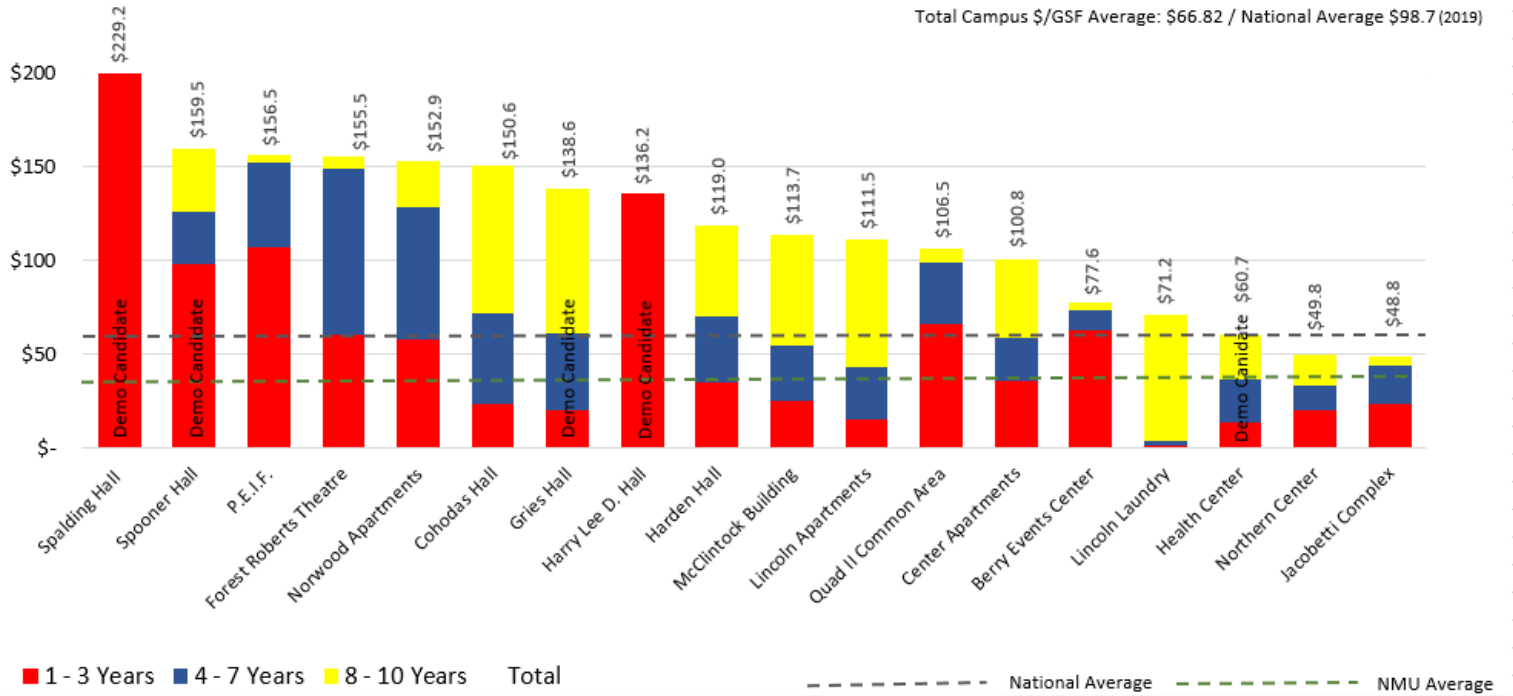




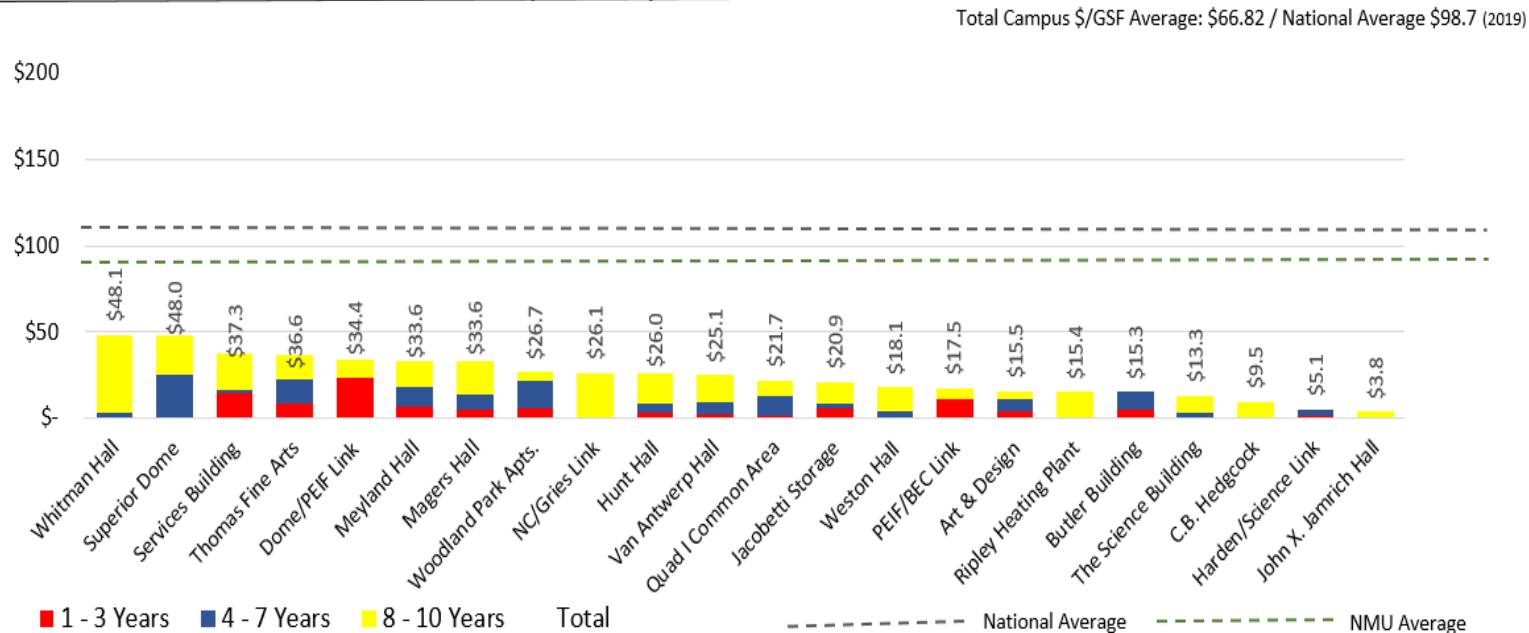


## Facility Assessment Summary (Continued)

### A Look at All Building Needs (\$/GSF)



### A Look at All Building Needs (\$/GSF)

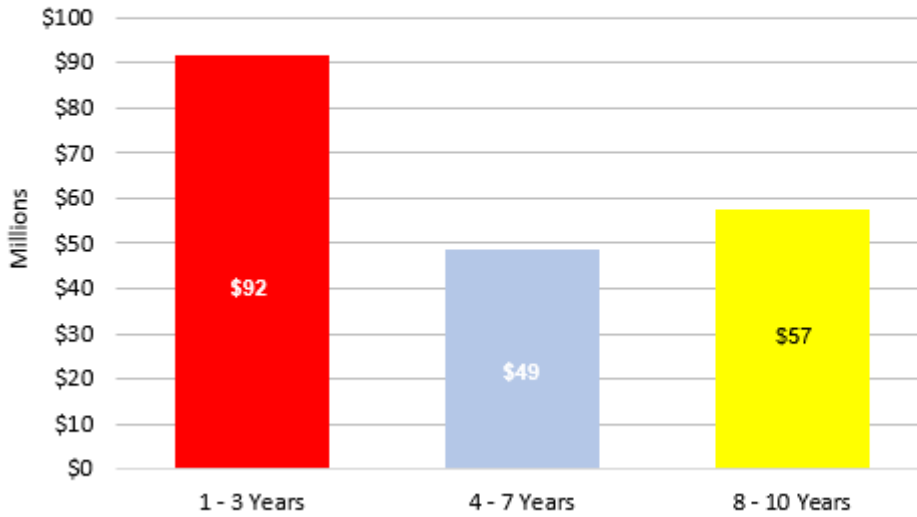




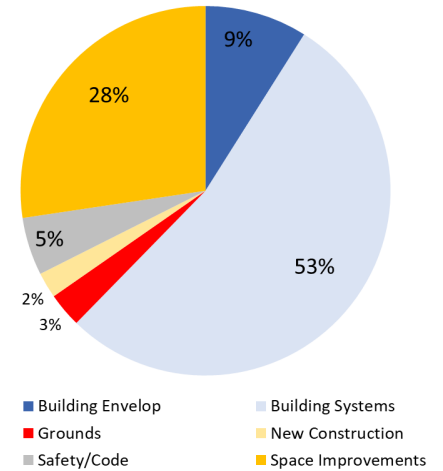
## Facility Assessment Summary (Continued)

### 10 Year Need Time Frame

Updated Needs by Timeframe



Percent of Identified Need

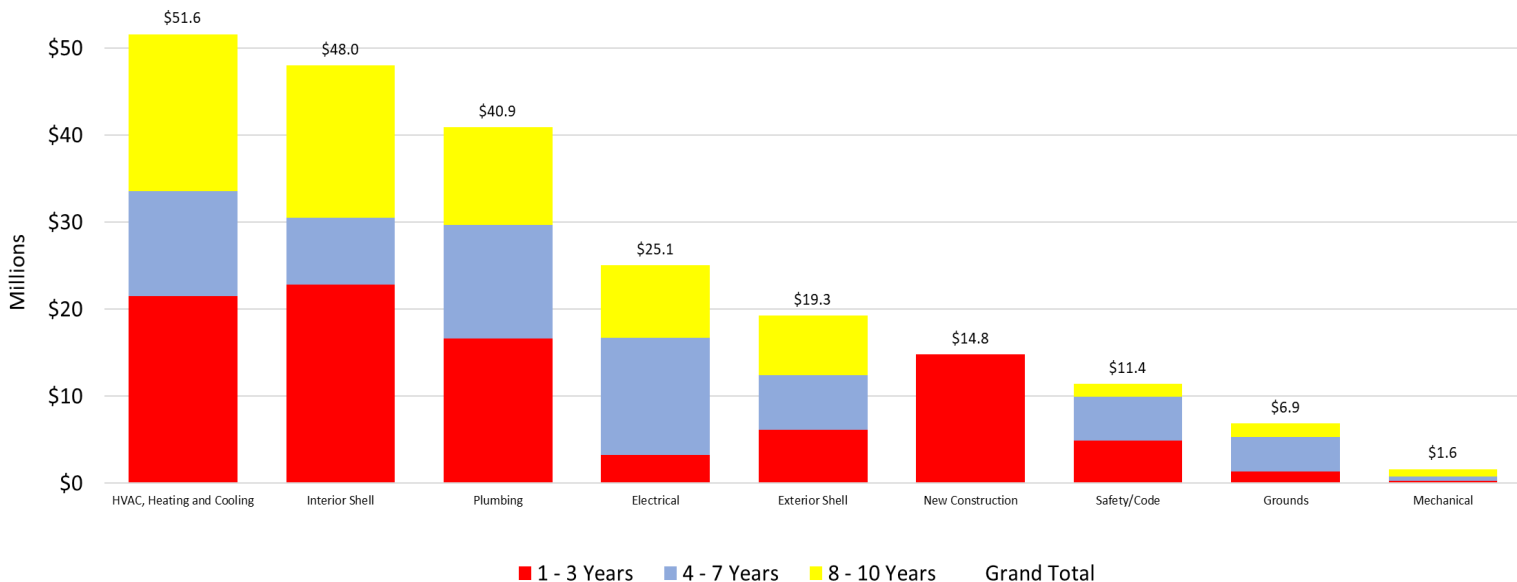


The total need noted above does not include some of the residential and storage buildings included on page 60

### Identified Needs By System

Time Frames A, B, C only

Identified Needs by System, By Time





## Facility Assessment

### Long-Term Maintenance

Since September 2021, Northern has addressed long-term maintenance needs of \$3.9 million pertaining to state buildings, auxiliary buildings, utility infrastructure, security and hardscape. Capital renewal projects address long term maintenance and space utilization. Examples of some of this past year's projects include, but are not limited to, the following:

### **Capital Renewal Projects\* \$11.5 million** (spent since 9/21 on construction):

- BEAR Center Renovation
- Berry Event Center Hockey Locker Room Renovation
- Career and Engineering Tech Facility
- Cosmetology & Hospitality Management Relocation to Northern Center

### **Education Access Network (EAN) \$1.95 million** (spent since 9/21):

- Network Infrastructure Upgrades

### ***Maintenance Projects:***

- Berry Events Center Infrastructure Upgrades
- Campus Interior Finishes (flooring, painting, doors, etc.)
- Exterior LED Lighting Upgrades
- Energy Management System Upgrades
- Harden Hall Window Replacement
- House Demolitions -Tracy Street and Presque Isle Avenue
- Housing Maintenance – Various
- Lincoln St. Apartments Roof & Siding Replacement
- Mechanical / Electrical / Plumbing Infrastructure Upgrades
- Northern Center Restrooms Upgrades
- Quad I Parking Lot 16 (north half) Resurfacing
- Parking Lot & Sidewalk Repairs Across Campus
- PEIF Emergency Generator Replacement
- PEIF Pool Repairs & Upgrades
- Quad I West Lobby Renovations
- Retention Initiatives-Variou Office Renovations
- Security System Cameras
- Utility Infrastructure Upgrades
- Vandament Arena Scoreboard Replacement
- Wayfinding/Building Sign Replacement
- West Hall Demolition
- Westside Apartment Renovations
- Weston Hall Phoenix Controls Upgrades
- Whitman Hall Boiler Replacement
- Women's Wrestling Locker Room Renovation

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



## Facility Assessment

### Space Utilization Initiatives

NMU uses a number of policies and tools to optimize course scheduling and evaluate/improve classroom, laboratory and building utilization. These policies and tools include design guidelines for classroom and laboratories as well as a formal scheduling guidelines that all academic departments are required to follow. These guidelines are designed to ensure classroom and laboratory utilization is optimized throughout the day/week.

### Space Report

To help track, report on and improve space utilization utilize a comprehensive scheduling software system for all academic and event space across campus. Since 2014 Classroom Utilization targets for all General Use Classroom is 63%. Average Utilization for the fall 2021 semester exceeds that rate by 7%.

Below is a summary of *General Use Classroom Utilization* by building for Fall 2022. (Monday/Friday, 10 a.m. - 3 p.m.)

Building	# of General Use Classrooms	Average Room Utilization %	Average Seat Utilization %
Gries Hall	1	53%	83%
Harden Hall	4	63%	70%
John X. Jamrich Hall	24	74%	62%
McClintock Building	7	56%	80%
Russell Thomas Fine Arts	6	67%	71%
The Woods	1	53%	69%
The Science Building	15	67%	68%
Weston Hall	2	74%	78%
Whitman Hall	2	90%	60%
Total	62	70%	66%

*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

In 2019 NMU completed a comprehensive Campus Master Plan Update. This included an evaluation of all existing space assignments and utilization. This evaluation was done for both academic and administrative functions with the intent of identifying both opportunities to improve space utilization and potential redistribution.



## Assessment of Campus Utilities System

### Water

NMU has approximately 78,000 linear feet of water lines on campus and tries to update aging water mains during new construction, as able. Seven City master water meters are installed around the university to simplify reading the university's usage. Sub-meters are installed on university buildings to monitor individual building use, verify the City's billing statements and help detect water loss. During summer 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 summer 2014, 335 feet of new water main was installed around the McClintock building to replace an old municipal main that ran under the building's foundation. During summer 2016, 1,900 feet of water main was replaced and relocated as part of NMU's new residence hall project. Also, approximately 2,000 feet of 3-inch water main has been abandoned with the demolition of 801/821 Center and the Summit Street Apartments. During summer 2020, 200 feet of water main was installed by directional boring to re-feed an abandoned fire hydrant at the 1600 Lincoln Street Apartment complex.

### Steam

Campus buildings are supplied steam from the Ripley Heating Plant. The underground steam distribution system has approximately 14,000 feet of insulated steam and condensate lines. The majority of the lines are over 25 years old. The Ripley Plant has two 70,000 lbs/hr gas boilers installed in 2006 and a combined heat and power plant constructed in 2013. The CHP plant has a 42,000 lb/hr wood fired boiler along with a 750 kW steam turbine generator. The generator can meet about 17% of the campus electrical load. A gas burner was added to the CHP boiler in summer 2018 to increase fuel options. In summer 2019, 230 feet of 4" underground condensate line was replaced in Lot 22. In summer 2020, improvements were made to the steam and condensate piping and its support system in the tunnel to the Jacobetti Complex. Four expansion joints were removed and two new ones were installed centrally in this piping run. In 2022, approximately 150' of steam and condensate line was removed between the Northern Center and West Hall.







## Assessment of Campus Utilities System

### Electric

The majority of campus is supplied power from the Marquette Board of Light and Power through distribution in the Ripley Heating Plant. Over 61,000 feet of high voltage cable distributes power underground from the plant to campus buildings. The majority of the underground feeders are nearly 20 years old. The main electrical distribution in the Ripley Plant was installed in 2006. In 2019, the 1960-vintage 15kV switchgear and transformers in the Northern Center were replaced. This summer the southeast underground electrical loop was modified with the demolition of West Hall. The existing 15 kV loop switches were salvaged and placed into storage along with the building transformer.

With over 600 exterior light poles on campus, a phased approach to replacing the metal halide light fixtures with new LED fixtures has begun. Two hundred and sixty (260) fixtures have been replaced to date.

### Gas

All gas mains on campus are owned by the SEMCO gas company. NMU is responsible for all laterals. There is a approximately 49,000 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. This summer a new gas line was installed by SEMCO to the yurt and northeast corner of the PEIF as part of the emergency generator replacement project.

### Phone

The existing Avaya G450's were installed in 2017. The systems are AC power and 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 2019. The 2017 and 2019 upgrades virtualized all servers within the phone system. Instead of physical servers, all components of the phone system run on VMWARE systems. Both the core and cabinet components of the phone system are considered to be in very good condition. As yearly maintenance costs are exponentially rising and Avaya's longevity as a small business service provider is uncertain, replacement options are being researched. While the phone system had remote options for work at home users, this has been significantly scaled up to accommodate COVID-19. Remote phone options will continue to be investigated as needed.

Existing campus phone lines (19,629 feet) were installed in 1985 by ATT Technologies. These lines are aging and many have been dug up and damaged. The replacement of these cables is being done on a consistent basis through ongoing renovation and construction projects, as renovation and construction allows. 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.





## Assessment of Campus Utilities System

### Storm

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

In 2008, as part of the Hunt Hall renovation project, as with the 2007 Van Antwerp Project, the university reduced the amount of the rain water run-off entering the city storm water system by adding hipped roofs to the facility and shedding rain water onto a grassed, landscaped area. This reduced the water entering the city storm system by approximately 400,000 gallons annually. During summer 2016, 4,900 lineal feet of storm sewer was relocated and replaced as part of NMU’s new residence hall project.

### Sanitary

There are 43,332 feet of sanitary sewer lines on campus. Aging sanitary sewer lines are updated with new construction, as permitted. During the summer of 2015, approximately 210 feet of original sanitary sewer piping was replaced serving the Forest Roberts Theatre.

<i>Utility System</i>	<i>Need Year</i>	<i>Estimated Cost</i>
Water System	4	\$ 201,888
Steam Distribution	3	\$ 2,690,588
Storm Drain Mains	5	\$ 77,595
Sanitary Sewer Mains	2	\$ 201,888
Utility System Total		\$ 3,171,959



## Assessment of Campus Infrastructure

### **Roadways** (3.6 miles)

#### **Improvements:**

During summer 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 fall 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 summer 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 has been developed for roadway rehabilitation.

### **Parking** (6,700 spaces total)

#### **Improvements:**

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

During summer 2018, major reconstruction was completed to residential parking lots 6, 10, 11 and 14 serving both residence hall students and faculty/staff/commuters. During summer 2019, parking lot 8 was completely reconstructed as part of the Northern Center Renovation project. During summer 2020, parking lots 4 and 5 were milled and resurfaced and all damaged curb was replaced. Total area resurfaced was 91,000 square feet. During the summer of 2022, the north half of Lot 16 was reconstructed.



## Assessment of Campus Infrastructure

### Sidewalk

There are approximately 14 miles of sidewalk on campus. All new sidewalks are reinforced concrete, and designed 10 feet wide to accommodate service vehicles and snow removal traffic. There are still a number of walks that do not meet the existing campus standard or are badly deteriorated and in need of replacement. Some sidewalks on campus do not meet current ADA or MBFD guidelines. There are also several areas that currently are not paved, which require a finished surface in order for the maintenance crews to be able to keep those walks clear of snow in the winter.

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

The campus standard for sidewalks is a 10-foot wide concrete walk. The concrete surface is preferred over asphalt for the durability when scraping snow and ice in the winter months. Within the next two to five years, existing asphalt sidewalks on campus will need to be reconstructed with the campus-standard width geometry and materials so the snow plows can access these walks for clearing and maintaining. The existing walk from Lee Hall east to Waldo Street for accessing the Berry Events Center/Physical Education Instructional Facility/Superior Dome area is planned for replacement with concrete. In 2018, approximately 2,700 square feet of sidewalk was replaced at The Woods and Northern Lights Dining. In 2019, approximately 7,000 square feet of new or replacement sidewalk was installed as part of the Northern Center renovation project.

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 five years, we will continue to upgrade network capacity, increase core routing capacity, upgrade core switching infrastructure, and add and upgrade wireless access as necessary. Each individual building now has either 802.11ax (also known as WiFi6) or 802.11ac/ac wav2. With the arrival of WiFi6e, buildings will continue to be upgraded with advanced WiFi to improve speed and capacity.

The network core major routing points are all connected at either 100 gbps or 40 gbps with buildings connected at 10gbps or 40gbps. The University is now connected to its Internet provider at 100gbps, which is an increase of 80gbp over the 20gbps connection in 2021. Three of the four major routers have been replaced over the last twenty-four months, with the fourth router to follow in December 2022.

The primary wireless controllers for both Resnet and the main campus were upgraded to a C9800-40 unit during the summer of 2021 and summer of 2022, allowing for more wireless capacity and newer access points in those areas. The controller will be upgraded to HA by December 2022.

In December 2021, the primary campus firewall was upgraded from a Palo Alto 5250 to a Palo Alto 5450. This increases firewall capacity from 22gbps to 100gbps. The introduction of the Palo Alto PA series has greatly improved our internet border security, placing almost all of campus behind the protection of this unit. Beyond firewall protection, the PA-5450 allows for mitigation of external attacks and rogue client detection. The older PA-5250 are being re-used in a HA setup to create several internal firewall segments. This aligns with our security policy of zero trust. This PA-5250 setup will also allow us to retire the older and smaller Cisco ASA5515, 5525, 5545 and 5555 firewall units. A backup PA-5450 was added in Cohodas Hall in quarter two of 2022 to add redundancy. This unit exists at the backup Merit 20gbps connection. A third unit was added solely for the new EAN core and will replace and augment the functions of the NMUCLC/EAN 6807 router.

In addition to the campus network, NMU LTE broadband wireless covers the City of Marquette, and surrounding cities where many faculty, staff, and students live. LTE network coverage has been expanded across the Upper Peninsula with most of 73 new sites completed 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. A complete upgrade to the core is nearing completion as of summer 2022. Much of the RAN will also be upgraded per the Rip and Replace requirements of Huawei equipment by the FCC and Federal Government.



## Assessment of Campus Infrastructure

### Technology Infrastructure

The original multimode fiber between buildings, while still installed, is used very seldom for fire control and network, but its use and future is limited. No further upgrades will include multimode fiber, and in some cases, it will be removed if the pathway is needed to enhance the single mode fiber pathways. Continued fiber plant infrastructure upgrade has increased the amount of single mode fiber available to each building to between 12 and 48 strands, although some legacy buildings still have only four strands of single mode. Each individual building is wired internally with Category 5, 5e, 6 or 6a cable, depending on when the cable was 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, 40 and 100 Gigabit Ethernet (no less than 12 strands and up to 48 strands) data wiring cable will be Cat 6a or better quality, and wireless access points will be WiFi6.

The wiring infrastructure, both copper and fiber, is in good condition with a few noted exceptions.

- The latest landscaping phase of Northern Center construction caused major damage to both the NMU copper tie from Cohodas Hall to Harden, Lee, Spooner and Art & Design. It should be noted that due to this damage and because of the age of the building, should any renovation be done to Lee Hall, both new copper phone lines and fiber optic cabling will be necessary.
- 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. Fiber has been installed along with Category 6 wire to each apartment to serve their network and phone needs.
- With the demolition of the Summit apartments, the wire has been abandoned in place from the first pedestal on the east side of Tracy Avenue. Any construction in this area will also require installation of new copper and fiber.
- The Temaki and 1400 Presque Isle Avenue were minimally wired and if those buildings are to remain a part of campus this will need to be addressed with the installation of additional fiber and copper to those buildings.
- The PEIF has very limited room for growth and poor inside infrastructure. Cabling paths are difficult, full and in some cases non-existent. The IT rooms are small, in poor locations and with terrible climate control. An additional main fiber IT room was built in 2021 and an upgrade to the single mode fiber is in progress.
- In order for Forest Roberts Theatre to move forward with IP based audio visual services, the space will need some significant wiring upgrades and additions and its own IT equipment room. Plans are being drawn up by the Theatre department for IT and Facilities to review as the first step for upgrading the space.



## Assessment of Campus Infrastructure

### Technology Infrastructure (continued)

- Spalding Hall will need fiber and copper upgrades in the next five years in order to continue to have functional IT.
- Services Building BEAR Center Wing exceeds distance limitations from current IT rooms. A new IT room will be needed in any future renovation and depending on the needs of any future tenant.
- The former Kaye House fiber was cut and abandoned in place. All IT services to the former Kaye House have been terminated.
- New single mode fiber is being installed to the new BEAR Center and new Health and Wellness Center buildings.
- As options are explored for IP phone system solutions, some buildings with less than Category 6 wiring may need to be upgraded including Cohodas Hall, Harden Hall, McClintock Building, PEIF, parts of the Thomas Fine Arts building and all older residence halls.



## 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
2023	\$ 5,355,000	\$ 4,235,875	\$ 9,590,875
2024	5,615,000	3,977,907	9,592,907
2025	5,785,000	3,707,237	9,492,237
2026	5,450,000	3,438,590	8,888,590
2027	5,280,000	3,181,990	8,461,990
Total Five Years	27,485,000	18,541,599	46,026,599
Thereafter			
2028-2032	28,345,000	11,802,075	40,147,075
2033-2037	17,865,000	6,023,965	23,888,965
2038-2042	10,575,000	2,933,655	13,508,655
2043-2046	8,115,000	728,450	8,843,450
Deferred re-offering premium	12,492,090		
Total	\$ 104,877,090		

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



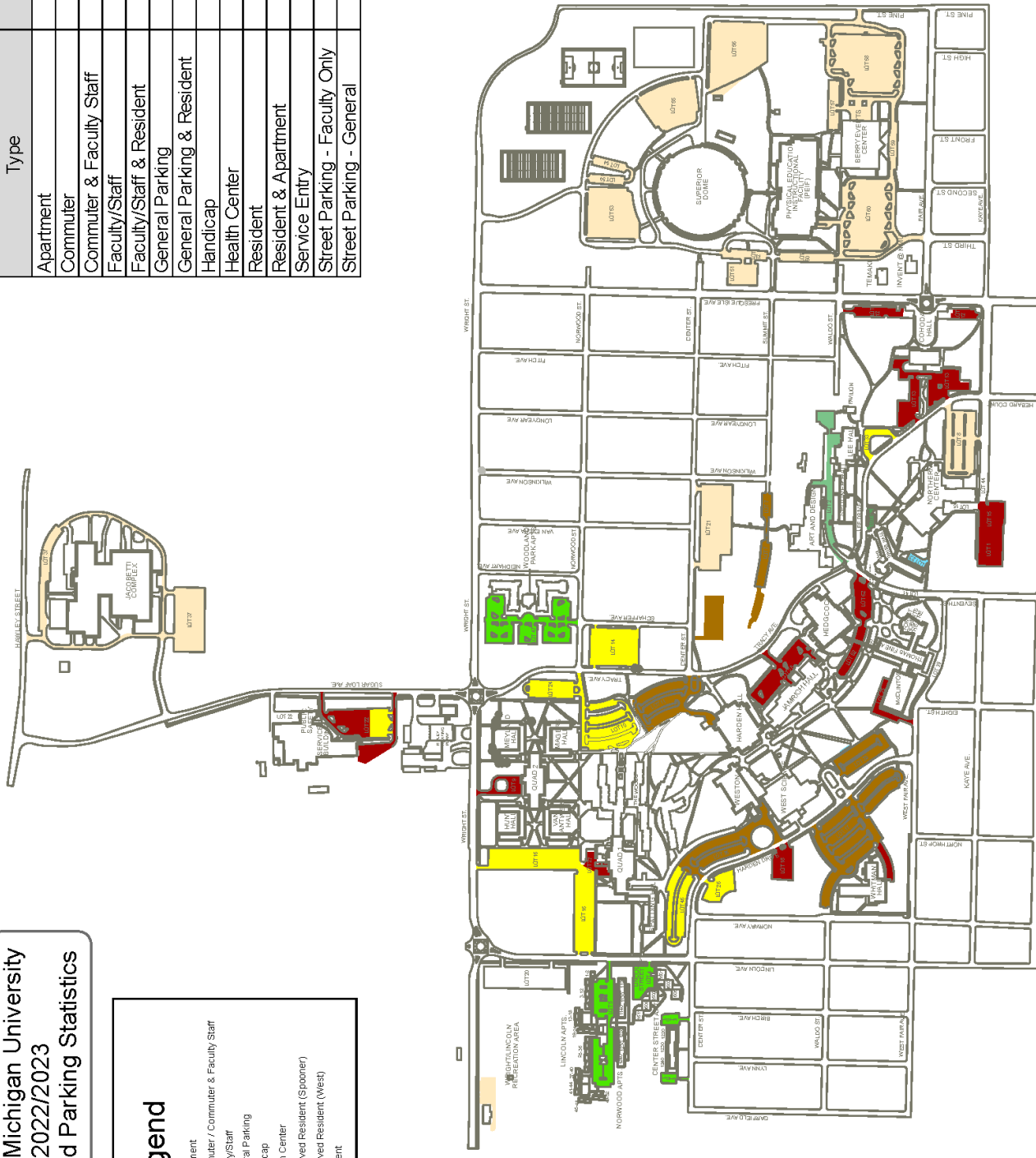


## Northern Michigan University 2022/2023 Road and Parking Statistics

### Legend

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

Type	Total
Apartment	180
Commuter	394
Commuter & Faculty Staff	510
Faculty/Staff	568
Faculty/Staff & Resident	243
General Parking	3,083
General Parking & Resident	23
Handicap	13
Health Center	9
Resident	1,197
Resident & Apartment	206
Service Entry	12
Street Parking - Faculty Only	89
Street Parking - General	35



Engineering and Planning  
Northern Michigan University  
Updated 09/02/2022



**NORTHERN MICHIGAN UNIVERSITY**

# ASSESSMENT OF UNIVERSITY LAND



## University Land

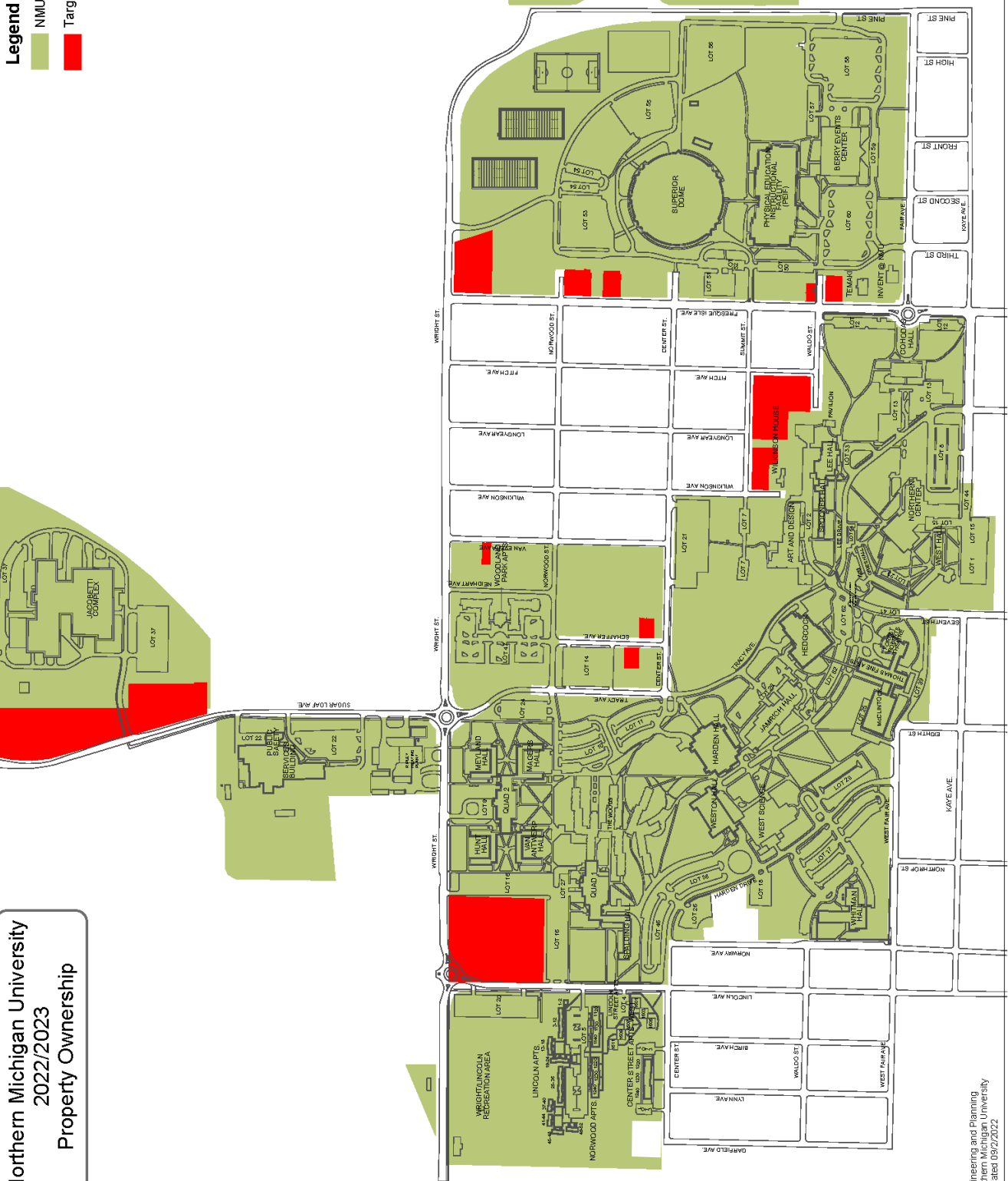
The University owns 868 acres comprised of 357 acres on the main campus, 160 acres known as the Longyear Forest in Marquette Township, 206 acres near Mount Marquette in south Marquette, 142 acres in Chocolay Township known as the English property and three acres of FROST property.

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.





## Northern Michigan University 2022/2023 Property Ownership



Engineering and Planning  
Northern Michigan University  
Updated 09/27/2022



NORTHERN MICHIGAN UNIVERSITY

# Section V

## Facilities Implementation Plan



## Introduction

The foundation of any facilities implementation plan is a well developed, comprehensive Master Plan. In 2019, the university completed a comprehensive update of their existing Campus Master Plan. The 2019 Campus Master Plan represents a new vision that aligns the university's academic mission, strategic plan, and physical planning goals into a single document which will help guide the future development of the campus. The Campus Master Plan builds upon many of the bold initiatives of the 2015 Strategic Plan, creating a new vision that is achievable yet flexible to accommodate future challenges. The master plan provides a 10-15 year framework for campus facilities and infrastructure that includes recommendations for building opportunities and additions, building demolition candidates, pedestrian and open space enhancements, roadway realignments, and new or reconfigured parking facilities. Master Plan projects will be pursued dependent upon available funding from a combination of donors, state funding, and university resources.

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 2024 Capital Outlay Project Priority

### Northern Enterprise Center (College of Business)

***Project Budget: \$19,100,000***

Northern Michigan University offered its first business courses more than 100 years ago. Then, as now, our mission—and our vision—is providing first-in-class education that not only equips students to compete, contribute and succeed, but also strengthens the economic prospects of the region and state. Northern’s College of Business is known for its highly skilled graduates, innovative programming, strategic partnerships, and an unrelenting determination to drive economic growth in the Upper Peninsula and State of Michigan. The College has placed over 175 interns regionally supporting both businesses and student learning; many receive offers for full-time employment and stay in the area upon graduation. Upon graduation nearly 90% of program graduates move onto full-time employment earning between \$42,000 and \$72,000, wages comparable to Michigan’s median income level, in rural environments according to alumni surveys. The realization of a new Northern Enterprise Center, through this capital outlay request, will enable NMU to expand these opportunities, increase economic growth and, most importantly, significantly enhance the learning and growth opportunities for our students – the future business leaders for our region and State of Michigan.

The new center will be centrally located within the academic mall and the synergy created between the College of Business, the STEM and Liberal Arts programs because of its location and environment will foster economic development promoting collaboration between students and faculty, local entrepreneurs, investors, business opportunities and job growth for the U.P. New classrooms and laboratories will provide vibrant, modern high-tech teaching and learning spaces utilizing the university’s expertise in collaborative learning design and incorporating technology into instruction.

This capital outlay project would enable NMU to take an increasing regional and national leadership role in rural economies and sustainable business education, and it supports the university’s new strategic plan that is focused on transforming the university through innovation and investment.

Through our new Northern Enterprise Center (NEC), Northern will lead the region in business education and establish a hub for encouraging entrepreneurship, provide a powerhouse training center for tomorrow’s business leaders, and create an engine of regional economic development and transformation. The Center will serve as a catalyst for propelling the development of jobs, products, businesses and even entire industries throughout the Upper Peninsula and beyond. It will achieve these goals by:

- Functioning as a “collaboratory” that brings together intellectual capital and educational programming into a state-of-the-art center. Within this dynamic setting, students and faculty will learn, research, and interact directly with business owners, investors, developers, entrepreneurs, and economic development organizations to foster innovation, test boundary-breaking ideas, and launch new ventures.



## Fiscal Year 2024 Capital Outlay Project Priority

### Northern Enterprise Center (College of Business)

- Facilitating success for existing and future businesses by serving as a central location for entrepreneurial education, training, activities, business development, capital investment, and technology transfer in the central U.P.
- Giving students increased access to on-campus internships, mentorships, consulting projects, part-time jobs, and active learning experiences that reinforce classroom instruction and prepare them to excel in their future business-related careers.
- Providing graduates the skills required to thrive in a remote work career allowing our future business professionals to work from rural locations such as Michigan's Upper Peninsula - reducing the export of this "talent" and enhancing the region.
- Providing superb production facilities and advanced technology to enhance the distance/online learning so vital for connecting constituents across the entire Upper Peninsula, including the most remote rural areas.
- Supporting entrepreneurs, start-ups, and established businesses and agencies with an array of essential educational and training resources and services—from financing to coaching, and from business launch boot camps to market assessments.
- Better serving a large number non-traditional, first generation college students, who are place-bound by virtue of family or economics and, by placing these graduates in their local area, helps strengthen the regional economy.
- Serving as THE place for innovative exchanges, knowledge sharing, and development of effective and strategic business practices. This will begin with the launch of the Information Assurance/Cyber Defense Center of Academic Excellence (CAE). As the only CAE in Michigan north of Grand Rapids, the Center will provide academic training and experiential learning focused on strengthening information security, assessing organizational risk, and mitigating informational breaches.

This bold, multi-faceted approach will make the Northern Enterprise Center an epicenter of forward-looking education and entrepreneurship. By powering both academic excellence and business development, and by promoting perpetual innovation, the NEC will become the driving force behind a sustained economic renaissance for the Upper Peninsula and surrounding areas.



## Summary

### Fiscal Year 2024 Capital Outlay Project Priority

<i>Career</i>	<i>Total Project Cost (in thousands)</i>
Northern Enterprise Center (College of Business)	\$19,100





## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### **Northern Enterprise Center (College of Business) *(continued)***

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 Northern Enterprise Center is to create a space that will allow for collaboration between faculty, students, and the entrepreneur community, and enhance and stimulate research in business administration, entrepreneurship, and marketing.

This \$19.1 million construction project will build on NMU's expertise in collaborative learning design and incorporating technology into instruction. NMU will deliver a center not only considered "cutting edge" by today's standards, it will deliver a center adaptable to change with future technologies and allow for growth of the College of Business and its programming preventing facility obsolescence.

### **Rural Economies and Sustainability Distinction**

The University and College also serve a large proportion of non-traditional students, many of whom are first generation college students, and are place-bound by virtue of family or economics. Having a premier center in the region will support the needs of these students. The Northern Enterprise Center will help Northern's transformation of its College of Business with the distinction of having a rural economies focus. Use of technology, new learning/teaching settings and business-education collaborative research and projects will enable Northern's academics to explore government policies as to development, investment, regulation, and transportation. Northern's new center will also support the transformation's emphasis on sustainability and entrepreneurship. This center will be an appealing venue to enable Northern's College of Business to provide meaningful regional education and outreach to affect positively our rural economic service area.

### **Technology Expertise**

NMU has long been an innovator with implementing technology and is one of the select few universities in the nation to own, build, operate, and maintain an LTE network. This network, when complete, will provide broadband access and educational resources for the Upper Peninsula, and rural Michigan, helping people receive a first-class education, advance their careers, and fulfill personal development goals. This project will provide graduates with a greater understanding of high-tech learning, working, and living environments. Having a high-tech business-learning space will allow students to practice and refine business expertise that will enhance the student experience and prepare them for meaningful careers. Northern's LTE network will expand the ability to deliver education and training from this new center to the rural areas of Michigan providing a broader range of skills that will add value to the local, regional, and state economy.



## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### **Northern Enterprise Center (College of Business) *(continued)***

#### **Culture of Entrepreneurism**

Finally, through NMU's highly successful Invent@NMU, students will have the opportunity to engage with private sector entrepreneurs for "hands-on" experience on academic projects. This new center will allow students in business programs, to collaborate with students in engineering and industrial programs, along with those from the art and design program.

#### **Economic Growth**

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

#### **Describe the scope of the project:**

The new Northern Enterprise Center will include active learning classrooms and laboratories, as well as business product development prototypes and highly efficient office space. It will enable the College of Business to relocate to the core of campus. Specific project goals include:

- New high-tech collaborative classrooms that will create a bridge between the rural economy of the Upper Peninsula and academics in a way that will train and educate existing entrepreneurs and those up and coming.
- 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.



Concept Drawing





## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### **Northern Enterprise Center (College of Business) *(continued)***

- 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 learning to help prepare students to detect, prevent, and mitigate cyber-attacks in a real-world setting, and other laboratory type spaces supporting department specific programs.
- New administrative and faculty office space for College of Business, as well as the departments of Economics, Political Science, History and Philosophy.

Sustainability and energy efficiency will be primary concerns. LEED® Green Building guidelines will be the basis of design 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 healthy environment for building occupants, and conserve energy.

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

Northern Michigan University offered its first business courses more than 100 years ago. Then, as now, our mission—and our vision—is providing first-in-class education that not only equips students to compete, contribute and succeed, but also strengthens the economic prospects of the region and state. Northern's College of Business is known for its highly skilled graduates, innovative programming, strategic partnerships, and an unrelenting determination to drive economic growth in the Upper Peninsula and State of Michigan. The College has placed over 175 interns regionally supporting both businesses and student learning; many receive offers for full-time employment and stay in the area upon graduation. Upon graduation nearly 90% of program graduates move onto full-time employment earning between \$42,000 and \$72,000, wages comparable to Michigan's median income level, in rural environments according to alumni surveys. The realization of a new Northern Enterprise Center, through this capital outlay request, will enable NMU to expand these opportunities, increase economic growth and, most importantly, significantly enhance the learning and growth opportunities for our students – the future business leaders for our region and State of Michigan.



## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### **Northern Enterprise Center (College of Business) *(continued)***

The new center will be centrally located within the academic mall and the synergy created between the College of Business, the STEM and Liberal Arts programs because of its location and environment will foster economic development promoting collaboration between faculty and students, local entrepreneurs, investors, business opportunities and job growth for the U.P. New classrooms and laboratories will provide vibrant, modern high-tech teaching and learning spaces utilizing the university's expertise in collaborative learning design and incorporating technology into instruction.

This capital outlay project would enable NMU to take an increasing regional and national leadership role in rural economies and sustainable business education, and it supports the university's new strategic plan that is focused on transforming the university through innovation and investment.

Through our new Northern Enterprise Center (NEC), Northern will lead the region in business education and establish a hub for encouraging entrepreneurship, provide a powerhouse training center for tomorrow's business leaders, and create an engine of regional economic development and transformation. The Center will serve as catalyst for propelling the development of jobs, products, businesses and even entire industries throughout the Upper Peninsula and beyond. It will achieve these goals by:

- Functioning as a “collaboratory” that brings together intellectual capital and educational programming into a state-of-the-art center. Within this dynamic setting, students and faculty will learn, research, and interact directly with business owners, investors, developers, entrepreneurs, and economic development organizations to foster innovation, test boundary-breaking ideas, and launch new ventures.
- Facilitating success for existing and future businesses by serving as a central location for entrepreneurial education, training, activities, business development, capital investment, and technology transfer in the central U.P.
- Giving students increased access to on-campus internships, mentorships, consulting projects, part-time jobs, and active learning experiences that reinforce classroom instruction and prepare them to excel in their future business-related careers.
- Providing graduates the skills required to thrive in a remote work career allowing our future business professionals to work from rural locations such as Michigan's Upper Peninsula - reducing the export of this “talent” and enhancing the region.
- Providing superb production facilities and advanced technology to enhance the distance/online learning so vital for connecting constituents across the entire Upper Peninsula, including the most rural areas.



## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### **Northern Enterprise Center (College of Business) *(continued)***

- Supporting entrepreneurs, start-ups, and established businesses and agencies with an array of essential educational and training resources and services—from financing to coaching, and from business launch boot camps to market assessments.
- Better serving a large number non-traditional, first generation college students, who are place bound by virtue of family or economics and, by placing these graduates in their local area, helps strengthen the regional economy.
- Serving as THE place for innovative exchanges, knowledge sharing, and development of effective and strategic business practices. This will begin with the launch of the Information Assurance/Cyber Defense Center of Academic Excellence (CAE). As the only CAE in Michigan north of Grand Rapids, the Center will provide academic training and experiential learning focused on strengthening information security, assessing organizational risk, and mitigating informational breeches.

This bold, multi-faceted approach will make the Northern Enterprise Center an epicenter of forward-looking education and entrepreneurship. By powering both academic excellence and business development, and by promoting perpetual innovation, the NEC will become the driving force behind a sustained economic renaissance for the Upper Peninsula and surrounding areas.

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.

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

Programs and courses envisioned for the Northern Enterprise Center support “twenty-first century skills” development for students and entrepreneurs in the region. Current business practices stress flexibility, thoughtful analysis, and data driven decisions.

This new modern center will support the University’s core academic mission and the continuous improvement and transformation of the College’s curriculum in four vital ways:

- Promote hands-on learning with state-of-the-art technology;
- Increase student’s educational preparation in business analytics, security fundamentals, computer literacy, personal financial management, digital, written and interpersonal communication;



## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### **Northern Enterprise Center (College of Business) *(continued)***

- Integrate the traditional classroom into a high-tech laboratory setting for increased synergy of learning, as well as “active learning” opportunities for student-to-student collaboration;
- Provide the opportunity to be exposed to and involved in professional business-related work prior to graduation.

The proposed project is integral to the core academic mission and vision of NMU. It will enrich the quality of business-focused academic programs taught within the center, 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 center through NMU's College of Business will be hands-on, applied instruction focused on students engaged in the development of critical thinking. The student base is primarily regional, supplying the Upper Peninsula with necessary workers who, as graduates, have acquired critical skill sets defined and articulated by regional employers to help grow their companies and improve the Upper Peninsula economically. The applied nature of the programs differs from the more theoretical focus of most traditional four-year institutions that do not usually include the same real-world application. Inclusion of 21st century skills education provides needed and relevant training to university students and the existing workforce in the region.

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 interactive classrooms and labs will provide for increased student engagement and cross-disciplinary collaboration. Changes in the business world will be addressed through technology improvements and active learning environments.

Invent@NMU is a unique, highly creative and energetic contract design and commercialization house. The intent is to provide NMU students with 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 them. This new center will assist students benefiting from the experience of working within the entrepreneurial process at Invent@NMU.



## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### Northern Enterprise Center (College of Business) *(continued)*

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

This project will house multiple academic programs currently located in various buildings outside of the University's Academic Core. Using smart growth principles and locating the new center amongst NMU's other primary instructional facilities, the project will promote greater synergy between various academic disciplines and the local business community. The space these departments currently occupy in other campus facilities were designed in the 1970s, are inefficient by modern standards and will be repurposed for other non-academic purposes.

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

Some of the spaces currently occupied by the programs being relocated with this project are housed in buildings with antiquated HVAC system and do not meet current mechanical or ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineer) standards. The new center will provide a teaching and learning environment for faculty, students and area business community members that will meet and/or exceed current health and safety codes.

#### **5. How does the institution measure utilization of its existing facilities, and how does it compare relative to established benchmarks for educational facilities? How does the project help to improve the utilization of existing space and infrastructure, or conversely how does the current utilization support the need for additional space and infrastructure?**

##### **A. Utilization Measurement:**

Northern Michigan University recognizes that our buildings are our largest physical asset and the efficient utilization of these spaces is essential to the success of the university. As such, NMU has taken a very aggressive approach to evaluating and improving space utilization. In 2011 NMU commissioned, completed and adopted the recommendation of a comprehensive classroom study. By formally adopting these 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 71%, exceeding the University's adopted standard. Utilization increases substantially to 84% for the same time period Monday through Thursday.



## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### Northern Enterprise Center (College of Business) *(continued)*

#### ***B. Comparative Utilization Data:***

In 2019, as part of the Campus Master Plan update, the university classified all of its existing space based on the *U.S. Department of Education's National Center for Education Statistics Post Secondary Education Facilities Inventory and Classification Manual* and then benchmarked its spatial distribution with the *Society of College and University Planning Campus Facilities Inventory*. 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 per week. Space utilization targets are evaluated with 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 new center will directly enhance instructional delivery for faculty and students occupying this center, and will compliment the active learning classroom facility, Jamrich Hall. The new center will improve space utilization by relocating faculty from old, large offices into modern office suites that support both open work areas and efficient private office. These offices will be on average 33% more efficient than existing.

### ***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 space renovation. LEED guidelines will be the basis of design with 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 the target. Aligning with the university's sustainability and conversation goals, the overall goal will be to provide a healthy environment for building occupants in the most energy efficient and sustainable manner.





## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### Northern Enterprise Center (College of Business) *(continued)*

**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, from the 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, the university will match an additional five percent (5%) which will reduce the State's share to seventy percent (70%) or \$13,370,000.

**9. Will the completed project increase operating costs to the institution? If yes, please indicate an estimate cost (annually, and over a five-year period) and indicate whether the institution has identified available funds to support the additional cost.**

Yes, the estimated annual cost is \$170,000 with the five-year cost of \$850,000. The increased cost will be supported through projected enrollment increases in the College of Business due to the new center and offset by utility and operation cost savings by the demolition of other campus facilities that staff are being relocated from. The university will incorporate any additional costs in their long term planning.

**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?**

Northern Michigan University seeks to provide the best academic experience for its students, faculty and region. Without authorization, an opportunity for collaboration and interest will be missed. If state funding is not authorized for this project, the potential gains in academic synergy as described in question 12 below would be lost.



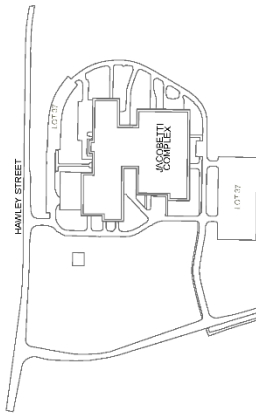
## FISCAL YEAR 2024 CAPITAL OUTLAY PROJECT REQUEST

### Northern Enterprise Center (College of Business) *(continued)*

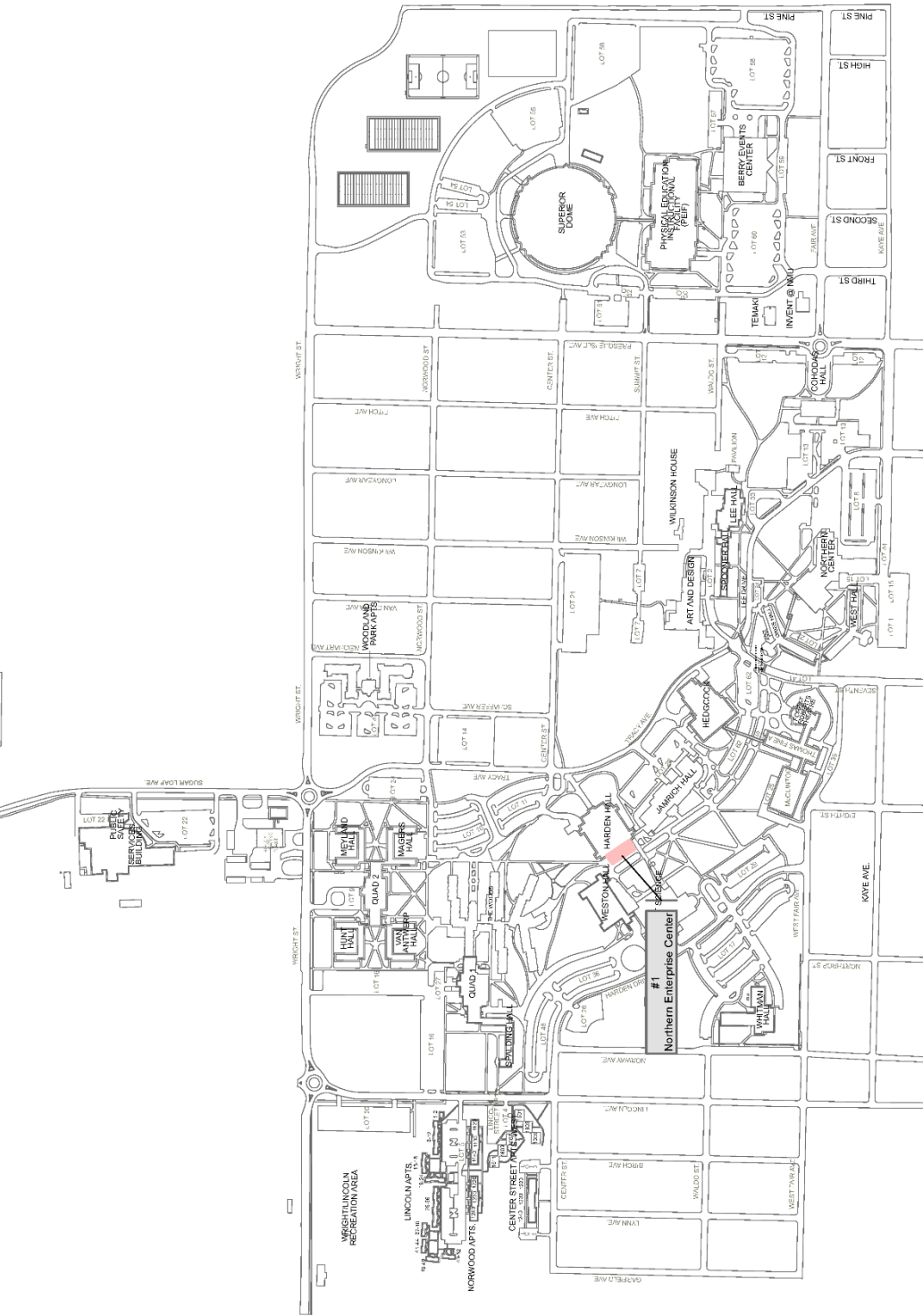
**12. What alternatives to this project were considered? Why is the requested project preferable to those alternatives?**

A renovation and addition onto the McClintock Building was considered. However, with the update to the university's Campus Master Plan in 2019, the McClintock Building location did not provide the level of synergy between academic programs that could be achieved with the new center located in the academic mall. The renovation of the McClintock Building wasn't sufficient to meet the needs of the university, its programs or goals for the College of Business and related departments. Furthermore, a state of the art center built with sustainable practices (LEEDS) aligns with the core values of the university.





Northern Michigan University  
 FY 2022 -2023 Capital Outlay Projects  
 Locations





## Status of “In-Progress” State Building Authority Projects

### Career Tech and Engineering Technology Facility Project

- **Project Total Cost: \$28,564,000**
- **Public Act 618 of 2018 Planning/Public Act 257 of 2020 Construction Authorization Approval**
- **Project is in the Construction Stage**
- **Expected Completion August 2023**

The Career Tech and Engineering Technology Facility project will modernize the existing teaching and learning facility to support innovation. This facility and its labs will be designed and equipped to provide students in STEM and technical programs the required tools to be successful in industrial, engineering and service related fields that are critical to support the economic growth of the region and state. Through this capital outlay request, Northern Michigan University (NMU) will revitalize new classrooms, laboratories and underutilized public areas into a will be vibrant, modern high-tech teaching spaces for future engineers and technical career professionals. Based on the university’s expertise in collaborative learning design and incorporating technology into instruction, NMU will deliver a facility that will not only be considered “cutting edge” by today’s standards, helping to produce highly skilled and employable graduates, it will also deliver a facility adaptable to change with future technologies. 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.



**University Projects  
Completed – November 1, 2021 to November 1, 2022  
With a Total Cost between \$500,000 – \$1,000,000**

**No projects in this budget range were completed.**





## University Projects Planned – November 1, 2022 to November 1, 2023 With a Total Cost over \$1,000,000

### **BEAR Center Renovation**

Renovate property at 1738 Presque Isle for the NMU Behavior Education Assessment and Research (BEAR) Center to include a waiting/reception area, office type counseling rooms, staff offices, file room, classroom and restrooms. Construction began in May, 2022 for a project budget of \$2.0 million that is being funded by capital reserves and bonding.

### **Health and Wellness Center**

A new facility is being constructed adjacent to the Quad I Housing Department office and residential campus for a new Health and Wellness Center. The new center will be in close proximity to on-campus student housing and will allow the current Health Center to be co-located with the Counseling Center. This change will enable Gries Hall to be demolished in the future increasing space efficiency and reducing facility operation costs. Construction began in August, 2022 for a project budget of \$7.7 million that is being funded by capital reserves and bonding.

### **Elizabeth and Edgar L. Harden Hall Renovation**

The Harden Hall renovation project is one of the two projects in the academic core. The Harden Hall renovation project will redevelop the program space within Harden Hall to create a vibrant library and resource center that is more welcoming and user friendly for faculty, staff and students. The library will include more collaboration space, quiet study space and incorporate more technology. The renovation will upgrade the furnishings and shelving, improving access to electrical outlets, improving wayfinding and accessibility for people with disabilities, improving access to library public/technical services and co-locate Archives and the Beaumier U.P. Heritage Center. An emerging technologies area will provide students opportunities to experience virtual reality and create Pod casts and other digital recordings. All the on-campus tutoring centers will be co-located to create a Learning Commons for the sciences, math, language and writing labs. The exterior façade facing the academic mall will be upgraded to compliment the surrounding facilities. Construction is expected to begin in May 2023 for a project budget of \$12.5 million that will be funded by capital reserves and bonding.

The second project is the Northern Enterprise Center, that is identified as the University's capital outlay request. Synergies between these two projects are being explored.





## University Projects Planned – November 1, 2022 to November 1, 2023 With a Total Cost over \$1,000,000

### **Natural Sciences Research Center**

Lab space is in short supply in Weston Hall and The Science Building. Recruitment of new faculty is difficult due to the lack of research lab space. Expanded scheduling is required to accommodate all the biology and chemistry classes in the teaching labs. This project would construct an addition onto the Science Complex to increase the number of wet labs for both teaching and faculty research. The project budget of \$11.7 million that will be funded by capital reserves and bonding.

### **Berry Event Center Infrastructure Improvements**

The existing ice making equipment was 10 years old when purchased in 1999 and has reached the end of its useful life. Its required R22 refrigerant is no longer produced. As such, the existing ice making system (equipment and under slab tubing) in Berry Events Center needs to be replaced to ensure system reliability. The rink size will be reduced and new dasher boards will be installed to increase player safety, improve player recruitment and reduce energy costs. Also several major air handling units such as the dehumidification unit need to be replaced to better regulate the environmental conditions within the building. Construction is expected to begin in April, 2023 for a project budget of \$6.5 million that will be funded by capital reserves and bonding.



## Maintenance Projects 2024 to 2028 With a Total Cost Over \$1,000,000

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

	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>Total</b>
Fire Alarm Mass Notification - Housing	\$500,000	\$500,000				\$1,000,000
Superior Dome Turf	\$2,000,000					\$2,000,000
<b>Total</b>	<b>\$2,500,000</b>	<b>\$500,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,000,000</b>



## Maintenance Projects 2024 to 2028 With a Total Cost Over \$1,000,000

### **Project Descriptions**

- 1) Fire Alarm/Mass Notification-Housing Facilities. The existing Simplex fire alarm systems installed in the Housing facilities are in need of replacement to meet the new university standard that includes mass notification. The Edwards fire alarm system is the new standard on campus. The new system incorporates the NFPA Part 12 recommendations for mass notification within campus facilities. This replacement project will replace the Simplex system in the four Quad II residence halls and Woodland Park apartments for \$1.50 million. The existing system will be removed in Spalding and Spooner residence halls when each hall is demolished. All of the new Edwards fire alarm and detection systems tie back to Public Safety Dispatch and have mass notification incorporated.
- 2) Superior Dome Turf Replacement. The existing turf was installed in 2008 and will need to be replaced in the next one to two due to wear and tear.



## Long-Term Infrastructure Maintenance Projects 2023 With a Total Cost Less than \$1,000,000

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

### **Long-Term Infrastructure Maintenance for 2023**

Each year the university provides base budget and auxiliary funds to address long-term infrastructure maintenance projects. These specific projects are selected based on the condition of building and grounds operational systems; the appearance of the physical plant as it affects recruitment; compliance with safety, building, and accessibility codes; opportunities for energy savings; comfort of building occupants; and opportunities provided through donors, government funding, grants, and joint ventures with other nonprofits or private sector entities. The projects for 2023 are indicated on the following page.



## Long-Term Infrastructure Maintenance Projects – 2023 With a Total Cost Less than \$1,000,000

2023 Long Term Maintenance List	General Fund Budget	Auxiliary Fund Budget	Total Project Budget
<b>Academic, Administrative and Recreation Buildings</b>			
<i>(Art &amp; Design, Berry Events Center, C.B. Hedgcock, Cohodas Hall, Fine Arts Complex, Harden Hall, Weston Hall, PEIF, Superior Dome, The Science Building, Whitman Hall, other campus buildings)</i>			
<u>Interior Finishes Upgrades</u>			
Flooring Replacement	\$25,000		
Elevator Replacement*	\$700,000		
Roof Replacement	\$150,000		
Miscellaneous	\$25,000		
<b>Interior Finishes Subtotal</b>	<b>\$900,000</b>		
<u>Mechanical/Plumbing System Upgrades</u>			
Fume Hood Controls Upgrades	\$70,000		
Chiller Rebuilds-Hedgcock and TFA	\$280,000		
Miscellaneous	\$35,000		
<b>Mechanical/Plumbing System Upgrades Subtotal</b>	<b>\$385,000</b>		
<u>Electrical System Upgrades</u>			
Interior & Exterior LED Lighting Replacement	\$30,000		
TV Studio Upgrade	\$135,000		
Miscellaneous	\$25,000		
<b>Electrical System Upgrades Subtotal</b>	<b>\$190,000</b>		
<u>Building Envelope Upgrades</u>			
Window Replacement	\$150,000		
Miscellaneous	\$50,000		
<b>Building Envelope Upgrades Subtotal</b>	<b>\$200,000</b>		
<u>Hardscape Infrastructure Upgrades</u>			
<i>(Concrete, Asphalt, Irrigation, Landscaping, etc.)</i>			
Parking Lot Resurfacing (south half of Lot 16)	\$400,000		
Miscellaneous	\$85,000		
<b>Hardscape Infrastructure Upgrades Subtotal</b>	<b>\$485,000</b>		
<u>Utility Infrastructure Upgrades</u>			
<i>(Water, Sanitary, Storm, Steam, Electric, Gas, Telecom, etc.)</i>			
Miscellaneous	\$50,000		
<b>Utility Infrastructure Upgrades Subtotal</b>	<b>\$50,000</b>		
Capital Projects Matching Funds (1st of 4 years)	\$200,000		
<b>Total General Fund Projects</b>	<b>\$2,410,000</b>		<b>\$2,410,000</b>
<b>Auxiliary Services Buildings</b>			
<i>(Northern Center/Dining Services/Northern Lights Dining)</i>			
Equipment Replacement		\$75,000	
Interior/Exterior Upgrades		\$230,000	
<b>Total Auxiliary Services Projects</b>		<b>\$305,000</b>	<b>\$305,000</b>
<b>Residence Life/Housing Buildings</b>			
<i>(Westside Apartments)</i>			
Interior/Exterior Upgrades		\$462,000	
<i>(Quad II Residence Halls/Woodland Park)</i>			
Infrastructure Maintenance/Replacement		\$738,000	
<b>Total Residence Life/Housing Projects</b>		<b>\$1,200,000</b>	<b>\$1,200,000</b>
<b>Total Budget</b>	<b>\$2,410,000</b>	<b>\$1,505,000</b>	<b>\$3,915,000</b>

\*Funded from prior year's budget funds



## Future University Projects

The 2019 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. The plan was divided into three districts, Academic, Residential and Athletic. The proposed projects for each district are explained as follows.

### Academic District

#### Northern Enterprise Center

A new Northern Enterprise Center will provide a state-of-the-art home for the NMU College of Business, Economics, Political Science, History and Philosophy, with new classrooms, laboratories, event and informal learning spaces. The new center will be located in the academic core of campus providing opportunities for students to interact with faculty and local business professionals.

#### McClintock Building Classrooms Upgrade

Renovate the existing seven general purpose classrooms in the McClintock Building to create vibrant, modern high-tech teaching spaces to support the academic departments in the new Northern Enterprise Center.

#### Cohodas Hall Redevelopment

The redevelopment of the programs currently in Cohodas Hall would allow for the creation of a rural technology and business center to support EAN and other administrative operations with reliable and energy efficient infrastructure and a more welcoming atmosphere for occupants and campus visitors.

#### Gries Hall Demolition

The Health Center located on the first floor of Gries Hall will be relocated to a new facility adjacent to Quad I and the academic departments in the south wing will be accommodated in the new Northern Enterprise Center. These relocations will permit Gries Hall to be demolished.

#### Performing Arts Complex

Project will create a vibrant learning and performing arts complex to serve as a new campus and community asset. The new facility will serve the academic performing arts program and include classrooms and a dance studio. The complex will be accessible and include a large theatre and Black Box theatre to support university and community productions of all kinds including plays, musicals and events.

#### Student Union

Project will create a “One Stop Shop” for student activities within the academic mall. An inviting student gathering and study space would front the academic mall and be accessible to the flow of both resident and commuter students traversing campus.





## Future University Projects

### Residential District

#### Future Student Housing Projects

With the completion of The Woods and renovation of the Quad II residence halls, the university is reviewing other housing complexes. Both condition and capacity of the existing residence halls and apartments will be considered to meet the future needs of undergraduate and graduate students. Possibilities include renovating or replacing some or all of the remaining residence halls and the aging apartment complexes. The 2019 Campus Master Plan proposes replacing Spooner Hall with new apartments.

#### Northern Lights Dining Facility Phase II

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

#### Spalding Hall Demolition

Spalding Hall is nearing the end of its useful life and demolition of the over 55-year-old residence hall is planned when possible.

#### Spooner and Lee Hall Demolition

Spooner Hall is nearing the end of its useful life and demolition of the over 65-year-old residence hall is planned when its no longer needed. Lee Hall is connected to Spooner Hall and is the oldest building on campus at 73 years old. The vacant facility continues to deteriorate and is planned to be demolished.

### Athletic District

#### Sports and Recreation Complex Renovation

The university will work with the community on this multi-year project to create a community recreation destination by renovating the Superior Dome, Physical Education Instructional Facility (PEIF) and Berry Event Center. The PEIF renovation would include an addition for an enlarged natatorium and cross country ski team locker rooms. The Vandament Arena would be renovated to accommodate both volleyball and basketball. The Berry Event Center would be updated with space on the site for a future second sheet of ice. Facility upgrades would be included for the Superior Dome. A new indoor soccer facility north of the Dome could provide both practice and competitive soccer venues and track and field activities in a more flexible four-season facility. An indoor tennis facility east of the Berry Event Center has been identified to accommodate student intramural, recreational and community needs. Site improvements would also be made to athletics fields, surrounding parking lots and to realign sidewalks and pedestrian entry plazas with Third Street.



## 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 2018, the remainder of the NMU's building identifier signs and pedestrian kiosk signs, along the primary walking route throughout campus, were replaced and/or installed.

In 2019, several vehicle guide signs were installed along Tracy Avenue. 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.

### Wildcat Way / Campus Mobility Improvements

The project would create a more pedestrian and bike friendly campus by reconfiguring the roadways and parking lots on the south side of campus. This would include potentially closing 7<sup>th</sup> Street, and connecting Kaye Avenue to Fair Street. Parking lot improvements would include removing parking on the interior of campus and relocating to the perimeter. Bike and pedestrian trails would be constructed from the perimeter lots to the academic mall. Wildcat Way was proposed in the 2019 Campus Master Plan as extending the center sidewalk spine north and west, connecting the residence halls and apartments west of Lincoln Avenue into the academic mall. Wildcat Way would also be extended to the south and east to connect the academic mall to the recreation complex, Third Street and Lake Superior.



1401 Presque Isle Avenue  
Marquette, Michigan 49855-5321  
Web site: [www.nmu.edu](http://www.nmu.edu)  
906-227-2200

*Written by:*

*Mr. R. Gavin Leach, Vice President for Finance and Administration*

*Ms. Kathy A. Richards, Associate Vice President for Engineering and Planning/Facilities*

*Mr. James S. Thams, Director, Facilities and Campus Planning*

*Mr. Matt Franti, Director, Budget and Finance*

*Illustrated and Edited by:*

*Ms. Debra L. DeMattia, Administrative Assistant, Office of the Vice President for Finance and Administration*