FY 2022
FIVE YEAR
CAPITAL OUTLAY PLAN

NORTHWESTERN MICHIGAN COLLEGE
1701 East Front Street
Traverse City, Michigan 49686

Approved by the
NMC Board of Trustees
on October 26, 2020.

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Northwestern Michigan College
Budget Letter – Capital Outlay

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NORTHWESTERN MICHIGAN COLLEGE
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OVERVIEW

Northwestern Michigan College (NMC) is a comprehensive community college founded in 1951 and located in Traverse City, Michigan.

It provides programming at five principal sites in Traverse City. The major campus facilities are located as follows:

- Main campus located at 1701 East Front Street
- Great Lakes Campus located at the base of West Grand Traverse Bay
- Aero Park campus located in the Traverse City airport industrial park
- University Center campus located on South Cass Street in Traverse City
- Rogers Observatory site located in Garfield Township

We are engaged in the following purposes to meet our Mission:

- Associate degree, certificate and transfer education in liberal arts and sciences, and occupational studies
- Career/occupational education and workforce development
- Bachelor degrees in select programs
- Cultural and personal enrichment
- Baccalaureate and graduate program facilitation
- Regional economic development

The delivery of these programs leads to the:

- Bachelors of Science Degree in Maritime Technology
- Associate in Science and Arts degree
- Associate in Applied Science degree
- Associate in General Studies
- Associate Degree in Nursing
- Career Certificates
- Skills Training
- Lifelong Learning opportunities
- Cultural Enrichment
- Economic Development
- Merchant Marine Officer's licenses valid for service on the Great Lakes and oceans

I. – Mission Statement

Northwestern Michigan College was the first comprehensive community college chartered in the State of Michigan. Since its founding in 1951, NMC has provided quality, affordable access to higher education for learners of all ages and backgrounds. NMC is integrally woven into the economic, social and cultural fabric of the region, providing leadership and support for key initiatives that shape our communities and prepare our learners for rich and meaningful lives.

Mission

Northwestern Michigan College provides lifelong learning opportunities to our communities.

Vision

NMC will be the resource of choice for higher education, lifelong learning and cultural experiences. NMC will be an essential contributor to quality of life and a vibrant economy. We will demonstrate collaborative and inventive approaches to education and training for liberal studies, careers, interests and emerging learner markets.

Values

Our individual and collective efforts create the legacy of NMC. In order to achieve our mission, we are individually committed and responsible to live these values*:*

- Learning is at the center of all we strive to achieve. It is the foundation upon which an enlightened citizenry and a dynamic community are built and is a lifelong process in which we are all engaged.
- We will continuously improve the learning experience and its global relevance to those we serve through innovation, agility and thoughtful risk-taking.

Our actions are governed by the highest degree of **ethics, integrity and personal responsibility,** exhibited through **transparency, openness and trust**.

We each will practice **responsible stewardship** for the human, physical, financial and environmental resources entrusted to our care.

Each of us will strive to **exceed expectations** for quality and service in all that we do.

We **value all people** and will invest in their personal and professional growth and development.

We will **exhibit foresight** by monitoring the changing world around us and taking actions today that prepare us to meet future needs of our communities.

We will **seek others** who share our vision and values, and **collaborate** with them on behalf of our communities.

Purposes

*To meet our mission, we are **fully** engaged in **each of** the following purposes with the result that our learners meet their goal(s) of being college ready, transfer ready, career ready and lifelong-learning ready.*

- Associate degree, certificate and transfer education in liberal arts and sciences, and occupational studies
- Career/occupational education and workforce development
- Bachelor degrees in select programs
- Cultural and personal enrichment
- Baccalaureate and graduate program facilitation
- Regional economic development

Current Strategic Directions and Capacities

In order to accomplish NMC's stated Mission, Vision, and Purposes, organizational activities focus on achieving the following strategic directions and demonstrating competence in Institutional Effectiveness Criteria.

Strategic Directions

1. Ensure that NMC learners are prepared for success in a global society and economy.
2. Establish national and international competencies and provide leadership in select educational areas connected to the regional economy and assets.
3. Deliver learning through a networked workforce.
4. Establish lifelong relationships with learners.
5. Transcribe most learning to establish credentials of value.

Institutional Effectiveness Criteria
College Policy C-104.00

1. Learning
    a. Scholarship: NMC promotes the acquisition of knowledge, skills, and attitudes that all students need to function effectively in a changing world through outstanding academic programs recognized for their regional and national level competencies. NMC is committed to helping students acquire the ability to communicate effectively, to think critically, and to be aware of diversity in our world. The scholarship criterion measures the effectiveness of how well NMC prepares students for success in the workplace related to their chosen field and the extent to which NMC provides credible transfer and articulation programs for those students who choose to continue their education at other colleges and universities. Furthermore, in support of our open access philosophy, NMC

encourages the academic success of under-prepared college students in their pursuit of basic educational skills and abilities.

b. Enrichment: NMC provides lifelong learning opportunities to regional residents by offering quality educational opportunities for all ages. Programs are designed to be flexible, convenient, and responsive to the needs of the community. Moreover, NMC is committed to enriching and broadening the knowledge base and cultural life of the community. It does so by offering a wide range of programs and curricula that emphasize continuing education, skill enhancement, professional development, and cultural and personal enrichment. The enrichment criteria measures how effectively NMC performs in responding to the community's learning needs in those areas.
c. Workforce: NMC is a significant contributor to regional economic development. The College supports economic development by providing programs responsive to key economic drivers and in support of business and partnership needs. NMC is committed to working collaboratively with community agencies, assessing the economic climate, and providing excellent and reputable training and services. The workforce criterion assesses how well NMC serves in this capacity.

2. Organization
   a. Partnership: NMC develops and maintains collaborative relationships with the communities it serves to create a learning-centered College that meets the needs of its students and stakeholders. To this end, NMC effectively communicates with its communities. It successfully raises resources to support strategic initiatives. NMC develops meaningful relationships with partners in seeking out potential areas for improvement. The partnership criteria assesses the extent to which NMC effectively builds relationships with educational institutions, businesses, service organizations, external agencies, alumni and the general community to fulfill its mission.
   b. Operations: NMC conducts College operations in a manner reflecting the highest standards of business and professional ethics, legal compliance, and accountability to the public trust. College leaders guide the institution in establishing and accomplishing institutional directions and action plans and in seeking opportunities to build and sustain an effective learning environment. NMC promotes a" goals-and-outcomes-related-culture" by collecting and using data to responsibly manage its operations and to continuously improve.
   c. Champion: NMC is committed to supporting (championing) students in a learning-centered environment. NMC seeks to understand student and stakeholder needs and expectations through a variety of methods. NMC provides quality academic and support services with the goal of meeting students' needs in an environment of continuous improvement. The champion criterion evaluates how well NMC understands its students' and stakeholders' needs as well as how well it supports those needs.
   d. Culture: NMC fosters a work environment that reflects the College's values and leads to an effective work culture. NMC is committed to the development of the talents and continuous learning of all its faculty, staff, and administrators. NMC manages its employees through effective personnel processes.

II. Instructional Programming

As part of our capital outlay planning process it is important to recognize both our current academic programs and major academic initiatives that could have an impact on facilities and its infrastructure. The following section addresses current academic programming and future growth.

At NMC, you'll find more than 60 areas of academic study, all of which feature dedicated faculty, small classes and personal attention. NMC offers transfer courses, Bachelor's degrees in select areas, two-year associate degrees and professional certificates, with access to BA and advanced degrees through our University Center. We also offer online learning options.

II-A. Describe existing academic programs and projected programming changes in the next 5 years in so far as academic programs are affected by specific structural considerations (i.e. laboratories, classrooms, current and future distance learning initiatives, etc.)

The executive staff evaluated the proposed projects that were included in the 2012 campus master plan study. The college has completed two of the capital outlay projects with two still remaining. As a starting point, the framing assumptions were part of the discussion. In addition to the framing assumptions, we evaluated the projects based on:

1. The five strategic directions/or continuous improvement.
2. Was there data to demonstrate an immediate or future need?
3. Was there a business model that demonstrated financial thriveability?
4. Evaluate the project on the basis of the eight prioritization criteria (listed in the table).

The table below evaluates the projects that have met the first three above criteria and at least one of the eight prioritization criteria.

Project	Support Strategic Plan	Meet current capacity need	Create excess capacity/ undefined growth	Safety issue	Meet planned for capacity requirement	Cosmetic	Learner expectation	Time sensitivity
Osterlin	x	x	x	x	x	x	x	
Housing solution	x	x	x	x		x	x	x
West Hall Student center	x	x	x			x	x	
Physical Ed	x	x				x	x	
UC Driveway				x				

Project	Total Cost	
Osterlin renovation proposed costs	$6.0 million	
New Library	$6.1 million	completed in 2020
Housing solution	$7.5 million	completed in 2017
Student Learning Support Services Center	$14.4 million	completed in 2020
Physical Education building	$8.2 million	
UC Driveway	$326 thousand	

In addition to these facility building projects, we see continued need for investment in technology to support the changing environment of learning. Several years ago, the college invested $500,000 in wireless infrastructure to ensure students would have access to the internet in all areas of the college. This investment allows for our student gathering areas to be used as learning spaces. The College will invest in 2020 additional upgrades to our wireless network. This will give students on-going access and expand to some of our outside areas such as parking lots.

Safety and security upgrades have been completed in the last three years. The college installed remote door access in all of our buildings. This investment allows for NMC security to lock down buildings remotely. Additional cameras have been installed on all campuses for the safety and security of our students, employees and visitors.

Section II, Appendix A, provides a link to NMC's complete catalog for 2019-2020. Academic programs offered during the 2019-2020 academic year are listed below.

Bachelor of Science Degree in Maritime Technology *Emphasis in:*
● Marine Technology ● Maritime, Deck Officer ● Maritime, Engine Officer ● Power Systems

Associate in Science and Arts (ASA) Degree *Emphasis in:*		
● Accounting	● Engineering	● Political Science
● Art	● English	● Pre-Law
● Biology	● Freshwater Studies	● Pre-Medical
● Business Administration	● Geography	● Psychology
● Chemistry	● History	● Social Sciences
● Communications	● Liberal Arts/Science	● Surveying
● Criminal Justice	● Mathematics	● Visual Communications
● Culinary Sales	● Performing Arts	● World Languages
● Early Childhood Education	● Philosophy/Religion	
● Economics	● Physical Sciences	

Associate in Applied Science (AAS) Degree *Programs in:*		

● Accounting
● Audio Technology
● Automotive Service Technology
● Business Administration
● Computer Information Technology-Developer
● Computer Information Technology-Infrastructure and Security
● Construction Management
● Construction Technology
  o Electrical
  o HVAC/R
	● Culinary Arts
	● Culinary Sales and Marketing
	● Dental Assistant
	● Early Childhood Education
	● Engineering Technology
	● Freshwater Studies
	● Law Enforcement
	● Manufacturing Technology
	● Paramedic
	● Plant Science
	  o Fruit & Vegetable Crop Production
	  o Landscape Management
	  o Viticulture
		● Renewable Energy
		  o Electrical
		  o HVAC/R
		● Surgical Technology
		● Surveying
		● Technical Management Administration
		● Visual Communications
		● Visual Communications-Creative Management in Art Direction
		● Welding Technology

Associate Degree in Nursing (ADN)

Associate in General Studies (AGS)

Certificates of Achievement		

● Accounting
● Administrative Support Specialist
● Audio Tech II
● Automotive
  o Electrical & Drivability Specialist
  o Hybrid Tech Specialist
  o Master Automotive Technician
  o Under Car Specialist
  o
	● Computer Information Technology
	  o Developer I, III
	  o Infrastructure Specialist I, II, III
	  o Office Applications Specialist
	  o Computer Support Specialist
	  o Web Developer I, II, III
	● Construction Technology
	  o Carpentry Technology
	  o Electrical Technology
	  o Facilities Maintenance
	  o HVAC/R Technology
	  o Programmable Logic Controllers
		● Culinary Arts
		● Culinary Arts, Baking Concentration
		● Dental Assistant
		● Early Childhood Education
		● Engineering
		● Entrepreneurship I, II
		● Practical Nursing
		● Welding Technology I, II

New and Projected Programming Changes

NMC's programmatic changes are influenced by the following factors:

- Improving the success rate of its learners
- Meeting the needs of its communities
- Contributing to the economic development of the region
- Ensuring the fiscal stability of the College

New Certificates and Programs - Last Six Years

Northwestern Michigan College developed new associate degree programs and a new Bachelor of Science degree in six program areas during the past five years:

- Engineering Technology - Biomedical Technician
- Paramedic
- Surgical Technology
- Surveying

The following certificates were approved in the past five years:

- Computer Information Technology – Developer I & II
- Early Childhood Care – Infant/Toddler & Preschool
- Programmable Logic Controllers
- Carpentry Technology – Level II
- Law Enforcement - Level II
- Culinary Arts - Baking

Future programs in the next five years.

- Audio Technology - Level I Certificate

Health Education

Also supporting the healthcare industry, NMC has continued to expand the activities offered under the Health Education Institute (HEI), a collaborative effort between Munson Healthcare (MHC) and NMC. HEI coordinates continuing professional development based on the prioritized learning needs as identified by managers and administrative staff. HEI facilitates delivery of training programs, certificates, or degree options based on strategic need. Since 2006, HEI has coordinated the design and delivery of community learning opportunities that make MHC content experts available through NMC's Extended Educational Services (40,000 household outreach capability). In 2015, NMC prioritized the relationship with MHC by fast-tracking new degree programs such as EMT and Surgical Technology, and, through initiation of a joint visioning approach to establish regional assets for simulation training for new and incumbent healthcare workers.

Building on partnerships with both Michigan State University (MSU) and Munson Healthcare, NMC established the NMC/MSU Early Assurance Program in August 2015 whereby at least one NMC student will have an enhanced opportunity for admission to medical school for premedical students who are interested in practicing in an underserved area of medicine. This enrichment

program will be open to all premedical students at NMC. It will include seminars and workshops, special advising, and other extracurricular activities that will strengthen student candidacy for medical school at MSU.

Great Lakes Maritime Academy

Established in 1969, the Great Lakes Maritime Academy (GLMA) is one of only seven federally regulated maritime academies in the United States. Since inception, GLMA has successfully prepared cadets for service as Officers in the United States Merchant Marine. Beginning in 2002 GLMA cadets had the option of earning a merchant marine officers license valid for Great Lakes and ocean service. With the advent of the Bachelor's Degree in Marine Transportation, the course work required for earning a license valid for ocean service was built into the model schedule. All cadets now earn a license valid for ocean and Great Lakes service. GLMA is the only program where Great Lakes Pilotage and the required coursework for earning an ocean license are built into the curriculum.

In August 2002, the U. S. Maritime Administration (MARAD), at the request of Michigan's Governor, transferred operation of the USNS Persistent (T-AGOS-6) to GLMA where she was rechristened the T/S State of Michigan. Since that time the vessel has been an integral part of the Academy's training program. Beginning in 2016 GLMA began to use the vessel for no less than eight weeks annually. Due to the COVID-19 pandemic the Academy operated the training ship for summer and fall cruises in 2020. We anticipate the fall cruise becoming an annual event for at least the next several years. This is because COVID has substantially reduced the number of berths on commercial vessels available to maritime academy cadets.

The following are just a few examples of the value the T/S State of Michigan has added to the program:

- GLMA has been able to ensure the curriculum meets both the U.S. law as described in 46 Code of Federal regulations, and also be in full compliance with the complex international treaty Standards for Training, Certification and Watchkeeping for Seafarers (STCW Code).
- By having cadets complete their first sea project on the T/S State of Michigan, they are fully versed in shipboard culture prior to being assigned a berth on a commercial vessel as part of subsequent sea project (cadets must complete three sea projects). This has greatly improved retention.
- The T/S State of Michigan serves as a dockside laboratory for courses of instruction in diesel engines, shipboard auxiliary systems, air conditioning and refrigeration, firefighting and damage control, stability, and navigation, just to name a few. Interdisciplinary uses of the ship include collaboration with the Great Lakes Culinary Institute (GLCI). This collaboration has resulted in several graduates from GLCI earning Merchant Marine Credentials in addition to their Associate's degree, thus greatly expanding employment opportunities.
- Having the use of the training ship ensures that GLMA will be able to accrue requisite sea service required for graduation and licensure.

The Michigan Legislature passed House Bill 4496 enabling Michigan community colleges to offer a select number of baccalaureate degrees, among them a Bachelor of Science degree in

Maritime Technology on December 13, 2012. The Governor signed the bill into law on December 27, 2012.

In April 2013, the NMC Board of Trustees authorized the college to offer the Bachelor of Science degree in Maritime Technology program and supported the administration to seek approval of the Higher Learning Commission to authorize the college to offer the degree.

In February 2019, the United States Coast Guard (USCG) reapproved the Academy's comprehensive programs. It is now approved through November 2023. This approval demonstrates that the program meets all domestic regulations and the requirements of the international treaty (STCW Code) that pertains to the issuance of merchant mariner credentials required for service on a large tonnage vessel in domestic or international service.

In November 2013, the Higher Learning Commission authorized Northwestern Michigan College to award the Bachelor's Degree in Maritime Technology. In January 2014, Northwestern Michigan College became the first community college in Michigan to award a bachelor's degree. The degrees were awarded to GLMA cadets. Since that time, over 300 cadets have received a bachelor's degree from NMC. This number includes no less than 75 GLMA alumni who have earned their Bachelor's Degree in Maritime Technology through the use of a prior learning system process which awarded academic credit based upon upper division merchant marine license exams and other completed coursework.

II-B. Identify the unique characteristics of each institution's academic mission.
Northwestern Michigan College is recognized by members of its service district and various accrediting agencies for unique characteristics and special programming that are a part of the fabric of the college.

These include:

Aviation Pilot Training Program
Unmanned Aerial Training
Aero Park Laboratories
Applied agriculture w MSU
Audio Technology
Center for Instructional Excellence
Childcare Center
Commitment Scholarship Program
Construction Technology Program
Dennos Museum Center (DMC)
Early Colleges
Engineering Technology
Entrepreneurial Studies
Extended Educational Services
Global Endorsement
Great Lakes Culinary Institute
Great Lakes Maritime Academy
International Partnerships
Joseph H. Rogers Observatory
Math Center
Michigan Energy Demonstration Center
Military and Veteran Services
NMC Foundation
On-Campus Residence Life Opportunity
Online Nursing
Outdoor Sculpture Collection
Phi Theta Kappa
Remote Operated Vehicle Training (Marine)
Service Learning
Student Success Center
Training Services
Tutoring Center

Great Lakes Water Studies Institute	University Center
Health Education Institute	Writing and Reading Center
International Affairs Forum	WNMC-FM Radio Station
International Services	

Below are brief descriptions for some of these unique characteristics and special programs.

Aviation Division
Established in 1967, Northwestern Michigan College has a proven background in delivering safe and effective flight training to generations of pilots. Today, the Aviation Division operates an FAA approved Part 141 training facility, has established exclusive training agreements with (5) international universities to provide flight training in Traverse City, and offers extensive hands-on training on several different Unmanned Aerial Systems platforms.

The professional pilot program currently operates at maximum student capacity, training 100 full time students in a diverse fleet of 15 aircraft valued at more than $5 million.
Between 2012 and 2018, the Aviation Division has established numerous hiring partnerships with regional airlines, allowing graduates direct routes to employment opportunities.

In 2010, the Aviation Division launched Michigan's first Unmanned Aerial Systems (UAS) program, with focus on preparing UAS operators to meet the needs of a rapidly growing industry. In 2015, NMC was named one of the *15 Best Drone Training Colleges in America* and was the only community college listed in the top 10.
One of the 2015 recipients of the Community College Skilled Trades Equipment Fund (CCSTEF), the UAS Department now maintains a fleet of commercial-grade unmanned aircraft designed to meet the training and experience demands of today's (and tomorrow's) employers.

Great Lakes Maritime Academy
Established in 1969, the Great Lakes Maritime Academy (GLMA) is one of only seven maritime academies in the United States that is federally regulated under 46 Code of Federal Regulations 310. These regulations allow for a holistic approach which allows GLMA to accept a cadet with no prior seagoing experience and within four years he or she can complete both a bachelor's degree and earn a merchant mariner's credential valid for service on large tonnage vessels which are in ocean or Great Lakes service.

All GLMA cadets must complete one course in Naval Science which is delivered by active duty Naval personnel. Those cadets that are accepted into the U.S. Navy's Strategic Sealift Officer's (SSO) program complete an additional two classes in Naval Science, earn a commission as a Naval Officer, and are awarded $32,000, by the U.S. Navy. Each cadet that is accepted into the SSO program will be awarded the full amount, regardless of what year they are in when accepted into the program.

In August 2002 the U. S. Maritime Administration (MARAD), at the request of Michigan's Governor, transferred operation of the USNS Persistent (T-AGOS-6) to GLMA where she was rechristened the T/S State of Michigan. Since that time the vessel has been an integral part of the Academy's training program. In 2018 GLMA conducted two training cruises for the third

consecutive year. The vessel was underway from 07 May 2018 through 08 August 2018. In addition to providing training for GLMA and Massachusetts Maritime Academy cadets, the vessel carried three GLCI interns and for the first time an NMC instructor who was not part of the GLMA faculty. As previously noted, in 2019 GLMA held one 75 day cruise. GLMA did not carry cadets from other academies, but the transition will ensure all cadets earn pilotage and assist with retention and completion. Lakes and ocean shipping companies now routinely request to speak with the GLCI interns who sailed with GLMA. Additionally, carrying an NMC faculty member allowed nine GLMA cadets to complete three General Education credits, thus assisting GLMA in meeting its retention and completion goals. There are currently 47 GLMA cadets on track to graduate in 2020. This will be one of the largest GLMA graduating classes.

In November 2013, NMC was granted authorization to award GLMA cadets a bachelor's degree. The GLMA program of study was the first academic program in a Michigan community college to offer a bachelor's degree. All GLMA cadets are now enrolled in this bachelor's degree program. Federal regulation contained in 46 U.S. Code 51506 requires a cadet complete both a degree and merchant mariner credential examinations. GLMA cadets must earn both. They cannot be issued a credential if they do not complete degree requirements; they cannot be issued a diploma if they do not successfully complete their merchant mariner credential exams.

Great Lakes Water Studies Institute

The Great Lakes Water Studies Institute (GLWSI), located on the Great Lakes campus, delivers programs and conducts research directly related to the area's most important natural resource. Students may focus on multiple areas of water studies including management, policy, business and science, or may focus in marine technology including applied technical work in support of the marine industries involving the calibration, deployment, operation, maintenance, and management of marine technology assets, including data collection, processing and mapping, for use in the marine environment both offshore and onshore.

In fall 2015, the GLWSI officially launched NMC's third Bachelors of Science in Maritime Technology major in the area of Marine Technology. This program is unique to the United States and one of the only in the world and builds directly on the Engineering Technology AAS marine specialty. Specific training emphasis includes remotely operated vehicles and marine platforms, marine acoustics and sonar, marine data processing and project management. Multiple industry collaborations allow graduates a broad range of career opportunities. The Great Lakes Water Studies Institute also offers professional development opportunities in sonar training for industry and government partners. Beginning in 2015, ROV training at NMC will be certified through the Association of Diving Contractors International (ADCI).

The Great Lakes Campus site includes a water analysis laboratory for student experiments/labs, qualified environmental research organizations and university partners. Students work aboard the 56 foot R/V Northwestern or the 21 foot R/V Hawk Owl in Grand Traverse Bay, Lake Michigan or the inland waters of Michigan. The Great Lakes campus harbor also serves as a year round laboratory where training occurs from NMC's pier. The GLWSI is also home to two advanced Remotely Operated Vehicle systems, multiple sonar systems, advanced GPS and water quality sampling equipment. Additionally, there is a 60,000 gallon indoor training tank located at NMC's Aeropark campus for year round, climate controlled operations.

In September 2015, Northwestern Michigan College officially started delivery of the third Bachelor's Degree in Maritime Technology major in Marine Technology.
The GLWSI is involved in multiple Great Lakes research projects with university and government partners and also collaborates globally with multiple institutions in many areas of water and the marine environment. MOU's with institutions in China and also Costa Rica have generated additional water opportunities. The partnership with Costa Rica has resulted in multiple internships, faculty exchanges and collaborative research projects.

Great Lakes Culinary Institute
This program provides rigorous and concentrated study for those students who plan careers in the rapidly growing food service industry. The program's main emphasis is to prepare students for positions as entry-level chefs and kitchen managers. Consideration is given to the science and techniques associated with the selection, preparation and serving of foods to large and small groups. Students further develop their knowledge of food and guest service through internships at area restaurants, hotels and resorts. The program includes an Institute-run training restaurant, Lobdell's, which greatly enhances the level of restaurant experience of graduates. The facility provides five kitchen "laboratories" including Lobdell's a training restaurant, which is a critical component of a top quality culinary program.

The GLCI is also pursuing collaboration with other learning opportunities. In an effort to enhance student retention, culinary certificate programs have been implemented. For years, the Culinary Institute has provided lifelong learning and professional development offerings in collaboration with other areas of the College. The expanded facilities, with its lakefront location, have been leveraged to create world-class food and wine events, open to the public. All events have served to showcase Michigan agricultural and value added agricultural products.

The American Culinary Federation Education Foundation Accrediting Commission accredits Great Lakes Culinary Institute programs, one of only approximately 400 such schools to receive this program accreditation in the United States. In 2018, the Great Lakes Culinary Institute received a five-year program accreditation by the American Culinary Federation Education Foundation. Upon completion of the Great Lakes Culinary Institute program, students are eligible for certification through the American Culinary Federation.

Agribusiness
Agriculture and viticulture are significant parts of the region's economy, eco-structure and quality of life. Since 2001, the Great Lakes Culinary Institute has emphasized the relationship between the hospitality industry and local agribusiness by a special focus on local foods, and by serving as a regional leader modeling recycling and reprocessing of food waste. This year, NMC has begun the redevelopment of specialty programming within its associate degree program in Applied Plant Science, a program delivered in conjunction with the Institute of Agricultural Technology of Michigan State University's College of Agriculture, Natural Resources and Recreation. Distinctive of this partnership is a new staff specialist position jointly funded by both institutions to provide continuity between the specialty courses (MSU) and the field experiences and general education courses (NMC). In 2016, a joint research project partnering NMC UAS, Leelanau County Horticulture research station, and private growers supporting a student-based

application for early diagnosis of Cherry Leaf Spot. In 2020-2021 we will be conducting a regional needs assessment for a new joint certificate with MSU Institute of Agricultural Technology (IAT) in Food Production & Safety, and are currently a beta-test site for IAT's mobile food preparation lab.

Science and Mathematics Curriculum On-line
Since fiscal year 2005, NMC has offered the Associate in Science and Arts Degree in the online format. This was made possible by putting our high-demand Physics and Chemistry courses in the online hybrid format. Students take their didactic coursework online and visit the campus on alternating weekends or one evening per week to complete their laboratory work in our state-of-the-art facility, the Health and Science Building. More importantly, our five most popular Biology courses, including the year-long BIO 227-228, are all offered entirely online including the laboratory portion of the courses. Most of the courses in Mathematics have been put online, including MTH 08, MTH 23, MTH 111, MTH 120, MTH 121, MTH 122, MTH 131, and MTH 241. In addition, some of our science lab classes are now offered entirely online. These include CHM 101, ENV 103, PHY 105 and BIO 227.

Construction Technology
During the 2009-2010 academic year, NMC received authorization to offer four new level I certificates and one AAS degree in Construction Trades. These certificates include HVAC/R installation and service, Electrical, Plumbing and Carpentry. For students that complete any one of these four certificates, we have developed appropriate construction trades courses to customize their degree requirements for the remainder of the trades courses and infuse the required general education courses to achieve the sixty four credits required to complete an AAS degree. Students in this program have the option to include a specialization in renewable energy with options in residential and light commercial solar PV, solar thermal, wind installation, including both net-metered and independent installations. A certificate in Programmable Logic Controls (PLC) has been developed and available to students Fall 2014 and services construction and engineering technology students.

Engineering Technology
In 2011, a new associate degree in Engineering Technology provides students with a broad-based curriculum across all areas of technical education, preparing the graduates for emerging job markets and highly technical fields. The program is designed to allow students to focus on areas of interest or specialize in one of seven technical specializations: Biomedical Technician, Computer Technology, Electronics, Engineering Technology, Marine Technology, Robotics & Automation, and Unmanned Aerial Systems. Partnering with Leica Geosystems, an AAS degree in Surveying was added in 2019 to serve the growing demand for surveying technicians in the region.

Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to product improvement, manufacturing, robotics, unmanned systems, and engineering operational functions.

Parson-Stulen Building
In 2015 Northwestern Michigan College was award a $2.8MM grant from the State of Michigan in support of the Community College Skilled traded Program Fund (CCSTEP). $2.1 MM dollars from the grant was used to purchase equipment and renovate facilities in support of the Colleges Engineering Technology, Marine Technology and Computer Technology programs. This included an advanced electronics lab and marine technology, 60,000 gallon indoor test tank, state of the art remote operated vehicles, three unmanned aerial platforms and flight simulators.

Aero-Park Laboratories
In 2011, NMC opened the Aero-Park Laboratories (APL) building at the Aero-Park Campus as a companion facility housing laboratories for construction technology, renewable energy, engineering technology and welding. APL is a 29,600 sq. ft. facility which allows a variety of configurations to accommodate large group lectures as well as individualized student space or small team project areas. The facility is LEED certified and equipped to support a high level of instructional technology requirements and welding facilities.

Audio Technology
An associate program in applied audio technology /technician was approved in July 2012 to meet the needs of students entering the recording, editing, and live music engineering specializations of the music industry. At the core of the degree program are Logic-Pro certifications offered through Apple, Inc. NMC's program has certified instructors, and is certified by Apple, Inc. as a Logic-Pro training center.

Commitment Scholarship Program
The NMC Commitment Scholarship Program was developed to encourage academically promising students with financial need to successfully complete high school and enter college. The program began in 1993, and has included over 1,000 first-generation college students from 19 participating high schools. Each fall, 40-50 new students are inducted from the region to engage in activities that support successful educational attainment. The students, in partnership with the parents and high schools, commit to regular participation in the program activities, demonstration of good citizenship, and completion of high school with a minimum of a 2.5 grade point average.

NMC Math Center
The Math Center is a drop-in tutoring resource to help students with all NMC math classes, from Pre-Algebra through Calculus III and Differential Equations. Math Center employees are tutors and instructors who are equipped to help students with homework and general math skills. Students come to the Math Center with specific questions about class lectures or assignments, or to work with classmates. Many students complete homework assignments in the Math Center so they can review their answers with Math Center employees and receive tutoring as needed.

NMC Writing and Reading Center
The NMC Writing and Reading Center is a unique service dedicated to helping students become better and more confident readers and writers. Students can, at no charge, receive assistance from the Center at all stages of the writing process and have their work reviewed by a trained and

experienced reader. They can also receive guidance in critical reading strategies.
Since employers demand solid communication skills, the NMC Writing and Reading Center helps students prepare for their futures by showing them what it takes to become effective readers and writers. The best students at NMC often wind up working as Writing and Reading Center readers, allowing them to share their knowledge and experience with others, while continuing the rich tradition of service for which the NMC Writing and Reading Center is known.

On-Campus Residence Life Opportunities
The Residence Hall Living/Learning program at NMC is one of six residence hall programs offered at the community college level in Michigan. Students and professional staff provide peer social programs, educational seminars, and community service opportunities. The Residence Halls are alcohol/drug free zones except for designated suites in North Hall where all residents are over 21 and agree to special restrictions. Affordable housing is limited in the Traverse City area which is reflected in our growth in the number of students living in the halls and apartments in the past several years. Having reached capacity in three consecutive years, the college opened a new residence Hall in August of 2017 expanding overall capacity to 362. There are also 36 apartments on NMC's main campus which are consistently full with a waiting list.

Extended Educational Services
Providing opportunities for lifelong learning is the mission of Extended Educational Services. Extended Educational Services (EES) offers over 700 continuing education and *non-credit* courses for all ages. Continuing Education Certificate programs available include: Northern Naturalist Program, Mobile Marketing Certificate, Small Business Entrepreneur Certificate, Certified Nurse Assistant, Home Health Aide. Of note is the *College for Kids* catalog and the *Life Academy* catalog for learners over 50.

University Center
The mission of NMC's University Center is to facilitate the delivery of high quality programs and course offerings beyond the associate degree level to northwest Michigan as deemed desirable by the citizens of the region. The University Center is a unique partnership between Northwestern Michigan College and six participating universities. NMC offers associate's degrees in over 50 liberal arts, health, business, and technical programs. The partnering universities offer all courses required for the completion of the final two years of selected bachelor degree programs, complete master's programs in selected areas, post-bachelor's and graduate certificates, specialized endorsements, and two professional doctorates. University Center partners include: Central Michigan University, Davenport University, Ferris State University, Grand Valley State University, Michigan State University, and Western Michigan University.

Global Endorsement
Beginning in the fall of 2014, the college developed a cross-curricular endorsement for students who complete a variety of curricular and extra-curricular experiences that are recorded on an official college transcript. In part funded by the NMC Global Opportunity Fund, students take coursework, attend the college's Window on the World Week, Passport Student Lecture Series, and International Affairs Forum, participate in international virtual internships and even travel to

international educational sites to receive credit towards this endorsement. This effort is part of the college's strategic direction to "Ensure that NMC learners are prepared for success in a global society and economy."

Dennos Museum Center

The Dennos Museum Center at Northwestern Michigan College is the region's premier cultural center offering programming in the visual and performing arts to the citizens of northwestern Michigan and tourists from the state and nation. Changing exhibitions are selected to provide a variety of experiences for our visitors with the added goal of offering thought-provoking and course related programming for students and instructors as part of the academic program whenever possible. The museum holds the College's art collection which now consists of approximately 2,600 catalogued works of art, 1,600 of which comprise the College's major collection of Inuit art, currently the largest and most historically complete collection in the United States. The museum also features a "hands on" interactive Discovery gallery for children and their families. The museum's 367 seat Milliken auditorium offers an array of lectures, theater and performances year round. The auditorium provides performance space for NMC students and Music Department performing groups, and presentation space for college events. The museum, which opened in 1991, is owned and operated by Northwestern Michigan College. Ground breaking for an addition to the museum occurred in August 2016. The expansion opened to the public in January 2018, adding 14,545 square feet to the facility. It includes five new galleries, a classroom and additional storage and support space. The addition allows our academic programs to better integrate their course outcomes with the museum's permanent art collection which is now exhibited in the new galleries. The classroom provides space for instruction connected to collections, exhibitions and performances.

Joseph H. Rogers Observatory

The primary function of Northwestern Michigan College's Joseph H. Rogers Observatory is to serve as the laboratory facility for NMC astronomy students. It also provides educational opportunities for the community. The 1,500 square foot building, with two observing domes, stands as an example of this area's commitment to education. Constructed completely with donated funds, the Observatory houses astronomical equipment utilized for both education and research. The Observatory hosts Open Houses for the general public throughout the year with over 5,000 visitors annually. The Joseph H. Rogers Observatory is one of fifteen sites in the National Network of Project ASTRO™ , a K-12 science education outreach program, and one of three sites chosen to host Family ASTRO™.

Great Lakes Professional Development Center

The Great Lakes Campus is also home to the Great Lakes Professional Development Center, called the Hagerty Center. The Center provides a flexible, technology-equipped space to accommodate seminars, classes, and specialized training in support of all NMC programs. The site also serves as a venue for professional development seminars for regional, national, and international businesses. This enables NMC to increase its role in bringing new learning opportunities and new visitors to the region, thus providing economic growth and quality of life improvements. It also promotes further integration of programs within NMC, and enables NMC programs to draw on resources from outside the area to augment its own program offerings.

Childcare Center
In the summer of 2014, NMC partnered with Munson Healthcare to open a childcare center at the Oleson Center on NMC's main campus. NMC is a member of the 5 to One Initiative of the Great Start Traverse Bay Collaborative which has been working to create a comprehensive regional system for early childhood development programs. Munson Healthcare and Traverse Bay Area Intermediate School District (TBAISD) have also been included in these discussions and have been aware of our on-going concerns for NMC students as it relates to children's educational services. By partnering with Head Start and GSRP students who qualify are able to access free quality preschool services. June 1, 2018 the program moved to the 2nd floor of the physical education building and added another classroom. This allows for a capacity of 64 children.

Key factors in this arrangement are two grant opportunities that provide a source of funding to pay for daycare services. The two grants awarded by the State of Michigan and available through TBAISD are the Great Start Readiness Program and Headstart. For students that do not qualify for one of these programs the hourly rate is $3.50. Munson allows families to call one week in advance to schedule time.

Articulation Agreements and Partnerships
NMC has articulation agreements with other academic institutions to accept and award credit for classes taken. These agreements outline credits that can be transferred to NMC from other institutions or credits that can be transferred from NMC to other institutions. Below are links to copies of those agreements listed by academic institution. The main page for each NMC academic program also includes links to the articulation agreements for that program.

Charlevoix Emmet ISD
- Aviation »
- Construction Technology »
- Engineering Technology »
- Welding Technology »

Davenport University
- Accounting, Accounting Fraud Investigation, Aviation, Business Administration, Computer Information Technology, Construction Technology, Dental Assistant, Engineering Technology, Freshwater Studies, Manufacturing Technology, Maritime - Power Plant Facilities Operator, Nursing, and Visual Communications »

Davis Aerospace Tech/Detroit Public Schools
- Aviation »

Elk Rapids Schools
- Computer Information Technology - Developer »

Ferris State University
- Accounting »

Mid Michigan Community College
- Physical Therapist Assistant »

North Central Michigan Community College
- Dental Assistant »

Northwood University
- Business »

Petoskey High School
- Culinary »

Robert B. Miller High School
- General »

Saint Claire County Community College
- Maritime - Deck Officer and Engineering Officer »

Savannah College of Art and Design
- Visual Communications »

Siena Heights University
- Automotive Service Technology, Engineering Technology, Manufacturing Technology and Renewable Energy Technology »

TBA Career Tech Center

- Aviation »
- Business Administration / Business Administration Professional Track »
- Computer Information Systems »
- Computer Information Technology »
- Criminal Justice »
- Digital Animation and Game Design »
- Early Childhood Education »
- Information Security and Intelligence »
- Nursing »

Gaylord High School
- Culinary Arts »

Genesee Career Tech Center
- Aviation »

Grand Valley State University
- Nursing »

Head Start
- Early Childhood Education »

Heartlands Institute of Technology
- Culinary Arts »

Howell High School
- Aviation »

Kalamazoo RESA Consortium
- Aviation »

Kaplan University
- Accounting »
- Business Administration »
- Computer Information Technology »

Kent Career Tech Center
- Aviation »
- Culinary »
- Engineering »

Kettering University
- Business Administration »
- Chemistry »
- Computer Science »
- Engineering »
- Mathematics »
- Physics »

Lake Superior State University
- Accounting »
- Biology »
- Engineering »
- Freshwater Studies »
- Geology »
- Mathematics »
- Accounting »
- Automotive Technology »
- Business Administration
  - General »
  - Information Technology »
  - Web Programming »
- Child Development »
- Computer Information Technology
  - Developer »
  - General »
  - Infrastructure »
  - Office Applications Specialist »
  - Support Specialist »
  - Web Developer »
- Construction Technology
  - Carpentry Technology »
  - Electrical Technology »
  - Facilities Maintenance »
- Culinary »
- Drafting & Design Tech »
- Education »
- Engineering »
- Engineering/Manufacturing and Industrial Technology »
- Law Enforcement »
- Visual Communications »
- Welding & Fabrication »

Traverse City Area Public Schools
- Accounting / Business Administration »
- English »

Traverse City Central High School
- Computer Information Tech Developer »

Traverse City St. Francis High School
- Computer Information Technology - Developer »

University of Hertfordshire

HERTFORDSHIRE UNITED KINGDOM
- Aviation »

University of Liverpool

LIVERPOOL, UNITED KINGDOM
- Aviation »

University of Phoenix
- General »

- Robotics Engineering »

Life University
- Chiropractic »

London Metropolitan University
- Aviation »

Michigan Technological University
- Engineering »

University of West England
BRISTOL, UNITED KINGDOM
- Aviation »

West Michigan Aviation Academy
- Aviation »

Wexford-Misaukee Career Tech Center
- Automotive Technology »
- Computer Information Tech - Infrastructure »
- Construction Technology »
- Engineering Technology »
- Manufacturing Technology »
- Welding Technology »

II-C. Identify other initiatives which may impact facilities usage.

In the next five-year period, the College expects to significantly expand health occupations related programming. Continued growth in this area will require investment in additional simulation and teaching facilities. As the College continues AQIP projects designed to increase persistence and credential completion, it is adding instructional support activities that have an impact on experiential and supplemental instructional space. Finally, the College is embedding within the curriculum a multi-disciplinary approach to learning that is desired by employers. These initiatives require large interactive space that can be reconfigured for multiple uses. The college's new West Hall Innovation Center will help to accommodate this demand. Future renovation projects include the need to create a One-Stop Student Service Center in an existing building and some improvements to accommodate the expanding needs of the Audio Technology program.

NMC has embarked on a strategy of programmatic partnerships and recruiting in the international marketplace. It is expected that these efforts will draw in excess of 500 domestic and international students to our region requiring additional housing and instructional spaces. The current climate of the pandemic has hindered the growth in this area. The College still has a goal to expand both domestic and international enrollment. The goal helps to diversify our student body allowing for a richer experience for all students.

The current priorities for facilities planning are aimed at using the self-assessment to guide establishment of flexible learning spaces. These efforts include:
- Major maintenance work required, or anticipated, on existing buildings.
- Increased flexible, technologically advanced classroom space.
- Energy, or other operational, savings.

Section 2, Appendix B provides an Executive Summary for <u>NMC's Campus Master Plan</u>.

II-D. Demonstrate economic development impact of current/future programs.
According to a 2017 study by the economic modeling firm EMSI, NMC creates a significant

positive impact on the business community and generates a return on investment to its major stakeholder groups – students, taxpayers, and society.

- 287.4 million in added income, approximately equal to 3.6% of the GRP of the NMC Service Area, which is nearly as large as the entire Wholesale Trade Industry in the region
- NMC impacts 5,766 jobs or one out of every 22 jobs in the NMC Service Area
- Average annual rate of return for NMC students is 9.6% compared to the 10-year average of 6.9% return to the U.S. stock market
- 2.9 benefit-cost ratio. Every $1 in costs returns $2.09 in benefits-an average annual return on investments for taxpayers is 10.5%

NMC serves more than 50,000 learners each year. Those with an associate degree in Northern Michigan benefit in important ways.

- Average earnings for those with an Associate Degree earn $31,800 per year versus $23,300 per year for those with a High School Diploma
- Lower unemployment. Associate degree holders experienced less than 6% unemployment compared to over 12% for those with less than a high school diploma

Some specific examples of NMC initiatives directed at regional economic improvement are highlighted below.

Technical Workforce and Career Development
NMC's Parson-Stulen Building houses a range of credit and non-credit programs that directly support training for key skills of high value to the region. Each major program area facilitates employer feedback through program Advisory Boards. In addition, faculty and staff participate in state, regional, and national organizations, and are directly engaged in research to help with development of appropriate programs and courses.

In collaboration with other workforce agencies and organizations, NMC has been able to respond to the need for incumbent worker training directly in the workplace, and in areas customized to employer needs. In addition, the technical workforce areas have prepared programs that can be quickly delivered to area communities where there is an identified need to prepare individuals for a specific labor pool.

Marine Center
Northwestern Michigan College provides comprehensive professional and workforce development geospatial applications training solutions for the marine, surveying and remote sensing industries. Emphasis is placed on collecting and processing accurate, usable data on the natural and constructed world around us. Expert instructors utilize current industry standard equipment, including autonomous and remotely operated data collection systems that operate on

land, in the air and in the marine environment. The program uses state-of-the-art equipment and facilities and offers both private and custom corporate training ideal for groups or organizations with specific training and development needs.

Michigan New Jobs Training Program
Since authorization in 2009, NMC has been an active participant in the use of this economic development tool for community colleges. To date, NMC has developed contracts representing close to $7,400,000 in associated training, with over 1000 jobs in sectors including advanced manufacturing, value-added agriculture (food processors, distribution and retail), healthcare, insurance and construction.

Great Lakes Maritime Academy

The Great Lakes Maritime Academy (GLMA) cadets continue to enjoy strong employment opportunities. This is due to the age of the workforce on the Great Lakes which has resulted in numerous vacancies due to retirements. Due to COVID-19, and the subsequent 40% reduction of cargo being carried, we cannot state that employment was 100% in 2020.

During the fall semester recruiters from vessel operators and maritime unions visit the Academy weekly. Additionally, each cadet will complete three internships, two of which are normally on commercial vessels. However, due to COVID many cadets will complete at least two internships onboard the training ship. Internships onboard commercial vessels expose the cadets to different options, and allow the vessel operators to see the quality of the cadets first hand. The average age of the 2020 incoming class is 23, 7% are female, and 10% are veterans.

Great Lakes Water Studies Institute
GLWSI officially launched NMC's third Bachelors of Science in Maritime Technology major in the area of Marine Technology. This program is unique to the United States and one of a handful of applied bachelor's programs world-wide. Specific training emphasis includes remotely operated vehicles and marine platforms, marine acoustics and sonar, marine data processing and project management. Multiple industry collaborations allow graduates a broad range of career opportunities. The Great Lakes Water Studies Institute also offers professional development opportunities in sonar training for industry and government partners who travel from around the world to participate in these training programs. Since 2015, ROV training at NMC is certified through the Association of Diving Contractors International (ADCI).

The Great Lakes Campus site includes a water analysis laboratory for student experiments/labs, qualified environmental research organizations and university partners. The GLWSI is involved in multiple Great Lakes research projects with university and government partners and also collaborates globally with multiple institutions in areas of water and the marine environment.

Tourism and Hospitality Industries
Tourism and the hospitality industry are among the largest economic sectors in NMC's five

county service area. The Great Lakes Culinary Institute directly supports that sector. There is a significant shortage of skilled professionals in this area. The Culinary Institute's ability to expand the programs that it offers is important to the area's economy.

Agribusiness
Agriculture and viticulture are significant parts of the region's economy, eco-structure and quality of life. NMC has developed a successful and long-standing partnership with Michigan State University's Institute of Agricultural Technology (IAT) to provide a series of technical specialties within NMC's associate of applied plant science. Students may select areas in applied horticulture, turf management, nursery management, and viticulture. In 2013, NMC and MSU's Institute of Agricultural Technology established a shared position, in collaboration with MSU's Department of Horticulture, as an innovative approach toward collaboration in employer outreach, student recruitment, and internship development. In 2014, this shared approach has expanded NMC's capacity to provide specialized programming related to precision agriculture.

Health Care
The health industry is of critical importance to the citizens of the region and is characterized by having the largest regional employer, Munson Healthcare. NMC's Health Occupation programs are critical suppliers to this industry, especially in the preparation of associate degree nurses.

A successful strategy has been the development of the Health Education Institute, a partnership between Munson Healthcare and NMC that supports the coordination of community learning resources, delivers continuing professional development to staff, and identifies areas for future collaboration in the preparation of health care professionals.

HEI has completed an extensive internal assessment of program impact with the recommendation to continue and expand the relationship as a shared approach to improving efficiency in professional development for staff, career program planning in the nursing program and related allied health areas.

Most recently, NMC has partnered with Munson Medical Center to offer Associate of Applied Science Degrees in both Paramedic and Surgical Technology.

III. Staffing and Enrollment

The following section responds to questions related to staffing and enrollment trends for Northwestern Michigan College.

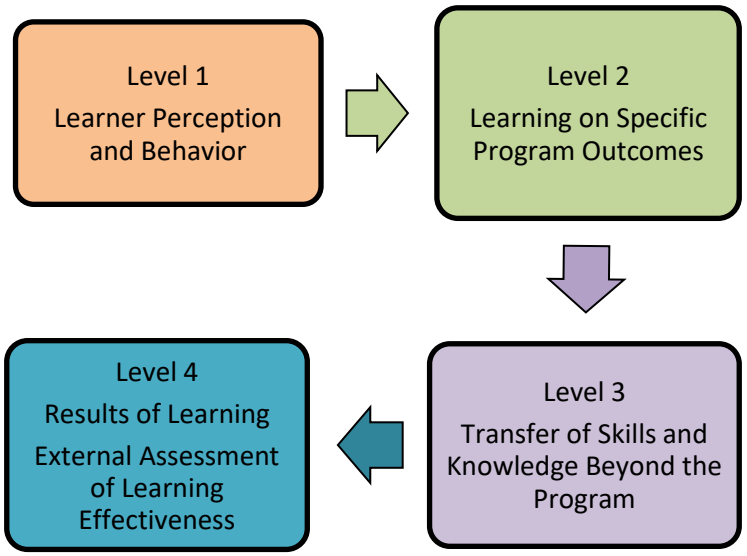
III-A. Describe current full and part-time student enrollment levels and define how the programs are accessed by the student.

Statistics on student enrollment are provided in two enrollment reports attached as Appendix III-A shows full and part-time student counts by CIP program classification.

NMC uses multiple measures for student assessment of programs. NMC's annual program review process is the way in which we ensure that our programs and courses are up to date and effective. The premise of the program review is an annual evaluation of quantitative metrics and

qualitative reflection on the prior year's activities. From this, goals for the program are set and action plans identified for the coming year. The program review documents and institutional metrics are made available to the college community on the intranet site.
The metrics tracked in program review are categorized in four phases of evaluation: Learner Perception and Behavior, Learning of Program Outcomes, Skill Transfer, and Results (Figure 1.1). For Level One, Learner Perception and Behavior, the college measures learner assessment of the quality of the course instruction and of the course itself, and learner satisfaction with the program as a whole. Enrollment tracking and participation of non-traditional students in the program are measured. For Level Two, Learning and Program Outcomes, the program areas track course completion rates, enrollee success rates, completer success rates, graduation rates, student retention or transfer rates, and non-traditional student completion rates. For Level Three, Skill Transfer, NMC assesses student success on industry tests, such as licensure, and student placement in employment. Finally for Level Four, Results, program managers query their industry advisory groups for feedback on the curriculum, equipment, graduates, and program administration. NMC has college targets or state baselines to measure progress for improvement. When any of these measures fall short of the college targets or state baselines, the program establishes goals and activities designed to improve its performance in these areas. Program areas create action plans to address deficiencies as part of the institutional annual planning and budgeting process.

Figure 1.1. Outcome Framework for Academic Program Review



(Source: **Kirkpatrick, D.L. 1994. Evaluating Training Programs: The Four Levels. San Francisco, CA: Berrett-Koehler.**

III-B. Projected enrollment pattern next 5 years

Enrollment experienced an expected increase from 2009-2011, peaking in the 2010-2011 academic year. This increase was primarily due to the economic factors in the state and region related to unemployment. As in all Michigan community colleges, the pattern of increased enrollment paralleled the regional impact of an increased unemployment rate and conversely the decrease in the unemployment rate paralleled the decrease in enrollment. Though enrollment has now reached a level previously held prior to the downturn, census data indicates that the traditional age student population (18-20) will continue to decline through 2023. The current pandemic is also contributing to a decline in enrollment. We anticipate declining enrollment due to this demographic shift taking place and continued reductions in unemployment. We continue to promote the strong academic foundation that Northwestern Michigan College provides students as they complete select bachelor's degrees offered by NMC and their associate degrees for transfer to 4-year colleges and universities, while also highlighting the cost benefit and value students and families realize by attending a community college. Enrollment remains very strong in a number of programs (i.e. aviation, maritime). In addition, we are promoting two additional Bachelor of Science degrees in Maritime Technology; Marine Technology and Power Systems. As the State focuses on economic growth, new and enhanced job skills and transfer education will remain as key objectives. The largest potential for increases in enrollment growth will be through dual enrollment, early college, and concurrent enrollment and recruitment efforts related to specific programs. NMC is well positioned to offer courses and programs which will capture this audience. NMC continues to expand existing and new relationships with colleges and universities in other countries such as China, Costa Rica, South Africa and UK for the purpose of program expansion and student exchange opportunities.

III-C. Evaluation of Enrollment History

Research shows that enrollment at community colleges during an economic downturn follows the rate of unemployment. If the unemployment rate increases, enrollment increases as the population returns to college to seek education for new career opportunities or access training to increase skills to raise their potential for subsequent employment. This pattern occurred at NMC during the surge of enrollment from Fall 2009 through Spring 2011 when the college saw record enrollments. Prior to this time enrollment and contact hours rose modestly each year from 2005 through 2008. Enrollment numbers have returned to levels similar to those before the enrollment increases. In addition, we continue to observe the trend of strong enrollment of early college, concurrent enrollment and dual enrollment students as a clear reflection of our efforts to provide options for high school students to complete college credit or specific programs. NMC currently has early college partnerships with Traverse City Area Public Schools and the Traverse Bay Intermediate School district in addition to an enhanced dual enrollment agreement with Grand Traverse Academy. High school students have significantly increased their participation in acquisition of college credit over the past six years, though most recently, the high school population has decreased slightly.

High School Student Enrollment Comparison

Year	% of total enrollment	% increase over previous year
Fall 2010 – 149	4.3	
Fall 2011 – 181	5.0	.7
Fall 2012 – 287	7.7	2.7
Fall 2013 – 324	9.1	1.4
Fall 2014 – 501	11.2	2.1
Fall 2015 – 485	11.4	.2
Fall 2016 – 521	12.5	1.1
Fall 2017 – 510	12.9	.4
Fall 2018 – 483	13.0	.1
Fall 2019 – 447	12.5	- .5

To strategically support these efforts NMC has participated in the Michigan College Access Network (MCAN), Local College Access Network (LCAN) and with individual schools (ICAN). We collaborate with these organizations providing presentations and face to face support for students and their parents/guardians in order to assist them as they complete college applications, the Free Application for Federal Student Aid (FAFSA) and college scholarship applications.

Section III, Appendix D and E provides 2015 through 2019 enrollment reports.

III-D. Provide instructional staff/student and administrative staff/student ratios
NMC has a standing practice of evaluating all position vacancies for opportunities to distribute work differently, assess the relevance of a service level, and to identify areas in which partnerships may provide options for joint appointments or other creative approaches to the management of personnel costs.

NMC and Michigan State University's Institute of Agricultural Technology (IAT) developed an MOU to share equally in a replacement position serving NMC's Applied Plant Science degree program, which uses IAT's specialty agriculture certificates. This has allowed funding for a full-time position.

Based on fall student, faculty and staff headcount the ratio of student to staff is as follows for the last five years.

Year	Fall Student headcount	Fulltime Faculty & Adjunct headcount	Ratio of Student to Faculty
Fall 2015	4,268	273	16:1
Fall 2016	4,167	264	16:1
Fall 2017	3,956	235	17:1
Fall 2018	3,726	254	15:1
Fall 2019	3,581	226	16:1

Year	Fall Student headcount	Fulltime Admin. & Professional headcount	Ratio of Student to Staff
Fall 2015	4,268	120	36:1
Fall 2016	4,167	123	34:1
Fall 2017	3,956	118	33:1
Fall 2018	3,726	118	32:1
Fall 2019	3,581	111	32:1

Based on the structure at NMC some administrative positions include teaching as part of their responsibilities.

Section III, Appendix F provides the annual number of faculty and staff employees for the past five years.

III-E. Projected staffing needs based on projected enrollment

NMC has approached a number of staffing questions through the development of a multi-year project-based approach toward Talent recruitment, development, retention, and succession. The "Talent" projects have produced new employee orientation programs, the NMC Leadership Institute, multiple professional development modules ranging from compliance training, supervisor training, and including wellness initiatives and self-directed learning opportunities related to workplace improvement.

The College is committed to aligning its workforce to support its strategic direction and to establish a values-based framework to provide sustainable and competitive compensation. During fiscal year 2018 we offered an early separation incentive to faculty and staff at the top of their pay scale. This gave us an opportunity to restructure the organization. The college was able to reduce 12 positions with this incentive program. The program was one strategy in reducing salary costs.

III-F. Identify current average class size and projected class size needs

NMC has implemented a Section Management initiative, effective Fall 2001, targeted at improving class size efficiency. Appendix III-F contains class size goals and guidelines, and shows a four-year trend in class size averages. Class sizes are driven primarily by pedagogical factors related to the subject matter being taught.

III – G. Appendix G provides a Course Efficiency report.

Section IV FACILITY ASSESSMENT

In 2012 NMC contracted for a campus master plan. The plan assessed building and plant requirements to meet future needs. These items have been prioritized within the executive summary of the campus master plan. The college has a contract with Sodexo for management services within that contract Sodexo provides facility assessment that helps to prioritize deferred

maintenance projects. A full assessment was done in fiscal year 2018 and the college is using the report to prioritize deferred maintenance projects. Section V – Appendix O.

IV-A. Summary description of each facility
A summary of building's ages, and square footage is included as Section IV – Appendix H.

IV-B. Building and classroom utilization rates.
Appendices IV-I provides information on the utilization, functionality and allocation of organizational facilities. In 2003, NMC began the implementation of a Room Scheduling software system. In 2005, the College began scheduling academic classes through R25. All events and classes are scheduled through the system. This has allowed the College to review individual building utilization and make changes in heating and cooling and custodial duties.

IV-C. Mandated facility standards
NMC's programs fully comply with all applicable laws and safety standards.

IV-D. Functionality of existing structures -
Appendix IV-J summarizes functionality of existing structures.

IV-E. Replacement value of existing facilities
Appendices IV-K provides data on appraised values of NMC facilities. The replacement value of buildings is assessed at $222,864,200. The most recent insurance appraisal was performed in the fall of 2019.

IV-F. Utility System Condition
Each item identified in the NMC Capital Improvement Plan is listed in a construction category (i.e. electrical, mechanical, plumbing, etc.) Of the 7.7 million of Capital Improvement Projects, 7.5 percent of the capital outlay needs were identified as 6 percent Electrical Projects, 24 percent as Mechanical (HVAC), and 9 percent as Plumbing.

As part of our annual deferred maintenance budget we have allocated at least 30% of the annual budget to projects in this category.

Table 5 Campus Utilities

Utility	Comment
Electric	Traverse City Light and Power (Traverse City Campuses). Sufficient city capacity appears to be available to meet projected college needs.
Water	Traverse City and Garfield Township provide water.
Sewage	City of Traverse City and Garfield Township.
Storm Sewers	Limited access to Traverse City storm sewers is available. The Front Street campus is equipped with numerous dry wells into which storm water drains. A large storm water retention system was recently added on the main campus.
Natural Gas	Campus heating systems are natural gas. Adequate capacities currently exist.

IV-G. Facility Infrastructure Condition (i.e. roads, bridges, parking lots)
The majority of lots, roads and walks on and off Main Campus are in good shape. An annual schedule for the repair/replacement of sidewalks and the repair/seal/replacement of lots and roads has been prepared and incorporated in the Capital and Operational budgets as applicable.

The University Center currently has one driveway. A secondary means of egress for vehicles was recommended in the 2012 campus master plan. A second means of egress would be able to be used in a case of emergency or downed trees and/or power lines.
Section IV-L shows a map of the Front Street (Main) campus.

IV-H. Adequacy of existing utilities and infrastructure systems
Based on our current and five year projections NMC utilities and infrastructure systems are sufficient. As a means to reduce utility costs NMC continues to investigate ways to provide alternative energy solutions to our campus. The college board authorized geothermal for the West Hall Innovation Building. The intention is to use the data from this building as a starting point for an overall campus alternative energy project. Parking was at capacity in 2009 but based on current and projected trends the campus master plan shows we have sufficient systems to meet the needs for the next five years. We work closely with our public transportation agency (BATA) in an effort to both encourage and promote public transportation as a means of reducing the need for additional parking.

IV-I. Energy Audit
NMC contracted for an energy audit in 2010 and worked with Honeywell in 2015 to review energy inefficiencies. These two reports are used to prioritize project that will return overall energy savings to the institution. During the annual deferred maintenance budget we target several projects each year to address recommendations from the two audits.

The college has been implementing the lighting recommendations from the energy audit. The estimated annual savings from the campus wide projects is over $40,000 per year. Other projects included water conservation and low flow aerators and variable frequency drivers in some of our buildings. The College also takes full advantage of Traverse City Light and Powers rebate program. This program has enabled us to complete several lighting projects across campus. All projects are evaluated for energy savings. As roofs are replaced additional insulation is included in the project. Other areas of savings are insulated glass overhead doors in our power house, replacement of old boiler and cooling towers to more energy efficient units.
Section IV, Appendix M. provides an energy audit.

The college will be using a geothermal system for our recent construction project. This will be used to gather data that could benefit an overall campus renewable energy project.

IV-J. Land owned by the institution
Section IV - Appendix N. lists College properties. Under current assumptions for future growth, there is existing capacity for future development on land owned by the college.

IV-K. State Building Authority Leases
Table 6 outlines the statistics on the three NMC buildings that are obligated to the State Building Authority.

Table 6

Building Description	Primary Use	Date of Retirement
Health & Science Building (Integrated Science & Tech Learning Center)	Classrooms	2042
Great Lakes Campus (West Bay)	Specialized classrooms and conferencing facility	2043

V. IMPLEMENTATION PLAN

V-A. Prioritize major capital projects requested from the State, including a brief description and estimated costs.
NMC received authorization from the state for the West Hall Renovation and Expansion as the major capital project requested for State funding. The project upgrades existing facilities and includes an addition to the current building. The purpose of the project is to provide a multi-disciplinary student learning and simulation center on our Front Street Campus. The project responds to the need for flexible multipurpose classrooms that use a range of technology. NMC has a virtual ribbon cutting ceremony for this building on September 18, 2020.

Estimated cost: $14,499,400

We have identified the renovation of the Osterlin Building for our major capital project – The Student Learning Support Services Renovation Project. This area would be renovated and remodeled to provide our students a one stop student service hub. The project would provide a holistic approach to student services.

Estimated cost: $6,000,000

V-B. If applicable provide an estimate relative to the institutions current deferred maintenance backlog. Define the impact of addressing deferred maintenance and structural repairs, including programmatic impact, immediately versus over the next five years.

Northwestern Michigan College recognizes the importance of addressing deferred maintenance repairs. Beginning in 2009 the College began providing funding through our annual budget to address deferred maintenance backlog. Each year the college evaluates its facilities based on the APPA standards. The Board of Trustees has set an overall benchmark of good for its buildings.

The capital improvement identified approximately $9.4 MM in deferred maintenance required over the next five years. Funding for identified items has been included in the College's fiscal year 2021 plant fund budget. Addressing deferred maintenance is critical for the college to carry out its mission of providing a state of the art quality program to its students. During this extraordinary time the College has placed a hold on major projects. This is temporary as we access the impact of the pandemic on the overall budget. We will prioritize capital projects as State Appropriations and Tuition revenue become clear.

V-C. Status of on-going projects financed with State Building Authority

Northwestern Michigan College hosted a ribbon cutting ceremony on September 18, 2020.

V-D. Identify to the extent possible a rate of return on planned expenditures.

The college evaluates each major building project to determine a rate of return. This is accomplished by a reduction in operating costs such as utility savings along with any staffing reductions that could be attributed to the redesign of a facility.

V–E. Where applicable consider alternatives to new infrastructure such as distance learning.

Although the college believes that distance learning plays a key role in program delivery, there is still a role in facilities. The proposed building projects enhance current learning by engaging students and faculty in an interactive learning environment.

V-F. Identify maintenance schedule for major maintenance items in excess of $1 million for fiscal year 2018-2022. Currently, there are no identified maintenance item over $1 million.

V-G. Identify the amount of non-routine maintenance the institution has budgeted for in its current fiscal year and relevant source of financing.

In fiscal year 2018 Northwestern Michigan College developed a comprehensive Facility Capital Improvement Plan (FCAP) that is reviewed and updated annually. We compile and review data on each building annually to determine the physical needs of the individual facilities. The twenty-eight (28) structures contained in the Capital Improvement Plan represent approximately 862,632 square feet of space contained in facilities. The College includes deferred maintenance of over $1,000,000 a year in its annual budget. NMC has established a benchmark that overall facilities rating will remain at a rating of good. During this extraordinary time, the College has placed a hold on major projects. This is temporary as we assess the impact of the pandemic on the overall budget. We will prioritize capital projects as State Appropriations and Tuition revenue become clear. A summary of our deferred maintenance is in Section V.

Section I – Mission Statement

I. – Mission Statement

Northwestern Michigan College was the first comprehensive community college chartered in the State of Michigan. Since its founding in 1951, NMC has provided quality, affordable access to higher education for learners of all ages and backgrounds. NMC is integrally woven into the economic, social and cultural fabric of the region, providing leadership and support for key initiatives that shape our communities and prepare our learners for rich and meaningful lives.

Mission

Northwestern Michigan College provides lifelong learning opportunities to our communities.

Vision

NMC will be the resource of choice for higher education, lifelong learning and cultural experiences. NMC will be an essential contributor to quality of life and a vibrant economy. We will demonstrate collaborative and inventive approaches to education and training for liberal studies, careers, interests and emerging learner markets.

Values

Our individual and collective efforts create the legacy of NMC. In order to achieve our mission, we are individually committed and responsible to live these values*:*

- Learning is at the center of all we strive to achieve. It is the foundation upon which an enlightened citizenry and a dynamic community are built and is a lifelong process in which we are all engaged.
- We will continuously improve the learning experience and its global relevance to those we serve through innovation, agility and thoughtful risk-taking.

Our actions are governed by the highest degree of **ethics, integrity and personal responsibility,** exhibited through **transparency, openness and trust**.

We each will practice **responsible stewardship** for the human, physical, financial and environmental resources entrusted to our care.

Each of us will strive to **exceed expectations** for quality and service in all that we do.

We **value all people** and will invest in their personal and professional growth and development.

We will **exhibit foresight** by monitoring the changing world around us and taking actions today that prepare us to meet future needs of our communities.

We will **seek others** who share our vision and values, and **collaborate** with them on behalf of our communities.

Purposes

*To meet our mission, we are **fully** engaged in **each of** the following purposes with the result that our learners meet their goal(s) of being college ready, transfer ready, career ready and lifelong-learning ready.*

- Associate degree and certificate education in liberal arts and sciences, and occupational studies.
- Bachelor's degree in select programs
- Career/occupational education and workforce development.
- Cultural and personal enrichment.
- Facilitating baccalaureate and graduate programs.
- Contributing to regional economic development.

Current Strategic Directions and Capacities

In order to accomplish NMC's stated Mission, Vision, and Purposes, organizational activities focus on achieving the following strategic directions and demonstrating competence in Institutional Effectiveness Criteria.

Strategic Directions

1. Ensure that NMC learners are prepared for success in a global society and economy.
2. Establish national and international competencies and provide leadership in select educational areas connected to the regional economy and assets.
3. Deliver learning through a networked workforce.
4. Establish lifelong relationships with learners.
5. Transcribe most learning to establish credentials of value.

Institutional Effectiveness Criteria

1. Scholarship, Enrichment and Workforce: Helping Students Learn
2. Partnership:
   a. Economic Development and Community Involvement
   b. Building Collaborative Relationships
3. Champion:
   a. Understanding Student and Stakeholder Needs
   b. Supporting Organizational Operations
4. Culture: Valuing People
5. Operations:
   a. Leading and Communicating
   b. Measuring Effectiveness
   c. Planning Continuous Improvement

Section II
Instructional Programming

Appendix A

Programs of Study

(NMC Catalog)

Appendix A – 2020-2021 Northwestern Michigan College Catalog

https://catalog.nmc.edu/?_ga=2.18627257.1891124954.1598884032-480311531.1598884032

Appendix B

Initiatives Impacting Facilities Usage

2. Executive Summary

The Executive Summary for this Facilities Master Plan report includes the following:

A. Background / Purpose of Master Plan

B. Planning Goals / Areas of Focus

C. Strategic Context

D. Planning Process

E. Recommendations

2. Executive Summary
(continued)

A. Background / Purpose of Master Plan

Northwestern Michigan College is comprised of four campus locations, over 25 buildings, and several additional properties and buildings. The facilities total over 795,000 SF, with a total current replacement value estimated at over $160 million.

As NMC looks forward toward the alignment of all planning, master planning is a key element in aligning the strategic agenda, programs and facilities. NMC commissioned this Master Plan in December, 2011.

The goal of this Master Plan is to provide Northwestern Michigan College with a more comprehensive roadmap for meeting facilities issues over the next 10 years. Selected projects and accompanying costs are presented later in this document.

Just as change has created the need for this facilities master plan, future changes will continue to make the planning process dynamic. While this master plan report makes recommendations to retain and enhance an attractive, serviceable physical environment that is responsive to the changing needs of NMC, it is not rigid or static. To be an effective consensus-building and decision-making tool, this facilities master plan should be seen as a flexible document, able to be periodically evaluated and revised as new ideas and opportunities emerge.

B. Planning Goals & Areas of Focus

Goals:
This plan includes the following specific goals:

1. Identify sites for new construction or expansion.

2. Address traffic patterns and parking facilities.

3. Respond to emerging and changing physical needs as they relate to updated academic offerings.

4. Maintain stewardship of the natural environment; evaluate environmental impact of proposed construction.

5. Establish priorities and cost estimates for a ten-year Master Plan.

C. Strategic Context

NMC's recent strategic planning process yielded several points of interest that formed the backdrop for the Planning Team:

- NMC is recognized for service beyond Grand Traverse County and the surrounding service area. Programs with state-wide, national, and international value will continue to strengthen this broader recognition.
- Development of private-sector partnerships will allow NMC to expand educational experiences. Strategies that promote asset sharing will be prioritized.
- NMC is expanding from two-year to four-year programs in select areas tied to employer and regional economic development needs.
- NMC believes that the education industry as a whole is trending from a time-based system to one that is competency-based.
- NMC believes that learners will expect innovative spaces for learning in the classroom and as part of daily activity on all its campuses. NMC will be able to facilitate learning programs from a variety of sources in addition to its own.

- Facilities at the Aero-Park Campus will have capacity to expand into research activities connected to learning experiences and to regional economic development. Similarly, the Eastern Avenue property will have the potential to house a next generation of programs and services.

- Simulation-based learning will continue to expand as a requirement in many of NMC's programs (such as allied health, engineering technology, and maritime technology), providing resources for continuing professional training beyond degrees and certifications.

- NMC is committed to sustainable practices – both fiscally and environmentally.

- NMC will continue to use strategies that integrate its multiple campuses into a single learning community. Transportation, technology, smart planning and scheduling will all play a part in promoting this vision.

D. Planning Process

The Planning Team began its work with data collection and review of existing documents and reports, including site surveys, building plans, condition assessment reports, and utility reports. This was supplemented by College-provided data on enrollment history and trends, room utilization, parking counts, land use, NMC Strategic Plan, and previous capital outlay requests. Primary sources of background data were individual strategic plan documents prepared by College departments.

The Planning Team subsequently met with the President's Council and NMC Leadership Team to gather addition input and insight into the existing documents and direction for the future.

The Team toured each NMC building and site to gain a deeper understanding of the content and costs represented in the FCAP Report; become familiar with campus layouts, facility functions, infrastructure, circulation patterns and general building conditions; and better understand the background of facilities and programs, as well as future intent and strategic direction.

These tours were followed by meetings with each department to review the strategic planning documents and clarify specific points in the context of existing facilities and future direction. Each department received advance questions from the Planning Team as preparation for each meeting.

Following this input, the Team prepared a series of optional ideas, with conceptual costs, for consideration and feedback by the President's Council and ultimately by the Board of Trustees prior to refinement into a final Master Plan document.

E. Recommendations

Following are narrative descriptions of major components of the 2012 Master Plan, followed by site plan illustrations. These components are not necessarily listed in the order of priority.

Main Campus

Site

Traffic and Parking

There is capacity to expand selected parking lots (Aspen, Birch, Cedar, Juniper, Pine, and Tamarack) to create more, dispersed parking opportunities across campus. The relocation of a portion of College Drive would add almost three acres of area within the ring road. Redevelopment of student housing would also create a stronger pedestrian pathway between Oleson and the rest of campus west of College Drive. With the addition of 244 new parking spaces, the NMC campus would have a total of 1,789 spaces available.

Although not a formal recommendation for this master plan, the option exists of developing a multi-level parking structure on campus that could address the parking need on a smaller footprint in favor of retaining existing natural ground area. The specific size, location, cost and financing terms of a parking structure would be critical to maximize the benefit to NMC, its students, and its patrons. The most likely locations for a structure maximizing shared use would be the Aspen Lot and/or the Cherry Lot.

Recreation Fields
The recreation fields would be improved in two major ways: first, the area would be raised to provide adequate site drainage and new fill to eliminate standing water, and thereby increase its usability. Second, the area would be redefined to provide space for baseball, softball, football, soccer, lacrosse, and rugby, thereby increasing its value for formal PE classes, student life activities, club sports and informal recreation.

Campus Edge
Upgrading the campus edge between NMC and TCAPS property through effective landscaping and other design elements would provide a safer, more attractive buffer.

Pedestrian Improvements
Redevelopment of the pedestrian corridor from Tanis to West Hall would enhance visual connections from west campus to center campus and provide a more clear and useful path to connect core NMC buildings.

West Hall

Renovation of 33,450 SF and expansion of West Hall by 40,000 SF would consolidate student services, expand dining options, bookstore offerings, health services and space for student organizations, as well as add new classroom space and study space for individuals and groups. As the Multi-Disciplinary Student Learning Center, the facility would be multi-story and located near several major parking areas.

An expanded plan would add new library space and new fitness/wellness space to expand the Multi-Disciplinary Student Learning Center to approximately 150,000 SF. The Campus Master Plan following this Summary illustrates this expanded plan at West Hall.

PE Building

The functions now located in the PE Building would be relocated to the expanded West Hall project (Multi-Disciplinary Student Learning Center). The existing PE Building would be razed to make room for a future academic building. The new facility would create new opportunities for academic programming, as well as increased informal recreation and fitness/wellness activity.

Fine Arts

The Fine Arts Building was originally designed for an expansion at the north end of the building. An expansion of approximately 6,000 SF would accommodate potential new programming and provide space for increasing use by larger music groups and ensembles.

The renovation of the existing music wing (approximately 9,000 SF) would also make the existing space more usable and flexible for current and future music programming.

Dennos Museum Center

Redevelopment of the west loading dock and approach drive will improve servicing of the building and reduce damage to the walls of the drive because of its narrow width. Also, a modest equipment storage addition at the loading dock will enhance the flexibility and utilization of Milliken Auditorium.

New Student Housing

New housing totaling 129,000 SF would replace the three existing apartment buildings, but also increase the housing capacity from 138 to 300 in order to meet NMC strategic goals to accommodate future growth and specifically that 5% of its enrollment come from international students. This housing can be developed in a phased approach as the need grows.

Renovation of Osterlin and Tanis

The consolidation of student services at West Hall, combined with the relocation of library space from Osterlin Library to the Multi-Disciplinary Student Learning Center offers an opportunity to renovate 32,500 SF on the first floor of Osterlin Library to increase the its value as expanded study space (individuals or groups), testing space, and flexible academic space. Located between NMC's most intensely used academic buildings (Scholars Hall and Health Science), it is positioned for optimal value.

The opportunity to reconfigure the upper level of Tanis (approximately 7,200 SF) offers possibilities to enhance communication and operational efficiencies for NMC components as the implementation of the master plan evolves.

Aero Park Campus

Aero Park Laboratories

The APL contains large open spaces for construction, renewable energies, and engineering programs. The building is well suited to accommodate future growth in building area and parking capacity by building additions of 60,000+ SF to the east of the existing building (dependent on use, parking, and site circulation requirements). APL is also suitable as a location for the emerging Engineering Technology Program, currently in development.

Automotive Services Technology

With the anticipated growth of current programming, as well as programming for alternative energies (electric and hybrids), this building is capable of classroom and lab expansion to accommodate the growth by 4,000 – 5,000 SF, plus corresponding parking.

Aviation Building

Indoor storage for aircraft at the existing facility is at capacity (12 aircraft). With the recent and anticipated growth of the aviation program, additional storage capacity can be accommodated by phased additions to the existing pre-engineered building with a hangar addition of up to 11,000 SF (to fit up to 12 additional aircraft to the existing fleet of 12 aircraft), which will double the interior aircraft storage capacity . An additional 3,000 SF will handle additional classroom space, simulator space, and additional student load anticipated for the unmanned aircraft program. At its maximum capacity, the expansion will require site work related to parking capacity and stormwater management.

Parsons Stulen

Parsons Stulen has approximately 4,000 SF of existing space, primarily in the west wing of the building, that could be repurposed for other programming needs as they emerge.

University Center Campus

There are three primary components to improvements proposed at the University Center: new emergency exit drive from the parking lot to Wysong Road; upgrade of two interior classrooms (2,260 SF) to science labs to accommodate expanded programming by NMC and University Center partners; and the addition of formal access to Boardman Lake for potential future programming and as a community asset.

The wooded area south of the existing building also offers an opportunity to accommodate future housing or an executive retreat / learning center development, taking advantage of the quiet, secluded nature of the site, its proximity to existing corporate-level learning facilities, as well as recreational use of Boardman Lake.

Additional Areas of Focus:

Appel Property

Site improvements related to entry drive and parking, as well as an improved septic system, would make the property more accommodating and desirable for regular use. The changing ecology and environment of the Boardman River Basin makes this a resource useful for science curricula, environmental studies, and outreach to the broader community.

Rogers Observatory

Increased use of this NMC resource would occur with two proposed improvements: a barrier-free pedestrian pathway from the parking lot to the observatory main level; and a 1,000 SF expansion of the classroom area to accommodate more occupants , as well as additional space for storage.

Eastern Avenue Property

Because of the size and unique aspects of this property, it holds the potential for a range of ideas:

- Student housing
- Intergenerational housing
- Recreation fields and nature trails
- New academic live/learn buildings
- Agribusiness-related farming & production facilities
- Alternative energy site

The dramatic topography on the site could suggest the potential for two primary uses – one at the upland portion, accessed from existing residential roads that engage the property at the northern corners; and one at the lower portion of the site, more related to Eastern Avenue and to close proximity to the NMC campus. Because of the orientation of the land, it has maximum exposure to the sun.

At 55 acres, it is equal to 60% of the existing main campus land area. Because of this, it would be appropriate to think of this property in terms of a short-term strategy and a long-term strategy. The initial development of a new walk, entry drive and parking area on the Eastern Avenue property would provide students and faculty safe access to the site and its walking trails. Clearing areas for development associated with agribusiness programming could be included, along with associated support structures and utilities.

Immediate Recommendations

Moving forward, based upon the recommendations and the information gathered during this master plan, the following projects have been identified by the Executive Team as areas that need immediate solutions. Funding of these projects may take on a multi-year approach, and projects will be staged based on final funding opportunities.

For example, as a major capital improvement, the Multi-Disciplinary Student Learning Center will likely require funding from multiple sources, including the State of Michigan through the capital outlay process and state bonding capacity. This may take several years to accomplish. In the interim, funding for other projects may become available through grants, partnerships, and donations.

Similarly, new programming may raise the urgency of a particular priority in order to take advantage of new funding opportunities not known at this time. Additionally, other recommendations within Section 5 will be addressed as the College sets priorities throughout the next 5-10 years.

Multi-Disciplinary Student Learning Center

This facility will combine learning, recreation, and student services in one area. The project will address student services, classroom simulation expansion, library services, and a comprehensive physical education complex.

Anticipated funding: The project will require multiple sources of funding. The College anticipates a combination of private donations, state sources, and College funds to complete the project.

Timeframe: 3-5 years to complete funding requirements.

Renovation of Osterlin Library

Renovation of the building is necessary in order to optimize space and meet current capacity needs.

Anticipated funding: The project would be accomplished through the College's current plant fund reserves.

Timeframe: 1 year

New Student Housing

This will provide both additional housing to meet anticipated future growth, as well as updated apartments.

Funding: The College has not identified funding for this project. It is anticipated that this will be a cooperative arrangement and funded through a private/public partnership.

Timeframe: 2-3 years

New Drive at University Center

This will provide additional egress for safety and emergency exiting from the site.

Funding: The College will fund this project through the annual plant fund budget.

Appendix C

Socioeconomic Benefits

W.E. UPJOHN INSTITUTE
FOR EMPLOYMENT RESEARCH

Final Report

Economic Impact of Northwestern Michigan College

May 27, 2014

George Erickcek

Introduction and Findings

This report provides an estimation of the total economic contribution that Northwestern Michigan College (NMC) makes on its surrounding region. Of course, the full comprehensive impact of the college on the region's social and cultural environment is much larger than its economic influence. Since its founding in 1951, the college has changed the social environment of the greater Grand Traverse region. This change has occurred informally by the simple presence of more young adults staying in the community to pursue their education, and formally through activities such as the Dennos Museum Center, WNMC 90.7 FM, and the Rogers Observatory which have increased both the cultural offerings and cultural expectations of the region. The purpose of this report is to document the college's economic contributions to the region which, while an important measure, reflects only a portion of the college's total impact.

The report's findings are presented in three sections. First, we provide an estimate of the economic presence of Northwestern Michigan College. The college's economic presence is the level of annual economic activity generated in its service region because of its ongoing operations, the consumer expenditures of its students, and the resulting spinoff that occurs in the region due to these direct expenditures.

Second, we present an estimate of Northwestern Michigan College's economic impact. Estimating economic impact is a conceptual exercise that involves making valuations of the status quo compared to a counterfactual situation in which the college is absent from the region. In measuring the impact of a new facility to a region, such as a factory, the level of economic activity with the facility in full operation is compared to the level of economic activity in the region before the facility was constructed. Similarly, to measure the economic impact of an existing facility, a strictly hypothetical level of the region's economic activity without the facility must be estimated.

The final part of the report estimates the impact of Northwestern Michigan College on the potential earnings of its graduates. During the course of their working career, Associate-degree holders in northern Michigan earn $460,000 more than persons who only have a high school diploma. The net present value of the return on investment for a student successfully completing

a two-year Associate's degree, which discounts the value of future earnings, is estimated to be between $7.93 and $11.14 for each dollar he/she spent on tuition and foregone income while attending school. The student's return on investment depends on whether he/she receives federal aid and attends school full or part time. This is a conservative estimate as it does not factor in the unique, high-demand technical degrees that the college offers.

Northwestern Michigan College's economic contribution is estimated by an economic simulation model especially constructed for the communities served by the college by Regional Economic Models Incorporated (REMI). The REMI model is considered one of the best regional impact models available due to its flexibility and structure. A brief description of the model is provided in the Appendix.

NMC's impact on the region's economy is multi-faceted and includes the impact of:

- The purchases of goods and services made by the college in its ongoing operations;
- The regional consumer expenditures made by its faculty and staff;
- The regional consumer expenditures of its students; and
- The growth in business activity due to its technical assistance to area businesses as well as the increased competitiveness of its businesses due to the college's technical training programs and a more educated regional employment base.

NMC's economic contribution is measured by its impact on:

- Total year-round employment in the regions, both full and part time;
- Personal income of the regions' full-time residents which includes earned income, such as wages and salaries, and unearned income such as pensions and dividends; note that personal income is based on where someone lives while wages are based on where someone works;
- The increase in total sales: the purchase of all goods and services in the regions including purchases made by businesses to suppliers; and
- The change in the regions' Gross Regional Product (GRP).

The last measure, the region's GRP, equals the increase in the purchases of goods and services generated by NMC minus the value of all intermediate goods and services that are either shipped or provided outside the region. For example, the purchase price of a text book would be included in total sales, while only the "mark-up" earned by the local seller is included in the GRP.

This study estimates the economic contribution of Northwestern Michigan College on the following regions:

Region 1: Grand Traverse County;

Region 2: Grand Traverse, Antrim, Benzie, Kalkaska, Leelanau, and Wexford Counties

Region 3: Grand Traverse, Antrim, Benzie, Kalkaska, Leelanau, Wexford, Charlevoix, Emmet, Manistee, and Missaukee Counties

The presence of Northwestern Michigan College contributes $130.9 million in total sales, $62.6 million in personal income, and generates 1,822 jobs in the 10-county region of Northwestern Michigan as shown in Table 1.

On average, each employee of the college (full- and part-time) supports:

- 0.6 additional job positions in the region
- $118, 900 in total sales
- $56,900 in total personal income of residents living in the region.

The economic impact of Northwestern Michigan College is an increase in 1,060 jobs and a rise in total sales of $55.2 million. Personal income is $32.7 million greater and the region's Gross Regional Product is $33.0 million larger. This is the regional economic impact that is supported by $9.1 million in property taxes paid to NMC in FY'13.

The students attending Northwestern Michigan College can also expect a significant increase in their lifelong earnings.

- Individuals holding an associate degree in Northern Michigan had a low 3.8 percent unemployment rate in 2012 (most current data available) compared to a high 14.9 percent rate for persons with only a high school degree.

- Annual earnings for associate degree holders in Northern Michigan were $31,800 in 2012 compared to $24,110 for individuals with only a high school diploma.

Table 1 Summary of Economic Presence and Impact of Northwestern Michigan College

	Total employment	Total personal income ($ mil)	Total sales in the region ($ mil)	Total Gross Regional Product ($ mil)
Economic presence				
Region 1	1,664	43.7	111.0	63.8
Region 2	1,788	60.6	124.7	70.8
Region 3	1,822	62.6	130.9	73.6
Economic impact				
Region 1	962	23.7	43.4	27.2
Region 2	1,032	33.9	50.3	31.0
Region 3	1,060	32.7	55.2	33.0

Economic Presence

The economic presence of NMC is defined as the level of economic activity in the region that is supported by the existence of the college. As highlighted above, the economic presence is very

diverse, ranging from the college's purchases of locally generated services, to the consumer spending of its employees and students, and to the increased competitiveness of local businesses.

In 2012, Northwestern Michigan College employed 1,092 employees, of whom 314 were full time, 294 were adjunct instructors teaching for-credit courses, 12 were adjunct instructors teaching non-credit courses[1], and the remaining 472 employees were student workers and other part-time workers. It should be noted that the annual number of workers at the college includes short-time workers as well, persons who only work for a semester or less. In any given month over the course of 2012, NMC employed in the range of 553-811 workers. That same year the college reported a point-in-time employment level of 655 for the fall semester, excluding student workers. Due to the employment definitions required by the REMI model (see Appendix), the annual full-, part- and short-time employment estimate was used for this analysis. Annual payroll at the college was $22.3 million in 2012. These values are used in generating the college's economic presence.[2] Finally, the total college employment figure used in the analysis—1,101 employees—includes contracted security personnel.

As shown in Table 2 below, the ongoing operation of Northwestern Michigan College, which includes the consumption expenditures of its staff and faculty, generates 386 additional jobs in the 10-county region beyond the 1,101 jobs at the college for a total employment impact of 1,487. Not surprisingly, the major share of these jobs (96 percent) is located in Grand Traverse County–322 positions. The jobs generated in Regions 2 and 3, outside of Grand Traverse County, are due primarily to the local consumption expenditures of the college's staff and faculty who reside in these regions.

The college's operations increase total sales in the 10-county region by $75.8 million annually. Since most of these sales are for goods and services that are generated outside the region, the college's impact on the region's Gross Regional Product—the value of goods and services generated in the region—is less, $48.5 million.

The economic presence of Northwestern Michigan College also includes the economic contribution of the consumption expenditures of its students that are associated with their attendance at the college. In this study we used the complete enrollment data for 2012-2013 (Fall '12, Spring '13, Summer '13) which is shown in Table 3.

[1] Most non-credit instructors (Extended Education courses) are paid as independent contractors and are therefore not included in the employee figures. Those adjunct instructors who teach for-credit courses, typically over a semester, are paid as adjunct employees, and therefore are included in the figures above.

[2] The REMI model uses the college's employment level to estimate the level of demand for local goods and services the community college would require based on national statistics. We adjusted the REMI model's estimate by including its payroll—the college's payroll and its outsourcing of security services.

Table 2 Economic Presence of Northwestern Michigan College

	Grand Traverse	Region 2	Region 3
Ongoing Operations			
Direct employment*	1,101	1,101	1,101
Full impact on the region			
Employment	1,423	1,478	1,487
Personal income ($ mil 2012)	35.9	48.9	49.8
Sales ($ mil 2012)	70.9	74.9	75.8
Gross Regional Product ($ mil 2012)	45.4	48.0	48.5
Student Expenditures (NMC and University Center)			
Employment	67	87	90
Personal income ($ mil 2012)	2.1	2.8	2.9
Sales ($ mil 2012)	5.9	7.5	7.8
Gross Regional Product ($ mil 2012)	3.9	4.9	5.1
NMC Training Division			
Employment	150	180	182
Personal income ($ mil 2012)	4.9	7.3	7.3
Sales ($ mil 2012)	30.2	35.2	35.2
Gross Regional Product ($ mil 2012)	12.6	14.7	14.7
Business Competitiveness			
Employment	24	43	63
Personal income ($ mil 2012)	0.7	1.6	2.7
Sales ($ mil 2012)	4.0	7.1	12.2
Gross Regional Product ($ mil 2012)	1.8	3.1	5.3
Total Presence Impact			
Employment	1,664	1,788	1,822
Personal income ($ mil 2012)	43.7	60.6	62.6
Sales ($ mil 2012)	111.0	124.7	130.9
Gross Regional Product ($ mil 2012)	63.8	70.8	73.6

*By place of work and includes contracted security personnel

Table 3 2012–2013 Student Enrollment

	Fall 2012	Spring 2013	Summer 2013
Northwestern Michigan College			
Grand Traverse (Region 1)	3,058	2,954	865
Percent 3/4 time or more	55	56	13
Region 2 excluding GT	1,208	1,192	281
Percent 3/4 time or more	57	58	13
Region 3 excluding Region 2	164	140	34
Percent 3/4 time or more	67	68	13
Other	414	344	147
Total	4,844	4,630	1,327
Percent 3/4 time or more	58	59	13

SOURCE: Northwestern Michigan College.

Moreover, the consumer expenditures of University Center students are included in estimating the NMC economic presence. University Center enrollment expressed in contact hours generated, were converted to estimated student headcount as shown in Table 4.

Table 4 University Center Student Enrollment

Semester	Total credit hours (CH)	Undergraduate students (70% of CH at 9 CH per student)	Graduate students (30% of CH at 6 CH per student)
Fall 2012	5,041	392	168
Spring 2013	4,819	375	241
Summer 2013	2,290	178	115

According to the finding of a study prepared by Geoffrey Paulin, full-time college students spend $3,700 per quarter.[3] However, roughly 40 percent of NMC students are less than three-quarter time during fall and spring semesters and 87 percent of the college's summer students are less than three-quarter. These individuals can include working adults taking career advancement courses and/or retirees taking classes for personal enrichment as well as credential seeking students. Since, for these individuals, attending class is not their primary activity, their consumer expenditures are excluded from estimating both NMC's economic presence and economic impact.[4] In addition, some full-time and three- quarter-time students attending NMC live at home with their parents and do not pay rent. While we do not know the percentage of NMC students living at their parents' residence, we do know that only 36 percent of the college's full-time students are under 21 years old and only 21 percent of the college's three-quarter-time students are under 21 years of age. We subtracted housing costs (rent) from the expenditures of students who are under 21 years of age.

As shown again in Table 2, the economic presence of student expenditures generated 90 jobs in the 10-county region, contributed $7.8 million in total sales, and generated $5.1 million in the region's Gross Regional Product.

Business Community Impact

Northwestern Michigan College is a vital economic asset for the regional business community. Having NMC in the region is advantageous to both employers and county residents who are potential members of the workforce for at least two reasons. First the college imparts skills and knowledge that enhance workers' productivity and employability. Second, it tends to retain workers in the region. Many local employers interact with the college through internships, advisory committees, or in other ways, which promotes the hiring of NMC students and simultaneously promotes the retention of county residents by providing good employment opportunities within the region.

All communities compete on the strength of the talent of their workforce. In addition to the overall contribution of the NMC programs in increasing the base of educated and trained workers

[3] Geoffrey D. Paulin, "Expenditures of College-Age Students and Nonstudents," *Monthly Labor Review*, July 2001, pp. 46–50. He found that in the 1996–1998 period, college students spent $2,584 per quarter. In our calculations, we subtracted housing expenditures from this total since we assume many NMC students live at home and used an inflation factor of 43.2 percent.

[4] While this step is required for this study, it is unfortunate because it neglects the importance of the college to the area's quality of life. However, the business impact of workers enhancing their workplace skills is estimated in the next section.

in the region, NMC's technical training programs and the NMC Training Division (part of the Michigan Manufacturing Technology Center), play a significant role in improving the competitiveness of the region's base industries—industries that sell their goods or services to customers outside the region.

The direct impact of the NMC Training Division is also shown in Table 2. In total, its activities contributed 182 jobs to the greater 10-county Grand Traverse region as well as $35.2 million in total sales and a $14.7 million increase in the region's Gross Regional Product.

In addition, Northwestern Michigan College offers courses and certificates in welding, auto tech, construction trades, renewable energy programs, advanced manufacturing, manufacturing tech, engineering, electronics tech, and CAD operations. These are skills that are in high demand from the region's base industries. It is impossible to estimate the competitiveness gained by the region's base industries because of these programs; however, if they lower production costs for the region's manufacturers by just 1.0 percent, they would generate 63 jobs in the region and generate $12.2 million in sales, again shown in Table 2.

The total economic contribution of NMC to the region is also shown in Table 2. The presence of NMC generated more than 1,800 jobs in the 10-county region, increased personal income by $62.6 million and total sales by $130.9 million.

Often an employment multiplier is calculated to illustrate the total employment impact of a facility or organization. The multiplier is derived by dividing the total employment impact of the organization, in this case 1,822 for the 10-County Region by the college's direct annual employment in the region, 1,101. The multiplier for NMC's ongoing operations in the 10-County Region is 1.6. In other words, every 10 employees at the college support another 6 jobs in the region.

A more detailed illustration of the college's contribution to the regions' employment is shown in Table 5. As expected, the college's presence has a large impact on the regions' retailers; however, it also supports 82 jobs in its health care sector due, in large part, to the health care benefit package utilized by NMC employees.

Table 5 Detailed Employment Breakdown of NMC's Economic Presence

	Grand Traverse	Region 2	Region 3
Northwestern Michigan College	1,101	1,101	1,101
Construction	77	93	96
Manufacturing	94	117	126
Wholesale trade	18	20	21
Retail trade	79	99	103
Real estate	44	52	54
Prof., scienific, & technical serv.	19	21	22
Administratve	29	35	37
Health care	64	78	82
Arts	9	11	11
Food service	29	37	39
Other services	41	49	51
State and local government	61	73	79
Total	1,664	1,787	1,821

Economic Impact

To measure the economic impact of Northwestern Michigan College we must measure the difference between NMC as a comprehensive community college and a community without NMC. Grand Traverse County—with a population of nearly 90,000—is too large to not be served by a public or private higher educational institution. Therefore this analysis assumes the following assumptions:

- A much smaller higher-education entity would provide a limited, core offering to the region and receive no property tax support.
- Many of the current activities and unique training programs at NMC exist because NMC is a comprehensive community college with strategic priorities tailored to the needs and assets of the community. Specifically, this analysis assumes that the following activities exist primarily for these reasons and would, therefore, likely not exist under the hypothetical counterfactual scenario.
  - Hagerty Center
  - Great Lakes Culinary Institute
  - University Center
  - Great Lakes Maritime Academy
  - Dennos Museum Center
  - Aviation Division, Technical Division
  - Extended Educational Services (including music and physical education)
  - Bridge Program
  - Great Lakes Water Studies Institute
  - NMC Training Division
- The staffing and payroll of the hypothetical, alternative educational provider would be much smaller. Including not offering the activities cited above, we assume that the "core" activities of a higher education institution offering services in the region under the counterfactual scenario would be reduced by two-thirds with a staff estimated at 270 FTE's.
- Without NMC, its current students would have to decide whether to discontinue their education or select a different higher education institute which would likely necessitate

leaving the area. In fact, we have assumed that all of NMC's current students living outside Grand Traverse County would attend school elsewhere because of the counterfactual institution's limited course offerings. For students living in Grand Traverse County, we have assumed that 50 percent would decide not to advance their education beyond high school and remain in the county.

- At the same time, in estimating the economic impact of the college's presence in the region, we must consider the local tax support for NMC's ongoing operational budget of $55 million (FY'13 actual). Without NMC all or, at least, a portion of these property tax dollars would be returned to the region's property owners. In short, the $9.1 million in local property taxes would be returned to taxpayers in this scenario. The reduction in property taxes for residents would have a positive impact on consumption expenditures. For businesses, the decrease in property taxes would lower their capital costs on plant and equipment, making the county marginally more cost competitive. As shown in Table 6, the combined impact to residents and businesses of the lower property taxes would generate an estimated 179 jobs in the 10-county region. Since this is an offsetting impact to the college's economic presence, it is entered as a negative impact.

As shown in Table 6, the direct impact of NMC employment is reduced to 831, because the hypothetical higher education entity would be staffed by an estimated 270 instructors and administrators. Again, the economic impact of NMC is the difference between its current level of operations and this hypothetical educational institution. This total economic impact of NMC can be measured in several ways: an increase of 1,060 jobs, $55.2 million in sales, $37.2 million in the region's personal income or a $33.0 million in the region's Gross Regional Product. In the following section, we break out the individual components that make up NMC's economic impact.

We estimate that the economic impact of NMC's ongoing operations generates 1,123 jobs in the 10-county region, contributes $56.5 million in extra sales, and $36.2 million to the region's Gross Regional Product.

Table 6 Economic Impact of Northwestern Michigan College

	Grand Traverse	Region 2	Region 3
Ongoing Operations			
Direct employment	1,101	1,101	1,101
Alternative institute	-270	-270	-270
Net institute impact	831	831	831
Full impact on the regions			
Employment	1,074	1,116	1,123
Personal income ($ mil 2012)	27.3	37.1	34.9
Sales ($ mil 2012)	53.6	56.7	56.5
Gross Regional Product ($ mil 2012)	34.3	36.3	36.2
Student Expenditures (NMC and University Center)			
Employment	34	51	53
Personal income ($ mil 2012)	1.1	1.6	1.7
Sales ($ mil 2012)	3.0	4.4	4.6
Gross Regional Product ($ mil 2012)	1.9	2.9	3.0
Business Competitiveness			
Employment	24	43	63
Personal income ($ mil 2012)	0.7	1.6	2.7
Sales ($ mil 2012)	4.0	7.1	12.2
Gross Regional Product ($ mil 2012)	1.8	3.1	5.3
Tax Impact			
Employment	-170	-178	-179
Personal income ($ mil 2012)	-5.4	-6.5	-6.6
Sales ($ mil 2012)	-17.2	-17.8	-18.1
Gross Regional Product ($ mil 2012)	-10.9	-11.3	-11.5
Total Economic Impact			
Employment	962	1,032	1,060
Personal income ($ mil 2012)	23.7	33.9	32.7
Sales ($ mil 2012)	43.4	50.3	55.2
Gross Regional Product ($ mil 2012)	27.2	31.0	33.0

The economic impact of student expenditures is determined by estimating the percentage of students who would either leave the area to attend college elsewhere, or not attend college because of the absence of a more comprehensive and potentially more affordable option. The hypothetical institution's course offering would be limited; however, some students in Grand Traverse County would remain.

Finally, since it is assumed that the counterfactual institution would not provide the technical career programs being offered by NMC, the college's economic impact would include its positive impact on the competitiveness of the regions' businesses. However, it is very likely that the local MMTC operations would move to a different host and, therefore, its contribution is not included in the college's economic impact.

The full economic impact of the college is shown in Table 6. In total, the economic impact of Northwestern Michigan College compared to a private transfer institution is an increase in 1,060 jobs and a rise in total sales of $55.2 million. Personal income is $32.7 million greater and the

region's Gross Regional Product is $33.0 million larger. In other words this is the regional economic impact that is supported by $9.1 million in property taxes paid to NMC.

Finally, Table 7 provides a detailed breakdown of the college's employment impact on the region's industrial sectors.

Table 7 Detailed Employment Breakdown of Northwestern Michigan College's Economic Impact

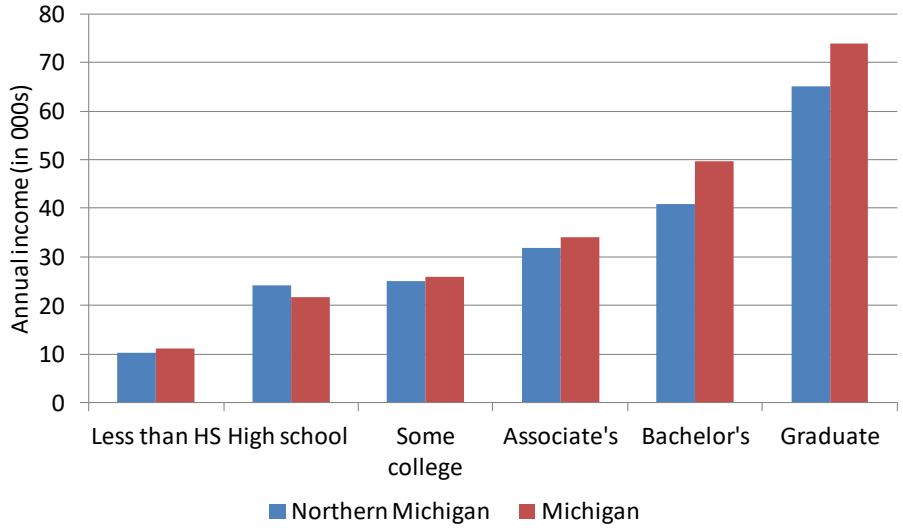
	Grand Traverse	Region 2	Region 3
Northwestern Michigan College	1,101	1,101	1,101
Alternative Institute	-270	-270	-270
Net Direct	831	831	831
Construction	21	30	32
Manufacturing	8	17	26
Wholesale trade	5	6	7
Retail trade	23	37	40
Real estate	5	10	12
Prof., scienific, & technical serv.	4	5	6
Administratve	11	14	15
Education services	821	820	820
Health care	16	25	27
Arts	3	4	4
Food service	4	10	11
Other services	9	13	15
State and local government	31	39	44
Total	962	1,031	1,060

Impact on Potential Graduate Earnings

If young adults decide not to further their academic careers because of the absence of Northwestern Michigan College, it would significantly lower their lifetime earning potential. In the following figures, we show the 2012 average annual earnings and unemployment rates for working age adults living in Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Leelanau, Missaukee, and Wexford counties.[5] As can be seen in Figure 1, the average annual income of individuals with an Associate's degree is 30 percent higher than that of a person who holds only a high school diploma. Moreover, as seen in Figure 2, Associate-degree holders also face lower unemployment rates than persons with only a high school diploma.

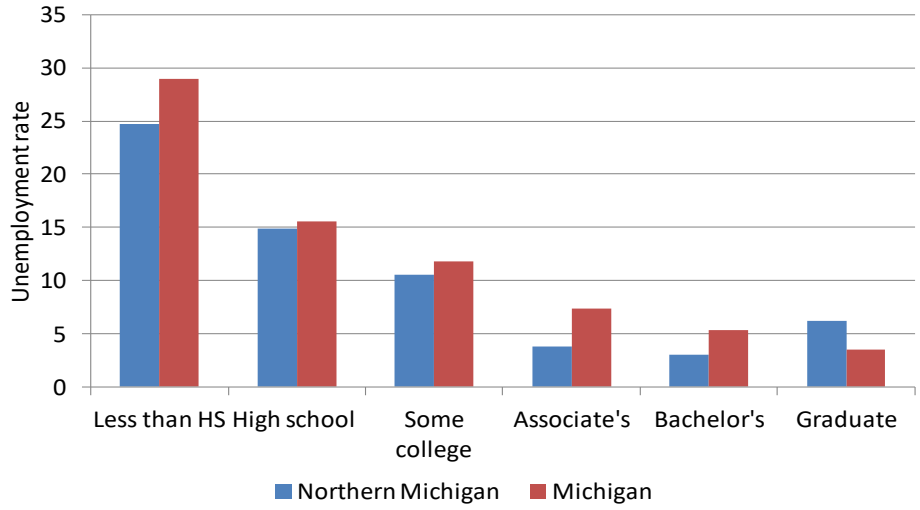
[5] The geographic limitation of the iPUMS database, which provides a five percent sample of individual records from the 2012 U.S. American Community Survey, requires this large geographic area. Note that Manistee County is excluded from this region based on available data.

Figure 1 Average Annual Income by Educational Attainment



SOURCE: Ruggles et al, IPUMS USA 2012.

Figure 2 Unemployment Rate by Educational Attainment



SOURCE: Ruggles et al, IPUMS USA 2012.

It should be noted that the above data do not specifically reflect the value of an NMC Associate degree but rather an Associate degree from any institution of those employed in the Northern Michigan region.

It is difficult to estimate the average return on investment (ROI) of a student attending Northwestern Michigan College for several reasons. First, some do not complete a certificate or degree program and yet receive economic benefits from attending classes which upgrade their skills. Second, NMC offers a wide selection of unique programs that charge differential tuition rates based on higher program costs. Therefore there is increasing variability in the cost of attendance depending on the program pursued. Third, students may take longer than two years to complete, and may not be successful in finding a career that uses their training to its utmost. Fourth, the opportunity cost of attending college—the loss of income from not working full time—varies greatly between students and their economic conditions. Finally, in estimating a lifetime flow of earnings generated by attending college, a proper discount rate must be used.

There is much debate on this topic: too low of a discount rate will overvalue long-term returns, while the opposite is true if the discount rate is set too high.

As shown in Table 8, we provide three separate estimates for the return on investment for students completing their Associate degrees at NMC. These three scenarios are as follows:

- Scenario 1: A student completes a general Associate's degree from Northwestern Michigan College in two years, without receiving any financial support.

- Scenario 2: A student completes a general Associate's degree from NMC and receives financial support (Federal Pell Grant)

In both of the scenarios above, the student would forego the opportunity to earn $9,600 per year for the 30 weeks that he/she is attending class for the two years. This is based on the student working full-time for $8.00 per hour for 30 weeks each year.

Scenario 3: A student goes to NMC on a part-time basis, taking 11 credit hours each semester and completes in three years. During these three years he/she is also working part-time, 20 hours per week, earning $4,800 per year.

As shown in Table 8, we estimate that the student paying full tuition would see a $7.93 return for every dollar spent attending college (2012 dollars); including foregoing earned income during the two years. For students receiving the average federal assistance package (Pell Grants) who completes in two years, the return is $11.14 per every dollar invested. Finally for the student who works and attends NMC on a part-time basis, completing in three years, the return on his/her investment is $9.85. Under scenarios 1 and 2, the average associate degree holder earns $460,000 more during their working career than a high school graduate. In the third scenario it is slightly lower. To estimate the current value of this difference in earning streams between an associate degree holder and a high school graduate, a three percent discount rate was used to adjust for time preferences, current earnings are valued more than future earnings even when accounting for inflation.

It is clear that the student's ROI for attending college will vary greatly depending on the courses taken, parental support, and career success. Nevertheless, even under the conservative conditions stated above, attending NMC is a smart move.

Table 8 Return on Investment for Attending and Completing an Associate Degree at Northwestern Michigan College

Scenario	Total tuition (2013 dollars)	Total amount of federal assistance	Foregone earnings due to attending NMC	Earning difference between Associate degree and high school diploma (2013 dollars) 20 to 34	35 to 44	45 to 54	55 to 64	Net present value	Return on investment
Full-time student completing in two years without financial support	$ 5,523	$ -	$ 19,200	$ 6,237	$ 9,605	$ 13,970	$ 12,987	$ 193,199	$ 7.93
Full-time student completing in two years with federal Pell Grant assistance	$ 5,523	$ 6,534	$ 19,200	$ 6,237	$ 9,605	$ 13,970	$ 12,987	$ 199,638	$ 11.14
Part-time student completing in three years working full time	$ 5,696	$ -	$ 14,400	$ 6,237	$ 9,605	$ 13,970	$ 12,987	$ 192,248	$ 9.85

Other Considerations

Dollars and cents are an important but incomplete unit of measurement when it comes to evaluating the importance of Northwestern Michigan College to the greater Grand Traverse

community. Last year, more than 7,200 individuals visited the Dennos Museum Center and only 50 percent resided in Grand Traverse County. In addition, more than 1,200 K–12 students and nearly 700 college students attended programs at the Dennos. Unfortunately, it is difficult to find empirical data on which to estimate the economic impact of these events. These types of visits are often associated with other activities, such as visiting friends or family or multi-destination vacations.

Additionally, NMC retirees overwhelmingly (86 percent of current retirees) stay in the region following retirement. It seems likely that the educational and cultural contributions of NMC to the community play a significant role in their decision to remain and to use their retirement savings in this local region.

NMC's non-credit Extended Education enrollment is not included in this economic analysis. It is noteworthy that a full 39 percent of the Extended Education (non-credit) enrollment is comprised of adults age 65 or older in the region (2,346 individuals). Clearly this is an offering that appeals to and likely enriches the community at all ages but particularly the life-long learners.

Summary

This analysis quantifies the significant economic presence of Northwestern Michigan College in the region. With $9.1 million in local property tax support (FY'13 actual) funding 17 percent of their overall $55 million operating budget, NMC contributed $130.9 million in total sales, $62.6 million in personal income and $73.6 million in total Gross Regional Product. Every NMC job supports .6 additional jobs in the 10-county region. NMC is a net positive investment for the community. Local businesses are more competitive because NMC contributes to a trained workforce. At the student level, attaining an associate degree yields a return on investment of $7.94 to $11.15 and historically offers lower levels of unemployment.

NMC contributes far more to the cultural enrichment of the region in ways that are difficult to quantify, and yet local residents experience a higher quality of life because of NMC's presence. Finally, the region benefits from these aspects of NMC's operations:

- Providing economic activity during the off-season. Most of the college's economic impact, including the expenditures of its students, occurs during the tourism off-season months. The college provides balance to an economy that is highly dependent upon tourism.
- Increasing the number of retirees residing in the region. Currently, 175 former NMC full-time employees live in the greater Grand Traverse 10-county region.

Clearly Northwestern Michigan College is an integral part of the greater Grand Traverse regional economy. Moreover, its role will only grow in importance as the region's industries continue to compete on the global stage. In a world environment where transportation costs continue to decline in importance, the quality of a region's workforce and the caliber of its education system will play a more crucial role.

Appendix

Description of the REMI Model

The W.E. Upjohn Institute maintains an economic computer model specially designed to estimate the economic impact of changes in the greater Grand Traverse region. The model was constructed by Regional Economic Models Incorporated (REMI) and contains three separate components that together capture the resulting total impact to the local economy due to a change in employment. These components are:

- An input-output model that estimates the impact of changes in inter-industry purchases on the local economy. This component of the model captures the impact of an increase in orders to local suppliers of goods and services, as well as the impact of households increasing their purchases of consumer goods and services.

- A relative wage component that estimates the impact of the expected changes in the area's cost structure due to changes in economic activity. For instance, when a major employer moves into the area, it can cause wages to increase across almost all industries due to the increased demand for workers and other local resources. This boost in wages, while generating additional consumption expenditures, increases the cost of doing business in the area, making the area slightly less attractive to other industries. On the other hand, an increase in the number of skilled workers enhances the area's productivity, and thereby lowers the cost per unit of production, making the region more competitive.

- A forecasting and demographic component that forecasts the resulting changes in future employment and population levels due to a change in economic activity. The model generates an annual forecast which averages seasonal jobs by their duration. For example, four summer jobs that have durations of three months each are modeled as only one year-round job in REMI.

The model is particularly suited to measure the economic impact of higher-education institutions because:

- It contains a highly detailed breakdown of expenditures made by higher-education institutions. Other models use a more general breakdown that includes expenditures made by all education institutions including K–12 public and private schools.

- It allows for estimating the unique consumption expenditures made by students and the college's faculty and staff.

- Finally, it includes a residential component that allows for the modeling of the impact of students, faculty, and staff staying in the county and working outside the county. Other models mistakenly assume that once an employer has left the county, all of the workers would leave as well.

Finally, the model has been rigorously reviewed in numerous academic journals.

Section III
Staffing and Enrollment

Appendix D

Current Enrollment Report

Fall 2020

Northwestern Michigan College

Records and Registration

Sep 02, 2020

Program Analysis
Students' Declared Program of Study on Date Specified
Contact Hours Shown are the TOTAL CONTACT HOURS GENERATED by Students in each Program

	Fall 2018 As of: 04-SEP-2018				Fall 2019 As of: 03-SEP-2019				Fall 2020 As of: 01-SEP-2020			
Program of Study	# in Prog	% of Total	Cont Hrs	% of Total	# in Prog	% of Total	Cont Hrs	% of Total	# in Prog	% of Total	Cont Hrs	% of Total
Accounting	22	0.6%	194	0.5%	26	0.7%	219	0.6%	31	0.9%	273	0.8%
Accounting - Transfer	47	1.3%	437	1.1%	39	1.1%	367	1.0%	36	1.1%	369	1.0%
Accounting Certificate II	9	0.2%	43	0.1%	4	0.1%	22	0.1%	5	0.2%	21	0.1%
Accounting-Fraud Investigation	3	0.1%	19	0.0%	3	0.1%	12	0.0%	3	0.1%	16	0.0%
Advanced Manufacturing	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Agricultural Operations	1	0.0%	7	0.0%	1	0.0%	5	0.0%	0	0.0%	0	0.0%
Assistant Web Developer	2	0.1%	32	0.1%	3	0.1%	36	0.1%	1	0.0%	16	0.0%
Associate Degree Nursing	144	3.9%	2,880	7.2%	138	3.9%	2,404	6.2%	150	4.6%	2,864	8.1%
Associate Web Developer	0	0.0%	0	0.0%	1	0.0%	3	0.0%	1	0.0%	3	0.0%
Audio Technology	36	1.0%	403	1.0%	37	1.0%	412	1.1%	28	0.9%	296	0.8%
Audio Technology I	2	0.1%	16	0.0%	1	0.0%	7	0.0%	0	0.0%	0	0.0%
Audio Technology II	3	0.1%	32	0.1%	1	0.0%	8	0.0%	3	0.1%	24	0.1%
Audio Technology III	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Hybrid Tech Specialist	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Automotive Service Technology	19	0.5%	309	0.8%	18	0.5%	275	0.7%	12	0.4%	199	0.6%
Aviation - Flight Technology	156	4.2%	1,680	4.2%	116	3.2%	1,095	2.8%	99	3.0%	856	2.4%
Biology - Transfer	63	1.7%	789	2.0%	50	1.4%	638	1.7%	38	1.2%	437	1.2%
Bridge	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Business Admin - Computer Appl	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Business Admin - Entrepreneur	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Business Admin - General	112	3.0%	933	2.3%	95	2.7%	780	2.0%	98	3.0%	875	2.5%
Business Admin - Management	2	0.1%	9	0.0%	1	0.0%	4	0.0%	0	0.0%	0	0.0%
Business Admin - Marketing	1	0.0%	3	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Business Admin. - Transfer	149	4.0%	1,507	3.8%	114	3.2%	1,238	3.2%	103	3.1%	1,042	3.0%
CAD/CAM Drafter-Mechanical	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
CAD/CAM Trainee-Mechanical	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
CIT Infrastructure & Security	43	1.2%	466	1.2%	54	1.5%	667	1.7%	48	1.5%	602	1.7%
CIT-Assistant Developer	0	0.0%	0	0.0%	2	0.1%	17	0.0%	2	0.1%	30	0.1%
CIT-Associate Developer	2	0.1%	19	0.0%	1	0.0%	6	0.0%	0	0.0%	0	0.0%

CIT-ComputerSupport Specialist	2	0.1%	19	0.0%	5	0.1%	55	0.1%	6	0.2%	66	0.2%
CIT-Developer I	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
CIT-Developer III	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
CIT-Infrastructure Spec I Cert	7	0.2%	76	0.2%	2	0.1%	12	0.0%	2	0.1%	34	0.1%
CIT-Infrastructure Spec II	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
CIT-Infrastructure Spec. III	1	0.0%	13	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
CIT-MSOffice ApplicationsSpc.	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4	0.1%	33	0.1%
Chemistry - Transfer	10	0.3%	117	0.3%	13	0.4%	175	0.5%	6	0.2%	69	0.2%
Child Development - Transfer	11	0.3%	103	0.3%	8	0.2%	90	0.2%	11	0.3%	127	0.4%
Communications & Speech - Tran	14	0.4%	154	0.4%	10	0.3%	101	0.3%	11	0.3%	107	0.3%
Computer IT - Developer	56	1.5%	679	1.7%	51	1.4%	618	1.6%	35	1.1%	376	1.1%
Computer IT - General	3	0.1%	15	0.0%	1	0.0%	8	0.0%	1	0.0%	6	0.0%
Const - Electrical Cert I	25	0.7%	120	0.3%	24	0.7%	142	0.4%	12	0.4%	59	0.2%
Const - Electrical Cert II	0	0.0%	0	0.0%	0	0.0%	0	0.0%	12	0.4%	77	0.2%
Construction Tech Electrical	23	0.6%	135	0.3%	32	0.9%	257	0.7%	40	1.2%	281	0.8%
Construction Tech HVAC/R	7	0.2%	78	0.2%	9	0.3%	63	0.2%	8	0.2%	48	0.1%
Construction Technology-Mgmt	16	0.4%	163	0.4%	20	0.6%	208	0.5%	18	0.5%	212	0.6%
Construction-Carpentry Cert I	3	0.1%	30	0.1%	8	0.2%	65	0.2%	9	0.3%	103	0.3%
Construction-Carpentry Cert II	4	0.1%	35	0.1%	3	0.1%	30	0.1%	5	0.2%	53	0.2%
Construction-Facilities Main.	3	0.1%	27	0.1%	1	0.0%	4	0.0%	1	0.0%	12	0.0%
Construction-HVAC/R Cert	3	0.1%	20	0.0%	8	0.2%	53	0.1%	11	0.3%	70	0.2%
Construction-Plumbing Tech	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Creative Mgmt in Art Direction	1	0.0%	7	0.0%	2	0.1%	25	0.1%	1	0.0%	20	0.1%
Criminal Justice - Transfer	49	1.3%	509	1.3%	54	1.5%	631	1.6%	41	1.3%	427	1.2%
Culinary Arts	76	2.0%	1,276	3.2%	66	1.8%	1,152	3.0%	58	1.8%	1,068	3.0%
Culinary Arts Certificate	17	0.5%	264	0.7%	13	0.4%	200	0.5%	11	0.3%	136	0.4%
Culinary Arts-Baking	2	0.1%	28	0.1%	5	0.1%	52	0.1%	2	0.1%	24	0.1%
Culinary Sales and Marketing	0	0.0%	0	0.0%	1	0.0%	18	0.0%	5	0.2%	86	0.2%
Dance - Transfer	2	0.1%	19	0.0%	2	0.1%	26	0.1%	0	0.0%	0	0.0%
Deciding	0	0.0%	0	0.0%	1	0.0%	0	0.0%	0	0.0%	0	0.0%
Dental Assistant	26	0.7%	336	0.8%	21	0.6%	279	0.7%	25	0.8%	357	1.0%
Dental Assistant Certificate	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Digital Admin & Marketing	3	0.1%	24	0.1%	7	0.2%	61	0.2%	2	0.1%	13	0.0%
Early Childhood Ed Certificate	5	0.1%	58	0.1%	4	0.1%	18	0.0%	5	0.2%	42	0.1%
Early Childhood Education	37	1.0%	322	0.8%	46	1.3%	401	1.0%	41	1.3%	387	1.1%
Early Childhood-Infant/Toddler	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Early Childhood-Preschool	1	0.0%	11	0.0%	4	0.1%	12	0.0%	1	0.0%	8	0.0%
Economics - Transfer	0	0.0%	0	0.0%	1	0.0%	8	0.0%	1	0.0%	11	0.0%
Education - Transfer	95	2.5%	1,029	2.6%	56	1.6%	621	1.6%	50	1.5%	526	1.5%
Electrical/Drivability	1	0.0%	16	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Spec.												
Eng Tech-Robotics/Automation	14	0.4%	179	0.4%	10	0.3%	116	0.3%	6	0.2%	59	0.2%
Engineering - Transfer	72	1.9%	952	2.4%	78	2.2%	1,085	2.8%	65	2.0%	903	2.6%
Engineering Certificate	5	0.1%	88	0.2%	2	0.1%	32	0.1%	6	0.2%	74	0.2%
Engineering Tech-Biomedical	12	0.3%	138	0.3%	9	0.3%	130	0.3%	8	0.2%	81	0.2%
Engineering Tech-Computer Tech	3	0.1%	31	0.1%	2	0.1%	21	0.1%	4	0.1%	68	0.2%
Engineering Tech-Electronics	16	0.4%	197	0.5%	9	0.3%	132	0.3%	3	0.1%	27	0.1%
Engineering Tech-Marine	4	0.1%	39	0.1%	5	0.1%	78	0.2%	8	0.2%	123	0.3%
Engineering Tech-Photonics	1	0.0%	4	0.0%	2	0.1%	22	0.1%	1	0.0%	7	0.0%
Engineering Tech-UAS	48	1.3%	582	1.5%	42	1.2%	545	1.4%	26	0.8%	339	1.0%
Engineering Tech-UGV	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Engineering Technology-General	17	0.5%	156	0.4%	5	0.1%	49	0.1%	8	0.2%	98	0.3%
English (Lit,Creative Writing)	24	0.6%	230	0.6%	19	0.5%	175	0.5%	17	0.5%	199	0.6%
Entrepreneurship I	2	0.1%	17	0.0%	2	0.1%	20	0.1%	1	0.0%	13	0.0%
Entrepreneurship II	4	0.1%	32	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fine Arts, General - Transfer	28	0.8%	319	0.8%	26	0.7%	302	0.8%	30	0.9%	284	0.8%
Freshwater Studies-Economy	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Freshwater Studies-Economy AAS	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Freshwater Studies-General	32	0.9%	385	1.0%	23	0.6%	252	0.7%	25	0.8%	315	0.9%
Freshwater Studies-General AAS	7	0.2%	69	0.2%	8	0.2%	102	0.3%	6	0.2%	61	0.2%
Freshwater Studies-Global	0	0.0%	0	0.0%	1	0.0%	7	0.0%	0	0.0%	0	0.0%
Freshwater Studies-Global AAS	2	0.1%	16	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Freshwater Studies-Science	3	0.1%	16	0.0%	2	0.1%	9	0.0%	1	0.0%	3	0.0%
Freshwater Studies-Science AAS	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruit & Vegetable Crop Mgmt	17	0.5%	121	0.3%	18	0.5%	138	0.4%	15	0.5%	135	0.4%
General Liberal Arts & Science	436	11.7%	4,843	12.1%	532	14.9%	5,929	15.4%	479	14.6%	5,177	14.7%
General Studies	100	2.7%	958	2.4%	62	1.7%	611	1.6%	50	1.5%	430	1.2%
Geography - Transfer	2	0.1%	17	0.0%	1	0.0%	14	0.0%	0	0.0%	0	0.0%
History - Transfer	7	0.2%	55	0.1%	10	0.3%	129	0.3%	6	0.2%	73	0.2%
Landscaping Management	8	0.2%	70	0.2%	7	0.2%	40	0.1%	4	0.1%	25	0.1%
Law Enforcement	53	1.4%	896	2.2%	43	1.2%	661	1.7%	20	0.6%	365	1.0%
Law Enforcement Certificate II	8	0.2%	183	0.5%	3	0.1%	78	0.2%	2	0.1%	23	0.1%
Legal Assistant	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Manufacturing Technology	16	0.4%	145	0.4%	21	0.6%	184	0.5%	18	0.5%	148	0.4%
Marine Technology-BSMT	22	0.6%	363	0.9%	30	0.8%	413	1.1%	28	0.9%	393	1.1%
Maritime Engineering Officer	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Maritime Power Plant Operator	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Maritime Technology-Deck BSMT	124	3.3%	1,551	3.9%	117	3.3%	1,451	3.8%	127	3.9%	1,640	4.7%

Maritime Technology-Engineer	84	2.3%	1,047	2.6%	79	2.2%	999	2.6%	67	2.0%	870	2.5%
Master Automotive Technician	15	0.4%	234	0.6%	17	0.5%	280	0.7%	14	0.4%	267	0.8%
Mathematics - Transfer	7	0.2%	101	0.3%	5	0.1%	52	0.1%	6	0.2%	76	0.2%
Music, General - Transfer	26	0.7%	348	0.9%	19	0.5%	245	0.6%	9	0.3%	104	0.3%
NMC - Ferris	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
NMC Postgrad/University Center	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Not Pursuing a Degree/Certif	506	13.6%	2,853	7.1%	471	13.2%	2,684	7.0%	449	13.7%	2,607	7.4%
Office Administration	4	0.1%	34	0.1%	2	0.1%	8	0.0%	2	0.1%	21	0.1%
Paramedic	7	0.2%	56	0.1%	1	0.0%	10	0.0%	3	0.1%	28	0.1%
Philosophy/Religion - Transfer	4	0.1%	40	0.1%	1	0.0%	6	0.0%	4	0.1%	34	0.1%
Physical Sciences - Transfer	18	0.5%	214	0.5%	11	0.3%	136	0.4%	7	0.2%	73	0.2%
Political Science - Transfer	7	0.2%	75	0.2%	9	0.3%	108	0.3%	19	0.6%	225	0.6%
Power Systems-BSMT	1	0.0%	20	0.0%	1	0.0%	17	0.0%	1	0.0%	15	0.0%
Practical Nursing	10	0.3%	185	0.5%	14	0.4%	233	0.6%	13	0.4%	243	0.7%
Pre-Associate Deg Nursing -LPN	9	0.2%	66	0.2%	4	0.1%	44	0.1%	6	0.2%	44	0.1%
Pre-Associate Degree Nursing	205	5.5%	1,916	4.8%	208	5.8%	1,999	5.2%	179	5.5%	1,730	4.9%
Pre-Aviation	0	0.0%	0	0.0%	46	1.3%	532	1.4%	45	1.4%	472	1.3%
Pre-Dental Assisting	6	0.2%	59	0.1%	7	0.2%	71	0.2%	5	0.2%	49	0.1%
Pre-Law - Transfer	9	0.2%	103	0.3%	8	0.2%	81	0.2%	8	0.2%	78	0.2%
Pre-Med, Pre-Den - Transfer	92	2.5%	1,123	2.8%	91	2.5%	1,128	2.9%	82	2.5%	1,004	2.9%
Pre-Practical Nursing	33	0.9%	288	0.7%	22	0.6%	204	0.5%	29	0.9%	273	0.8%
Pre-Respiratory Therapy	1	0.0%	4	0.0%	1	0.0%	5	0.0%	8	0.2%	74	0.2%
Pre-Surgical Tech	26	0.7%	244	0.6%	21	0.6%	200	0.5%	18	0.5%	174	0.5%
Programmable Logic Controllers	2	0.1%	23	0.1%	1	0.0%	8	0.0%	1	0.0%	4	0.0%
Psychology - Transfer	63	1.7%	710	1.8%	64	1.8%	721	1.9%	67	2.0%	712	2.0%
Renewable Energy-Electrical	1	0.0%	4	0.0%	1	0.0%	6	0.0%	1	0.0%	7	0.0%
Renewable Energy-Electrical	3	0.1%	20	0.0%	4	0.1%	26	0.1%	3	0.1%	19	0.1%
Renewable Energy-HVAC	3	0.1%	20	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Renewable Energy-HVAC	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Social Work - Transfer	59	1.6%	561	1.4%	75	2.1%	785	2.0%	63	1.9%	689	2.0%
Sociology	3	0.1%	37	0.1%	2	0.1%	18	0.0%	2	0.1%	22	0.1%
Surgical Technology	21	0.6%	335	0.8%	17	0.5%	270	0.7%	17	0.5%	320	0.9%
Surveying	0	0.0%	0	0.0%	7	0.2%	108	0.3%	12	0.4%	154	0.4%
Technical Management Admin	1	0.0%	10	0.0%	0	0.0%	0	0.0%	2	0.1%	16	0.0%
Under Car Specialist Cert.	3	0.1%	55	0.1%	1	0.0%	14	0.0%	0	0.0%	0	0.0%
Unmanned Aircraft Systems Apps	0	0.0%	0	0.0%	3	0.1%	21	0.1%	4	0.1%	22	0.1%
Visual Communication - Transfer	6	0.2%	79	0.2%	10	0.3%	136	0.4%	8	0.2%	106	0.3%
Visual Communications	45	1.2%	644	1.6%	40	1.1%	558	1.4%	29	0.9%	394	1.1%
Viticulture	4	0.1%	26	0.1%	7	0.2%	67	0.2%	6	0.2%	39	0.1%
Web Developer I	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Web Developer II	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Web Developer III	4	0.1%	35	0.1%	1	0.0%	10	0.0%	0	0.0%	0	0.0%
Welding Technology	1	0.0%	5	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Welding Technology	15	0.4%	201	0.5%	18	0.5%	271	0.7%	14	0.4%	168	0.5%
Welding Technology I	7	0.2%	80	0.2%	7	0.2%	70	0.2%	8	0.2%	Firs Prev Next Last 96	0.3%
Welding Technology II	4	0.1%	54	0.1%	5	0.1%	44	0.1%	2	0.1%	24	0.1%
World Languages - Transfer	5	0.1%	54	0.1%	8	0.2%	71	0.2%	8	0.2%	88	0.3%
Totals	3,726		40,076		3,581		38,571		3,278		35,167	
Percent Change					-3.9%		-3.8%		-8.5%		-8.8%	

Numbers in red indicate a decrease compared to last year at this time

The purpose of this page is to show trends in the interest students have for various Programs of Study and to show the TOTAL contact hours generated by students in this Program of Study (i.e. The contact hours are not limited to those in the Department or Subject). Total contact hour information is intended to help show the impact on the college if a program was eliminated (assuming the students the program would have attracted did not enroll in a different program at NMC).

All Programs that are or were offered within the semester range specified are displayed -- regardless of activity/registration

Programs that are no longer offered are displayed in green.

Click on the program of study to display enrollment in that program by residency, age, or sex

Digital Dashboard - Registration

How to View this Data in Excel

Appendix E

Enrollment Patterns
(5 years)

Northwestern Michigan College

Records Office

Contact Hours Generated
All Campuses

		Fall 2016 06-SEP-16	Fall 2017 05-SEP-17	Fall 2018 04-SEP-18	Fall 2019 03-SEP-19	Fall 2020 01-SEP-20	Pct Change
Aviation							
AVF	Aviation Flight	353	458	432	420	385	-8.3%
AVG	Aviation Ground	559	548	530	511	411	-19.6%
Academic Area Totals:		**912**	**1,006**	**962**	**931**	**796**	**-14.5%**
Business							
ACC	Accounting	784	779	638	610	671	10.0%
BUS	Business Administration	1,179	1,050	923	819	711	-13.2%
CIT	Computer Info Technology	1,699	1,675	1,602	1,565	1,385	-11.5%
CUL	Culinary Arts	1,907	1,723	1,314	1,192	1,166	-2.2%
MGT	Management	390	375	300	348	360	3.4%
MKT	Marketing	272	274	232	228	230	0.9%
Academic Area Totals:		**6,231**	**5,876**	**5,009**	**4,762**	**4,523**	**-5.0%**
Communications							
ANI	Anishinaabemowin	0	0	0	0	0	0.0%
ASL	American Sign Language	84	80	76	120	208	73.3%
COM	Communications	416	316	348	272	292	7.4%
ENG	English	5,719	5,751	5,462	5,196	4,377	-15.8%
ESL	English Second Language	132	132	0	0	0	0.0%
FRN	French	76	72	72	44	0	-100.0%
GRM	German	76	128	76	52	0	-100.0%
SPN	Spanish	208	220	212	152	128	-15.8%
Academic Area Totals:		**6,711**	**6,699**	**6,246**	**5,836**	**5,005**	**-14.2%**
Construction Technology							
CAR	Carpentry	217	136	154	195	254	30.3%
CMT	Construction Management	0	12	15	0	15	100.0%
EGY	Renewable Energy	75	42	0	36	12	-66.7%
ELE	Electrician	188	296	312	376	397	5.6%
HVA	Heating and Ventilation	128	92	64	106	111	4.7%
PLU	Plumbing	24	24	28	0	20	100.0%
Academic Area Totals:		**632**	**602**	**573**	**713**	**809**	**13.5%**
Health Occupations							
HAH	Allied Health	306	295	346	291	275	-5.5%
HDA	Dental Assistant	287	284	264	214	274	28.0%
HNR	Nursing	3,300	2,755	2,999	2,636	3,032	15.0%
HPD	Professional Development	10	12	10	9	11	30.2%
SRG	Surgical Technology	251	264	306	261	308	18.0%
Academic Area Totals:		**4,154**	**3,610**	**3,925**	**3,410**	**3,900**	**14.4%**
Humanities							
ART	Art	1,084	984	1,024	1,074	863	-19.6%
AUD	Audio Technology	356	233	254	264	182	-31.1%

DNC	Dance	40	32	24	24	0	-100.0%
HST	History	988	1,091	997	860	865	0.6%
HUM	Humanities	209	196	196	204	171	-16.2%
MUS	Music	500	535	582	507	290	-42.8%
PHL	Philosophy	1,132	1,067	943	952	880	-7.6%
VCA	Visual Communication Arts	436	528	588	416	388	-6.7%
Academic Area Totals:		**4,745**	**4,666**	**4,608**	**4,301**	**3,639**	**-15.4%**
Maritime							
MDK	Maritime-Deck	920	816	1,011	904	1,037	14.7%
MNG	Maritime-Engine	731	795	785	721	563	-21.9%
MNS	Naval Science	86	82	80	94	112	19.1%
Academic Area Totals:		**1,737**	**1,693**	**1,876**	**1,719**	**1,712**	**-0.4%**
Physical Education							
HF	Health and Fitness	150	86	0	0	0	0.0%
OUT	Outdoor Pursuits	12	0	0	0	0	0.0%
PE	Physical Education	40	52	0	0	0	0.0%
Academic Area Totals:		**202**	**138**	**0**	**0**	**0**	**0.0%**
Science & Math							
AST	Astronomy	350	335	355	350	245	-30.0%
BIO	Biology	2,692	2,724	2,443	2,705	2,577	-4.7%
CHM	Chemistry	920	1,063	1,021	878	843	-4.0%
EGR	Engineering	229	179	123	160	186	16.3%
ENV	Environmental Sciences	740	795	760	765	670	-12.4%
MTH	Mathematics	4,974	4,581	4,345	4,141	3,685	-11.0%
PHY	Physics	653	631	640	737	613	-16.8%
Academic Area Totals:		**10,558**	**10,308**	**9,687**	**9,736**	**8,819**	**-9.4%**
Social Science							
ANT	Anthropology	195	216	147	141	102	-27.7%
CD	Child Development	190	0	0	0	0	0.0%
CJ	Criminal Justice	324	293	300	346	243	-29.8%
ECE	Early Childhood Education	0	291	369	387	317	-18.1%
ECO	Economics	696	615	612	516	531	2.9%
EDU	Education	63	51	66	200	141	-29.5%
GEO	Geography	295	316	315	302	318	5.3%
LWE	Law Enforcement	380	405	638	338	220	-34.9%
PLS	Political Science	528	417	285	369	363	-1.6%
PSY	Psychology	2,005	1,671	1,625	1,589	1,320	-16.9%
SOC	Sociology	831	717	606	765	621	-18.8%
SWK	Social Work	108	89	86	155	109	-29.7%
Academic Area Totals:		**5,615**	**5,081**	**5,049**	**5,108**	**4,285**	**-16.1%**
Technical							
AT	Automotive Technology	736	764	599	555	531	-4.3%
DD	Drafting and Design	213	309	217	248	135	-45.6%
EET	Electrical/Electronics Tech	488	538	464	430	270	-37.2%
MFG	Manufacturing Technologies	210	200	208	144	168	16.7%
RAM	Robotics and Automation	76	168	148	152	132	-13.2%
SVR	Surveying	0	0	0	135	76	-43.7%
WPT	Welding Process Technology	573	452	312	253	175	-30.8%
Academic Area Totals:		**2,296**	**2,431**	**1,948**	**1,917**	**1,487**	**-22.4%**

Water Studies Institute							
WSI	Water Studies Institute	163	188	193	138	192	39.1%
Academic Area Totals:		**163**	**188**	**193**	**138**	**192**	**39.1%**
Report Totals:		**43,956**	**42,298**	**40,076**	**38,571**	**35,167**	**-8.8%**

Note: This report does not include enrollment from EES sections that are cross-listed with academic sections

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All Campuses

		Spring 2016 29-APR-16	Spring 2017 05-MAY-17	Spring 2018 07-MAY-18	Spring 2019 03-MAY-19	Spring 2020 01-MAY-20	Pct Change
Aviation							
AVF	Aviation Flight	367	334	433	425	322	-24.2%
AVG	Aviation Ground	468	425	545	507	472	-6.9%
Academic Area Totals:		**835**	**759**	**978**	**932**	**794**	**-14.8%**
Business							
ACC	Accounting	803	793	729	577	568	-1.6%
BUS	Business Administration	1,092	1,011	963	889	741	-16.6%
CIT	Computer Info Technology	1,550	1,578	1,592	1,660	1,457	-12.2%
CUL	Culinary Arts	1,637	1,482	1,400	1,129	1,279	13.3%
MGT	Management	384	399	267	321	351	9.3%
MKT	Marketing	162	269	277	258	205	-20.5%
Academic Area Totals:		**5,628**	**5,532**	**5,228**	**4,834**	**4,601**	**-4.8%**
Communications							
ANI	Anishinaabemowin	0	0	0	0	0	0.0%
ASL	American Sign Language	40	52	56	64	72	12.5%
COM	Communications	552	530	462	458	434	-5.2%
ENG	English	4,716	4,181	4,113	3,979	3,759	-5.5%
ESL	English Second Language	0	102	0	0	0	0.0%
FRN	French	28	57	44	12	16	33.3%
GRM	German	0	80	108	64	28	-56.3%
SPN	Spanish	344	152	144	140	108	-22.9%
Academic Area Totals:		**5,680**	**5,154**	**4,927**	**4,717**	**4,417**	**-6.4%**
Construction Technology							
CAR	Carpentry	172	160	112	116	120	3.4%
CMT	Construction Management	60	96	28	80	72	-10.0%
EGY	Renewable Energy	38	0	6	21	0	-100.0%
ELE	Electrician	227	200	248	292	333	14.0%
HVA	Heating and Ventilation	150	160	43	100	118	18.0%
PLU	Plumbing	24	0	0	24	0	-100.0%
Academic Area Totals:		**671**	**616**	**437**	**633**	**643**	**1.6%**
Health Occupations							
HAH	Allied Health	202	170	166	180	194	7.8%
HDA	Dental Assistant	461	380	420	344	288	-16.3%
HNR	Nursing	3,325	3,162	2,694	2,888	2,874	-0.5%
HPD	Professional Development	7	5	5	6	6	0.0%
SRG	Surgical Technology	96	270	117	116	104	-10.0%
Academic Area Totals:		**4,090**	**3,987**	**3,403**	**3,534**	**3,466**	**-1.9%**
Humanities							

ART	Art	1,094	961	1,039	1,120	971	-13.3%
AUD	Audio Technology	266	171	177	208	248	19.2%
DNC	Dance	64	28	56	60	68	13.3%
HST	History	1,166	1,056	917	954	688	-27.9%
HUM	Humanities	248	212	243	233	224	-3.9%
MUS	Music	448	471	485	478	404	-15.5%
PHL	Philosophy	911	1,155	1,104	1,015	1,024	0.9%
VCA	Visual Communication Arts	496	505	540	567	500	-11.8%
Academic Area Totals:		**4,693**	**4,559**	**4,561**	**4,635**	**4,127**	**-11.0%**
Maritime							
MDK	Maritime-Deck	1,117	1,099	1,100	1,129	1,106	-2.0%
MNG	Maritime-Engine	545	566	620	567	534	-5.9%
MNS	Naval Science	52	62	54	44	52	18.2%
Academic Area Totals:		**1,714**	**1,727**	**1,774**	**1,740**	**1,692**	**-2.8%**
Physical Education							
HF	Health and Fitness	192	136	56	0	0	0.0%
OUT	Outdoor Pursuits	0	0	0	0	0	0.0%
PE	Physical Education	44	52	42	0	0	0.0%
Academic Area Totals:		**236**	**188**	**98**	**0**	**0**	**0.0%**
Science & Math							
AST	Astronomy	351	355	315	345	0	-100.0%
BIO	Biology	2,389	2,333	2,248	2,335	2,531	8.4%
CHM	Chemistry	1,136	1,011	841	877	853	-2.7%
EGR	Engineering	144	176	86	148	120	-18.9%
ENV	Environmental Sciences	847	840	841	823	840	2.1%
MTH	Mathematics	4,267	3,733	3,437	2,969	3,189	7.4%
PHY	Physics	487	435	444	409	548	34.0%
Academic Area Totals:		**9,621**	**8,883**	**8,212**	**7,906**	**8,081**	**2.2%**
Social Science							
ANT	Anthropology	218	204	138	132	132	0.0%
CD	Child Development	247	236	0	0	0	0.0%
CJ	Criminal Justice	301	292	316	304	298	-2.0%
ECE	Early Childhood Education	0	0	240	455	287	-36.9%
ECO	Economics	780	699	645	561	642	14.4%
EDU	Education	46	57	81	191	182	-4.7%
GEO	Geography	321	292	301	366	306	-16.4%
LWE	Law Enforcement	329	399	425	628	330	-47.5%
PLS	Political Science	429	477	373	426	375	-12.0%
PSY	Psychology	1,848	1,350	1,542	1,351	1,315	-2.7%
SOC	Sociology	922	951	783	684	744	8.8%
SWK	Social Work	162	180	126	126	243	92.9%
Academic Area Totals:		**5,603**	**5,137**	**4,970**	**5,224**	**4,854**	**-7.1%**
Technical							
AT	Automotive Technology	604	681	753	636	525	-17.5%
DD	Drafting and Design	154	286	261	210	187	-11.0%
EET	Electrical/Electronics Tech	513	341	480	355	429	20.8%
MFG	Manufacturing Technologies	295	283	298	145	219	51.0%
RAM	Robotics and Automation	80	64	136	140	120	-14.3%
SVR	Surveying	0	0	0	0	108	100.0%

WPT	Welding Process Technology	440	541	293	305	220	-27.9%
Academic Area Totals:		**2,086**	**2,196**	**2,221**	**1,791**	**1,808**	**0.9%**
Water Studies Institute							
WSI	Water Studies Institute	143	162	185	150	126	-16.0%
Academic Area Totals:		**143**	**162**	**185**	**150**	**126**	**-16.0%**
Report Totals:		**41,000**	**38,900**	**36,993**	**36,096**	**34,608**	**-4.1%**

Note: This report does not include enrollment from EES sections that are cross-listed with academic sections

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Northwestern Michigan College

Records Office

Contact Hours Generated
All Campuses

		Summer 2016 05-AUG-16	Summer 2017 11-AUG-17	Summer 2018 10-AUG-18	Summer 2019 09-AUG-19	Summer 2020 07-AUG-20	Pct Change
Aviation							
AVF	Aviation Flight	218	221	406	294	211	-28.2%
AVG	Aviation Ground	96	128	271	183	153	-16.4%
Academic Area Totals:		**314**	**349**	**677**	**477**	**364**	**-23.7%**
Business							
ACC	Accounting	68	164	120	158	186	17.7%
BUS	Business Administration	111	99	66	78	144	84.6%
CIT	Computer Info Technology	238	221	220	142	227	59.9%
CUL	Culinary Arts	60	60	80	56	54	-3.6%
MGT	Management	69	78	81	75	102	36.0%
MKT	Marketing	72	87	51	60	105	75.0%
Academic Area Totals:		**618**	**709**	**618**	**569**	**818**	**43.8%**
Communications							
COM	Communications	152	128	124	84	72	-14.3%
ENG	English	470	517	586	578	491	-15.1%
ESL	English Second Language	6	0	0	0	0	0.0%
SPN	Spanish	47	0	15	0	0	0.0%
Academic Area Totals:		**675**	**645**	**725**	**662**	**563**	**-15.0%**
Construction Technology							
CAR	Carpentry	0	0	0	0	0	0.0%
EGY	Renewable Energy	20	0	0	0	0	0.0%
ELE	Electrician	24	0	0	0	0	0.0%
Academic Area Totals:		**44**	**0**	**0**	**0**	**0**	**0.0%**
Health Occupations							
HAH	Allied Health	0	0	0	0	48	100.0%
HDA	Dental Assistant	140	114	119	97	78	-19.6%
HNR	Nursing	0	0	0	0	0	0.0%
SRG	Surgical Technology	128	130	148	126	53	-58.3%
Academic Area Totals:		**268**	**244**	**267**	**223**	**179**	**-20.0%**
Humanities							
ART	Art	230	227	206	204	230	12.7%
AUD	Audio Technology	0	0	0	0	0	0.0%
HST	History	259	291	247	260	290	11.5%
HUM	Humanities	3	0	0	0	0	0.0%
MUS	Music	67	60	70	57	33	-42.1%
PHL	Philosophy	351	420	335	251	274	9.2%
VCA	Visual Communication Arts	0	0	0	0	0	0.0%
Academic Area Totals:		**910**	**998**	**858**	**772**	**827**	**7.1%**

Maritime							
MDK	Maritime-Deck	432	288	414	306	204	-33.3%
MNG	Maritime-Engine	177	192	168	216	111	-48.6%
Academic Area Totals:		**609**	**480**	**582**	**522**	**315**	**-39.7%**
Physical Education							
HF	Health and Fitness	12	11	10	0	0	0.0%
OUT	Outdoor Pursuits	12	0	0	0	0	0.0%
PE	Physical Education	0	2	0	0	0	0.0%
Academic Area Totals:		**24**	**13**	**10**	**0**	**0**	**0.0%**
Science & Math							
AST	Astronomy	32	28	22	18	0	-100.0%
BIO	Biology	557	481	606	576	652	13.2%
CHM	Chemistry	284	305	0	150	282	88.0%
ENV	Environmental Sciences	92	87	101	65	100	53.8%
MTH	Mathematics	736	821	553	566	402	-29.0%
PHY	Physics	95	75	65	55	105	90.9%
Academic Area Totals:		**1,796**	**1,797**	**1,347**	**1,430**	**1,541**	**7.8%**
Social Science							
ANT	Anthropology	126	96	78	57	78	36.8%
CD	Child Development	7	6	0	0	0	0.0%
ECE	Early Childhood Education	0	0	47	105	19	-81.9%
ECO	Economics	228	222	180	213	222	4.2%
GEO	Geography	0	0	0	0	116	100.0%
LWE	Law Enforcement	8	0	12	4	0	-100.0%
PLS	Political Science	120	87	78	21	75	257.1%
PSY	Psychology	162	192	153	189	228	20.6%
SOC	Sociology	117	138	90	165	138	-16.4%
SWK	Social Work	18	48	27	27	3	-88.9%
Academic Area Totals:		**786**	**789**	**665**	**781**	**879**	**12.5%**
Technical							
AT	Automotive Technology	0	0	0	0	0	0.0%
DD	Drafting and Design	0	0	0	3	3	0.0%
EET	Electrical/Electronics Tech	6	6	25	34	3	-91.2%
MFG	Manufacturing Technologies	0	3	10	7	0	-100.0%
WPT	Welding Process Technology	39	72	52	44	0	-100.0%
Academic Area Totals:		**45**	**81**	**87**	**88**	**6**	**-93.2%**
Water Studies Institute							
WSI	Water Studies Institute	82	50	241	137	141	2.9%
Academic Area Totals:		**82**	**50**	**241**	**137**	**141**	**2.9%**
Report Totals:		**6,171**	**6,155**	**6,077**	**5,661**	**5,633**	**-0.5%**

Note: This report does not include enrollment from EES sections that are cross-listed with academic sections

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Appendix F

Faculty/Staff Headcount History

NORTHWESTERN MICHIGAN COLLEGE
FACULTY AND STAFF HEADCOUNT HISTORY

(Headcount as of October 1)

CATEGORY	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Faculty	**82**	**86**	**88**	**90**	**95**	**96**	**92**	**92**	**98**	**89**	**93**	**90**	**91**	**92**	**94**	**92**	**94**	**90**	**88**	**87**
Full time	79	84	**85**	**88**	93	93	88	88	90	81	87	84	85	88	91	88	90	88	88	87
Part time	3	2	**3**	**2**	2	3	4	4	8	8	6	6	6	4	3	4	4	2	0	0
FTE		85.22	87.22	89.48	94.48	95.04	89.50	89.36	92.20	84.09	89.00	86.17	88.14	89.54	92.04	89.42	91.80	89.00	88.00	87.00
Administrative	**37**	**36**	**35**	**36**	**37**	**37**	**37**	**36**	**35**	**29**	**28**	**26**	**27**	**23**	**22**	**20**	**22**	**21**	**20**	**21**
Full time	36	35	**34**	35	36	36	36	35	34	29	28	26	27	23	22	20	22	21	20	21
Part time	1	1	**1**	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
FTE		35.5	34.5	35.50	36.50	36.23	36.33	35.33	34.21	28.33	28.00	26.00	27.00	23.00	22.00	20.00	22.00	21.00	20.00	
Professional Staff	**171**	**75**	**89**	**91**	**89**	**86**	**81**	**74**	**80**	**77**	**74**	**66**	**63**	**62**	**56**	**56**	**60**	**57**	**51**	**53**
Full time	168	72	**84**	**87**	84	80	76	70	76	75	73	65	62	59	53	54	55	55	49	51
Part time	1	3	**5**	**4**	5	6	5	4	4	2	1	1	1	3	0	2	5	2	2	2
FTE		73.65	87.27	89.9375	86.15	84.35	79.375	71.375	77.4	75.30	73.33	65.49	62.56	61.29	54.79	55.02	58.53	56.47	50.47	
Paraprofessional/Technical		**40**	**38**	**43**	**45**	**44**	**46**	**47**	**50**	**40**	**46**	**50**	**49**	**48**	**46**	**44**	**43**	**44**	**40**	**40**
Full time		40	**38**	42	44	43	45	46	48	38	44	48	47	46	44	41	40	42	38	36
Part time		0	**0**	1	1	1	1	1	2	2	2	2	2	2	2	3	3	2	2	4
FTE		39.25	38.75	42.20	44.50	43.50	44.8	46.5	49.25	38.45	45.25	49	48.00	47.00	45.00	43.00	42.46	43.25	39.50	
Support Staff		**19**	**19**	**20**	**20**	**18**	**19**	**18**	**21**	**23**	**28**	**24**	**25**	**25**	**27**	**32**	**36**	**37**	**38**	**39**
Full time		17	**18**	**19**	19	17	18	17	18	20	25	21	21	22	25	27	29	31	32	34
Part time		2	**1**	**1**	1	1	1	1	3	3	3	3	4	3	2	5	7	6	6	5
FTE		18.87	19	20.00	19.44	17.36	18.74	17.87	20.96	24.37	27.77	22.90	23.57	24.09	26.42	29.74	33.78	34.78	35.82	
Maintenance/Custodial	**32**	**31**	**31**	**31**	**31**	**35**	**38**	**38**	**40**	**39**	**40**	**37**	**40**	**36**	**36**	**37**	**36**	**35**	**30**	**29**
Full time	32	31	**31**	**31**	31	35	38	38	40	39	40	37	40	36	36	37	36	35	30	29
Part time	0	0	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FTE		30.5	30	31	31	35	38	38	40	39.20	39.69	36.52	40.00	36.00	36.00	37.00	36.00	35.00	30.00	
Total Regular Employees	**322**	**287**	**300**	**311**	**317**	**316**	**313**	**305**	**324**	**297**	**309**	**293**	**295**	**286**	**281**	**281**	**291**	**284**	**267**	**269**
Full time	315	279	**290**	**302**	307	304	301	294	306	282	297	281	282	274	271	267	272	272	257	258
Part time	7	8	**10**	**9**	10	12	12	11	18	15	12	12	13	12	10	14	19	12	10	11
FTE		282.99	296.74	308.119	312.069	311.4752	306.7427	298.4388	315.0166	289.74	303.04	286.07	289.27	280.92	276.25	274.18	284.57	279.50	263.79	
Adjunct Faculty	**168**	**140**	**170**	**177**	**178**	**191**	**192**	**209**	**212**	**224**	**206**	**191**	**179**	**179**	**168**	**167**	**178**	**163**	**154**	**153**
FTE		61.78	64.94	65.61	67.49	71.17	81.73	85.77	89.03	104.60	96.14	91.90	85.60	82.15	72.37	75.46	83.55	72.58	63.24	61.91
Student Employees	**106**	**83**	**106**	**93**	**108**	**102**	**99**	**121**	**124**	**120**	**130**	**110**	**119**	**112**	**115**	**122**	**119**	**110**	**102**	**104**
FTE		31.61	33.14	30.82	34.3964	34.1155	34.7033	40.828	43.5187	42.1513	46.48	40.15	43.10	43.04	43.41	42.29	39.84	38.97	35.27	
Supplemental Employees	**189**	**139**	**135**	**127**	**132**	**133**	**129**	**126**	**121**	**114**	**97**	**77**	**78**	**65**	**70**	**73**	**75**	**77**	**69**	**76**
FTE		68.15	68.56	65.5827	62.5457	71.2025	64.8693	65.033	66.0712	62.578	51.68	45.63	38.46	34.21	30.01	31.77	31.73	38.01	33.99	
Report total	**785**	**649**	**711**	**708**	**735**	**742**	**733**	**761**	**781**	**755**	**742**	**671**	**671**	**642**	**634**	**643**	**663**	**634**	**592**	**602**
FTE		444.53	463.38	470.13	476.5	487.96	488.04	490.0686	522.64	499.07	497.34	463.75	456.43	440.32	422.04	423.70	439.69	429.06	396.29	
Fall Student Headcount		3,714	3,935	4,167	4,268	4,542	4,727	4,847	5,168	5,440	5,068	4,564	4,507	4,393	4,382	4,423	4,358	4,341	4,173	4,075
Fall Contact Hours		39,854	**42,059**	43,398	45,821	48,721	51,199	56,613	56,613	60,916	55,907	50,645	50,784	49,143	48,803	48,609	46,466	44,968	42,822	41,086

Appendix G

Class Size & Projected Class Size Needs - Course Efficiency Report

Northwestern Michigan College – Course Efficiency Report

(Note: Highlighted cells exceed 90% goal)

Fall 2014	Available Seats	Avg. Max	Count Day Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	234	23.40	159	10	15.90	67.95
Business	2,124	23.60	1920	90	21.30	90.40
Communications	1,924	20.91	1873	92	20.40	97.35
Construction Tech	224	14.93	147	15	9.80	65.63
Health Occupations	841	16.17	795	52	15.30	94.53
Humanities	1,483	20.04	1416	74	19.10	95.48
Maritime	769	21.97	662	35	18.90	86.09
Physical Education	482	25.37	200	19	10.50	41.49
Science/Math	4,774	26.09	4106	183	22.40	86.01
Social Science	2,176	29.81	1988	73	27.20	91.36
Technical	437	16.81	356	26	13.70	81.46
Water Studies	25	25.00	21	1	21.00	84.00
TOTALS	15,493	23.12	13,643	670	20.36	88.06

Spring 2015	Available Seats	Avg. Max	Count Day Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	204	22.67	153	9	17.00	75.00
Business	2080	23.37	1755	89	19.72	84.38
Communications	1725	20.78	1546	83	18.63	89.62
Construction Tech	298	14.19	165	21	7.86	55.37
Health Occupations	918	15.56	830	59	14.07	90.41
Humanities	1408	20.71	1383	68	20.34	98.22
Maritime	789	20.76	650	38	17.11	82.38
Physical Education	484	25.47	207	19	10.89	42.77
Science/Math	4157	25.98	3557	160	22.23	85.57
Social Science	2226	28.91	1925	77	25.00	86.48
Technical	553	16.26	390	34	11.47	70.52
Water Studies	83	20.75	39	4	9.75	46.99
TOTALS	14925	22.58	12600	661	19.06	84.42

Fall 2015	Available Seats	Avg. Max	Count Day Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	208	23.11	148	9	16.4	71.15
Business	2,112	23.73	1728	89	19.4	81.82
Communications	1,938	19.98	1806	97	18.6	93.19
Construction Tech	362	15.08	165	24	6.9	45.58
Health Occupations	944	14.3	904	66	13.7	95.76
Humanities	1,565	19.56	1523	80	19	97.32
Maritime	821	20.02	694	41	16.9	84.53
Physical Education	528	22.96	166	23	7.2	31.44
Science/Math	4,405	25.46	3913	173	22.6	88.83
Social Science	2,155	29.52	1850	73	25.3	85.85
Technical	655	14.24	443	46	9.6	67.63
Water Studies	43	21.5	31	2	15.5	72.09
TOTALS	15,736	21.76	13,371	723	18.49	84.97

Spring 2016	Available Seats	Avg. Max	Count Day Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	204	22.67	122	9	13.56	59.80
Business	1924	23.75	1522	81	18.79	79.11
Communications	1672	20.64	1455	81	17.96	87.02
Construction Tech	309	14.05	192	22	8.73	62.14
Health Occupations	971	15.17	899	64	14.05	92.58
Humanities	1385	20.07	1270	69	18.41	91.70
Maritime	807	21.81	652	37	17.62	80.79
Physical Education	331	15.76	143	21	6.81	43.20
Science/Math	3531	25.96	3082	136	22.66	87.28
Social Science	2226	28.91	1739	77	22.58	78.12
Technical	487	16.79	363	29	12.52	74.54
Water Studies	81	20.25	39	4	9.75	48.15
TOTALS	13928	22.11	11478	630	18.22	82.41

Fall 2016	Available Seats	Avg. Max	Count Day Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	232	23.20	142	10	14.20	61.21
Business	1,923	23.45	1622	82	19.78	84.35
Communications	1,829	20.10	1711	91	18.80	93.55
Construction Tech	277	15.39	171	18	9.50	61.73
Health Occupations	1006	14.17	925	71	13.03	91.95
Humanities	1,556	19.70	1367	79	17.30	87.85
Maritime	852	21.30	690	40	17.25	80.99
Physical Education	398	24.88	97	16	6.06	24.37
Science/Math	3,907	25.37	3367	154	21.86	86.18
Social Science	2,101	29.59	1820	71	25.63	86.63
Technical	606	15.15	520	40	13.00	85.81
Water Studies	76	19.00	49	4	12.25	64.47
TOTALS	14,763	21.84	12,481	676	18.46	84.54

Spring 2017	Available Seats	Avg. Max	End of Sem Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	180	22.50	112	8	14.00	62.22
Business	1931	23.84	1494	81	18.44	77.37
Communications	1590	20.38	1371	78	17.58	86.23
Construction Tech	244	13.56	172	18	9.56	70.49
Health Occupations	947	15.52	814	61	13.34	85.96
Humanities	1554	21.00	1281	74	17.31	82.43
Maritime	867	21.68	661	40	16.53	76.24
Physical Education	327	15.57	107	21	5.10	32.72
Science/Math	3317	25.71	2907	129	22.53	87.64
Social Science	2141	28.55	1635	75	21.80	76.37
Technical	476	16.41	367	29	12.66	77.10
Water Studies	106	21.20	44	5	8.80	41.51
TOTALS	13680	22.10	10965	619	17.71	80.15

Fall 2017	Available Seats	Avg. Max	Count Day Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	262	23.82	147	11	13.36	56.11
Business	1,797	23.96	1498	75	19.97	83.36
Communications	1,944	18.87	1873	103	18.18	96.35
Construction Tech	264	14.67	165	18	9.17	62.50
Health Occupations	1022	13.81	843	74	11.39	82.49
Humanities	1,626	20.85	1372	78	17.59	84.38
Maritime	846	20.14	669	42	15.93	79.08
Physical Education	378	25.20	77	15	5.13	20.37
Science/Math	3,666	25.11	3350	146	22.95	91.38
Social Science	1,997	29.37	1657	68	24.37	82.97
Technical	680	16.19	498	42	11.86	73.24
Water Studies	82	20.50	53	4	13.25	64.63
TOTALS	14,564	21.54	12,202	676	18.05	83.78

Spring 2018	Available Seats	Avg. Max	End of Sem Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	191	23.88	148	8	18.50	77.49
Business	1692	21.97	1353	77	17.57	79.96
Communications	1502	20.30	1321	74	17.85	87.95
Construction Tech	179	14.92	125	12	10.42	69.83
Health Occupations	938	16.46	730	57	12.81	77.83
Humanities	1599	20.50	1278	78	16.38	79.92
Maritime	849	21.23	735	40	18.38	86.57
Physical Education	176	22.00	64	8	8.00	36.36
Science/Math	3091	24.93	2661	124	21.46	86.09
Social Science	2028	28.56	1594	71	22.45	78.60
Technical	587	16.31	406	36	11.28	69.17
Water Studies	86	21.50	48	4	12.00	55.81
TOTALS	12918	21.93	10463	589	17.76	81.00

Fall 2018	Available Seats	Avg. Max	Count Day Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	211	23.44	145	9	16.11	68.72
Business	1,680	24.00	1288	70	18.40	76.67
Communications	1,904	19.04	1788	100	17.88	93.91
Construction Tech	209	14.93	149	14	10.64	71.29
Health Occupations	1029	14.29	897	72	12.46	87.17
Humanities	1,664	20.80	1353	80	16.91	81.31
Maritime	892	20.74	725	43	16.86	81.28
Physical Education	No Courses Offered					
Science/Math	3,496	24.62	3092	142	21.77	88.44
Social Science	1,874	28.83	1619	65	24.91	86.39
Technical	520	15.29	397	34	11.68	76.35
Water Studies	78	19.50	55	4	13.75	70.51
TOTALS	13,557	21.42	11,508	633	18.18	84.89

Spring 2019	Available Seats	Avg. Max	End of Sem Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	250	25.00	144	10	14.40	57.60
Business	1586	23.67	1251	67	18.67	78.88
Communications	1541	19.76	1313	78	16.83	85.20
Construction Tech	229	14.31	161	16	10.06	70.31
Health Occupations	947	15.78	757	60	12.62	79.94
Humanities	1565	20.59	1305	76	17.17	83.39
Maritime	822	20.55	710	40	17.75	86.37
Science/Math	3068	24.54	2521	125	20.17	82.17
Social Science	1955	27.54	1590	71	22.39	81.33
Technical	488	16.27	374	30	12.47	76.64
Water Studies	90	22.50	38	4	9.50	42.22
TOTALS	12541	21.73	10164	577	17.62	81.05

Fall 2019	Available Seats	Avg. Max	Count Day Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	316	26.33	137	12	11.42	43.35
Business	1,589	23.72	1235	67	18.43	77.72
Communications	1,851	19.48	1631	95	17.17	88.11
Construction Tech	314	14.27	217	22	9.86	69.11
Health Occupations	1069	15.27	862	70	12.31	80.64
Humanities	1,602	20.03	1290	80	16.13	80.52
Maritime	886	20.60	690	43	16.05	77.88
Science/Math	3,562	24.07	3105	148	20.98	87.17
Social Science	2,011	28.32	1647	71	23.20	81.90
Technical	457	16.93	354	27	13.11	77.46
Water Studies	78	19.50	39	4	9.75	50.00
TOTALS	13,735	21.49	11,207	639	17.54	81.59

Spring 2020	Available Seats	Avg. Max	End of Sem Enrollment	# of Sections	Avg. Students per Section	% Full
Aviation	222	22.20	135	10	13.50	60.81
Business	1643	23.14	1181	71	16.63	71.88
Communications	1468	19.84	1209	74	16.34	82.36
Construction Tech	249	13.83	163	18	9.06	65.46
Health Occupations	1015	17.50	753	58	12.98	74.19
Humanities	1462	20.89	1177	70	16.81	80.51
Maritime	827	20.68	679	40	16.98	82.10
Science/Math	3147	24.02	2548	131	19.45	80.97
Social Science	1894	27.06	1491	70	21.30	78.72
Technical	543	16.45	380	33	11.52	69.98
Water Studies	86	21.50	34	4	8.50	39.53
TOTALS	12556	21.69	9750	579	16.84	77.65

Section IV
Facility Assessment

Appendix H

Summary description of each facility

(net to gross ratios)

SCHEDULE OF BUILDINGS & CONTENTS

(Period: 7/1/2020 through 7/1/2021)

Northwestern Michigan College

Last Year Totals:	Buildings	$ 204,263,700	Contents	$ 18,675,080	Building + Contents	$ 222,938,780	
Current Year Totals:	Buidings	$ 222,864,200	Contents	$ 19,610,766	Building + Contents	$ 242,474,966	

Location#	Location Description	Last Year Building Value	Last Year Contents	Last Year Total Value	Last Year Square Ft	New Building Value	New Contents Value	New Total Value	New Square Ft	Leased (Mark "X")
1	Tanis/Beiderman/ISTLC	31,506,900	734,388	32,241,288	105,519	33,082,400	1,668,797	34,751,197	105,519	
2	Apartments A	1,846,200	-	1,846,200	12,399	1,938,600	-	1,938,600	12,399	
2B	Apartment B	1,846,200	-	1,846,200	12,399	1,938,600	-	1,938,600	12,399	
2C	Apartment C	1,846,200	-	1,846,200	12,399	1,938,600	-	1,938,600	12,399	
3	Appel Biology	157,800	2,996	160,796	1,160	165,500	-	165,500	1,160	
5	Aviation	2,481,100	1,428,465	3,909,565	20,912	2,605,200	810,502	3,415,702	20,912	
6	Founders Hall	1,212,000	51,016	1,263,016	4,950	1,273,500	56,288	1,329,788	4,950	
7	East Residence Hall	12,382,100	798,958	13,181,058	52,288	13,001,500	1,800,593	14,802,093	52,288	
8	Fine Arts Building	4,997,000	535,709	5,532,709	18,800	5,246,900	116,196	5,363,096	18,800	
10	Osterlin Library	12,470,500	5,416,715	17,887,215	46,734	13,094,200	3,447,033	16,541,233	46,734	
13	Museum - Auditorium	17,876,700	427,443	18,304,143	39,000	18,770,700	266,836	19,037,536	55,085	
14	Observatory	418,300	72,744	491,044	1,624	439,300	67,454	506,754	1,624	
15	Oleson Center	2,597,300	281,797	2,879,097	10,398	2,727,200	63,723	2,790,923	10,398	
16	Physical Education	5,809,800	226,927	6,036,727	25,674	6,100,500	71,224	6,171,724	25,674	
17	Powerhouse	2,192,200	26,506	2,218,706	3,580	2,301,900	15,149	2,317,049	3,580	
18	Scholars Hall	15,983,800	562,169	16,545,969	62,812	16,782,800	27,188	16,809,988	62,812	
19	West Hall Innovation Center	9,884,600	863,663	10,748,263	35,800	18,762,600	2,819,514	21,582,114	66,304	
20	University Center Campus	13,952,400	145,594	14,097,994	59,460	14,649,800	332,338	14,982,138	59,460	
22	Utility Tunnels	1,981,700	91,762	2,073,462	6,925	2,080,800	-	2,080,800	6,925	
23	Eastern Avenue Apartment Storage	59,400	143,653	203,053	1,344	62,300	-	62,300	1,344	
26	Beckett	8,440,700	775,797	9,216,497	34,269	8,862,900	433,544	9,296,444	34,269	
45	Parsen - Stullen M-TEC	15,826,000	1,246,516	17,072,516	65,000	16,617,400	2,212,833	18,830,233	65,000	
46	Maintenance	1,053,000	761,831	1,814,831	11,900	1,106,700	559,824	1,666,524	11,900	
47	Landscape Bin	31,600	-	31,600	675	33,200	-	33,200	675	
48	Automotive Service Tech	3,382,500	526,243	3,908,743	18,328	3,551,700	242,583	3,794,283	18,328	
49	Great Lakes Campus	22,689,300	1,943,142	24,632,442	75,364	23,824,000	2,992,188	26,816,188	75,364	
50	Aero Park Lab	4,268,700	1,276,623	5,545,323	29,600	4,482,200	1,530,290	6,012,490	29,600	
51	North Hall	7,069,700	334,423	7,404,123	46,730	7,423,200	76,670	7,499,870	46,730	
	Totals:	$ 204,263,700	$ 18,675,080	$ 222,938,780	816,043	$ 222,864,200	$ 19,610,766	$ 242,474,966	862,632	

Included in contents grand total***

Miscellaneous Items Throughout Campus	Last Year Value	This Year Value	
Monitoring Equipment (Mtec)	24,900	24,900	College Value
Cell Demo System (Mtec)	6,976	6,976	College Value
BioDiesel Project (Mtec)	5,397	5,397	College Value
Solar Thermal System (Mtec)	58,646	58,646	College Value
Solar PV (Mtec)	57,274	57,274	College Value
Wind Power Generator (U.C.)	68,568	68,568	College Value
Outdoor Equipment	5,592	5,592	College Value
Communications Equipment	90,000	90,000	College Value
Safety/CPR/First Aid Equipment	24,200	24,200	College Value
Books and Multi-media Material	18,571	18,571	College Value
Machinery & Tools	12,852	12,852	College Value
Totals:	$ 372,976	$ 372,976	

Appendix I

Building and/or Classroom Utilization Rates

Location Utilization Summary

Based on events from 12:00 A.M. to 11:30 P.M., between Aug 15 2019 and May 15 2020. There are 6,462.50 total hours in the report period, (K).

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
AL - ENTIRE SHOP (NO SPACES)	536			No events found						
AL 101	16		0.00	6,462.50	405.00	900.00	6.27%	14.29%	0.87%	0.05%
AL 102	24		0.00	6,462.50	464.17	2,355.83	7.18%	26.85%	1.52%	0.11%
AL 103	13			No events found						
AL 106	16			No events found						
AL 110A	16		0.00	6,462.50	300.00	1,980.00	4.64%	41.25%	1.91%	0.09%
AL 110B	20		0.00	6,462.50	465.00	3,210.00	7.2%	35.62%	2.48%	0.18%
AL 118	20		0.00	6,462.50	165.00	60.00	2.55%	1.67%	0.05%	0%
AL 122	20			No events found						
AL A	20		0.00	6,462.50	533.83	4,050.50	8.26%	39.17%	3.13%	0.26%
AL A/B	40			No events found						
AL A/B/C	60			No events found						
AL A/B/C/D	80			No events found						
AL B	20			No events found						
AL B/C	40			No events found						
AL B/C/D	60			No events found						
AL BLDG (NO SPACES)	0			No events found						
AL C	20			No events found						
AL C/D	40			No events found						
AL D	20			No events found						
AL E	20			No events found						
AL E/F	40			No events found						
AL E/F/G	60			No events found						
AL E/F/G/H	80			No events found						
AL F	20			No events found						
AL F/G	40			No events found						
AL F/G/H	60			No events found						
AL G SD 15	20			No events found						
AL G/H	40			No events found						
AL H SD 15	20			No events found						
AL I	20			No events found						
AL I/J	40			No events found						

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
AL J	20			No events found						
AL K	20			No events found						
AL L	24			No events found						
APPEL	45			No events found						
ARR ROOM	999		0.00	6,462.50	1,123.15	20,181.25	17.38%	0.48%	0.31%	0.05%
AT 100	18		0.00	6,462.50	349.00	4,650.00	5.4%	75.93%	4%	0.22%
AT 102	18			No events found						
AT 104	18			No events found						
AT 108	18		0.00	6,462.50	679.00	3,790.00	10.51%	23.81%	3.26%	0.34%
AT 111	18		0.00	6,462.50	420.00	150.00	6.5%	5.56%	0.13%	0.01%
AT BLDG (NO SPACES)	0			No events found						
BFC GYM	500			No events found						
BIK STUDIO	50			No events found						
CC POOL	500			No events found						
CITY OPERA HOUSE	0			No events found						
CTC BLDG	999			No events found						
DMC 101	30		0.00	6,462.50	279.33	1,086.00	4.32%	7.89%	0.56%	0.02%
DMC BINSFELD GALLERY	50			No events found						
DMC CONFERENCE ROOM	12			No events found						
DMC DISCOVERY GALLERY	100			No events found						
DMC DUTMERS THEATER	34			No events found						
DMC GALLERIES	250			No events found						
DMC INUIT GALLERY	50			No events found						
DMC JANIS ROOM	75			No events found						
DMC MACFARLANE GALLERY	200			No events found						
DMC MILLIKEN	400		0.00	6,462.50	181.50	480.00	2.81%	0.29%	0.02%	0%
DMC MUSEUM CENTER	500			No events found						
DMC PARKING LOT	999			No events found						
DMC SCHMUCKAL GALLERY	150			No events found						
DMC SCULPTURE COURT	300			No events found						
ED SERVICES RECEPTION AREA T 55	0			No events found						
F - MUSIC WING	0			No events found						
F 102	49		0.00	6,462.50	208.08	1,254.00	3.22%	12.24%	0.4%	0.01%
F 103	10		165.50	6,297.00	250.25	788.33	3.97%	31.11%	1.25%	0.05%

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
F 104	4			No events found						
F 105	30		0.00	6,462.50	166.83	642.58	2.58%	12.67%	0.33%	0.01%
F 107/108 - RECORDING STUDIO	3			No events found						
F 109/110 - MUSIC PRACTICE ROOMS	2			No events found						
F 115	84		0.00	6,462.50	554.50	5,949.00	8.58%	3.46%	1.1%	0.09%
F 115 STEINWAY PIANO	0			No events found						
F 120	18		165.50	6,297.00	545.50	3,870.00	8.66%	23.7%	3.41%	0.3%
F 126	0			No events found						
F 130	20		0.00	6,462.50	544.00	3,670.00	8.42%	21.43%	2.84%	0.24%
F 132	50		0.00	6,462.50	120.00	660.00	1.86%	5.5%	0.2%	0%
F 135	18		0.00	6,462.50	242.00	1,530.00	3.74%	19.84%	1.32%	0.05%
F 137 - KILN ROOM	0			No events found						
F BLDG (NO SPACES)	0			No events found						
F CENTER LOBBY	0			No events found						
F NORTH LOBBY	0			No events found						
F SOUTH LOBBY	0			No events found						
FFY GYM	50			No events found						
FH (NO SPACES)	0			No events found						
FH 109	10			No events found						
FH 110	50			No events found						
GL 100	24		0.00	6,462.50	201.00	1,485.00	3.11%	42.71%	0.96%	0.03%
GL 101	40		0.00	6,462.50	441.50	7,767.17	6.83%	36.47%	3%	0.21%
GL 102	10		0.00	6,462.50	240.00	1,320.00	3.71%	56%	2.04%	0.08%
GL 103	24		0.00	6,462.50	476.15	2,864.73	7.37%	30.56%	1.85%	0.14%
GL 108	24			No events found						
GL 110	24			No events found						
GL 111	32		0.00	6,462.50	834.67	8,011.67	12.92%	37.35%	3.87%	0.5%
GL 112	40		0.00	6,462.50	522.67	6,562.00	8.09%	31.67%	2.54%	0.21%
GL 114	12		0.00	6,462.50	60.00	720.00	0.93%	100%	0.93%	0.01%
GL 200-205 RADAR LABS	2			No events found						
GL 207	12		0.00	6,462.50	225.00	945.00	3.48%	35%	1.22%	0.04%
GL 210	24		0.00	6,462.50	121.50	2,007.00	1.88%	54.17%	1.29%	0.02%
GL 211	40		0.00	6,462.50	412.83	3,674.50	6.39%	21%	1.42%	0.09%
GL 214 - DO NOT BOOK	12		0.00	6,462.50	35.00	245.00	0.54%	58.33%	0.32%	0%

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
GL 215 - STUDENT ENCLAVE & GALLEY SD 12	16			No events found						
GL 222	36		0.00	6,462.50	737.92	6,514.75	11.42%	27.42%	2.8%	0.32%
GL 231	12			No events found						
GL 251	24		0.00	6,462.50	353.00	2,035.50	5.46%	31.6%	1.31%	0.07%
GL 252	21		0.00	6,462.50	555.98	4,937.75	8.6%	42.06%	3.64%	0.31%
GL 254	27		0.00	6,462.50	601.50	2,922.00	9.31%	19.75%	1.67%	0.16%
GL 256	25			No events found						
GL 257	12		0.00	6,462.50	150.98	676.32	2.34%	45.83%	0.87%	0.02%
GL 258	0			No events found						
GL 269	106		0.00	6,462.50	629.17	2,296.80	9.74%	5.66%	0.34%	0.03%
GL 271	0			No events found						
GL BLDG (NO SPACES)	0			No events found						
GL CULINARY OFFICE	0			No events found						
GL HARBOR LAWN	0			No events found						
GL MARITIME OFFICE	0			No events found						
GL PIER	0			No events found						
GL RECEPTION DESK & WORKROOM	0			No events found						
GL T/S STATE OF MICHIGAN	0			No events found						
GL WEST LAWN	0			No events found						
GTA ROOM	32		0.00	6,462.50	45.00	0.00	0.7%	0%	0%	0%
HC A	156			No events found						
HC A & 1/2 B	264			No events found						
HC A & B	420			No events found						
HC B	192			No events found						
HC B & C	432			No events found						
HC BALLROOM	594			No events found						
HC C	224			No events found						
HC C & 1/2 B	314			No events found						
HC CATWALK	0			No events found						
HC COURTYARD	300			No events found						
HC D	76			No events found						
HC HAGERTY OFFICE	0			No events found						
HC OFF-SITE	999			No events found						

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
HC ROTARY HALL	64			No events found						
HOMESTEAD	0			No events found						
HS 110	12		0.00	6,462.50	288.00	597.00	4.46%	21.67%	0.77%	0.03%
HS 111	25		33.50	6,429.00	394.00	6,576.00	6.13%	69.82%	4.09%	0.25%
HS 111/113 VESTIBULE	0	0		No events found						
HS 111A	9			No events found						
HS 112	16		0.00	6,462.50	66.00	0.00	1.02%	0%	0%	0%
HS 113	25		33.50	6,429.00	633.50	11,319.00	9.85%	72.89%	7.04%	0.69%
HS 114	32		0.00	6,462.50	772.33	10,353.00	11.95%	35.24%	5.01%	0.6%
HS 115	25		33.50	6,429.00	300.00	4,095.00	4.67%	56.57%	2.55%	0.12%
HS 115/117 VESTIBULE	0	0		No events found						
HS 116	32		0.00	6,462.50	955.67	13,589.67	14.79%	46.32%	6.57%	0.97%
HS 117	25		80.50	6,382.00	504.33	7,495.67	7.9%	60.67%	4.7%	0.37%
HS 117A	14			No events found						
HS 119 GREENHOUSE	24			No events found						
HS 208	24			No events found						
HS 208/210	20			No events found						
HS 210	24		0.00	6,462.50	810.50	10,188.00	12.54%	19.75%	6.57%	0.82%
HS 211	27		197.00	6,265.50	793.07	9,276.07	12.66%	43.41%	5.48%	0.69%
HS 212	8		0.00	6,462.50	9.00	31.50	0.14%	43.75%	0.06%	0%
HS 213	24		0.00	6,462.50	940.25	10,782.00	14.55%	45.31%	6.95%	1.01%
HS 214	11		0.00	6,462.50	12.00	30.00	0.19%	22.73%	0.04%	0%
HS 215	24		0.00	6,462.50	362.00	3,798.00	5.6%	43.4%	2.45%	0.14%
HS 216	30		0.00	6,462.50	853.58	14,557.00	13.21%	42.7%	7.51%	0.99%
HS 217	24		0.00	6,462.50	154.00	480.00	2.38%	6.67%	0.31%	0.01%
HS BLDG (NO SPACES)	0			No events found						
HS BOOKSTORE	32			No events found						
HS BOOKSTORE STORAGE	54			No events found						
HS LOBBY	0			No events found						
HS LOBBY - UPSTAIRS	0			No events found						
JB 127 (MEDIA SERVICES)	0			No events found						
JB 128	1			No events found						
JB 130	14			No events found						
JB 136	48		0.00	6,462.50	414.33	5,768.33	6.41%	28.24%	1.86%	0.12%

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
JB 140	48		0.00	6,462.50	617.50	6,746.00	9.56%	6.45%	2.17%	0.21%
JB 146	36		0.00	6,462.50	181.00	1,620.00	2.8%	18.75%	0.7%	0.02%
JB 146/147	72			No events found						
JB 147	36		0.00	6,462.50	302.50	4,449.00	4.68%	39.58%	1.91%	0.09%
JB 148	35		0.00	6,462.50	498.50	5,884.50	7.71%	28.98%	2.6%	0.2%
JB 149	32		0.00	6,462.50	232.63	4,497.00	3.6%	39.29%	2.17%	0.08%
JB 202	24		0.00	6,462.50	454.50	2,467.50	7.03%	22.69%	1.59%	0.11%
JB 204	20		165.50	6,297.00	782.00	4,108.00	12.42%	24.12%	3.26%	0.41%
JB 214 - OPEN COMPUTER LAB	24			No events found						
JB 215	30		0.00	6,462.50	348.50	2,774.33	5.39%	21.11%	1.43%	0.08%
JB 216	35		0.00	6,462.50	256.50	4,110.00	3.97%	33.81%	1.82%	0.07%
JB 217	24		0.00	6,462.50	528.00	5,861.00	8.17%	36.46%	3.78%	0.31%
JB BLDG (NO SPACES)	0			No events found						
JB FIRST LEVEL LOBBY	0			No events found						
JB SECOND LEVEL LOBBY	0			No events found						
JB SIMPLY-TO-	0			No events found						
LB 105	40		1,057.50	5,405.00	706.83	8,019.00	13.08%	22.35%	3.71%	0.49%
LB 106 - STUDENT HEALTH SERVICES	0			No events found						
LB 206	49		0.00	6,462.50	519.92	8,025.67	8.05%	16.41%	2.53%	0.2%
LB 207	40		0.00	6,462.50	959.57	12,767.17	14.85%	28.59%	4.94%	0.73%
LB 208	40		0.00	6,462.50	615.42	11,583.67	9.52%	35.13%	4.48%	0.43%
LB 32 (STUDY ROOM)	7			No events found						
LB 35/37	24		118.50	6,344.00	828.67	11,254.00	13.06%	29.74%	7.39%	0.97%
LB 38	70		0.00	6,462.50	377.33	7,258.50	5.84%	13.44%	1.6%	0.09%
LB BLDG (NO SPACES)	0			No events found						
LB LOBBY	0			No events found						
LOBDELL'S RESTAURANT - BOT	0			No events found						
LUCKY JACK'S	0			No events found						
MILL CREEK ELEMENTARY	30			No events found						
O 113	23		0.00	6,462.50	228.33	4,577.42	3.53%	89.27%	3.08%	0.11%
O 152 TUTORING	0			No events found						
O 201	12			No events found						
O 202	24			No events found						
O 203	72		0.00	6,462.50	310.25	4,448.00	4.8%	18.24%	0.96%	0.05%

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
O 204	30		0.00	6,462.50	425.08	6,797.25	6.58%	50.28%	3.51%	0.23%
O 205	72		0.00	6,462.50	442.83	6,285.33	6.85%	16.07%	1.35%	0.09%
O 208 OFFICE	2			No events found						
O 209 OFFICE	2			No events found						
O 210 OFFICE	2			No events found						
O BLDG (NO SPACES)	0			No events found						
O LOBBY	0			No events found						
O SIMPLY-TO-GO CAFE	0			No events found						
O SSC	50			No events found						
OBSV BLDG	60		0.00	6,462.50	120.00	2,160.00	1.86%	30%	0.56%	0.01%
OBSV GATE	0			No events found						
OC 102	5			No events found						
OC 112	91			No events found						
OC 129	20			No events found						
OC A	44			No events found						
OC A/B	88			No events found						
OC ABC	132			No events found						
OC B	44			No events found						
OC B/C	88			No events found						
OC BACK DOOR (NO SPACES)	0			No events found						
OC BLDG (NO SPACES)	0			No events found						
OC C	44			No events found						
OC LOBBY	86			No events found						
OFF CAMPUS	9999999			No events found						
ONLINE CLASS	9999999		0.00	6,462.50	6.00	36.00	0.09%	0%	0%	0%
OPEN TO PUBLIC	9999999			No events found						
OSTERLIN TESTING SITE A	25	0		No events found						
OSTERLIN TESTING SITE B	25	0		No events found						
P 100	90		211.50	6,251.00	164.50	952.00	2.63%	8.89%	0.17%	0%
P 100N	50			No events found						
P 100S	50			No events found						
P 107 - APPLIED MUSIC	5			No events found						
P 120	40		211.48	6,251.02	242.00	306.00	3.87%	2.08%	0.12%	0%
P 202	24			No events found						

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
P 206	30			No events found						
P 207 (MEDIA SERVICES)	0			No events found						
P BUILDING	0			No events found						
P LOBBY	0			No events found						
P SHOWER ROOMS	0			No events found						
PHG GYM	500			No events found						
PRESIDENT'S CONFERENCE ROOM	5			No events found						
PRESIDENT'S OFFICE	0			No events found						
PS - HALL OF TECHNOLOGY	0		0.00	6,462.50	162.00	0.00	2.51%	0%	0%	0%
PS 101/103	78		0.00	6,462.50	298.80	1,898.20	4.62%	7.69%	0.38%	0.02%
PS 104B	0			No events found						
PS 105 (NOT RENTABLE)	12		0.00	6,462.50	162.00	0.00	2.51%	0%	0%	0%
PS 106 (CYCR)	16		0.00	6,462.50	142.25	13.75	2.2%	0.78%	0.01%	0%
PS 106K SIMPLY-TO-GO CAFE	0			No events found						
PS 107	16		56.00	6,406.50	557.00	3,435.00	8.69%	36.88%	3.35%	0.29%
PS 110	12		0.00	6,462.50	60.00	0.00	0.93%	0%	0%	0%
PS 112	32		0.00	6,462.50	232.58	808.50	3.6%	9.69%	0.39%	0.01%
PS 114	24			No events found						
PS 115 - MTA	24			No events found						
PS 151	22		103.00	6,359.50	690.50	5,593.00	10.86%	27.27%	4%	0.43%
PS 153 - CNC LAB	12		0.00	6,462.50	120.00	960.00	1.86%	66.67%	1.24%	0.02%
PS 154 (RESOURCE ROOM)	6		0.00	6,462.50	162.00	0.00	2.51%	0%	0%	0%
PS 155	24		0.00	6,462.50	630.50	3,913.00	9.76%	21.53%	2.52%	0.25%
PS 157 - TECH LAB	96			No events found						
PS 157A	16		103.00	6,359.50	752.00	3,390.00	11.82%	26.92%	3.33%	0.39%
PS 157B	16			No events found						
PS 157C	7			No events found						
PS 159	0			No events found						
PS 1ST FLOOR COMMONS	0			No events found						
PS 201	24		0.00	6,462.50	129.17	1,341.67	2%	18.75%	0.87%	0.02%
PS 203	24		109.50	6,353.00	876.67	6,110.00	13.8%	22.81%	4.01%	0.55%
PS 204	19		0.00	6,462.50	603.00	4,302.00	9.33%	21.27%	3.5%	0.33%
PS 204 B - RESOURCE ROOM	0			No events found						
PS 205	24		0.00	6,462.50	416.00	3,460.00	6.44%	24.58%	2.23%	0.14%

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
PS 206	20			No events found						
PS 206A	0			No events found						
PS 216	0		0.00	6,462.50	168.00	0.00	2.6%	0%	0%	0%
PS 217/219	20		0.00	6,462.50	749.00	5,695.00	11.59%	30%	4.41%	0.51%
PS 218	16		0.00	6,462.50	283.67	353.67	4.39%	7.5%	0.34%	0.02%
PS 220	30		0.00	6,462.50	501.33	4,893.33	7.76%	26.97%	2.52%	0.2%
PS 222	24		0.00	6,462.50	510.00	5,329.75	7.89%	35.28%	3.44%	0.27%
PS 222/224	56			No events found						
PS 224	24		0.00	6,462.50	446.50	2,314.00	6.91%	21.43%	1.49%	0.1%
PS 225	24		197.00	6,265.50	120.00	120.00	1.92%	4.17%	0.08%	0%
PS 226	24		0.00	6,462.50	260.00	1,386.00	4.02%	9.72%	0.89%	0.04%
PS 227	14			No events found						
PS 2ND FLOOR COMMONS	0			No events found						
PS AIRPORT SIDE PATIO	0			No events found						
PS BLDG (NO SPACES)	0			No events found						
PS BUILDING	0			No events found						
PS EAST OFFICE WING	0			No events found						
PS NORTH OFFICE WING	0			No events found						
PS RECEPTION LOBBY	0			No events found						
PS SOLAR TRAILER	0			No events found						
SBHS SBHS	20			No events found						
SH FIRST LEVEL WEST LOBBY	0			No events found						
SH 09	24		0.00	6,462.50	289.33	3,180.00	4.48%	42.42%	2.05%	0.09%
SH 101	40		0.00	6,462.50	499.50	4,794.00	7.73%	22.31%	1.85%	0.14%
SH 102	40		0.00	6,462.50	772.00	12,168.00	11.95%	39.12%	4.71%	0.56%
SH 103	24		0.00	6,462.50	271.08	3,731.33	4.19%	20%	2.41%	0.1%
SH 103/105	64			No events found						
SH 104	32		0.00	6,462.50	615.50	7,359.75	9.52%	23.18%	3.56%	0.34%
SH 105	40		0.00	6,462.50	869.50	10,195.50	13.45%	20.19%	3.94%	0.53%
SH 106	32		0.00	6,462.50	413.00	4,225.00	6.39%	41.67%	2.04%	0.13%
SH 107 - FACULTY & STAFF BREAKROOM	10			No events found						
SH 109	120		0.00	6,462.50	90.75	2,220.00	1.4%	4.4%	0.29%	0%
SH 113	40		0.00	6,462.50	680.50	8,945.50	10.53%	29.84%	3.46%	0.36%
SH 15	24		0.00	6,462.50	468.00	6,723.00	7.24%	47.12%	4.33%	0.31%

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
SH 19	0			No events found						
SH 20	24		0.00	6,462.50	503.42	5,891.17	7.79%	47.22%	3.8%	0.3%
SH 20/22	60			No events found						
SH 202	40		0.00	6,462.50	922.00	11,413.33	14.27%	27.27%	4.42%	0.63%
SH 204	28		0.00	6,462.50	1,001.17	12,293.67	15.49%	41.07%	6.79%	1.05%
SH 205	24		0.00	6,462.50	1,030.33	12,442.00	15.94%	34.67%	8.02%	1.28%
SH 206 ALICE 1	25		243.50	6,219.00	319.92	6,306.25	5.14%	78.82%	4.06%	0.21%
SH 207	32		0.00	6,462.50	1,144.25	16,053.00	17.71%	42.26%	7.76%	1.37%
SH 209	32		0.00	6,462.50	756.00	10,058.00	11.7%	42.07%	4.86%	0.57%
SH 215 - FACULTY & STAFF BREAK ROOM	10			No events found						
SH 217	77		0.00	6,462.50	484.00	4,466.00	7.49%	11.85%	0.9%	0.07%
SH 218 ALICE 2	23		165.50	6,297.00	305.00	5,532.42	4.84%	77.59%	3.82%	0.19%
SH 22	32		0.00	6,462.50	507.75	5,772.50	7.86%	35.51%	2.79%	0.22%
SH 221 - WRITING & READING CNTR SD 10	0			No events found						
SH 23 - WHITE PINE PRESS OFFICE	10			No events found						
SH 28 - NMC MAGAZINE	5			No events found						
SH 30	32		0.00	6,462.50	60.00	0.00	0.93%	0%	0%	0%
SH 32	32			No events found						
SH BLDG (NO SPACES)	0			No events found						
SH FIRST LEVEL EAST LOBBY	0			No events found						
SH SECOND LEVEL LOBBY	0			No events found						
STUDENT SERVICES CONFERENCE ROOM	10			No events found						
T 51 - TECH HELP DESK	0			No events found						
T 53 - MATH LAB	7			No events found						
TANIS BUILDING (NO SPACES)	0			No events found						
TC GOLF AND COUNTRY CLUB	0			No events found						
TC OPERA HOUSE	0			No events found						
TCAPS	0			No events found						
TCCHS ROOM	0			No events found						
TCWSH ROOM	30		0.00	6,462.50	30.00	0.00	0.46%	0%	0%	0%
TECHNOLOGY HELP DESK	0			No events found						
UC 01	24			No events found						
UC 05	42			No events found						

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
UC 06	22			No events found						
UC 07	44			No events found						
UC 08	13		0.00	6,462.50	1.83	0.00	0.03%	0%	0%	0%
UC 09	24			No events found						
UC 103 (ZONTA)	8			No events found						
UC 105 (ZONTA)	8			No events found						
UC 106	16			No events found						
UC 11	14			No events found						
UC 12	24		0.00	6,462.50	249.33	1,443.75	3.86%	17.13%	0.93%	0.04%
UC 14	28		0.00	6,462.50	298.50	1,221.00	4.62%	13.96%	0.67%	0.03%
UC 14/16	48			No events found						
UC 16	28			No events found						
UC 17	0			No events found						
UC 18	0			No events found						
UC 202-F (GRAY)	15			No events found						
UC 204	36			No events found						
UC 205	24		0.00	6,462.50	10.50	0.00	0.16%	0%	0%	0%
UC 206	9		0.00	6,462.50	7.00	0.00	0.11%	0%	0%	0%
UC 207	40			No events found						
UC 208	20		0.00	6,462.50	3.50	0.00	0.05%	0%	0%	0%
UC 209	32			No events found						
UC 211	12			No events found						
UC 212	32			No events found						
UC 213	24			No events found						
UC 214	24			No events found						
UC 215	24			No events found						
UC 215/217	48			No events found						
UC 216	24			No events found						
UC 217	24			No events found						
UC 218	24			No events found						
UC 219	24			No events found						
UC BLDG (NO SPACES)	0			No events found						
UC CAFE	14			No events found						
UC FIRST LEVEL SOUTH LOBBY	6			No events found						

Location Utilization Summary

	(A) Max Capacity	(B) Fill Ratio	(C) Blackout Hours	(D) Possible Hours	(E) Hours Used	(F) Contact Hours	(G) Time Utilization	(H) Class Seat Utilization	(I) Station Utilization	(J) Net Utilization
UC LOWER LEVEL SOUTH LOBBY	19			No events found						
UC OFF CAMPUS	0			No events found						
UC PARTNER OFFICE	0			No events found						
UC PATIO	35			No events found						
VIRTUAL MEETING	999999			No events found						
WH - KITCHEN BACK DOOR	0			No events found						
WH - LOWER LEVEL STUDENT CENTER	55			No events found						
WH - NORTHWEST GRIND C-STORE	0			No events found						
WH - STUDENT LOUNGE/STUDY AREA	10			No events found						
WH 01	6	0		No events found						
WH 02	6	0		No events found						
WH 03	4	0		No events found						
WH 04	4	0		No events found						
WH 08	14	0		No events found						
WH 09	3	0		No events found						
WH 104	24	0		No events found						
WH 104/105	48	0		No events found						
WH 105	24	0		No events found						
WH 106	36	0		No events found						
WH 106/107	76	0		No events found						
WH 107	40	0		No events found						
WH 116	4	0		No events found						
WH 117	4	0		No events found						
WH 118	4	0		No events found						
WH 123	12	0		No events found						
WH 14	30	0		No events found						
WH 15	30	0		No events found						
WH 207	4	0		No events found						
WH 208	2	0		No events found						
WH 209	4	0		No events found						
WH BLDG (NO SPACES)	0			No events found						
WH LOBBY	0	0		No events found						

Column A & B
Maximum Capacity and Fill Ratio are values that may be provided for a location. The location utilization computations cannot be made where Maximum Capacity has not been specified.

Column C
Blackout Hours is the total hours of all blackout dates defined for a location for this report time period.

Column D
Possible Hours is calculated by taking the total possible hours for the report period (K) defined by the user report parameters and subtracting the total blackout hours for the location during that same time period.

Column E
Hours Used is the total number of hours for all occurrences assigned to this location during the report period.

Column F
Contact Hours is the product of (column I), Total Hours Used, and the Selected Head Count for each reservation in the report period.

Column G
Time Utilization is the percentage of hours a location is used during the report period. This is the quotient of (column E), Hours Used, divided by (column D), Possible Hours. This value is expressed as a percentage.

Column H
Class Seat Utilization is the average percentage of seats used for each reservation compared to the Maximum Capacity of the location. Class Seat Utilization is calculated by taking the Selected Head Count, divided by (column A), Maximum Capacity, multiplied by 100. This value is expressed as a percentage.

Column I
Station Utilization is the percentage of total contact hours compared to the total possible contact hours for the location during the report period. The total possible contact hours is the (column A), Maximum Capacity, multiplied by (column D), Total Possible Hours. This value is expressed as a percentage.

Column J
Net Utilization is the product of (column G), Time Utilization, and (column I), Station Utilization. This value is expressed as a percentage.

Column K
The Total Hours per Report Period is computed from the date and time range entered when the report was printed.

Appendix J

Functionality of Existing Structures (Space Allocation)

SCHEDULE OF BUILDINGS & CONTENTS

(Period: 7/1/2020 through 7/1/2021)

Northwestern Michigan College

Last Year Totals:	Buildings	$ 204,263,700	Contents	$ 18,675,080	Building + Contents	$ 222,938,780	
Current Year Totals:	Buidings	$ 222,864,200	Contents	$ 19,610,766	Building + Contents	$ 242,474,966	

Location#	Location Description	Last Year Building Value	Last Year Contents	Last Year Total Value	Last Year Square Ft	New Building Value	New Contents Value	New Total Value	New Square Ft	Leased (Mark "X")
1	Tanis/Beiderman/ISTLC	31,506,900	734,388	32,241,288	105,519	33,082,400	1,668,797	34,751,197	105,519	
2	Apartments A	1,846,200	-	1,846,200	12,399	1,938,600	-	1,938,600	12,399	
2B	Apartment B	1,846,200	-	1,846,200	12,399	1,938,600	-	1,938,600	12,399	
2C	Apartment C	1,846,200	-	1,846,200	12,399	1,938,600	-	1,938,600	12,399	
3	Appel Biology	157,800	2,996	160,796	1,160	165,500	-	165,500	1,160	
5	Aviation	2,481,100	1,428,465	3,909,565	20,912	2,605,200	810,502	3,415,702	20,912	
6	Founders Hall	1,212,000	51,016	1,263,016	4,950	1,273,500	56,288	1,329,788	4,950	
7	East Residence Hall	12,382,100	798,958	13,181,058	52,288	13,001,500	1,800,593	14,802,093	52,288	
8	Fine Arts Building	4,997,000	535,709	5,532,709	18,800	5,246,900	116,196	5,363,096	18,800	
10	Osterlin Library	12,470,500	5,416,715	17,887,215	46,734	13,094,200	3,447,033	16,541,233	46,734	
13	Museum - Auditorium	17,876,700	427,443	18,304,143	39,000	18,770,700	266,836	19,037,536	55,085	
14	Observatory	418,300	72,744	491,044	1,624	439,300	67,454	506,754	1,624	
15	Oleson Center	2,597,300	281,797	2,879,097	10,398	2,727,200	63,723	2,790,923	10,398	
16	Physical Education	5,809,800	226,927	6,036,727	25,674	6,100,500	71,224	6,171,724	25,674	
17	Powerhouse	2,192,200	26,506	2,218,706	3,580	2,301,900	15,149	2,317,049	3,580	
18	Scholars Hall	15,983,800	562,169	16,545,969	62,812	16,782,800	27,188	16,809,988	62,812	
19	West Hall Innovation Center	9,884,600	863,663	10,748,263	35,800	18,762,600	2,819,514	21,582,114	66,304	
20	University Center Campus	13,952,400	145,594	14,097,994	59,460	14,649,800	332,338	14,982,138	59,460	
22	Utility Tunnels	1,981,700	91,762	2,073,462	6,925	2,080,800	-	2,080,800	6,925	
23	Eastern Avenue Apartment Storage	59,400	143,653	203,053	1,344	62,300	-	62,300	1,344	
26	Beckett	8,440,700	775,797	9,216,497	34,269	8,862,900	433,544	9,296,444	34,269	
45	Parsen - Stullen M-TEC	15,826,000	1,246,516	17,072,516	65,000	16,617,400	2,212,833	18,830,233	65,000	
46	Maintenance	1,053,000	761,831	1,814,831	11,900	1,106,700	559,824	1,666,524	11,900	
47	Landscape Bin	31,600	-	31,600	675	33,200	-	33,200	675	
48	Automotive Service Tech	3,382,500	526,243	3,908,743	18,328	3,551,700	242,583	3,794,283	18,328	
49	Great Lakes Campus	22,689,300	1,943,142	24,632,442	75,364	23,824,000	2,992,188	26,816,188	75,364	
50	Aero Park Lab	4,268,700	1,276,623	5,545,323	29,600	4,482,200	1,530,290	6,012,490	29,600	
51	North Hall	7,069,700	334,423	7,404,123	46,730	7,423,200	76,670	7,499,870	46,730	
	Totals:	$ 204,263,700	$ 18,675,080	$ 222,938,780	816,043	$ 222,864,200	$ 19,610,766	$ 242,474,966	862,632	

Included in contents grand total***

Miscellaneous Items Throughout Campus	Last Year Value	This Year Value	
Monitoring Equipment (Mtec)	24,900	24,900	College Value
Cell Demo System (Mtec)	6,976	6,976	College Value
BioDiesel Project (Mtec)	5,397	5,397	College Value
Solar Thermal System (Mtec)	58,646	58,646	College Value
Solar PV (Mtec)	57,274	57,274	College Value
Wind Power Generator (U.C.)	68,568	68,568	College Value
Outdoor Equipment	5,592	5,592	College Value
Communications Equipment	90,000	90,000	College Value
Safety/CPR/First Aid Equipment	24,200	24,200	College Value
Books and Multi-media Material	18,571	18,571	College Value
Machinery & Tools	12,852	12,852	College Value
Totals:	$ 372,976	$ 372,976	

Appendix K

Replacement Value - Appraisal of Buildings

APPRAISAL OF

NORTHWESTERN MICHIGAN COLLEGE

1701 EAST FRONT STREET

TRAVERSE CITY, MICHIGAN 49686

R.A. Schettler, Inc.
Certified
Appraisal Service
24634 W. FIVE MILE RD.
REDFORD, MI. 48239
(248) 705-5801
Industrial - Commercial
RAS
Residential - Institutional

NOVEMBER 1, 2019

ASSOCIATED RISK MANAGEMENT, INC.
39111 W. SIX MILE ROAD
LIVONIA, MICHIGAN 48152

TO WHOM IT MAY CONCERN:

WE SUBMIT HEREWITH OUR CERTIFIED APPRAISAL OF ASSETS BELONGING TO NORTHWESTERN MICHIGAN COLLEGE, 1701 EAST FRONT, TRAVERSE CITY, MICHIGAN. THIS APPRAISAL INCLUDES BUILDINGS ONLY.

THIS APPRAISAL IS ARRANGED UNDER SEVERAL PROPERTY CLASSIFICATIONS AND FURNISHES AN UNBIASED STATEMENT OF VALUES.

THE "REPLACEMENT VALUE NEW" THE COST THAT WOULD BE INCURRED IN ACQUIRING AN EQUALLY DESIRABLE SUBSTITUTE FOR PROPERTY, WHICH IS DETERMINED IN ACCORDANCE WITH MARKET PRICES PREVAILING AT THE DATE OF THIS APPRAISAL AND REPRESENTS THE COST TO REPLACE NEW, THE PROPERTY IN LIKE KIND.

THE "SOUND OR INSURABLE VALUE" INDICATING PRESENT PHYSICAL SOUND VALUES OF THE PROPERTY OF AN OPERATING ENTERPRISE BASED UPON THE COST OF REPRODUCTION NEW, LESS AN ALLOWANCE FOR ACCRUED DEPRECIATION RESULTING FROM ITS AGE, CONDITION AND DEGREE OF OBSOLESCENCE.

A SUMMARY IMMEDIATELY FOLLOWING THIS LETTER SHOWS THE REPLACEMENT VALUE NEW AND SOUND INSURABLE VALUES SEGREGATED ACCORDING TO ACCOUNTS ESTABLISHED BY OUR COMPANY.

IN ORDER THAT YOU MAY FULLY UNDERSTAND THE SERVICES WE HAVE RENDERED, WE PRESENT THE IMPORTANT POINTS AS FOLLOWS:

FIRST: ALL PHYSICAL CHANGES OF THEIR PROPERTY (ADDITIONS, REMOVALS, REPLACEMENTS, ALTERATIONS AND CHANGES IN LOCATION) AS FURNISHED BY THEIR MANAGERIAL STAFF AND/OR RECORDS HAVE BEEN INCORPORATED IN THE APPRAISAL.

SECOND: WE HAVE CHECKED AND VERIFIED BY PERSONAL INVESTIGATION ALL CHANGES SUBMITTED BY THEIR STAFF.

THIRD: WITH THE INFORMATION OBTAINED FROM THEIR RECORDS, WE HAVE DEDUCTED IN DOLLARS ALL RETIREMENTS AND ABANDONMENTS THAT HAVE TRANSPIRED SINCE THE DATE OF THEIR LAST APPRAISAL.

ECONOMIC CONDITIONS AFFECTING THE CONSTRUCTION, EQUIPMENT AND LABOR MARKETS, VALUES SHOWN ARE SUBJECT TO ADJUSTMENT, AS REQUIRED, AFTER THE DATE SPECIFIED IN CERTIFICATES.

WE HAVE NOT EXAMINED THE LEGAL TITLES OF PROPERTY; THEREFORE WE DO NOT ASSUME RESPONSIBILITY REGARDING THE OWNERSHIP OF PROPERTY IN THIS APPRAISAL.

VERY TRULY YOURS,

R. A. SCHETTLER, INC.

RAS/mbj

R.A. Schettler, Inc.
Certified
Appraisal Service

24634 W. FIVE MILE RD.
REDFORD, MI. 48239

(248) 705-5801

Industrial - Commercial

RAS

Residential - Institutional

NOVEMBER 1, 2019

NORTHWESTERN MICHIGAN COLLEGE
1701 EAST FRONT STREET
TRAVERSE CITY, MICHIGAN 49686

TO WHOM IT MAY CONCERN:

WE SUBMIT HEREWITH OUR CERTIFIED APPRAISAL OF ASSETS BELONGING TO NORTHWESTERN MICHIGAN COLLEGE, 1701 EAST FRONT, TRAVERSE CITY, MICHIGAN. THIS APPRAISAL INCLUDES BUILDINGS ONLY.

THIS APPRAISAL IS ARRANGED UNDER SEVERAL PROPERTY CLASSIFICATIONS AND FURNISHES AN UNBIASED STATEMENT OF VALUES.

THE "REPLACEMENT VALUE NEW" THE COST THAT WOULD BE INCURRED IN ACQUIRING AN EQUALLY DESIRABLE SUBSTITUTE FOR PROPERTY, WHICH IS DETERMINED IN ACCORDANCE WITH MARKET PRICES PREVAILING AT THE DATE OF THIS APPRAISAL AND REPRESENTS THE COST TO REPLACE NEW, THE PROPERTY IN LIKE KIND.

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IN ORDER THAT YOU MAY FULLY UNDERSTAND THE SERVICES WE HAVE RENDERED, WE PRESENT THE IMPORTANT POINTS AS FOLLOWS:

FIRST: ALL PHYSICAL CHANGES OF YOUR PROPERTY (ADDITIONS, REMOVALS, REPLACEMENTS, ALTERATIONS AND CHANGES IN LOCATION) AS FURNISHED BY YOUR MANAGERIAL STAFF AND/OR RECORDS HAVE BEEN INCORPORATED IN THE APPRAISAL.

SECOND: WE HAVE CHECKED AND VERIFIED BY PERSONAL INVESTIGATION ALL CHANGES SUBMITTED BY YOUR STAFF.

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ECONOMIC CONDITIONS AFFECTING THE CONSTRUCTION, EQUIPMENT AND LABOR MARKETS, VALUES SHOWN ARE SUBJECT TO ADJUSTMENT, AS REQUIRED, AFTER THE DATE SPECIFIED IN CERTIFICATES.

WE HAVE NOT EXAMINED THE LEGAL TITLES OF PROPERTY; THEREFORE WE DO NOT ASSUME RESPONSIBILITY REGARDING THE OWNERSHIP OF PROPERTY IN THIS APPRAISAL.

VERY TRULY YOURS,

R. A. SCHETTLER, INC.

RAS/MBJ

R.A SCHETTLER, INC.

REGISTERED APPRAISERS

-CERTIFY-

THAT ON THE DATE GIVEN IN THIS CERTIFICATE, THE PROPERTY OF

NORTHWESTERN MICHIGAN COLLEGE

LOCATED AT: 1701 EAST FRONT STREET

TRAVERSE CITY, MICHIGAN 49686

WAS WELL AND REASONABLY WORTH:

TWO HUNDRED TWENTY-TWO MILLION, EIGHT HUNDRED SIXTY-FOUR THOUSAND, TWO HUNDRED DOLLARS.

ON THE BASIS OF ITS REPLACEMENT VALUE NEW

DISTRIBUTION OF VALUES ARE AS FOLLOWS:

REAL ESTATE - BUILDINGS. $222,864,200.00

DATE: NOVEMBER FIRST TWO THOUSAND NINETEEN R.A. SCHETTLER, INC.

PROJECT NO: 2186 BY _____

R.A SCHETTLER, INC.

REGISTERED APPRAISERS

-CERTIFY-

THAT ON THE DATE GIVEN IN THIS CERTIFICATE, THE PROPERTY OF

NORTHWESTERN MICHIGAN COLLEGE

LOCATED AT: 1701 EAST FRONT STREET

TRAVERSE CITY, MICHIGAN 49686

WAS WELL AND REASONABLY WORTH:

ONE HUNDRED SIXTY-TWO MILLION, SIX HUNDRED
SIXTY THOUSAND, SEVEN HUNDRED DOLLARS

ON THE BASIS OF ITS SOUND VALUATION

DISTRIBUTION OF VALUES ARE AS FOLLOWS:

REAL ESTATE - BUILDINGS. $162,660,700.00

DATE: NOVEMBER FIRST TWO THOUSAND NINETEEN R.A. SCHETTLER, INC.

PROJECT NO: 2186 BY _____

R.A. SCHETTLER, INC
SUMMATION

Asset Acct: NORTHWESTERN MICHIGAN COLLEGE As of 11/1/19
REAL ESTATE - BUILDING -

Summary by:	Replacement Value New	Sound or Depr. Value
TANIS/BIEDERMAN/HEALTH & SCIENCE	33,082,400.00	24,811,800.00
APARTMENT A	1,938,600.00	1,027,500.00
APARTMENT B	1,938,600.00	1,027,500.00
APARTMENT C	1,938,600.00	1,027,500.00
EASTERN AVENUE STORAGE BUILDING	62,300.00	46,700.00
APPEL BIOLOGY LABORATORY	165,500.00	64,500.00
AVIATION	2,605,200.00	1,485,000.00
BECKETT	8,862,900.00	6,913,100.00
FOUNDERS HALL	1,273,500.00	853,200.00
EAST HALL	13,001,500.00	7,670,900.00
FINE ARTS	5,246,900.00	3,305,500.00
OSTERLIN LIBRARY	13,094,200.00	7,594,600.00
MUSEUM/AUDITORIUM	18,770,700.00	15,016,600.00
OBSERVATORY	439,300.00	272,400.00
OLESON CENTER	2,727,200.00	2,045,400.00
PHYSICAL EDUCATION	6,100,500.00	2,989,200.00
POWERHOUSE	2,301,900.00	1,035,900.00
SCHOLARS HALL	16,782,800.00	10,069,700.00
WEST HALL INNOVATION CENTER	18,762,600.00	17,261,600.00
UNIVERSITY CENTER CAMPUS	14,649,800.00	10,254,900.00
UTILITY TUNNELS	2,080,800.00	998,800.00
PARSEN-STULLEN M-TEC	16,617,400.00	13,460,100.00
MAINTENANCE	1,106,700.00	907,500.00
LANDSCAPE BIN	33,200.00	27,200.00

CONTINUED.....

R.A. SCHETTLER, INC
SUMMATION

Asset Acct: NORTHWESTERN MICHIGAN COLLEGE As of 11/1/19
REAL ESTATE - BUILDING -

Summary by:	Replacement Value New	Sound or Depr. Value
AUTOMOTIVE SERVICE TECHNOLOGY	3,551,700.00	2,308,600.00
GREAT LAKES CAMPUS	23,824,000.00	20,012,200.00
AERO PARK LAB	4,482,200.00	2,823,800.00
NORTH HALL	7,423,200.00	7,349,000.00
GRAND TOTAL	222,864,200.00	162,660,700.00

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE
REAL ESTATE - BUILDING

Bldg.: TANIS/BIEDERMAN/
HEALTH AND SCIENCE

Description	11/1/19
BASEMENT:	
FLOOR	33,100.00
EXTERIOR WALLS	107,400.00
INTERIOR CONSTRUCTION	96,300.00
FOUNDATION:	1,007,900.00
SUPERSTRUCTURE:	
FRAME	1,406,400.00
FLOORS	1,267,300.00
FLOOR COVERINGS	985,700.00
CEILINGS	546,400.00
ROOF STRUCTURE	921,500.00
ROOF COVER	449,600.00
INTERIOR CONSTRUCTION	4,637,200.00
BUILT-IN FIXTURES	2,049,800.00
ELECTRICAL	3,059,400.00
PLUMBING	2,196,100.00
HEATING	3,428,500.00
MISCELLANEOUS CONSTRUCTION	1,248,900.00
EXTERIOR WALLS	7,506,600.00
TOTAL LABOR AND MATERIALS	30,918,100.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	33,082,400.00
Depreciation %	25%
Sound Valuation	24,811,800.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: TANIS/BIEDERMAN

KIND OF BUILDING: CLASS C

NO. OF STORIES: TWO AND THREE

OCCUPANCY - OFFICES AND CLASSROOMS

SIZE -	FIRST FLOOR	17,707 SQUARE FEET
	SECOND FLOOR	17,907 SQUARE FEET
	THIRD FLOOR	8,718 SQUARE FEET
	TOTAL SQUARE FEET	44,392

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - CONCRETE ON GROUND, PRECAST PRESTRESSED CONCRETE PLANKS, 3" CONCRETE TOPPING, CONCRETE JOISTS, CONCRETE SLAB

FLOOR COVER - CARPET, OFFICES, CLASSROOMS, CORRIDOR
BRICK, LOBBY
CERAMIC TILE, RESTROOMS
TERRAZZO, STAIRCASES

ROOF STRUCTURE - PRECAST CONCRETE PLANK, SKYLIGHT 20' X 20';
CONCRETE JOISTS PRECAST TEES, CONCRETE SLAB

ROOF COVER - BUILT-UP COMPOSITION, RIGID INSULATION

CEILINGS - SUSPENDED ACOUSTICAL LAY-IN OFFICES AND CLASSROOMS;

- GYPSUM BOARD, PAINTED RESTROOMS

INTERIOR CONSTRUCTION - METAL FRAME PARTITIONS;
- 6" CONCRETE BLOCK PARTITIONS;
- 8" CONCRETE BLOCK PARTITIONS

BUILT-IN FIXTURES -
- MONTGOMERY PASSENGER ELEVATOR, 3 STOP, 2,500 LB. CAPACITY
6 - LAMINATE TOP STUDY TABLES, 24' 10 SWIVEL SEATS EACH
6 - LAMINATE TOP TABLES, 24' WITH 5 SWIVEL SEATS
- RECEPTION DESK, LAMINATE
17 - WALL CABINETS, LAMINATE, 24" WIDE
3 - WALL CABINETS, LAMINATE, 12" WIDE
3 - BASE CABINETS, LAMINATE, SOLID SURFACE TOP, 24" WIDE
2 - BASE CABINETS, LAMINATE, LAMINATE TOP, 24"
2 - BASE CABINETS, LAMINATE, SOLID SURFACE TOP, 12" WIDE
2 - BASE CABINETS, LAMINATE, SOLID SURFACE TOP, 18" WIDE

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

TANIS/BIEDERMAN: continued

MECHANICAL EQUIPMENT:

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
- 14 - WATER CLOSETS
- 16 - LAVATORIES
- 6 - URINALS
- 2 - SANITARY SINKS
- 3 - DRINKING FOUNTAINS
- 1 - WATER HEATER, ELECTRIC, 200 GALLON
- 1 - HOSPITAL SINK, STAINLESS STEEL

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES; DISTRIBUTION PANEL, TRANSFORMERS

HEATING AND AIR CONDITIONING -
- STEAM FROM POWERHOUSE
- McQUAY MODEL MSL164BH AIR HANDLING UNIT
- McQUAY MODEL WHR080B2 PACKAGED WATER CHILLER, 70-TON
- HEATING PUMPS AND CHILLED WATER PUMPS AS REQUIRED
- LIEBERT COMPUTER ROOM CONDENSING UNIT
- KOLDWAVE AIR CONDITIONING UNIT
- MITSUBISHI PKG-30F WALL MOUNT AIR CONDITIONER
- MITSUBISHI CONDENSING UNIT
- BRYANT MODEL 580FEV151224AA PACKAGED GAS HEAT, 12 1/2 TON COOLING UNIT, #4907G30305
- CARRIER MODEL 48TME012-611 PACKAGED GAS HEAT, 12 TON COOLING UNIT, #1709G10902
- ABB VARIABLE FREQUENCY DRIVES

EXTERIOR WALLS - 14" CONCRETE
- FACE BRICK BLOCK BACK-UP, 12"
- DRYVIT, BLOCK BACK-UP, 8"
- 12" CONCRETE
- CURTAIN WALL

MISCELLANEOUS:
- SPRINKLERS THROUGHOUT
- COMPUTER ROOM FLOOR
- NOTIFIER
- FIRE ALARM SYSTEM
1 - AUTOMATIC DOOR OPENER
- ACCESS CONTROL SYSTEM
3 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD
BUILT: TANIS/ADMINISTRATION 1958; RENOVATED 1997
BIEDERMAN/HEALTH EDUCATION 1976; RENOVATED 2002

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: HEALTH AND SCIENCE

KIND OF BUILDING: CLASS C

NO. OF STORIES: TWO WITH PARTIAL BASEMENT, PENTHOUSE

OCCUPANCY: SCIENCE

SIZE: BASEMENT - 4,013 SQUARE FEET
1ST FLOOR - 28,195 SQUARE FEET
2ND FLOOR - 22,821 SQUARE FEET
PENTHOUSE - 6,098 SQUARE FEET

TOTAL SQUARE FEET = 61,127

FOUNDATION: CONCRETE

SUPERSTRUCTURE

FRAME - STEEL

FLOORS - CONCRETE ON GROUND; CONCRETE COMPOSITE ON METAL DECK

FLOOR COVERINGS - CARPET; LINOLEUM; PORCELAIN TILE
CERAMIC TILE

ROOF STRUCTURE - STEEL, CONCRETE ON METAL DECK

ROOF COVER - EPDM ROOF MEMBRANE WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL TILE
PERFORATED METAL TILE
GYPSUM BOARD

INTERIOR CONSTRUCTION - MASONRY AND FRAME PARTITIONS

BUILT-IN FIXTURES -
4 - DENTAL DESKS, DOUBLE FACE, WOOD, 74" WIDE
3 - TALL CABINETS, WOOD, 18" WIDE
3 - TALL CABINETS, WOOD, 42" WIDE
1 - TALL CABINET, WOOD, 30" WIDE
28 - WALL CABINETS, WOOD, 36" WIDE
3 - WALL CABINETS, WOOD, 24" WIDE
2 - WALL CABINETS, WOOD, 12" WIDE
5 - WALL CABINETS, WOOD, 30" WIDE
55 - BASE CABINETS, WITH EPOXY RESIN TOP, WOOD, 36" WIDE
5 - BASE CABINETS, WITH EPOXY RESIN TOP, WOOD, 24" WIDE
16 - BASE CABINETS, WITH EPOXY RESIN TOP, WOOD, 18" WIDE

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

HEALTH SCIENCE: continued

SUPERSTRUCTURE: continued

BUILT-IN FIXTURES - continued

2 - TALL CABINETS, WOOD, 48" WIDE
3 - TALL CABINETS, WOOD, 36" WIDE
7 - WALL CABINETS, WOOD, 24" WIDE
5 - WALL CABINETS, WOOD, 18" WIDE
5 - WALL CABINETS, WOOD, 48" WIDE
10 - WALL CABINETS, WOOD, 42" WIDE
23 - BASE CABINETS, WOOD WITH EPOXY RESIN TOP, 42" WIDE
19 - BASE CABINETS, WOOD, WITH EPOXY RESIN TOP, 21" WIDE
10 - BASE CABINETS, WOOD, EPOXY RESIN TOP, 48" WIDE
3 - BASE CABINETS, WOOD, EPOXY RESIN TOP, 15" WIDE
3 - BASE CABINETS, WOOD, EPOXY RESIN TOP, 12" WIDE
1 - BASE CABINET, WOOD, EPOXY RESIN TOP, 30" WIDE
6 - KNEE SPACE CABINET, WOOD, EPOXY RESIN TOP, 48" WIDE
1 - KNEE SPACE CABINET, WOOD, EPOXY RESIN TOP, 52" WIDE
12 - DESK, WOOD, EPOXY RESIN TOP, 45" WIDE
18 - LAMINATE BASE CABINETS, LAMINATE TOP, 36" WIDE
5 - LAMINATE BASE CABINETS, LAMINATE TOP, 18" WIDE
2 - LAMINATE BASE CABINETS, LAMINATE TOP, 30" WIDE
- BACKPACK HANGERS, WALL MOUNT
2 - ACCORDIAN PARTITIONS
2 - SENTINEL COIN OPERATED LOCKERS, 5-DOOR, 16 TIER
18 - FUME HOODS WITH CABINET BASE
10 - CORRIDOR BENCH SEATING UNITS, 20 LINEAR FEET EACH WITH 2 TABLES
- EMERGENCY EYE WASH

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
19 - WATER CLOSETS
17 - LAVATORY
6 - URINALS
2 - SANITARY SINKS
4 - DRINKING FOUNTAINS
1 - BATHTUB
1 - LOCHINVAR DOMESTIC HOT WATER TANK

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES,
- PITTWAY NOTIFIER FIRE ALARM SYSTEM
- CLOCK SYSTEM
3 - CONTROLLED POWER EMERGENCY LIGHTING CONTROLLER
- TELEPHONE, DATA, LAN AND FIBER OPTIC

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

HEALTH SCIENCE continued

SUPERSTRUCTURE: continued

HEATING AND AIR CONDITIONING -
- STEAM FROM POWER HOUSE
1 - HAAKON AIRPAK AIR HANDLING UNIT, #01-638101R
1 - TRANE EXHAUST FAN, 30 HORSEPOWER MOTOR
2 - TRANE EXHAUST FANS, 25 HORSEPOWER MOTOR
7 - TRANE UNIT HEATERS
- PUMPS AS REQUIRED
1 - TRANE RAUCD104BL0320 DOO10 ROOFTOP AIR CONDITIONING UNIT #CO1M67625
1 - TRANE RAUCD104BL0320 D0010 ROOFTOP AIR CONDITIONING UNIT #C01M67624
- TRANE PROGRAM CONTROL MODULE
- DRISTEAM VAPOR LOGIC 2 HUMIDIFIER
65 - VARIABLE AIR VOLUME TERMINAL UNITS (VAV)

EXTERIOR WALLS -
- FACE BRICK, BLOCK BACKUP, 12"
- COMPOSITE METAL PANEL SYSTEM AT FASCIA AND SOFFIT
- 1" INSULATED BUTT GLAZING IN ANOD ALUMINUM FRAME, SPLAYED MULLION AND LAP SEAL GLAZING
- 1" INSULATED GLAZING IN ANOD ALUMINUM CURTAIN WALL SYSTEM
- COMPOSITE METAL PANEL SYSTEM IN ANOD ALUMINUM CURTAIN WALL SYSTEM
- SPANDREL GLAZING IN ANOD ALUMINUM CURTAIN WALL SYSTEM

MISCELLANEOUS:
1 - OTIS PASSENGER ELEVATOR, 4 STOP, #38832
- PREFABRICATED GREENHOUSE
- LIFELINE MEDICAL AIR SYSTEM WITH 2 HITACHI 7.5 HORSEPOWER AIR COMPRESSORS
- SNOWMELT SYSTEM WITH 3 HEATWAY 1574 UNITS
- SPRINKLERS THROUGHOUT
- ACCESS CONTROL SYSTEM
5 - CAMERA SECURITY SYSTEM

BUILT: 2002

QUALITY OF CONSTRUCTION: GOOD

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: APARTMENT A
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	70,700.00
SUPERSTRUCTURE:	
FLOORS	151,100.00
FLOOR COVERINGS	137,600.00
CEILINGS	45,900.00
ROOF STRUCTURE	50,600.00
ROOF COVER	31,000.00
INTERIOR CONSTRUCTION	455,900.00
BUILT-IN FIXTURES	52,600.00
ELECTRICAL	157,900.00
PLUMBING	153,800.00
HEATING	152,900.00
MISCELLANEOUS CONSTRUCTION	41,000.00
EXTERIOR WALLS	310,800.00
TOTAL LABOR AND MATERIALS	1,811,800.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	1,938,600.00
Depreciation %	47%
Sound Valuation	1,027,500.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: APARTMENT A

KIND OF BUILDING: CLASS D

NO. OF STORIES: THREE

OCCUPANCY: APARTMENTS

SIZE
1ST FLOOR - 4,133 SQUARE FEET
2ND FLOOR - 4,133 SQUARE FEET
3RD FLOOR - 4,133 SQUARE FEET

TOTAL SQUARE FEET 12,399

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FLOORS - WOOD JOISTS, WOOD DECK; CONCRETE ON GROUND

FLOOR COVERINGS - CARPET IN APARTMENTS AND CORRIDORS
- VINYL TILE IN KITCHENS, BATHROOMS, LAUNDRY ROOM

ROOF STRUCTURE - WOOD TRUSS, WOOD DECK, HIP

ROOF COVER - SHINGLES, INSULATION

CEILINGS - GYPSUM BOARD

INTERIOR CONSTRUCTION - WOOD FRAME PARTITIONS

BUILT-IN FIXTURES - KITCHEN CABINETS WITH 2 COMPARTMENT SINK IN EACH
- 36 COMPARTMENT MAILBOX

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
12 - WATER CLOSETS
23 - LAVATORIES
12 - BATH TUBS
2 - WATER HEATERS, 75 GALLON

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

HEATING AND AIR CONDITIONING - WEIL-McLAIN GAS FIRED BOILER
- PUMPS AS REQUIRED
- 40-GALLON EXPANSION TANK
- BASEBOARD THROUGHOUT

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

APARTMENT A: continued

SUPERSTRUCTURE: continued

EXTERIOR WALLS - WOOD FRAME, FACE BRICK

MISCELLANEOUS:

8 - BALCONIES, WOOD CONSTRUCTION WITH RAILING

- FIRE ALARM SYSTEM

2 - AWNINGS, WOOD CONSTRUCTION, 10 X 16'

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1972

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: APARTMENT B
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	70,700.00
SUPERSTRUCTURE:	
FLOORS	151,100.00
FLOOR COVERINGS	137,600.00
CEILINGS	45,900.00
ROOF STRUCTURE	50,600.00
ROOF COVER	31,000.00
INTERIOR CONSTRUCTION	455,900.00
BUILT-IN FIXTURES	52,600.00
ELECTRICAL	157,900.00
PLUMBING	153,800.00
HEATING	152,900.00
MISCELLANEOUS CONSTRUCTION	41,000.00
EXTERIOR WALLS	310,800.00
TOTAL LABOR AND MATERIALS	1,811,800.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	1,938,600.00
Depreciation %	47%
Sound Valuation	1,027,500.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: APARTMENT B

KIND OF BUILDING: CLASS D

NO. OF STORIES: THREE

OCCUPANCY: APARTMENTS

SIZE
1ST FLOOR - 4,133 SQUARE FEET
2ND FLOOR - 4,133 SQUARE FEET
3RD FLOOR - 4,133 SQUARE FEET

TOTAL SQUARE FEET 12,399

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FLOORS - WOOD JOISTS, WOOD DECK; CONCRETE ON GROUND

FLOOR COVERINGS - CARPET IN APARTMENTS AND CORRIDORS
- VINYL TILE IN KITCHENS, BATHROOMS, LAUNDRY ROOM

ROOF STRUCTURE - WOOD TRUSS, WOOD DECK, HIP

ROOF COVER - SHINGLES, INSULATION

CEILINGS - GYPSUM BOARD

INTERIOR CONSTRUCTION - WOOD FRAME PARTITIONS

BUILT-IN FIXTURES - KITCHEN CABINETS WITH 2 COMPARTMENT SINK IN EACH
- 36 COMPARTMENT MAILBOX

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
12 - WATER CLOSETS
23 - LAVATORIES
12 - BATH TUBS
2 - WATER HEATERS, 75 GALLON

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

HEATING AND AIR CONDITIONING - WEIL-McLAIN GAS FIRED BOILER
- PUMPS AS REQUIRED
- 40-GALLON EXPANSION TANK
- BASEBOARD THROUGHOUT

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

APARTMENT B: continued

SUPERSTRUCTURE: continued

EXTERIOR WALLS - WOOD FRAME, FACE BRICK

MISCELLANEOUS:

8 - BALCONIES, WOOD CONSTRUCTION WITH RAILING

- FIRE ALARM SYSTEM

2 - AWNINGS, WOOD CONSTRUCTION, 10 X 16'

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1972

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: APARTMENT C
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	70,700.00
SUPERSTRUCTURE:	
FLOORS	151,100.00
FLOOR COVERINGS	137,600.00
CEILINGS	45,900.00
ROOF STRUCTURE	50,600.00
ROOF COVER	31,000.00
INTERIOR CONSTRUCTION	455,900.00
BUILT-IN FIXTURES	52,600.00
ELECTRICAL	157,900.00
PLUMBING	153,800.00
HEATING	152,900.00
MISCELLANEOUS CONSTRUCTION	41,000.00
EXTERIOR WALLS	310,800.00
TOTAL LABOR AND MATERIALS	1,811,800.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	1,938,600.00
Depreciation %	47%
Sound Valuation	1,027,500.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: APARTMENT C

KIND OF BUILDING: CLASS D

NO. OF STORIES: THREE

OCCUPANCY: APARTMENTS

SIZE
1ST FLOOR - 4,133 SQUARE FEET
2ND FLOOR - 4,133 SQUARE FEET
3RD FLOOR - 4,133 SQUARE FEET

TOTAL SQUARE FEET 12,399

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FLOORS - WOOD JOISTS, WOOD DECK; CONCRETE ON GROUND

FLOOR COVERINGS - CARPET IN APARTMENTS AND CORRIDORS
- VINYL TILE IN KITCHENS, BATHROOMS, LAUNDRY ROOM

ROOF STRUCTURE - WOOD TRUSS, WOOD DECK, HIP

ROOF COVER - SHINGLES, INSULATION

CEILINGS - GYPSUM BOARD

INTERIOR CONSTRUCTION - WOOD FRAME PARTITIONS

BUILT-IN FIXTURES - KITCHEN CABINETS WITH 2 COMPARTMENT SINK IN EACH
- 36 COMPARTMENT MAILBOX

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
12 - WATER CLOSETS
23 - LAVATORIES
12 - BATH TUBS
2 - WATER HEATERS, 75 GALLON

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

HEATING AND AIR CONDITIONING - WEIL-McLAIN GAS FIRED BOILER
- PUMPS AS REQUIRED
- 40-GALLON EXPANSION TANK
- BASEBOARD THROUGHOUT

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

APARTMENT C: continued

SUPERSTRUCTURE: continued

EXTERIOR WALLS - WOOD FRAME, FACE BRICK

MISCELLANEOUS:

8 - BALCONIES, WOOD CONSTRUCTION WITH RAILING

- FIRE ALARM SYSTEM

2 - AWNINGS, WOOD CONSTRUCTION, 10 X 16'

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1972

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE REAL ESTATE - BUILDING
Bldg.: EASTERN AVENUE STORAGE BUILDING

Description	11/1/19
FOUNDATION:	4,300.00
SUPERSTRUCTURE:	
FRAME	4,800.00
FLOORS	9,000.00
CEILINGS	4,300.00
ROOF STRUCTURE	5,800.00
ROOF COVER	4,700.00
INTERIOR CONSTRUCTION	2,800.00
ELECTRICAL	4,700.00
HEATING	1,300.00
EXTERIOR WALLS	17,600.00
TOTAL LABOR AND MATERIALS	59,300.00
ARCHITECT'S PLANS AND SUPERVISION	5%

Replacement Value New	62,300.00
Depreciation %	25%
Sound Valuation	46,700.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: EASTERN AVENUE STORAGE BUILDING

QUALITY OF CONSTRUCTION: AVERAGE

SIZE WIDTH 24', LENGTH 56', HEIGHT 8'/13'

TOTAL SQUARE FEET = 1,344

KIND OF BUILDING: CLASS D

NO. OF STORIES: ONE

OCCUPANCY: STORAGE

FOUNDATION: WOOD

SUPERSTRUCTURE:

FRAME - WOOD

FLOORS - CONCRETE ON GROUND

CEILINGS - PARTICLE BOARD WITH INSULATION

ROOF STRUCTURE - WOOD JOISTS

ROOF COVER - METAL DECK

INTERIOR CONSTRUCTION - ONE WOOD FRAME PARTITION

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT

HEATING - 2 - ELECTROMODE SUSPENDED ELECTRIC UNIT HEATERS

EXTERIOR WALLS - WOOD FRAME, METAL SIDING, SINGLE WALL;
SLIDING METAL DOOR, 99 X 89",
- WOOD FRAME METAL SIDING WITH PARTICLE BOARD
INTERIOR, INSULATION

BUILT: 1992 - ADDITION 1994

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: APPEL BIOLOGY LAB
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	4,100.00
SUPERSTRUCTURE:	
FRAME	2,700.00
FLOORS	12,000.00
FLOOR COVERINGS	14,200.00
CEILINGS	5,300.00
ROOF STRUCTURE	11,300.00
ROOF COVER	5,300.00
INTERIOR CONSTRUCTION	23,300.00
BUILT-IN FIXTURES	10,100.00
ELECTRICAL	11,800.00
PLUMBING	15,100.00
HEATING	4,900.00
EXTERIOR WALLS	37,500.00
TOTAL LABOR AND MATERIALS	157,600.00
ARCHITECT'S PLANS AND SUPERVISION	5%

Replacement Value New	165,500.00
Depreciation %	61%
Sound Valuation	64,500.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: APPEL BIOLOGY LAB - 1891 SARNS RD.

TYPE OF BUILDING: RESIDENTIAL RANCH, CLASS D

NO. OF STORIES: ONE

OCCUPANCY: FIELD LABORATORY WITH CONFERENCE ROOM

TOTAL SQUARE FEET = 1,160, MORE OR LESS

FOUNDATION: CONCRETE BLOCK

SUPERSTRUCTURE:

FRAME - WOODEN FRAME

FLOORS - WOODEN DECK

FLOOR COVERINGS - ASPHALT TILE IN LABORATORY AND DINING AREA
HARDWOOD IN CONFERENCE ROOM, CARPET TILES

CEILINGS - WOOD TOUNGUE AND GROOVE GYPSUM BOARD

ROOF STRUCTURE - WOODEN GABLE

ROOF COVER - ASPHALT SHINGLES

INTERIOR CONSTRUCTION - WOOD FRAME DRYWALL PARTITIONS
- PINE SIDING IN CONFERENCE ROOM

BUILT-IN FIXTURES - 1 - FIREPLACE, BRICK MANTLE
- LAB COUNTER, 30 LINEAR FT. WITH STAINLESS STEEL SINK
1 - YOUNGSTOWN METAL KITCHEN SINK

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
1 - WATER CLOSET
1 - LAVATORY
1 - URINAL
1 - KITCHEN SINK
1 - WATER HEATER, 18 GALLON

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES, INCANDESCENT AND FLUORESCENT FIXTURES

HEATING - RUDD GAS FIRED FURNACE WITH DUCTWORK

EXTERIOR WALLS - VINYL SIDING, WINDOWS IN VINYL SASH

QUALITY OF CONSTRUCTION: AVERAGE
BUILT: 1950'S, RENOVATED IN 1983

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: AVIATION
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	113,600.00
SUPERSTRUCTURE:	
FRAME	275,600.00
FLOORS	213,000.00
FLOOR COVERINGS	40,400.00
CEILINGS	35,100.00
ROOF STRUCTURE	206,400.00
ROOF COVER	212,100.00
INTERIOR CONSTRUCTION	228,300.00
BUILT-IN FIXTURES	11,800.00
ELECTRICAL	311,500.00
PLUMBING	104,400.00
HEATING	92,800.00
MISCELLANEOUS CONSTRUCTION	191,000.00
EXTERIOR WALLS	421,700.00
TOTAL LABOR AND MATERIALS	2,457,700.00
ARCHITECT'S PLANS AND SUPERVISION	6%

Replacement Value New	2,605,200.00
Depreciation %	43%
Sound Valuation	1,485,000.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: AVIATION - 2550 AERO PARK DRIVE

KIND OF BUILDING: CLASS S/C

NO. OF STORIES: ONE

OCCUPANCY: AVIATION HANGAR WITH REPAIR AREA, OFFICES AND CLASSROOMS

TOTAL SQUARE FEET = 20,912 WITH 1,750 SQUARE FT. STORAGE MEZZANINE

FOUNDATION: POURED CONCRETE FOOTINGS, REINFORCED

SUPERSTRUCTURE:

FRAME - STEEL I BEAMS AND COLUMNS

FLOORS - 4" POURED CONCRETE ON SAND FILL
- CONCRETE DECK, MEZZANINE

FLOOR COVERINGS - VINYL ASBESTOS
- CARPETING IN OFFICES AND CLASSROOMS

ROOF STRUCTURE - 1/2" METAL DECK ON RIGID FRAME
- OPEN STEEL FOR METAL

ROOF COVER - SINGLE MEMBRANE WITH INSULATION
- METAL, PRE-ENGINEERED WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL IN OFFICES, CORRIDORS AND CLASSROOMS

INTERIOR CONSTRUCTION - MASONRY BLOCK PARTITIONS

BUILT-IN FIXTURES - 1 - FOLDING PARTITION WALL
- CHALKBOARDS AND TACKBOARDS IN CLASSROOMS
1 - LAMINATE KITCHENETTE COUNTER WITH STAINLESS STEEL SINK

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
4 - WATER CLOSETS
5 - LAVATORIES
2 - URINALS
2 - SANITARY SINKS
1 - RHEEM 50-GALLON WATER HEATER
1 - WATER COOLER

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

AVIATION: continued

SUPERSTRUCTURE: continued

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES, FLUORESCENT TUBE FIXTURES, LED LIGHT FIXTURES IN HANGAR
SQUARE D PANEL BOARD

HEATING AND AIR CONDITIONING -
2 - RUUD GAS FIRED FORCED AIR FURNACES W/AIR CONDITIONING
1 - APPLIED AIR MODEL GIF-100LH UNIT HEATER, 1,250,000 BTU
2 - ARCOAIRE ROOFTOP CONDENSING UNITS WITH INSULATION

EXTERIOR WALLS - PRE-ENGINEERED METAL SIDING; 8" FLUTED BLOCK AND MAIN ENTRANCE

MISCELLANEOUS:

1 - ALUMINUM FOLD-UP HANGAR DOOR, 80' X 20' WITH ELECTRIC OPENING SYSTEM

1 - ALUMINUM FOLD-UP DOOR, 50 X 20' WITH ELECTRIC OPENING SYSTEM

1 - METAL STAIRWAY TO MEZZANINE

1 - FIRE ALARM SYSTEM WITH CONTROL BOX

- ACCESS CONTROL SYSTEM

3 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: AVERAGE

BUILT: 1976

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: BECKETT
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	178,000.00
SUPERSTRUCTURE:	
FRAME	406,700.00
FLOORS	504,800.00
FLOOR COVERINGS	303,700.00
CEILINGS	393,900.00
ROOF STRUCTURE	398,800.00
ROOF COVER	215,100.00
INTERIOR CONSTRUCTION	1,881,200.00
BUILT-IN FIXTURES	12,400.00
ELECTRICAL	997,400.00
PLUMBING	589,400.00
HEATING	1,253,500.00
MISCELLANEOUS	50,000.00
EXTERIOR WALLS	815,300.00
FIRE PROTECTION	172,200.00
ELEVATORS	110,700.00
TOTAL LABOR AND MATERIALS	8,283,100.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	8,862,900.00
Depreciation %	22%
Sound Valuation	6,913,100.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: BECKETT

KIND OF BUILDING: CLASS C

NO. OF STORIES: PARTIAL TWO

OCCUPANCY: CLASSROOMS/OFFICES

SIZE: FIRST FLOOR 20,221
SECOND FLOOR 14,048

TOTAL SQUARE FEET = 34,269

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - CONCRETE ON GROUND
- 6-1/2" CONCRETE SLAB ON 3" GALVANIZED METAL DECK, STEEL JOIST

FLOOR COVERINGS - VINYL TILE
- CARPET
- CERAMIC TILE
2 - RECESSED MATS

ROOF STRUCTURE - STEEL JOISTS, METAL DECK, 6-1/2" CONCRETE SLAB

ROOF COVER - SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - GYPSUM BOARD
- SUSPENDED ACOUSTIC PANEL
- SKYLIGHT
- E.I.F.S.

INTERIOR CONSTRUCTION - METAL FRAME PARTITIONS, SOME MASONARY

BUILT-IN FIXTURES -

- LAMINATE BASE CABINET, 11', WITH STAINLESS STEEL SINK

- LAMINATE WALL CABINET, 14'

- ISLAND BASE CABINET, LAMINATE, 12 X 3 X 3' HIGH

- COMPUTER ROOM WORK COUNTER, LAMINATE, 36 LINEAR FEET

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

BECKETT: continued

SUPERSTRUCTURE: continued

MECHANICAL EQUIPMENT

PLUMBING - AN MODERN SYSTEM OF SANITARY FIXTURES CONSISTING OF:
19 - WATER CLOSETS
17 - LAVATORIES
8 - URINAL
2 - SANITARY SINKS
5 - DRINKING FOUNTAINS
1 - WATER HEATER

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

- COMPUTER WIRING

HEATING AND AIR CONDITIONING -

2 - RAYPACK MODEL H-1125 GAS FIRED BOILERS, 900 MBH.
1 - IMECO MODEL EFC-C-2224 COOLING TOWER, #8823-IRH
- PUMPS AS REQUIRED
- ABB VARIABLE FREQUENCY DRIVES

EXTERIOR WALLS - CONCRETE BLOCK, FACE BRICK, 12"

MISCELLANEOUS:

- OTIS PASSENGER ELEVATOR, 2-STOP, 2500 LB. CAPACITY, #31455
- SPRINKLERS THRU-OUT
- BRIDGE WALKWAY, 12'5 X 20'
2 - AUTOMATIC DOOR OPENERS
- HONEYWELL NOTIFIER FIRE ALARM SYSTEM
- ACCESS CONTROL SYSTEM
4 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1996

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: FOUNDERS HALL
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	29,200.00
SUPERSTRUCTURE:	
FLOORS	50,100.00
FLOOR COVERINGS	44,900.00
CEILINGS	37,300.00
ROOF STRUCTURE	80,500.00
ROOF COVER	52,200.00
INTERIOR CONSTRUCTION	273,300.00
BUILT-IN FIXTURES	30,200.00
ELECTRICAL	143,100.00
PLUMBING	84,500.00
HEATING	115,600.00
MISCELLANEOUS CONSTRUCTION	20,200.00
EXTERIOR WALLS	229,100.00
TOTAL LABOR AND MATERIALS	1,190,200.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	1,273,500.00
Depreciation %	33%
Sound Valuation	853,200.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: FOUNDERS HALL

KIND OF BUILDING: CLASS C

NO. OF STORIES: ONE

OCCUPANCY: OFFICES/CONFERENCE ROOMS

TOTAL SQUARE FEET = 4,950

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FLOORS - CONCRETE ON GROUND

FLOOR COVERINGS - VINYL TILE
- CARPET
- CERAMIC TILE

ROOF STRUCTURE - STEEL JOISTS, STEEL DECK

ROOF COVER - SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL PANELS
- GYPSUM BOARD, LOBBY

INTERIOR CONSTRUCTION - MASONRY PARTITIONS
- METAL FRAME PARTITIONS

BUILT-IN FIXTURES - CABINETS IN CONFERENCE ROOMS AND WORK ROOM
- RECEPTION DESK
- BASE CABINET, OAK, 3.5 X 3.5
- BASE CABINET, OAK, STAINLESS STEEL SINK, 7-1/2'
2 - CABINETS, 2 DOOR, LAMINATE, 84" HEIGHT
- WALL CABINETS, LAMINATE, 6 X 11 X 7 X 9'
- BASE CABINETS, LAMINATE, 11 X 7
- WALL CABINETS, OAK, 7-1/2'
- BASE CABINETS, OAK, STAINLESS STEEL SINK, 5'

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
2 - WATER CLOSETS
2 - LAVATORY
1 - URINALS
1 - SANITARY SINKS
1 - DRINKING FOUNTAIN
1 - WATER HEATER

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

FOUNDERS HALL:continued

SUPERSTRUCTURE: continued

HEATING AND AIR CONDITIONING -
2 - TRANE MODEL VCD060C1HOBA COMBINATION COOLING AND HEATING UNITS, GAS FIRED, ROOF TOP
1 - TRANE YSC060 ROOFTOP GAS FIRED HEATING AND AIR CONDITIONING UNIT

EXTERIOR WALLS - FACE BRICK, BLOCK BACK-UP, 12"

MISCELLANEOUS:

- FIRE ALARM SYSTEM
- ACCESS CONTROL SYSTEM
1 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1976

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: EAST HALL
REAL ESTATE - BUILDING

Description	11/1/19
BASEMENT:	
FRAME	125,500.00
FLOOR	39,200.00
CEILING	36,400.00
EXTERIOR WALLS	44,800.00
INTERIOR PARTITION	277,100.00
ELECTRICAL	154,400.00
FOUNDATION:	331,700.00
SUPERSTRUCTURE:	
FRAME	1,175,300.00
FLOORS	911,700.00
FLOOR COVERINGS	280,600.00
CEILINGS	341,400.00
ROOF STRUCTURE	345,100.00
ROOF COVER	164,100.00
INTERIOR CONSTRUCTION	2,856,900.00
BUILT-IN FIXTURES	228,100.00
ELECTRICAL	1,445,300.00
PLUMBING	1,101,600.00
HEATING	703,000.00
MISCELLANEOUS CONSTRUCTION	350,700.00
EXTERIOR WALLS	1,238,000.00
TOTAL LABOR AND MATERIALS	12,150,900.00
ARCHITECT'S PLANS AND SUPERVISION	7%
Replacement Value New	13,001,500.00
Depreciation %	41%
Sound Valuation	7,670,900.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: EAST HALL

KIND OF BUILDING: CLASS B

NO. OF STORIES: ONE WITH BASEMENT
THREE

OCCUPANCY - DORMITORY

SIZE:

BASEMENT	5,037 SQUARE FEET
FIRST FLOOR	19,951 SQUARE FEET
SECOND FLOOR	13,650 SQUARE FEET
THIRD FLOOR	13,650 SQUARE FEET
TOTAL SQUARE FEET	52,288

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - CONCRETE COLUMNS AND BEAMS
- STEEL

FLOORS - CONCRETE ON GROUND C, CONCRETE JOISTS AND CONCRETE SLAB

FLOOR COVER - CARPET, OFFICES, LOUNGE AREAS, AND CORRIDORS
- VINYL TILE IN RESIDENT ROOMS, CORRIDORS
- CERAMIC TILE IN RESIDENT BATHROOMS

ROOF STRUCTURE - PRECAST CONCRETE TEE SLAB
- STEEL JOISTS, METAL DECK

ROOF COVER - SINGLE PLY MEMBRANE, INSULATION

CEILINGS - SUSPENDED ACOUSTICAL TILE IN OFFICES AND LOUNGE AREA BLDG C, RESIDENT ROOMS AND CORRIDOR IN BLDG. A AND B
- GYPSUM BOARD

INTERIOR CONSTRUCTION - 8" BLOCK PARTITIONS
- DOUBLE SOLID GYPSUM WALL

BUILT-IN FIXTURES -
2 - 5-DRAWER 2-DOOR WARDROBE CABINETS, WOOD, 48 X 27 X 86" HEIGHT PER RESIDENT ROOM
2 - WOOD BASE CABINETS, LAMINATE MAPLE TOP, 60 X 24" AND STAINLESS STEEL SINK
1 - LAVATORY BASE CABINET, LAMINATE, OAK EDGING IN EACH RESIDENT BATHROOM
1 - RECESSED MEDICINE CABINET AND MIRROR IN EACH RESIDENT BATHROOM
1 - CENTRAL ELEVATOR, PASSENGER ELEVATOR, 3-STOP WITH POWER OPERATED REAR DOOR, 750 LB. CAPACITY

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

EAST HALL: continued
BUILT-IN FIXTURES: continued
- MAIL BOXES, 144 DOORS
- RECEPTION DESK, LAMINATE, 15 LINEAR FT.
- INFORMATION DESK, LAMINATE, 13 LINEAR FT.
- 22 LINEAR FT. OF LAMINATE BASE CABINETS
- 22 LINEAR FT. OF LAMINATE WALL CABINETS
- LAMINATE KITCHEN CABINETS IN SUPERVISOR'S APARTMENT

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
64 - WATER CLOSETS
64 - LAVATORIES
1 - URINALS
2 - SANITARY SINKS
2 - ELECTRIC WATER COOLERS
2 - BATH TUBS
60 - PREFABRICATED FIBERGLASS SHOWERS
2 - LAUNDRY TUBS
1 - WATER HEATER, STEAM HEATED, 6' DIAMETER X 9' LONG

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

HEATING AND AIR CONDITIONING -
2 - LOCHIVAR MODEL FTX850N-M13, GAS FIRED TUBE BOILER
- EXHAUST FANS AS REQUIRED
- PUMPS AS REQUIRED
3 - LIEBERT AIR CONDITIONING UNIT WITH CONDENSING UNIT
2 - DUCANE MODEL AC10B24A CONDENSING UNIT
1 - DUCANE MODEL AC10B36B CONDENSING UNIT
1 - DUCANE MODEL AC10B42 CONDENSING UNIT
1 - DUCANE MODEL AC10B60 CONDENSING UNIT
1 - DUCANE MODEL AC10B24 CONDENSING UNIT
1 - DUCANE MODEL AC10B18 CONDENSING UNIT
1 - MITSUBISHI CONDENSING UNIT
- UNIT AND CABINET HEATERS

EXTERIOR WALLS - FACE BRICK, BLOCK BACK-UP, 12"
- EIFS CANOPY
- INSULATED GLASS IN ALUMINUM FRAME

MISCELLANEOUS - HONEYWELL NOTIFIER FIRE ALARM SYSTEM WITH SMOKE DETECTORS
- SPRINKLERS THROUGHOUT
- ACCESS CONTROL SYSTEM
4 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD
BUILT: 1967; RENOVATION OF LOBBY AND BASEMENT, ADDITION OF GENERATOR ROOM,
1999; RESIDENT ROOMS RENOVATED IN 2002

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: FINE ARTS
REAL ESTATE - BUILDING

Description	11/1/19
BASEMENT:	
FLOOR	17,600.00
EXTERIOR WALLS	72,700.00
INTERIOR PARTITION	7,100.00
FOUNDATION:	110,300.00
SUPERSTRUCTURE:	
FLOORS	195,000.00
FLOOR COVERINGS	97,500.00
CEILINGS	1,700.00
ROOF STRUCTURE	434,500.00
ROOF COVER	172,200.00
INTERIOR CONSTRUCTION	1,058,300.00
BUILT-IN FIXTURES	60,200.00
ELECTRICAL	611,500.00
PLUMBING	292,600.00
HEATING	771,500.00
MISCELLANEOUS CONSTRUCTION	226,600.00
EXTERIOR WALLS	728,900.00
TOTAL LABOR AND MATERIALS	4,858,200.00
ARCHITECT'S PLANS AND SUPERVISION	8%

Replacement Value New	5,246,900.00
Depreciation %	37%
Sound Valuation	3,305,500.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: FINE ARTS

KIND OF BUILDING: CLASS D

NO. OF STORIES: ONE WITH PARTIAL BASEMENT

OCCUPANCY - ART AND MUSIC CLASSROOMS AND OFFICES

SIZE:

BASEMENT	2,076 SQUARE FEET
FIRST FLOOR	18,800 SQUARE FEET
TOTAL SQUARE FEET	18,800

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - WOOD

FLOORS - CONCRETE ON GROUND

FLOOR COVER - CARPET, CORRIDORS, MUSIC, CLASSROOMS, OFFICES,AUDITORIUM
CERAMIC TILE RESTROOMS

ROOF STRUCTURE - WOOD TRUSS EXPOSED T & G WOOD DECK, 1-1/2" ROD AND TURN BUCKLES
- CONCRETE PLANK

ROOF COVER - ASPHALT SHINGLES, INSULATION
- SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - GYPSUM BOARD IN RESTROOMS;
- GLASS IN MUSIC PRACTICE ROOMS

INTERIOR CONSTRUCTION - MASONRY AND FRAME PARTITIONS

BUILT-IN FIXTURES -

- 175 LINEAR FEET OF CURVED OAK SEATING UNIT WITH FABRIC UPHOLSTERED CUSHIONS
- PROJECTION COUNTER CABINET, WOOD BASE, LAMINATE TOP
1 - ROLLING DOOR, METAL, 16 X 7',CERAMICS
4 - WOOD BASE CABINETS WITH STAINLESS STEEL SINK, 12'
1 - WOOD BASE CABINET WITH STAINLESS STEEL SINK, 4'
1 - WOOD BASE CABINET WITH STAINLESS STEEL SINK, 7'

FINE ARTS: continued

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
- 8 - WATER CLOSETS
- 8 - LAVATORIES
- 3 - URINALS
- 2 - SANITARY SINKS
- 1 - DRINKING FOUNTAINS
- 1 - HOT WATER GENERATOR, 150 GALLON CAPACITY
- 1 - WATER HEATER, ELECTRIC
- 1 - WATER COOLER

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- LITETRACK SYSTEM

HEATING AND AIR CONDITIONING -
- RADIANT PANELS
- 7 - CABINET UNIT HEATERS
- PUMPS AS REQUIRED
- 1 - TRANE MODEL CGAFC25EAHA1AOODE 25-TON CHILLER, #C04J07864
- 1 - TRANE MODEL RAUCC30EBX030BD00020 30-TON CONDENSING UNIT #CO4J07865
- 1 - TRANE MODEL MCCB014UAOAOUB AIR HANDLING UNIT, AHU-2
- 1 - TRANE MODEL MCCB010UAOAOUA AIR HANDLING UNIT, AHU-1
- 1 - TRANE MODEL MCCB025UADAOUA AIR HANDLING UNIT, AHU-3
- 1 - COOK RETURN AIR FAN, 2 HORSEPOWER
- 1 - TACO CHILLER, #T19843
- 1 - LOCHINVAR MODEL KBN800 GAS FIRED DIRECT VENT BOILER # G08H10057962
- 1 - LOCHINVAR MODEL KBN800 GAS FIRED DIRECT VENT BOILER # G08H10057984
- 1 - FUJITSU SPLIT SYSTEM HEATING/AIR CONDITIONING SYSTEM, RM 104
- 1 - FUJITSU MODEL A0U9RLS3H, CONDENSING UNIT, #QVN003966

EXTERIOR WALLS - WOOD STUD, RED CEDAR SIDING, PLYWOOD SHEATHING,
- INSULATION

MISCELLANEOUS - NOTIFIER FIRE ALARM SYSTEM
- 36" DIAMETER KILN STACK, 30' HEIGHT
- SPRINKLERS THUR-OUT
- 1 - MECHANICAL BUILDING WOOD CONSTRUCTION, CONCRETE SLAB, CEDAR SIDING, SINGLE PLY MEMBRANE ROOF COVER, WITH STANDING RIDGES,14' X 22' X 9/14'6", 308 SQ. FEET 308 SQ. FT.
- ACCESS CONTROL SYSTEM
- 1 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD
BUILT: 1970; MECHANICAL BUILDING 2004

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE REAL ESTATE - BUILDING Bldg.: OSTERLIN LIBRARY

Description	11/1/19
BASEMENT:	
FLOOR	71,600.00
CEILING	34,100.00
EXTERIOR WALLS	152,700.00
INTERIOR PARTITION	382,500.00
ELECTRICAL	211,700.00
FOUNDATION:	309,800.00
SUPERSTRUCTURE:	
FRAME	1,304,500.00
FLOORS	571,700.00
FLOOR COVERINGS	586,600.00
CEILINGS	324,500.00
ROOF STRUCTURE	583,200.00
ROOF COVER	339,400.00
INTERIOR CONSTRUCTION	2,202,100.00
BUILT-IN FIXTURES	222,600.00
ELECTRICAL	1,398,400.00
PLUMBING	718,200.00
HEATING	1,675,500.00
MISCELLANEOUS CONSTRUCTION	261,500.00
EXTERIOR WALLS	887,000.00
TOTAL LABOR AND MATERIALS	12,237,600.00
ARCHITECT'S PLANS AND SUPERVISION	7%
Replacement Value New	13,094,200.00
Depreciation %	42%
Sound Valuation	7,594,600.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: OSTERLIN LIBRARY

KIND OF BUILDING: CLASS B

NO. OF STORIES: PARTIAL TWO WITH BASEMENT

OCCUPANCY - MEDIA CENTER, OFFICES AND CLASSROOMS

SIZE:

BASEMENT	7,048 SQUARE FEET
FIRST FLOOR	30,760 SQUARE FEET
SECOND FLOOR	8,926 SQUARE FEET
TOTAL SQUARE FEET	46,734 MORE OR LESS

FOUNDATION: POURED REINFORCED CONCRETE FOOTINGS

SUPERSTRUCTURE:

FRAME - CONCRETE, REINFORCED I BEAMS AND COLUMNS

FLOORS - CONCRETE PRECAST TEES, SLAB ON GRADE

FLOOR COVER - CARPET, LIBRARY, OFFICES AND CLASSROOMS
CERAMIC TILE RESTROOMS
VINYL ASBESTOS TILE IN CORRIDORS
TERRAZZO IN CIRCULATION AREA (UNDER CARPET)

ROOF STRUCTURE - PRECAST CONCRETE TEES, SKYLIGHTS IN ALUMINUM FRAME

ROOF COVER - SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - PARTIAL ACOUSTIC AND SUSPENDED ACOUSTICAL

INTERIOR CONSTRUCTION - MASONRY BLOCK PARTITIONS; SOME PAINTED DRYWALL

BUILT-IN FIXTURES -
1 - ELEVATOR, 2,500 LB. CAPACITY WITH 3 STOPS, 2 DOORS
2 - LAMINATE A.V. REPAIR COUNTERS
1 - KREONITE PLASTIC DARKROOM SINK WITH LAMINATE WORK COUNTERS
1 - REVOLVING DARKROOM DOOR
1 - WOODEN SHOWCASE, 19'6" X 4' X 90" HEIGHT, SLIDING GLASS DOORS
- ALUMINUM FRAME MARKING BOARDS IN CLASSROOMS
1 - SERVICE DESK, LAMINATE 'L' SHAPE, 18 L.F.
1 - SERVICE DESK, LAMINATE, 20 L.F.
1 - CIRCULATION DESK, LAMINATE 'D' SHAPE, 50 L.F.
1 - ISLAND CIRCULATION COUNTER, LAMINATE, 10 L.F.
- LOCKERS

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

OSTERLIN LIBRARY: continued

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
13 - WATER CLOSETS
18 - LAVATORIES
5 - URINALS
2 - SANITARY SINKS
4 - DRINKING FOUNTAINS
1 - HOT WATER HEATER, RHEEM, 82-GALLON

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- FLUORESCENT TUBE FIXTURES;
- WIRING FOR T.V. PRODUCTION STUDIO WITH STAGE LIGHTING GRID

HEATING AND AIR CONDITIONING -
1 - TRANE MODEL MCCB025UAOCOUB AIR HANDLING UNIT, AHU-4
1 - TRANE MODEL RAUCD124BNC320D0010 125 TON CONDENSING UNIT, #CO4B01452
- CABINET AND UNIT HEATERS AS REQUIRED
1 - BOHN MODEL HCS144LF AIR HANDLER
1 - BOHN MODEL HCSZ1AMF AIR HANDLER
1 - BOHN MODEL HMZ26ALF AIR HANDLER
1 - TACO CHILLER
- STEAM FROM POWERHOUSE
- ABB VARIABLE FREQUENCY DRIVES

EXTERIOR WALLS - FACE BRICK ON CONCRETE BLOCK
- WINDOWS IN ALUMINUM SASH
- DRYVIT ON BRICK - SOUTH ELEVATION

MISCELLANEOUS - FIRE ALARM SYSTEM WITH NOTIFIER AFP-200 CONTROL BOX
2 - AUTOMATIC DOOR OPENERS
- SPRINKLERS THRU-OUT
- ACCESS CONTROL SYSTEM
5 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1961 - MAIN BUILDING
1983 - ADDITION

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE REAL ESTATE - BUILDING Bldg.: MUSEUM/AUDITORIUM

Description	11/1/19
FOUNDATION:	409,300.00
SUPERSTRUCTURE	
FRAME	919,700.00
FLOORS	612,800.00
FLOOR COVERINGS	604,000.00
CEILINGS	290,100.00
ROOF STRUCTURE	988,300.00
ROOF COVER	1,148,900.00
INTERIOR CONSTRUCTION	3,361,800.00
BUILT-IN FIXTURES	1,412,500.00
ELECTRICAL	1,839,300.00
PLUMBING	601,000.00
HEATING	2,259,400.00
MISCELLANEOUS CONSTRUCTION	453,000.00
EXTERIOR WALLS	2,642,600.00
TOTAL LABOR AND MATERIALS	17,542,700.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	18,770,700.00
Depreciation %	20%
Sound Valuation	15,016,600.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: MUSEUM/AUDITORIUM

KIND OF BUILDING: CLASS C

NO. OF STORIES: ONE

OCCUPANCY - MUSEUM/AUDITORIUM

SIZE: TOTAL SQUARE FEET 55,085

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - CONCRETE ON GROUND

FLOOR COVER - CARPET IN OFFICES, LOBBY, GIFT SHOP, AUDITORIUM
CERAMIC TILE IN RESTROOMS AND CLASSROOMS
HARDWOOD FLOORS IN EXHIBIT A, B, AND C, STAGE
MARBLE TILE IN LOBBY, RECEPTION, COATS, SCULPTURE COURT, CORRIDOR, VESTIBULE, VINYL TILE IN STORAGE SERVING

ROOF STRUCTURE - OPEN WEB STEEL JOISTS, 1-1/2" METAL DECK
- 8' RADIUS QUARTER VAULT SKYLIGHT

ROOF COVER - STONE BALLAST ON SINGLE PLY ROOF MEMBRANE OVER STEPPED INSULATION OVER 3" RIGID INSULATION

CEILINGS - SUSPENDED ACOUSTICAL PANEL IN OFFICES
- SUSPENDED GYPSUM BOARD
- SUSPENDED CEILING PANELS, AUDITORIUM

INTERIOR CONSTRUCTION - MASONARY AND METAL FRAME PARTITIONS

BUILT-IN FIXTURES -
367 - PLASTIC FIXED THEATER SEATS WITH FABRIC UPHOLSTERED SEAT
3 - LOBBY DISPLAY CASES, SLIDING GLASS DOORS, 12 X 5'
32 - THEATER SEATS, PLASTIC FIXED WITH FABRIC UPHOLSTERED
1 - CURVED OAK RECEPTION DESK, 5' RADIUS LAMINATE WORK SURFACE
- LOBBY CURVED BENCH, OAK TOP
- OFFICE CASEWORK, LAMINATE
- KITCHEN CASEWORK, LAMINATE
- STAINLESS STEEL RINSE SINK
- LIGHTING GRID WITH LED LIGHTS
2 - FOLDING PARTITIONS
- PROJECTION SCREEN
- WINDOW TREATMENT

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

MUSEUM/AUDITORIUM: continued

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
15 - WATER CLOSETS
14 - LAVATORIES
4 - URINALS
2 - DRINKING FOUNTAIN
1 - LOCHINVAR 92-GALLON WATER HEATER
1 - JOHNSON COMPUTERIZED
2 - SHOWERS
1 - ELECTRIC WATER HEATER

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
PHONE, DATA AND VIDEO LINES CONDUIT

HEATING AND AIR CONDITIONING -
1 - TRANE MODEL CCDB35MEOM DRAW THROUGH CLIMATE CHANGER, #AHU-1
2 - NORTEC CONTROLLER HUMIDIFIERS
1 - JOHNSON THERMOSTATIC CONTROL
1 - TRANE MODEL 14-C CLIMATE CHANGER, #AHU-2
1 - TRANE MODEL 17-C CLIMATE CHANGER, #AHU-3
- PUMPS AS REQUIRE
1 - TRANE MODEL RAUJD10EBA132000010, 100 TON CHILLER #C10H04015
1 - LOCHINVAR KNIGHT MODEL KBN801 GAS FIRED BOILER, #F10H10143653
1 - LOCHINVAR KNIGHT MODEL KBN801 GAS FIRED BOILER, #F10H10143667
1 - TRANE MMDEL CSAA021UAL00, CLIMATE CHANHER AIR HANDLING UNIT #K17A04961 #AHU-4
1 - THERMA-STOR MODEL HI-E DRY 100 DEHUMIDIFIER
1 - DRI-STEEM MODEL GTS200, STEAM HUMIDIFIER
1 - LOCHINVAR MODEL WHN285, GAS , WALL-MOUNT BOILER, #1607102616001
1 - TRANE MODEL RAUJC30EB, ROOF TOP CONDENSING UNIT
1 - LOCHINVAR MODEL WHN285, GAS , WALL-MOUNT BOILER, #1603102505085
1 - ENVIRONMENTAL TECHNOLOGY MODEL APS-3C, SNOW/ICE MELTING CONTROLLER
77 - VAV BOXES

EXTERIOR WALLS - 4" STONE VENEER, 2" RIGID INSULATION, BLOCK BACK-UP
- 8" WITH 4" LIMESTONE BELT COURSES AND COPING
- ALUMINUM WINDOW FRAMING WITH 1" INSULATED LOW E GLAZI

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

MUSEUM/AUDITORIUM: continued

MISCELLANEOUS - ART STORAGE RACKS, TRACK MOUNTED
1 - RECESSED TRUCK DOCK WITH LEVELER
1 - SPRINKLERS THROUGHOUT
2 - CATWALKS
- AUDITORIUM AND MINI THEATER SOUND SYSTEM
- HOUSE PAGING SYSTEM
2 - ROLLING STEEL DOORS WITH ELECTRIC OPERATOR
- ALARM SYSTEM
- ACCESS CONTROL SYSTEM
- SECURITY SYSTEM
3 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: EXCELLENT
BUILT: 1991, ADDITION 2017

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: OBSERVATORY
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	9,900.00
SUPERSTRUCTURE:	
FLOORS	16,800.00
FLOOR COVERINGS	12,300.00
CEILINGS	10,400.00
ROOF STRUCTURE	20,200.00
ROOF COVER	14,100.00
INTERIOR CONSTRUCTION	59,100.00
BUILT-IN FIXTURES	69,100.00
ELECTRICAL	44,900.00
PLUMBING	25,700.00
HEATING	19,300.00
MISCELLANEOUS	14,100.00
EXTERIOR WALLS	98,500.00
TOTAL LABOR AND MATERIALS	414,400.00
ARCHITECT'S PLANS AND SUPERVISION	6%

Replacement Value New	439,300.00
Depreciation %	38%
Sound Valuation	272,400.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: OBSERVATORY - BRIMLEY ROAD

KIND OF BUILDING: CLASS C

NO. OF STORIES: ONE WITH 2 STORY TELESCOPE RECESS

OCCUPANCY - OBSERVATORY WITH CLASSROOM

SIZE: TOTAL SQUARE FEET 1,624 MORE OR LESS

FOUNDATION: POURED CONCRETE

SUPERSTRUCTURE:

FRAME - STRUCTURAL STEEL

FLOORS - 4" REINFORCED CONCRETE

FLOOR COVER - CARPET IN CLASSROOMS, VINYL ASBESTOS TILE

ROOF STRUCTURE - STEEL DECK ON JOIST

ROOF COVER - SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL

INTERIOR CONSTRUCTION - FEW MASONRY PARTITION:
- GYPSUM BOARD WALL COVER

BUILT-IN FIXTURES -

1 - ASH-DOME HEMISPHERE ALUMINIZED STEEL TELESCOPE DOME, 14' DIAMETER WITH SHUTTER SYSTEM

1 - CIRCULAR STAIRWAY TO TELESCOPE ACESS

1 - LAMINATE DARKROOM COUNTER WITH STAINLESS STEEL SINK

1 - ALUMINUM FRAME CHALKBOARD, 20 X 4'

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
1 - WATER CLOSET
1 - LAVATORY
1 - SANITARY SINK
1 - DRINKING FOUNTAIN
1 - HOT WATER HEATER, 8 GALLON

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

OBSERVATORY: continued

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- FLUORESCENT TUBE FIXTURES

HEATING AND AIR CONDITIONING -

1 - TRANE MODEL GXX110F GAS FIRED FORCED AIR FURNACE 110,000 BTU/HR

MISCELLANEOUS - ACCESS CONTROL SYSTEM
1 - CAMERA SECURITY SYSTEM

EXTERIOR WALLS - CONCRETE BLOCK WITH EARTH BERM STUCCO FINISH
- FEW WINDOWS IN ALUMINUM SASH

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1981

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: OLESON CENTER
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	59,000.00
SUPERSTRUCTURE:	
FRAME	128,300.00
FLOORS	107,500.00
FLOOR COVERINGS	44,400.00
CEILINGS	66,200.00
ROOF STRUCTURE	167,400.00
ROOF COVER	113,100.00
INTERIOR CONSTRUCTION	618,500.00
BUILT-IN FIXTURES	174,400.00
ELECTRICAL	314,400.00
PLUMBING	185,700.00
HEATING AND AIR CONDITIONING	254,600.00
MISCELLANEOUS CONSTRUCTION	109,100.00
EXTERIOR WALLS	206,200.00
TOTAL LABOR AND MATERIALS	2,548,800.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	2,727,200.00
Depreciation %	25%
Sound Valuation	2,045,400.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: OLESON CENTER

KIND OF BUILDING: CLASS C

NO. OF STORIES: ONE

OCCUPANCY - CLASSROOM

SIZE: TOTAL SQUARE FEET 10,398

FOUNDATION: POURED CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - 4" CONCRETE SLAB ON SAND FILL

FLOOR COVER - CARPET IN OFFICES, CLASSROOMS; CERAMIC TILE IN KITCHEN; VINYL IN BATHROOMS, CLASSROOM 112

ROOF STRUCTURE - STEEL DECK ON STEEL JOIST
- HIP ROOF ON JOISTS AND TRUSSES, 1/2" PLYWOOD WITH INSULATION

ROOF COVER - ASPHALT SHINGLES, SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL; GYPSUM BOARD

INTERIOR CONSTRUCTION - MASONRY BLOCK PARTITIONS

BUILT-IN FIXTURES -
1 - HARFORD WALK-IN COOLER, 6 X 12'
2 - FOLDING PARTITION WALLS, 30 X 9'
- TOILET PARTITIONS
4 - PREP TABLES, 4-DOOR, LAMINATE, STAINLESS STEEL DOUBLE SINK, 84 X 30"
2 - GREENHECK STAINLESS STEEL GHEW900S CANOPY HOODS WITH EXHAUST FAN, LIGHTS, 108 X 42 X 24"
2 - DISH TABLES, STAINLESS STEEL WITH SINK, 96 X 30"
1 - HARFORD DURACOOL 86025-1161OR ROOFTOP WALK-IN COOLER REFRIGERATION UNIT, #H192OAC
2 - HOBART LXIH STAINLESS STEEL WAREWASHER
2 - INSINKERATOR SS-150 DISPOSER AND PRERINSE
2 - ANSUL FIRE PROTECTION SYSTEMS
2 - WALL SHELVES, STAINLESS STEEL, 24 X 18"
- VISUAL DISPLAY BOARDS
- WINDOW TREATMENT
1 - WORKSURFACE LAMINATE WALL MOUNTED 'L' SHAPE 19 LINEAR FT.
- BASE CABINET LAMINATE 2-STAINLESS STEEL SINK 22.5 LINEAR FT.
- WALL CABINETS LAMINATE 25.5 LINEAR FT.

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

OLESON CENTER: continued

BUILT-IN FIXTURES - continued
3 - COAT RACKS, OAK WALL MOUNTED, 39X16"
3 - COAT RACKS, OAK WALL MOUNTED, 48X16"

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
7 - WATER CLOSETS
6 - LAVATORIES
2 - URINALS
2 - SANITARY SINKS
2 - DRINKING FOUNTAINS
1 - RHEEM RUUD 91 GALLON GAS WATER HEATER
1 - RHEEM WATER HEATER, ELECTRIC

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- FLUORESCENT TUBE FIXTURES
- INCANDESCENT SPOTLIGHTS IN LOBBY AND MEETING ROOMS

HEATING AND AIR CONDITIONING -
1 - TRANE YSC092A3RLA2FDOAO10/0300 PACKAGED GAS/ELECTRIC ROOFTOP UNIT, 7-1/2 TON CAPACITY, #635102686L
1 - TRANE YSC092A3RHA2FDOAOF11B10300 PACKAGED GAS/ELECTRIC ROOFTOP UNIT, 7-1/2 TON CAPACITY, #635102986L
1 - TRANE YSC048A3RHA2MD2A101300 PACKAGED GAS/ELECTRIC ROOFTOP UNIT, 4-TON CAPACITY, #635102880L
1 - TRANE YSC060A3RHA2TD2AOA/B10300 PACKAGED GAS/ELECTRIC ROOFTOP UNIT, 5 TON CAPACITY, #635102790L
1 - TRANE YSCO60A3RHA2TD2AOA/B10300 PACKAGED GAS/ELECTRIC ROOFTOP UNIT, 5-TON CAPACITY, #6351026654L
1 - AAON INC. RM-013-8-0-AA02-367 PACKAGED GAS/ELECTRIC ROOFTOP UNIT, 13-TON CAPACITY, #200609-AMGK28824

EXTERIOR WALLS - 8" CONCRETE BLOCK WITH FLUSH WOOD SIDING
- WINDOWS IN ALUMINUM SASH
8" SPLIT FACED CONCRETE BLOCK

MISCELLANEOUS -
1 - SPRINKLER SYSTEM THRU-OUT
1 - NOTIFIER MODEL APF - 200 FIRE ALARM CONTROL SYSTEM
1 - CANOPY, CONCRETE/STEEL, 6 X 12'
- ACCESS CONTROL SYSTEM
2 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: VERY GOOD

BUILT: 1978; ADDITION AND RENOVATED IN 2006

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE REAL ESTATE - BUILDING Bldg.: PHYSICAL EDUCATION

Description	11/1/19
FOUNDATION:	178,500.00
SUPERSTRUCTURE:	
FRAME	457,200.00
FLOORS	316,100.00
FLOOR COVERINGS	373,900.00
CEILINGS	139,800.00
ROOF STRUCTURE	313,800.00
ROOF COVER	146,400.00
INTERIOR CONSTRUCTION	1,259,800.00
BUILT-IN FIXTURES	146,300.00
ELECTRICAL	604,900.00
PLUMBING	442,600.00
HEATING AND AIR CONDITIONING	456,100.00
MISCELLANEOUS CONSTRUCTION	140,400.00
EXTERIOR WALLS	725,600.00
TOTAL LABOR AND MATERIALS	5,701,400.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	6,100,500.00
Depreciation %	51%
Sound Valuation	2,989,200.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: PHYSICAL EDUCATION

KIND OF BUILDING: CLASS C

NO. OF STORIES: ONE - PARTIAL TWO

OCCUPANCY - PHYSICAL EDUCATION

SIZE: LOWER LEVEL - 19,074 SQUARE FEET
UPPER LEVEL - 6,600 SQUARE FEET

TOTAL SQUARE FEET 25,674 MORE OR LESS

FOUNDATION: POURED REINFORCED CONCRETE

SUPERSTRUCTURE:

FRAME - STRUCTURAL STEEL WITH COLUMNS, BEAMS AND JOISTS

FLOORS - POURED CONCRETE ON GRADE, PRECAST CONCRETE

FLOOR COVER - CARPETING IN OFFICES, FITNESS CENTER; CERAMIC TILE IN SHOWER ROOMS, VINYL ASBESTOS IN CORRIDORS, HARDWOOD IN GYMNASIUM, DANCE ROOM

ROOF STRUCTURE - 2" FIBER ROOF TILE ON STEEL JOISTS

ROOF COVER - BUILT-UP COMPOSITION WITH INSULATION

CEILINGS - ACOUSTICAL TILE IN OFFICES, CLASSROOMS, LOCKER ROOMS CORRIDORS

INTERIOR CONSTRUCTION - BRICK ON BLOCK PARTITIONS INCLUDING BASKETBALL COURT, LOCKER ROOMS, CLASSROOMS OFFICE AND STORAGE ROOMS

BUILT-IN FIXTURES -

1 - ELEVATOR, 2,000 LB. CAPACITY, 2-STOPS

6 - RETRACTABLE BASKETBALL BACKSTOPS

1 - NEVCO ELECTRONIC SCOREBOARD

1 - POWER GYMNASIUM DIVIDER CURTAIN

1 - KITCHENETTE COUNTER

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

PHYSICAL EDUCATION: continued

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
14 - WATER CLOSETS
12 - LAVATORIES
5 - URINALS
2 - SANITARY SINKS
4 - DRINKING FOUNTAINS
8 - SHOWER HEADS
1 - SUPER STORE 120 GALLON WATER STORAGE TANK

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- FLUORESCENT AND INCANDESCENT FIXTURES
- HIGH PRESSURE SODIUM FIXTURES IN GYMNASIUM

HEATING AND AIR CONDITIONING -

1 - AMERICAN STANDARD 10AB 21,000 CFM HORIZONTAL AIR HANDLER UNIT
1 - AMERICAN STANDARD 104 5,400 CFM MULTIZONE VENTILATING UNIT
1 - AMERICAN STANDARD 5,600 CFM VERTICAL VENTILATING UNIT
1 - AMERICAN STANDARD 2,000 CFM VERTICAL VENTILATING UNIT
- PUMPS AS REQUIRED
- M-FLEX ADJUSTABLE SPEED CONTROLLER
1 - LOCHINVAR MODEL KBN800 GAS FIRED DIRECT VENT BOILER # G08H10057992
1 - LOCHINVAR MODEL KBN800 GAS FIRED DIRECT VENT BOILER # G08H10057954

EXTERIOR WALLS - CONCRETE BLOCK
- FACE BRICK AT VESTIBULE ENTRANCE
- DRYVITON BLOCK WALL COVER

MISCELLANEOUS -

1 - FIRE ALARM SYSTEM WITH CONTROL BOX
1 - AUTOMATIC DOOR OPENER
- SPRINKLER SYSTEM THRU-OUT
- ACCESS CONTROL SYSTEM
2 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1969

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: POWERHOUSE
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	23,100.00
SUPERSTRUCTURE:	
FRAME	55,300.00
FLOORS	37,200.00
ROOF STRUCTURE	56,000.00
ROOF COVER	40,300.00
INTERIOR CONSTRUCTION	11,300.00
ELECTRICAL	339,400.00
PLUMBING	35,500.00
HEATING	1,304,300.00
MISCELLANEOUS	6,300.00
EXTERIOR WALLS	242,600.00
TOTAL LABOR AND MATERIALS	2,151,300.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	2,301,900.00
Depreciation %	55%
Sound Valuation	1,035,900.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: POWERHOUSE

KIND OF BUILDING: CLASS C

NO. OF STORIES: ONE

OCCUPANCY - BOILER HOUSE

SIZE: TOTAL SQUARE FEET = 3,580

FOUNDATION: POURED REINFORCED CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL I BEAMS WITH JOISTS AND COLUMNS

FLOORS - CONCRETE ON GRADE

ROOF STRUCTURE - TECTUM DECK ON 18 GALLON BOX

ROOF COVER - SINGLE PLY MEMBRANE WITH INSULATION

INTERIOR CONSTRUCTION - CONCRETE BLOCK RESTROOM PARTITION, 18 X 10'

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
1 - WATER CLOSET
1 - LAVATORY
1 - URINAL
1 - 80-GALLON WATER HEATER
1 - WATER COOLER
1 - SANITARY SINK

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

- POWER WIRING DISTRIBUTION SYSTEM WITH SQUARE D SWITCHBOARD

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

POWERHOUSE: continued

HEATING AND AIR CONDITIONING -

1 - CLEAVER BROOKS MODEL CB428-500 PACKAGED BOILER, # 1-80366 2,092,000 BTU INPUT
1 - CLEAVER BROOKS MODEL CB428-700 PACKAGED BOILER, #L42353, 2,929,100 BTU INPUT
1 - CLEAVER BROOKS CR-266-200 PACKAGED BOILER, #L-48323
2 - TRANE UNIT HEATERS
1 - CLEAVER BROOKS MODEL CB-700-50-150 GAS FIRED PACKAGED BOILER # OL106948

MISCELLANEOUS - ACCESS CONTROL SYSTEM

EXTERIOR WALLS - FACE BRICK ON 12" CONCRETE BLOCK
- NORTH ELEVATION WINDOWS IN STEEL SASH
1 - OVERHEAD DOOR METAL/GLASS 12 X 10' HEIGHT

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1963

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: SCHOLARS HALL
REAL ESTATE - BUILDING

Description	11/1/19
BASEMENT:	
FRAME	591,700.00
FLOOR	203,700.00
CEILING	181,200.00
EXTERIOR WALLS	329,900.00
INTERIOR PARTITION	1,191,200.00
ELECTRICAL	594,300.00
FOUNDATION:	394,600.00
SUPERSTRUCTURE:	
FRAME	1,185,500.00
FLOORS	816,000.00
FLOOR COVERINGS	569,700.00
CEILINGS	358,500.00
ROOF STRUCTURE	404,500.00
ROOF COVER	226,700.00
INTERIOR CONSTRUCTION	2,388,400.00
BUILT-IN FIXTURES	238,200.00
ELECTRICAL	1,190,400.00
PLUMBING	1,112,000.00
HEATING	2,266,700.00
MISCELLANEOUS	42,200.00
EXTERIOR WALLS	1,117,300.00
FIRE PROTECTION	282,200.00
TOTAL LABOR AND MATERIALS	15,684,900.00
ARCHITECT'S PLANS AND SUPERVISION	7%
Replacement Value New	16,782,800.00
Depreciation %	40%
Sound Valuation	10,069,700.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: SCHOLARS HALL

KIND OF BUILDING: CLASS B

NO. OF STORIES: TWO WITH FULL BASEMENT

OCCUPANCY - CLASSROOMS, LECTURE ROOMS AND OFFICES

SIZE:

BASEMENT	19,996 SQUARE FEET
FIRST FLOOR	20,951 SQUARE FEET
SECOND FLOOR	19,092 SQUARE FEET
TOTAL SQUARE FEET	62,812 MORE OR LESS

FOUNDATION: POURED REINFORCED CONCRETE FOOTINGS

SUPERSTRUCTURE:

FRAME - CONCRETE COLUMNS AND BEAMS WITH REINFORCED CONCRETE

FLOORS - SLAB ON GRADE, PRECAST CONCRETE TEES

FLOOR COVER - CARPET IN OFFICES CORRIDORS AND CLASSROOMS;
VINYL TILE IN LABS

ROOF STRUCTURE - PRECAST CONCRETE TEES

ROOF COVER - SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL THROUGHOUT

INTERIOR CONSTRUCTION - MASONRY AND DRYWALL PARTITIONS

BUILT-IN FIXTURES -

1 - OTIS ELEVATOR, 2,000 LB. CAPACITY WITH 3 STOPS, #40562
120 - WOOD TILT-UP CHAIRS WITH TABLET ARMS
77 - WOOD TILT-UP CHAIRS WITH TABLET ARMS
4 - CORRIDOR BENCHES, VINYL UPHOLSTERY
- RECEPTION WORK STATION
- WORK ROOM CABINETS
- CLASSROOM CABINETS

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

SCHOLARS HALL: continued

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
14 - WATER CLOSETS
16 - LAVATORIES
6 - URINALS
1 - 80-GALLON WATER HEATER
4 - WATER COOLERS
2 - SANITARY SINKS

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- FLUORESCENT AND INCANDESCENT FIXTURES

HEATING AND AIR CONDITIONING -

1 - TRANE MODEL M-10 AIR HANDLING UNIT
1 - TRANE MODEL M-25 AIR HANDLING UNIT
3 - TRANE MODEL M-17 AIR HANDLING UNITS
1 - TRANE MODEL M-12 AIR HANDLING UNIT
1 - TRANE RTAC ROOFTOP AIR COOLED CHILLER, 160 TON CAPACITY
- STEAM FROM POWERHOUSE

EXTERIOR WALLS - FACE BRICK ON CONCRETE BLOCK
- WINDOWS IN ALUMINUM SASH
- 6" ALUMINUM CURTAIN WALL SYSTEM

MISCELLANEOUS -

1 - NOTIFIER FIRE ALARM SYSTEM WITH CONTROL BOX
1 - AUTOMATIC DOOR OPENER
- FIRE PROTECTION SPRINKLERS
- ACCESS CONTROL SYSTEM
3 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1963

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE
REAL ESTATE - BUILDING

Bldg.: WEST HALL
INNOVATION CENTER

Description	11/1/19
LOWER LEVEL:	
FRAME	238,900.00
FLOOR	176,300.00
CEILING	137,000.00
EXTERIOR WALLS	266,000.00
INTERIOR PARTITION	1,268,900.00
ELECTRICAL	586,600.00
FOUNDATION:	361,600.00
SUPERSTRUCTURE:	
FRAME	592,000.00
FLOORS	1,009,800.00
FLOOR COVERINGS	458,500.00
CEILINGS	339,700.00
ROOF STRUCTURE	524,700.00
ROOF COVER	205,200.00
INTERIOR CONSTRUCTION	3,144,500.00
BUILT-IN FIXTURES	660,800.00
ELECTRICAL	1,453,600.00
PLUMBING	1,077,700.00
HEATING	3,555,600.00
MISCELLANEOUS CONSTRUCTION	203,700.00
EXTERIOR WALLS	1,273,500.00
TOTAL LABOR AND MATERIALS	17,534,600.00
ARCHITECT'S PLANS AND SUPERVISION	7%
Replacement Value New	18,762,600.00
Depreciation %	8%
Sound Valuation	17,261,600.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: WEST HALL INNOVATION CENTER

KIND OF BUILDING: CLASS B/C

NO. OF STORIES: TWO WITH LOWER LEVEL, PENT HOUSE

OCCUPANCY - STUDENT CENTER, CAFETERIA, OFFICES AND LIBRARY

SIZE:

LOWER LEVEL	19,063 SQUARE FEET
FIRST FLOOR	32,065 SQUARE FEET
SECOND FLOOR	12,126 SQUARE FEET
PENT HOUSE	3,050 SQUARE FEET
TOTAL SQUARE FEET	66,304

FOUNDATION: CONCRETE FOOTINGS

SUPERSTRUCTURE:

FRAME - CONCRETE COLUMNS AND BEAMS
- STEEL

FLOORS - 4" CONCRETE SLAB ON GRADE, 2" CONCRETE TOPPING ON DOX PLANK; STEEL JOIST, METAL DECK, CONCRETE TOPPING

FLOOR COVER - CARPET TILE, QUARRY TILE IN KITCHEN, PLANK TILE

ROOF STRUCTURE - 6" DOX PLANK-PRECAST CONCRETE
- SKYLIGHTS AT COMMONS AREA

ROOF COVER - SINGLE PLY MEMBRANE WITH RIGID INSULATION

CEILINGS - SUSPENDED ACOUSTICAL TILE; GYPSUM BOARD

INTERIOR CONSTRUCTION - MASONRY PARTITIONS, AND FRAME PARTITIONS

BUILT-IN FIXTURES -
1 - HOBART CRS86A AUTOMATIC DISHWASHER WITH STAINLESS STEEL DRAINBOARD AND DISPOSAL
1 - RANGE VENTILATION HOOD, 14' X 45" WITH EXTINGUISHING SYSTEM
1 - RANGE VENTILATION HOOD, 14' X 54"
1 - TRAULSEN 4-DOOR PASS THRU REFRIGERATOR
1 - TRAULSEN 2-DOOR PASS THRU FOOD WARMER
1 - STAINLESS STEEL 3 BASIN POT SINK
1 - STAINLESS STEEL PREP TABLE, 100 X 30"
1 - STAINLESS STEEL COOKS STAND, 96" WITH VENT AND EXTINGUISHER SYSTEM

WEST HALL INNOVATION CENTER: continued

BUILT-IN FIXTURES - continued
- 1 - WALK-IN REFRIGERATOR, 10.3 X 9'
- 1 - WALK-IN FREEZER, 10.5 X 8'
- 1 - MONTGOMERY 4,000 LB. ELEVATOR WITH 2-STOPS
- 1 - MONTGOMERY 2,000 LB. ELEVATOR WITH 3-STOPS
- - LAMINATE SALES COUNTERS IN BOOKSTORE
- 1 - COFFEE COUNTER, 'J' SHAPE LAMINATE WITH AMBIENT DISPLAY CASE REFRIGERATED DISPLAY CASE
- 1 - DELI WELCOME COUNTER, IRREGULAR SHAPED WITH HOT FOOD WELL (4) COLD FOOD WELL (4), BREATH PROTECTOR
- - HOT FOOD COUNTER, LAMINATE WITH HOT WELL (5)
- 4 - HAND SINKS, STAINLESS STEEL
- - BEVERAGE COUNTER, 'S' SHAPE, LAMINATE
- - SELF SERVER COUNTER, LAMINATE WITH 2 COLD FOOD WELLS (4), BREATH PROTECTOR
- - CASHIER COUNTER, LAMINATE
- 7 - LOCKERS
- - SOILED DISH TABLE, STAINLESS STEEL
- 2 - RACK SHELVES
- 1 - KOLPAK WALK-IN REFRIGERATOR, 10 X 16'
- - CIRCULATION DESK CASE WORK

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
- 19 - WATER CLOSETS
- 15 - LAVATORIES
- 7 - URINALS
- 3 - SANITARY SINKS
- 1 - WATER HEATER
- 3 - DRINKING FOUNTAIN/BOTTLE FILLER

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- - IT CABLE
- - FIRE ALARM

HEATING AND AIR CONDITIONING - STEAM HEAT FROM POWERHOUSE
- 3 - LOCHINVAR MODEL FTXL850, GAS FIRED BOILER
- 1 - RENEWAIRE MODEL HE3X1NV, ENERGY RECOVERY VENTILATOR INDOOR UNIT
- 1 - TRANE MODEL CSAA-80, AIR HANDLING UNIT, #AHU-1
- 1 - TRANE MODEL CSAA-25 AIR HANDLER UNIT, #AHU-2
- 1 - TRANE MODEL CSAA-10 AIR HANDLER UNIT, #AHU-3
- 1 - MITSUBISHI MODEL MSY-GL18NA, MINI-SPLIT SYSTEM
- - SNOW MELT SYSTEM
- - PUMPS AS REQUIRED
- - GEOTHERMAL SYSTEM

REAL ESTATE - BUILTING NORTHWESTERN MICHIGAN COLLEGE

WEST HALL INNOVATION CENTER: continued

EXTERIOR WALLS - FACE BRICK ON CONCRETE BLOCK
- ALUMINUM CURTAIN WALL
- SOLID CORE ACM RAINSCREEN SYSTEM WITH DRY-LOC JOINTS
- KAWNEER SUN SHADE SYSTEM
- 4" HORIZONTAL INSULATED METAL PANEL SYSTEM
- ALUMINUM STOREFRONT
- BRICK VENEER, METAL STUDS

MISCELLANEOUS -
- FIRE SPRINKLERS THROUGHOUT
1 - PUBLIC ADDRESS SYSTEM, PUBLIC AREAS
1 - FIRE ALARM CONTROL SYSTEM
1 - RADIO BROADCAST ANTENNA, 100'
1 - METAL OVERHEAD DOOR WITH DOCK LEVELER
3 - AUTOMATIC DOOR OPENERS
- ACCESS CONTROL SYSTEM

QUALITY OF CONSTRUCTION: VERY GOOD

BUILT: 1963
KITCHEN AND BOOKSTORE ADDITION 2003
ADDITION AND RENOVATION 2019 AND 2020

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE
REAL ESTATE - BUILDING

Bldg.: UNIVERSITY CENTER
CAMPUS BOARDMAN LAKE

Description	11/1/19
FOUNDATION:	350,200.00
SUPERSTRUCTURE:	
FRAME	775,600.00
FLOORS	1,172,700.00
FLOOR COVERINGS	589,800.00
CEILINGS	474,800.00
ROOF STRUCTURE	355,800.00
ROOF COVER	233,700.00
INTERIOR CONSTRUCTION	3,353,400.00
BUILT-IN FIXTURES	173,100.00
ELECTRICAL	1,781,200.00
PLUMBING	1,049,400.00
HEATING	1,438,100.00
MISCELLANEOUS CONSTRUCTION	385,000.00
EXTERIOR WALLS	1,558,600.00
TOTAL LABOR AND MATERIALS	13,691,400.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	14,649,800.00
Depreciation %	30%
Sound Valuation	10,254,900.00

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: UNIVERSITY CENTER CAMPUS/BOARDMAN LAKE

KIND OF BUILDING: CLASS C

NO. OF STORIES: THREE

OCCUPANCY - OFFICE RENTAL, CLASSROOMS, OFFICES

SIZE:

TOTAL SQUARE FEET 59,460 MORE OR LESS

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - CONCRETE ON GROUND; STEEL PAN CONCRETE SLAB

FLOOR COVER - CARPET IN CLASSROOMS, OFFICES, CORRIDORS;
- CERAMIC TILE RESTROOMS
- VINYL TILE

ROOF STRUCTURE - STEEL JOIST, STEEL DECK

ROOF COVER - SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL TILE; GYPSYM BOARD

INTERIOR CONSTRUCTION - METAL FRAME PARTITIONS
- MASONRY PARTITIONS

BUILT-IN FIXTURES -

- KITCHEN CABINETS, LAMINATE WITH STAINLESS STEEL SINK

- OAK CREDENZAS, WALL MOUNTED

- LAMINATE BASE CABINETS

- MONTGOMERY HYDRAULICALLY OPERATED ELEVATOR, 3-STOP, 2,000 LB. CAPACITY #23504

- ADDITIONAL STOP FOR EXISTING OTIS ELEVATOR, 2100 LB. CAPACITY, #30485

- FOLDING PARTITION, 32 X 9', ROOMS 202 / 203

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

UNIVERSITY CENTER CAMPUS/BOARDMAN LAKE: continued

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
31 - WATER CLOSETS
26 - LAVATORIES
9 - URINALS
6 - SANITARY SINKS
6 - WATER COOLERS
1 - HOT WATER HEATER, 85-GALLON

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- TRANSFORMER

HEATING AND AIR CONDITIONING -
- MC QUAY AIR HANDLING UNIT
- MC QUAY AIR COOLED CONDENSING UNIT
- RITE MODEL 150 WATER HEATING BOILER, GAS FIRED
- PUMPS AS REQUIRED
- TRANE GAS FIRED ROOFTOP HEATING AND AIR CONDITIONING UNIT
2 - RAYPACK MODEL H3-0514A GAS FIRED BOILER
1 - LIEBERT AIR CONDITIONER
1 - LIEBERT CONDENSING UNIT
- MC QUAY MODEL LSL-108 MAKE-UP AIR UNIT
- SNYDER - GENERAL MODEL ALP037C AIR CONDITIONING UNIT #5VM0507000
- IMECO MODEL EF-C 122-2 COOLING TOWER #6391-1 RH

EXTERIOR WALLS - FACE BRICK, BLOCK BACK-UP 12"
- STEEL STUD WALLS, T & G CEDAR SIDING
- 1" INSULATED GLASS, ALUMINUM FRAME

MISCELLANEOUS - SPRINKLERS LOWER LEVEL, SECOND AND THIRD FLOOR ADDITION
- FIRELITE FIRE ALARM AND SECURITY SYSTEM
1 - AUTOMATIC DOOR OPENER
1 - BERGEY WINDPOWER WIND TURBINE WITH 70'18" TRIANGULAR GUYED TOWER, CABLE TO BUILDING, FOUNDATION,POWER INVERTER
- ACCESS CONTROL SYSTEM
5 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: VERY GOOD

BUILT: 1986; THIRD FLOOR OVER 1995 ADDITION, 2000.

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: UTILITY TUNNELS
REAL ESTATE - BUILDING

Description	11/1/19
APPROXIMATELY 6,925 SQUARE FEET OR 54,100 CUBIC FEET	
STEAM TUNNELS CONNECTING BUILDINGS SERVICED BY CENTERAL HEATING SYSTEM	
- INCLUDING LIGHTING AND DRAINAGE	
- REINFORCED CONCRETE CONSTRUCTION	
Replacement Value New	2,080,800.00
Depreciation %	52%
Sound Valuation	998,800.00

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: MAINTENANCE
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	117,700.00
SUPERSTRUCTURE:	
FRAME	99,900.00
FLOORS	116,300.00
FLOOR COVERINGS	15,800.00
CEILINGS	15,800.00
ROOF COVER	69,600.00
INTERIOR CONSTRUCTION	116,700.00
BUILT-IN FIXTURES	42,600.00
ELECTRICAL	117,100.00
PLUMBING	80,900.00
HEATING	35,600.00
MISCELLANEOUS CONSTRUCTION	95,400.00
EXTERIOR WALLS	130,600.00
TOTAL LABOR AND MATERIALS	1,054,000.00
ARCHITECT'S PLANS AND SUPERVISION	5%

Replacement Value New	1,106,700.00
Depreciation %	18%
Sound Valuation	907,500.00

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: MAINTENANCE

KIND OF BUILDING: CLASS S

NO. OF STORIES: ONE

OCCUPANCY - MAINTENANCE/STORAGE

TOTAL SQUARE FEET = 11,900

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - 6" REINFORCED CONCRETE OVER VAPOR BARRIER ON COMPACTED SAND

FLOOR COVER - VINYL COMPOSITION TILE;
- CARPET

ROOF STRUCTURE - STEEL

ROOF COVER - STANDING SEAM METAL ROOF WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL TILE; DRYWALL

INTERIOR CONSTRUCTION - FRAME PARTITIONS

BUILT-IN FIXTURES -

11 LINEAR FEET OF PLASTIC LAMINATE BASE CABINETS WITH LAMINATE TOP, CONFERENCE ROOM

11 LINEAR FEET OF PLASTIC LAMINATE WALL CABINETS, - CONFERENCE ROOM

7 LINEAR FEET OF PLASTIC LAMINATE BASE CABINET WITH SINK, LAMINATE TOP, - LUNCH ROOM

7 LINEAR FEET OF PLASTIC LAMINATE WALL CABINETS, - LUNCH ROOM

19 - LOCKERS

- TOILET PARTITIONS

6 - MINI BLINDS

175 - LINEAR FEET OF CYCLONE FENCE, 10' HEIGHT WITH 3 SWING GATES

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

MAINTENANCE: continued

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
4 - WATER CLOSETS
2 - LAVATORIES
1 - URINALS
1 - SANITARY SINKS
1 - ELECTRIC WATER COOLER
1 - HOT WATER HEATER
2 - SHOWER STALLS

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
- FLUORESCENT FIXTURES
- 400 WATT HIGH BAY FIXTURES

HEATING AND AIR CONDITIONING -
2 - REZNOR MODEL FE250 GAS FIRED SUSPENDED UNIT HEATERS
1 - PHILCO MODEL 5-TON CONDENSING UNIT
1 - PHILCO GAS FIRED FORCED AIR FURNACE WITH AIR CONDITIONING

EXTERIOR WALLS - DECORATIVE BLOCK
- METAL SIDING WITH INSULATION
2 - 12 X 10' METAL OVERHEAD DOORS

MISCELLANEOUS - FIRE SUPPRESSION SYSTEM
- ACCESS CONTROL SYSTEM

QUALITY OF CONSTRUCTION: GOOD

BUILT: 2001

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: LANDSCAPE BIN
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	6,400.00
SUPERSTRUCTURE:	
FRAME	3,100.00
FLOORS	6,300.00
ROOF STRUCTURE	4,700.00
ROOF COVER	4,800.00
EXTERIOR WALLS	7,900.00

Replacement Value New	33,200.00
Depreciation %	18%
Sound Valuation	27,200.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: LANDSCAPE BINS

KIND OF BUILDING: CLASS D

NO. OF STORIES: ONE

OCCUPANCY: STORAGE

DIMENSIONS - 45' X 15' X 8'/11' HEIGHT
- 60' X 20' X 11'/18' HEIGHT

TOTAL SQUARE FEET = 675

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - WOOD

FLOORS - CONCRETE ON SAND FILL

ROOF STRUCTURE - OPEN WOOD

ROOF COVER - METAL PANELS

INTERIOR CONSTRUCTION - FRAME PARTITIONS

EXTERIOR WALLS - WOOD

QUALITY OF CONSTRUCTION: GOOD

BUILT - 2001

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE REAL ESTATE - BUILDING
Bldg.: AUTOMOTIVE SERVICE TECHNOLOGY

Description	11/1/19
FOUNDATION:	109,100.00
SUPERSTRUCTURE:	
FRAME	248,400.00
FLOORS	189,800.00
FLOOR COVERINGS	32,700.00
CEILINGS	24,800.00
ROOF STRUCTURE	194,700.00
ROOF COVER	203,700.00
INTERIOR CONSTRUCTION	690,800.00
BUILT-IN FIXTURES	6,800.00
ELECTRICAL	502,100.00
PLUMBING	288,600.00
HEATING	133,700.00
MISCELLANEOUS CONSTRUCTION	194,300.00
EXTERIOR WALLS	499,800.00
TOTAL LABOR AND MATERIALS	3,319,300.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	3,551,700.00
Depreciation %	35%
Sound Valuation	2,308,600.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: AUTOMOTIVE SERVICE TECHNOLOGY

KIND OF BUILDING: CLASS C/S

NO. OF STORIES: ONE

OCCUPANCY - CLASSROOMS/TECHNOLOGY

TOTAL SQUARE FEET 18,328

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - CONCRETE ON SAND FILL

FLOOR COVER - CONCRETE SEALER
VINYL COMPOSITION TILE
CARPET

ROOF STRUCTURE - STEEL - STEEL JOISTS, METAL DECK

ROOF COVER - METAL STANDING SEAM WITH INSULATION
- BUILT UP COMPOSITION WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL TILE

INTERIOR CONSTRUCTION - MASONRY AND FRAME PARTITIONS;

BUILT-IN FIXTURES -
95 LINEAR FEET OF CYCLONE FENCE, 8' HEIGHT WITH 3 SWING GATES

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
4 - WATER CLOSETS
4 - LAVATORIES
1 - URINALS
1 - ELECTRIC WATER COOLER
1 - WASH FOUNTAIN
1 - WATER HEATER

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

AUTOMOTIVE SERVICE TECHNOLOGY: continued

MECHANICAL EQUIPMENT:

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES; FIRE ALARM SYSTEM

HEATING AND AIR CONDITIONING -
- VANTAGE II GAS FIRED SUSPENDED RADIANT HEAT
2 - EXHAUST WALL FANS
- ROOFTOP GAS HEATING UNIT WITH AIR CONDITIONING

EXTERIOR WALLS - FACE BRICK, BLOCK BACKUP
- 8" BLOCK
- METAL SIDING WITH INSULATION
3 - 14 X 12' OVERHEAD DOORS, METAL, ELECTRIC OPENER
1 - 16 X 12' OVERHEAD DOOR, METAL, ELECTRIC OPENER
1 - 14 X 14' OVERHEAD DOOR, METAL, ELECTRIC OPENER

MISCELLANEOUS: - AUTOMATIC FIRE SUPPRESSION SYSTEM
- COMPRESSED AIR SYSTEM
- VEHICLE EXHAUST FUME SYSTEM WITH 12 HOSE DROPS 3000 CFM CAPACITY
- ACCESS CONTROL SYSTEM
2 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD

BUILT: 1982

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE REAL ESTATE - BUILDING Bldg.: GREAT LAKES CAMPUS

Description	11/1/19
FOUNDATION:	479,700.00
SUPERSTRUCTURE:	
FRAME	1,114,200.00
FLOORS	1,411,000.00
FLOOR COVERINGS	834,800.00
CEILINGS	224,700.00
ROOF STRUCTURE	616,000.00
ROOF COVER	1,337,100.00
INTERIOR CONSTRUCTION	3,875,900.00
BUILT-IN FIXTURES	2,668,800.00
ELECTRICAL	2,526,500.00
PLUMBING	1,035,400.00
HEATING	2,709,600.00
MISCELLANEOUS	70,400.00
EXTERIOR WALLS	3,092,600.00
FIRE PROTECTION	268,700.00
TOTAL LABOR AND MATERIALS	22,265,400.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	23,824,000.00
Depreciation %	16%
Sound Valuation	20,012,200.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: GREAT LAKES CAMPUS

KIND OF BUILDING: CLASS C

NO. OF STORIES: TWO WITH PENTHOUSE

OCCUPANCY: MARITIME ACADEMY, CULINARY ARTS, CONFERENCE CENTER

SIZE: FIRST FLOOR 35,670 SQUARE FEET
SECOND FLOOR 33,050 SQUARE FEET
PENTHOUSE 6,644 SQUARE FEET

TOTAL SQUARE FEET = 75,364

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - CONCRETE ON GROUND, VAPOR BARRIER
- STEEL, CONCRETE FLOOR ON STEEL DECK

FLOOR COVERINGS - VINYL TILE
- CARPET
- CERAMIC TILE
- CARPET TILE
- LINOLEUM TILE
- THINSET TERRAZZO FLOORING

ROOF STRUCTURE - LOWER ROOF, STEEL LONG SPAN BAR JOIST, STEEL DECK
- UPPER OOR, LIGHT GAUGE MONO-TRUSSES, METAL DECK

ROOF COVER - STANDING SEAM METAL DECK, INSULATION, VAPOR BARRIER
ICE AND WATER SHIELD AT EAVE
EPDM MEMBRANE WITH INSULATION
PREFINISHED ENGINEERED SNOW RETENTION SYSTEM

CEILINGS - GYPSUM BOARD
- ACOUSTICAL CEILING TILE
- GLASS

INTERIOR CONSTRUCTION - MASONARY AND FRAME PARTITIONS

BUILT-IN FIXTURES -
INTRO LAB:
4 - PREP TABLES, STAINLESS STEEL WITH SINK
1 - EXHAUST HOOD WITH FIRE PROTECTION SYSTEM
2 - POT SINKS, 3 COMPARTMENT, STAINLESS STEEL
1 - PREP TABLE, STAINLESS STEEL, 2 COMPARTMENT SINK

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

GREAT LAKES CAMPUS - continued

BUILT-IN FIXTURES - continued
INTRO LAB: continued
4 - HAND SINKS, STAINLESS STEEL
1 - COOKS TABLE, WITH SINK, STAINLESS STEEL

GARDE MGR LAB:
1 - EXHAUST HOOD WITH FIRE PROTECTION SYSTEM
2 - COOKS TABLE, STAINLESS STEEL WITH SINK, UTENSIL RACK, DOUBLE FACE
2 - WORK TABLES, STAINLESS STEEL WITH REFRIGERATED BASE, SINK
1 - POT SINK, 3 COMPARTMENT, STAINLESS STEEL
2 - HAND SINKS, STAINLESS STEEL

BAKERY LAB:
1 - WALK-IN COOLER
1 - WALK-IN FREEZER
2 - FIRE PROTECTION SYSTEMS
1 - PREP TABLE, STAINLESS STEEL, SINK, WATER METER/FILLER
1 - PREP TABLE, 2 COMPARTMENT SINK, STAINLESS STEEL, DISPOSAL
3 - HAND SINKS, STAINLESS STEEL
1 - POT SINK, 3 COMPARTMENT STAINLESS STEEL SINK, DISPOSAL, POT WASHER
1 - EXHAUST HOOD, STAINLESS STEEL WITH FIRE PROTECTION SYSTEM

FIRST FLOOR CONFERENCE DEMO KITCHEN:
1 - WALK-IN COOLER
1 - PREP TABLE, STAINLESS STEEL WITH SINK
1 - EXHAUST HOOD WITH FIRE PROTECTION SYSTEM
1 - DEMO TABLE, STAINLESS STEEL, SINK, MIRROR
1 - PLATING TABLE, STAINLESS STEEL
1 - UTILITY COUNTER, STAINLESS STEEL
2 - ICE BIN AND WATER FILLER, STAINLESS STEEL
4 - HAND SINKS, STAINLESS STEEL
1 - POT SINK, 3 COMPARTMENT, STAINLESS STEEL
1 - HOBART DISHWASHER WITH BOOSTER HEATER, DISPOSAL
1 - DISHWASHER HOOD WITH EXHAUST FAN, STAINLESS STEEL

ADVANCED COOLING LAB/SECOND FLOOR:
1 - WALK-THRU COOLER
2 - PREP TABLES, STAINLESS STEEL WITH SINK, 8'
2 - PREP TABLES, STAINLESS STEEL WITH SINK, 7 X 5'
1 - EXHAUST HOOD WITH FIRE PROTECTION SYSTEM
1 - FRONT SERVICE COUNTER
1 - BAKERY DISPLAY CASE
1 - HOT FOOD TABLE
3 - REFRIGERATED BASE
1 - UTILITY COUNTER
1 - UTILITY COUNTER WITH SINK
1 - BEVERAGE COUNTER 'L' SHAPE, 16'

GREAT LAKES CAMPUS: continued

BUILT-IN FIXTURES - CONTINUED

ADVANCED COOKING LAB/ SECOND FLOOR: continued
2 - DISH TABLES, STAINLESS STEEL FOR DISHWASHER WITH SINK
1 - POT SINK, 3 COMPARTMENT, STAINLESS STEEL
1 - HOBART DISHWASHER WITH DISPOSAL
1 - DISHWASHER HOOD WITH EXHAUST FAN
1 - HOSE SPRAY UNIT
1 - SERVICE STATION, "L" SHAPE, STAINLESS STEEL TOP, 35 L.F.
1 - FRONT BAR
1 - BAR SERVICE STATION AND ICE BIN
2 - PERLICK BLENDER STATIONS
1 - PERLICK REFRIGERATED BACK BAR
5 - PERLICK DRAINBOARDS
2 - PERLICK ICE BIN AND SPEED RAILS
1 - BAR SINK
5 - CORNER FILLERS, STAINLESS STEEL
1 - "U" SHAPE CARIAN TOP FRONT BAR, 60 L.F.

MARITIME ACADEMY:
1 - EXHAUST FUME HOOD
15 - LOCKERS, 2 TIER
1 - OTIS ELEVATOR, 2 STOP
2 - ROLLING DOORS, METAL, 24 X 10'
3 - ROLLING DOORS, METAL, 78 X 120"
1 - ROLLING DOOR, METAL, 10 X 10'
1 - ROLLING DOOR, METAL, 15 X 10'
3 - MOVABLE PARTITIONS, 48'

CULINARY ARTS:
1 - OTIS ELEVATOR, 2-STOP
1 - WALK-IN FREEZER
2 - WALK-IN COOLERS

PLUMBING - AN MODERN SYSTEM OF SANITARY FIXTURES CONSISTING OF:
36 - WATER CLOSETS
30 - LAVATORIES
13 - URINAL
5 - JANITOR SINKS
12 - DRINKING FOUNTAINS
3 - SHOWERS
2 - STORAGE TANKS, 752 GALLON CAPACITY
3 - HELLEN BRAND MODEL H200M, WATER CONDITIONING SYSTEM

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

GREAT LAKES CAMPUS: continued

HEATING AND AIR CONDITIONING -

1 - LOCHINVAR MODEL FTX850N-M13, GAS FIRED TUBE BOILER, #1639103476412
12 - TRANE FNB04 CABINET UNIT HEATERS
3 - TRANE 90S UNIT HEATERS
4 - B & G HEATING EXCHANGERS
1 - TRANE MCC-40 AIR HANDLING UNIT, AHU-1
1 - TRANE MCC-40 AIR HANDLING UNIT, AHU-2
1 - TRANE MCC-25 AIR HANDLING UNIT, AHU-3
1 - TRANE MCC-35 AIR HANDLING UNIT, AHU-4
1 - TRANE MCC-40 AIR HANDLING UNIT, AHU-5
1 - TRANE RAUCC304 ROOFTOP CONDENSING UNIT, CU-3
1 - TRANE RAUCC504 ROOFTOP CONDENSING UNIT, CU-2
1 - TRANE RAUCC504 ROOFTOP CONDENSING UNIT, CU-1
1 - TRANE ROOFTOP CONDENSING UNIT, CU-4
1 - TRANE ROOFTOP CONDENSING UNIT, CU-5
2 - HEATWAY 1574 SNOW MELTING RADIANT FLOOR SYSTEM
87 - TRANE VAV BOXES (VARIABLE AIR VOLUME)
1 - DUO-AIRE MODEL CAA-2D ROOFTOP DIRECT GAS INDUSTRIAL MAKE-UP AIR UNIT, #565605B
1 - DUO-AIRE MODEL CAA-3D ROOFTOP DIRECT GAS INDUSTRIAL MAKE-UP AIR UNIT, #565605
1 - DUO-AIRE MODEL CAA-1D ROOFTOP DIRECT GAS INDUSTRIAL MAKE-UP AIR UNIT, #565605
1 - DUO-AIRE MODEL CAA-2D ROOFTOP DIRECT GAS INDUSTRIAL MAKE-UP AIR UNIT, #565605
1 - LOCHINVAR MODEL FTX850N-M13, GAS FIRED TUBE BOILER, #1639103476415
1 - LOCHINVAR MODEL FTX850N-M13, GAS FIRED TUBE BOILER, #1639103476426
1 - LOCHINVAR MODEL FTX850N-M13, GAS FIRED TUBE BOILER, #1639103476414
1 - LOCHINVAR MODEL FTX850N-M13, GAS FIRED TUBE BOILER, #1639103476425
1 - LOCHINVAR MODEL FTX850N-M13, GAS FIRED TUBE BOILER, #1639103476431
1 - LOCHINVAR MODEL FTX850N-M13, GAS FIRED TUBE BOILER, #1639103476428

EXTERIOR WALLS - FACE BEICK, BLOCK BACK-UP
7-1/2" STRUCTURAL CURTAIN WALL SYSTEM
WITH 1" INSULATED GLAZING UNITS
OVERHEAD DOOR, GLASS/METAL
WITH ELECTRIC OPERATOR, 20 X 16'

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

GREAT LAKES CAMPUS: continued

MISCELLANEOUS:
- MARITIME ACADEMY DECK, STEEL FRAME, CONCRETE ON METAL DECK 1,262 SQUARE FEET
- CULINARY ARTS DECK, STEEL FRAME, CONCRETE ON METAL DECK, 460 SQUARE FEET
- ACCESS CONTROL SYSTEM
- CAMERA SECURITY SYSTEM

FIRE PROTECTION - FIRE PROTECTION SPRINKLERS

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: AERO PARK LAB
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	170,200.00
SUPERSTRUCTURE:	
FRAME	529,900.00
FLOORS	207,500.00
FLOOR COVERINGS	23,500.00
CEILINGS	11,900.00
ROOF STRUCTURE	354,000.00
ROOF COVER	320,100.00
INTERIOR CONSTRUCTION	498,400.00
BUILDING FIXTURES	49,400.00
ELECTRICAL	706,400.00
PLUMBING	287,000.00
HEATING	199,100.00
MISCELLANEOUS CONSTRUCTION	447,800.00
EXTERIOR WALLS	423,300.00
TOTAL LABOR AND MATERIALS	4,228,500.00
ARCHITECT'S PLANS AND SUPERVISION	6%

Replacement Value New	4,482,200.00
Depreciation %	37%
Sound Valuation	2,823,800.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: AERO PARK LAB

TYPE OF BUILDING: CLASS C

NO. OF STORIES: ONE

OCCUPANCY: LABORATORY WITH CLASSROOM

TOTAL SQUARE FEET = 29,600, MORE OR LESS

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL
- CRANEWAY

FLOORS - CONCRETE ON GROUND

FLOOR COVERINGS - CARPET AND CERAMIC TILE

CEILINGS - SUSPENDED ACDUSTICAL CEILING SYSTEM WITH EDGE TRIM, OFFICES

ROOF STRUCTURE - STEEL JOIST, METAL DECK

ROOF COVER - SINGLE PLY MEMBRANE WITH INSULATION

INTERIOR CONSTRUCTION - MASONRYAND FRAME PARTITIONS; STORE FRONT

BUILT-IN FIXTURES -
1 - COFFEE BAR, L SHAPE, LAMINATE, 15'6" X 8'4"
1 - BASE CABINET, LAMINATE, 3-DOOR/4-DRAWER WITH STAINLESS STEEL SINK
1 - WALL CABINET, LAMINATE, 2-DOOR WITH SHELF 66" X 16" X 24"
1 - PALLET RACKING SYSTEM
- TOILET PARTITIONS
3 - ROLLING DOORS, METEL, 8' X 8'

PLUMBING - AN APPROVED SYSTEM OF SANITARY FIXTURES CONSISTING OF:
7 - WATER CLOSET
8 - LAVATORY
3 - URINAL
1 - SANITARY SINK
1 - SHOWER
4 - ELECTRIC WATER COOLER
1 - WATER HEATER

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

AERO PARK LAB: continued

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES
2000 AMP SWITCHBOARD
- SOLAR PANEL ARRAY, 3.6 KW

HEATING AND AIR CONDITIONING

1 - ABSOLUTAIRE MODEL AA6UMXDX, GAS DIRECT FIRED MAKE-UP AIR UNIT #25581
2 - AMANA HEAT PUMP SPLIT SYSTEM WITH CONDENSING AMBIENT PACKAGE
1 - RENEWAIRE MODEL HE2XRT ENERGY RECOVERY VENTILATOR
1 - FUJITSU MODEL PKA-A12GA DUCTLESS AIR CONDITIONER
1 - FUJITSU MODEL PVY-A12NHA CONDENSING UNIT
1 - BERKO MODEL SRA-2020DSAG ELECTRIC HEATER
5 - EXHAUST FANS
2 - AMERICAN STANDARD FREEDOM 95 DIRECT VENT GAS FURANCE
1 - ENERGY KNIGHT DUCTLESS AIR CONDITIONER
1 - SUSPENDEDGAS FIRED UNIT HEATER
1 - TRANE MODEL 4TTA3048D4000CA, CONDENSING UNIT, #152452UE3F

EXTERIOR WALLS - FACE BRICK, BLOCK BACK-UP
- HORIZONTAL RIBBED METAL, METAL FRAME
- METAL SIDING WITH INSULATION
- OVERHEAD DOORS

MISCELLANEOUS - AUTOMATIC FIRE SUPPRESSION SYSTEM
1 - AURORA 5 TON BRIDGE CRANE, 60' SPAN WITH YALE HOIST
1 - MEZZANINE WITH STAIRCASE
- ACOUSTICAL BAFFLES
- SKYSTREAM 3-7 WIND TURBINE, 45' TOWER
- GE EST FIRE ALARM SYSTEM
13 - WELDING BOOTHS MASONRY WITH FUME, HOODS, EXHAUST DUCT
1 - CRIB FENCE, 31 LINEAR FEET X 8' HEIGHT
1 - ATLAS COPCO MODEL GX7P, ROTARY SCREW AIR COMPRESSOR
- ACCESS CONTROL SYSTEM
12 - DOUBLE FACE WELDING BOOTHS WITH LIGHTS EXHAUST
3 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD, LEED CERTIFIED

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE
REAL ESTATE - BUILDING

Bldg.: PARSEN-STULLEN
M-TEC

Description	11/1/19
FOUNDATION:	360,600.00
SUPERSTRUCTURE:	
FRAME	1,351,500.00
FLOORS	839,100.00
FLOOR COVERINGS	756,400.00
CEILINGS	376,100.00
ROOF STRUCTURE	470,300.00
ROOF COVER	585,500.00
INTERIOR CONSTRUCTION	2,052,500.00
BUILT-IN FIXTURES	614,100.00
ELECTRICAL	1,774,200.00
PLUMBING	961,500.00
HEATING	2,250,900.00
MISCELLANEOUS CONSTRUCTION	1,580,900.00
EXTERIOR WALLS	1,556,700.00
TOTAL LABOR AND MATERIALS	15,530,300.00
ARCHITECT'S PLANS AND SUPERVISION	7%

Replacement Value New	16,617,400.00
Depreciation %	19%
Sound Valuation	13,460,100.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: PARSEN-STULLEN M-TEC

KIND OF BUILDING: CLASS C

NO. OF STORIES: TWO

OCCUPANCY - CLASSROOM

SIZE: FIRST FLOOR 42,800 SQUARE FEET
SECOND FLOOR 22,200 SQUARE FEET

TOTAL SQUARE FEET - 65,000

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - CONCRETE ON GROUND, 5 1/2" SLAB ON METAL DECK, STEEL JOISTS

FLOOR COVER - RESILIANT TILE
- CERAMIC TILE
- TERRAZZO
- CARPET

ROOF STRUCTURE - PRE-ENGINEERED BOW SPRING STEEL ROOF TRUSSES STEEL JOIST, METAL DECK
ROOF COVER - SNAP-ON STANDING SEAM CURVED METAL ROOFING, PLYWOOD DECK WITH INSULATION
- SINGLE PLY MEMBRANE WITH INSULATION

CEILINGS - SUSPENDED ACOUSTICAL PANELS
- SUSPENDED GYPSUM BOARD
- SUSPENDED PREFORMED FLUSH ALUMINUM PANELS
- SUSPENDED ALUMINUM PANELS
- SUSPENDED VINYL FACED GYPSUM PANELS

INTERIOR CONSTRUCTION - MASONRY AND FRAME PARTITION

BUILT-IN FIXTURES -

- 350 LINEAR FT. OF LAMINATE BASE CABINETS
- 225 LINEAR FT. OF LAMINATE WALL CABINETS
1 - INFORMATION DESK, LAMINATE, 20 LINEAR FT.
1 - INFORMATION DESK, LAMINATE, 13 LINEAR FT.
5 - FOLDING PARTITIONS, 28 X 9'
- LOT OF VISUAL DISPLAY BOARDS

REAL ESTATE - BUILDING - NORTHWESTERN MICHIGAN COLLEGE

M-TEC: continued

BUILT-IN FIXTURES - continued
1 - STAINLESS STEEL SINK WITH DRAINBOARD, DISPOSAL, DISHWASHER
1 - DOUBLE COMPARTMENT SINK, STAINLESS STEEL
1 - TV CABINET, LAMINATE, 48 X 24 X 84"
10 - WARDROBE CABINETS, LAMINATE, 42 X 24 X 84"
1 - ISLAND CABINET, LAMINATE, 68 X 48 X 35"
1 - ISLAND CABINET, LAMINATE, 120 X 30 X 35"
- 40 LINEAR FT. LAMINATE WITH 3-DRAWER PEDESTAL BASE, 2-DOOR BASE
- 38 LINEAR FT. LAMINATE WITH 3-DRAWER PEDESTAL BASE
20 - LOCKERS, METAL, 2-TIER, 15 X 18 X 60"
28 - LOCKERS, METAL, 2-TIER, 12 X 12 X 60"
1 - OTIS PASSENGER ELEVATOR, 2-STOP
1 - LAB FUME HOOD, 47" WITH LAMINATE BASE CABINET
3 - PENINSULA LAB BASE CABINETS, LAMINATE WITH SINK, GAS, AIR, ACID PROOF TOP, 72 X 42"
- 12 LINEAR FT. LAB BASE CABINETS, LAMINATE, ACID PROOF TOP
- TOILET PARTITIONS
- MINI BLIND WINDOW TREATMENTS
- SIGNAGE
1 - DISPLAY CASE / DIRECTORY
12 - WELDING BOOTHS MASONARY

PLUMBING - A MODERN SYSTEM OF SANITARY FIXTURES CONSISTING OF:
22 - WATER CLOSETS
25 - LAVATORIES
8 - URINALS
2 - SANITARY SINKS
6 - ELECTRIC WATER COOLERS
1 - WASH FOUNTAIN
1 - SHOWER
1 - RAYPACK GAS FIRED DOMESTIC WATER BOILER WITH 115 GALLON STORAGE TANK

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

HEATING AND AIR CONDITIONING -
1 - RAYPACK MODEL H-ADB-500 GAS FIRED BOILER
2 - RAYPACK MODEL H-ADB-750 GAS FIRED BOILERS
2 - RAYPACK MODEL H-6-962 GAS FIRED BOILERS
2 - RAYPACK MODEL H-4-1000 GAS FIRED BOILERS
1 - ITT BELL & GOSSETT HEAT EXCHANGER
2 - YORK MODEL H2CA300A46D CONDENSING UNITS, 25 TON CAPACITY
7 - YORK AIR HANDLING UNITS
1 - BALTIMORE AIR COIL MODEL F1443-0 FLUID COOLER

M-TEC: continued

HEATING AND AIR CONDITIONING - continued
1 - BALTIMORE AIR COIL MODEL F1463-P FLUID COOLER
- PUMPS AS REQUIRED
- BASEBOARD RADIATION
- RADIANT FLOOR IN STUDENT ACTIVITIES ROOM
1 - LIEBERT AIR CONDITIONING UNIT
1 - LIEBERT CONDENSING UNIT
1 - TRANE 2TRW4024A100011 CONDENSING UNIT, #6135KWL4F
- SOLAR THERMAL SYSTEM INCLUDING:
7 - MAZDON 30-TUBE SOLAR PANELS, 6 X 6' ON WALL MOUNTED STEEL FRAME
2 - STORAGE TANKS, 150 GALLON CAPACITY
- PUMPS
1 - MITSUBISIH SPLIT SYSTEM AIR CONDITIONER, 3 TON, ROOM 204

EXTERIOR WALLS - SPLIT FACE MASONRY WITH BLOCK BACK UP, 12"
- BLOCK, 8"
- HORIZONTAL METAL SIDING
- INSULATED GLASS IN ALUMINUM FRAME
3 - OVERHEAD DOORS, ROLL UP WITH ELECTRIC OPERATOR, 16 X 15', 28 X 22', 13 X 10'

MISCELLANEOUS - FIRE PROTECTION SPRINKLERS
- DATA/TELEPHONE/IT INFRASTRUCTURE
- DIGITAL FLOORING SYSTEM
2 - CANOPIES, STEEL FRAME, SPLIT FACE MASONRY, STEEL JOISTS, METAL DECK, STANDING SEAM METAL ROOF COVER, 13.5' X 14.5' X 10' HEIGHT
1 - SOLAR PV SYSTEM INCLUDING: 12 - BP SOLAR PANELS, 5 X 10'
- STEEL FRAME FOR PANELS, 42' WIDE 10' HEIGHT
2 - FRONIUS IG INVERTER
- WIRING
- SIMPLEX FIRE ALARM SYSTEM
1 - USA TANK MODEL 2520, WATER TANK STEEL, 25' DIAMETER X 20' HEIGHT, 66800 GALLON CAPACITY, #150115100A WITH CRANE STAIRCASE, SAND FILTERS
- FM200 FIRE SUPPRESSION SYSTEM FOR ROOMS 100 AND 204A
- ACCESS CONTROL SYSTEM
5 - CAMERA SECURITY SYSTEM

QUALITY OF CONSTRUCTION: GOOD

BUILT: 2000

R. A. SCHETTLER, INC.
Appraisal Engineers

Asset Acct.: NORTHWESTERN MICHIGAN COLLEGE Bldg.: NORTH HALL
REAL ESTATE - BUILDING

Description	11/1/19
FOUNDATION:	187,800.00
SUPERSTRUCTURE:	
FRAME	167,600.00
FLOORS	505,800.00
FLOOR COVERINGS	221,200.00
CEILINGS	138,700.00
ROOF STRUCTURE	165,300.00
ROOF COVER	174,000.00
INTERIOR CONSTRUCTION	1,560,400.00
BUILT-IN FIXTURES	897,900.00
ELECTRICAL	534,600.00
PLUMBING	661,100.00
HEATING AND AIR CONDITIONING	821,900.00
MISCELLANEOUS	78,200.00
EXTERIOR WALLS	626,100.00
FIRE PROTECTION	101,700.00
ELEVATORS	160,700.00
TOTAL LABOR AND MATERIALS	7,003,000.00
ARCHITECT'S PLANS AND SUPERVISION	6%

Replacement Value New	7,423,200.00
Depreciation %	1%
Sound Valuation	7,349,000.00

R. A. SCHETTLER, INC.
Appraisal Engineers

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

NAME OF BUILDING: NORTH HALL

KIND OF BUILDING: CLASS D

NO. OF STORIES: THREE

OCCUPANCY: STUDENT HOUSING

TOTAL SQUARE FEET = 46,730

FOUNDATION: CONCRETE

SUPERSTRUCTURE:

FRAME - STEEL

FLOORS - 4" CONCRETE SLAB, VAPOR BARRIER, INSULATION
- WOOD TRUSSES, WOOD DECK
- CONCRETE METAL PAN STAIRWAY

FLOOR COVERINGS - WOOD COMPOSITE, CERAMIS TILE, RUBBER BASE, CARPET, RESILIENT SHEET FLOORING

ROOF STRUCTURE - WOOD TRUSSES, WOOD DECK
- STEEL JOIST, METAL DECK

ROOF COVER - SINGLE PLY MEMBRANE OVER RIDGID INSULATION

CEILINGS - SUSPENDED ACOUSTICAL PANEL
- GYPSUM BOARD WITH KNOCKDOWN FINISH, PAINTED
- SUSPENDED WOOD SLAT PLANK CEILING SYSTEM

INTERIOR CONSTRUCTION - WOOD PARTITIONS, FEW MASONRY PARTITIONS

BUILT-IN FIXTURES - LAMIMATE KITCHEN CABINETS
- WOOD VANITY CABINETS
- LAMINATE LAUNDRY CABINETS

PLUMBING - AN MODERN SYSTEM OF SANITARY FIXTURES CONSISTING OF:
47 - WATER CLOSETS
49 - LAVATORIES
1 - URINAL
3 - SANITARY SINK
3 - LOCHINVAR MODEL SIT1199, INDIRECT WATER HEATER, 119 GALLON CAPACITY
2 - ELECTRIC WATER COOLERS
48 - SHOWERS

REAL ESTATE - BUILDING NORTHWESTERN MICHIGAN COLLEGE

NORTH HALL: continued

ELECTRICAL - AN APPROVED SYSTEM OF WIRING ALL IN CONDUIT WITH NECESSARY WALL PLUGS AND SWITCH BOXES

HEATING AND AIR CONDITIONING -
1 - LOCHINVAR MODEL FTX850, GAS FIRED TUBE BOILER, #239797
40 - CLIMATE MASTER HEAT PUMPS
6 - RENEWAIRE MODEL HEIXRT, ROOF TOP ENERGY RECOVERY UNITS
1 - LOCHINVAR MODEL FTX850, GAS FIRED TUBE BOILER, #216336
1 - LOCHINVAR MODEL FTX850, GAS FIRED TUBE BOILER, #216523
1 - GUNTNER MODEL GFH080, ROOFTOP DRY COOLER

MISCELLANEOUS - ACCESS CONTROL SYSTEM
6 - CAMERA SECURITY SYSTEM

EXTERIOR WALLS - HORIZONTAL CEMETITIOUS SIDING PANELS
- CEMENTITIOUS LAP SIDING
- ALUMINUM CURTAIN WALL
- ALUMINUM STOREFRONT
- BUILT-UP EYEBROW TRIM

ELEVATOR - KONE 3 STOP PASSENGER ELEVATOR, 4000 LB. CAPACITY, #9960649

YEAR BUILT - 2017

QUALITY OF CONSTRUCTION - GOOD

R.A. Schettler, Inc.

Certified
Appraisal Service

24634 W. FIVE MILE RD.
REDFORD, MI. 48239

(248) 705-5801

Industrial - Commercial

RAS

Residential - Institutional

NOVEMBER 1, 2019

ASSOCIATED GROUP UNDERWRITERS, INC.
39111 W. SIX MILE ROAD
LIVONIA, MICHIGAN 48152

TO WHOM IT MAY CONCERN:

AS REQUESTED BY THE MICHIGAN COMMUNITY COLLEGE RISK MANAGEMENT AUTHORITY, WE SUBMIT HEREWITH OUR CERTIFIED APPRAISAL OF LIBRARY HOLDINGS BELONGING TO NORTHWESTERN MICHIGAN COLLEGE, 1701 E, FRONT STREET, TRAVERSE CITY, MICHIGAN. THIS APPRAISAL INCLUDES MEDIA CENTER COLLECTIONS ONLY.

THIS APPRAISAL IS REPORTED IN A NUMBER OF CATEGORIES AND FURNISHES AN UNBIASED STATEMENT OF VALUES. VALUES STATED ARE REPLACEMENT VALUE NEW, WHICH ARE DEFINED AS THE COST THAT WOULD BE INCURRED IN ACQUIRING AN EQUALLY DESIRABLE SUBSTITUTE FOR PROPERTY, WHICH IS DETERMINED IN ACCORDANCE WITH MARKET PRICES PREVAILING AT THE DATE OF THIS APPRAISAL AND REPRESENTS THE COST TO REPLACE NEW, THE PROPERTY IN LIKE KIND.

IN THIS ANALYSIS, WE HAVE RELIED ON THE BOWKERS ANNUAL GUIDE TO PROVIDE AVERAGE UNIT PRICES FOR COMMUNITY COLLEGE LIBRARY COLLECTIONS. WE HAVE MET WITH YOUR MEDIA DIRECTOR OR OTHER STAFF TO DISCUSS THESE VALUES AND TO MAKE ADJUSTMENTS FOR ANY SPECIAL CIRCUMSTANCES OR COLLECTIONS.

WE HAVE NOT EXAMINED THE LEGAL TITLES OF PROPERTY. THEREFORE WE DO NOT ASSUME RESPONSIBILITY REGARDING THE OWNERSHIP OF PROPERTY IN THIS APPRAISAL.

VERY TRULY YOURS,

R.A. SCHETTLER, INC.

R.A. Schettler, Inc.

Certified
Appraisal Service

24634 W. FIVE MILE RD.
REDFORD, MI. 48239

(248) 705-5801

Industrial - Commercial

RAS

Residential - Institutional

NOVEMBER 1, 2019

NORTHWESTERN MICHIGAN COLLEGE
1701 E. FRONT STREET
TRAVERSE CITY, MICHIGAN 49684

TO WHOM IT MAY CONCERN:

AS REQUESTED BY THE MICHIGAN COMMUNITY COLLEGE RISK MANAGEMENT AUTHORITY, WE SUBMIT HEREWITH OUR CERTIFIED APPRAISAL OF LIBRARY HOLDINGS BELONGING TO NORTHWESTERN MICHIGAN COLLEGE, 1701 E, FRONT STREET, TRAVERSE CITY, MICHIGAN. THIS APPRAISAL INCLUDES MEDIA CENTER COLLECTIONS ONLY.

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VERY TRULY YOURS,

R.A. SCHETTLER, INC.

R. A. Schettler, Inc.
Appraisal Engineers

Northwestern Michigan College

DATE: NOVEMBER 2019

Library Holdings by Building

Building Name	Circulating Books	Reference Books	Periodicals	Videotape	CD Rom	Sound Recordings	Other Holdings	Building Total
Library	1,585,150	337,086	770,900	200,450	0	0	0	$2,893,586
TOTAL	$1,585,150	$337,086	$770,900	$200,450	$0	$0	$0	$2,893,586

Appendix L

Map of Parking and Roads

NMC Main Campus

1701 E Front Street
Traverse City, MI

Northwestern Michigan College

1 Dennos Museum (DMC)
2 Scholars Hall (SH)
- International Svcs., rm. 29
3 Osterlin Building (O)
- Student Life, rm. 152
- Veterans Lounge, rm. 103
- Tutoring
4 Power House
5 Tanis Building (T)
- Apartment Mgmt., rm. 104
6 Les Biederman Building (LB)
7 Health & Science Building (HS)
- NMC Bookstore, rm. 101
8 Founders Hall (FH)
9 West Hall Innovation Center and Library (WH)
- Student ID Cards
- Dining Services , main level
- Educational Technologies and WNMC, lower level
10 East Hall (EH)
11 Clock Tower
12 Fine Arts Building (F)
13 James Beckett Building (JB)
14 Campus apartments
15 Oleson Center (OC)
16 Phys Ed Building (P)
- Childcare, rm. 206
17 Maintenance Building / Shipping & Receiving
18 North Hall (NH)

Map Legend

- Campus Entrances
- Parking Lot
- Accessible Parking
- Accessible Entrance
- Bus Stop

Eastern Avenue
North College Drive
Elm Lot
Cherry Lot
Dogwood Lot
Juniper Lot
Chestnut Lot
Maple Lot
Cedar Lot
Birch Lot
Pine Lot
Aspen Lot
College Drive
Tamarack Lot
Poplar Lot
Apache
College Drive
E Front St
Fair Street
Munson Avenue
E Front St
Indian Woods W
Indian Woods E
Huron
Wenonah
N
W
E
S

Map Legend

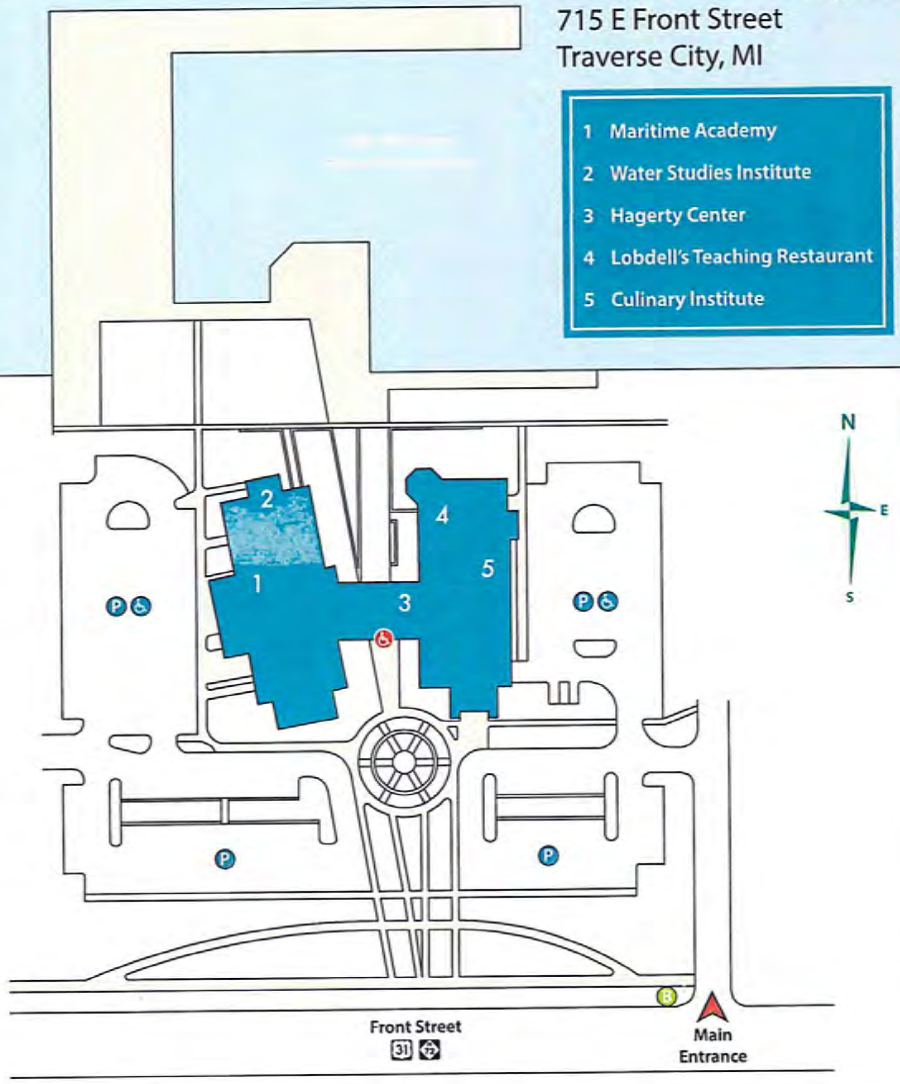
- Campus Entrances
- Parking Lot
- Accessible Parking
- Accessible Entrance
- Bus Stop
- Under construction

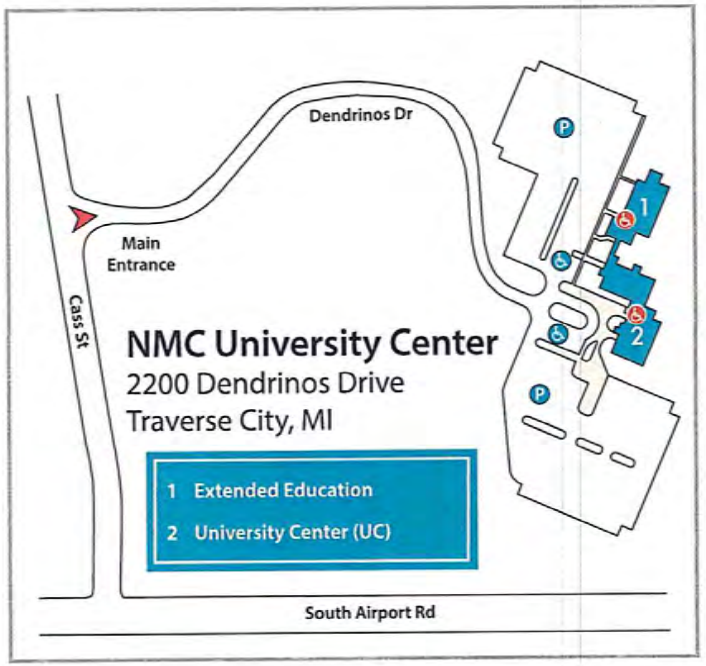
Northwestern Michigan College

Great Lakes Campus

715 E Front Street
Traverse City, MI

1 Maritime Academy
2 Water Studies Institute
3 Hagerty Center
4 Lobdell's Teaching Restaurant
5 Culinary Institute





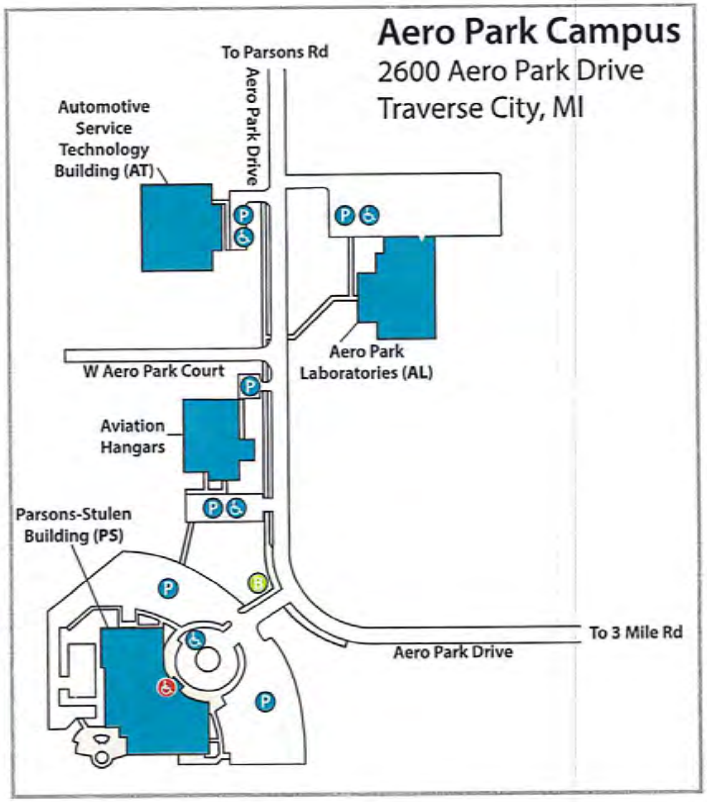
NMC University Center

2200 Dendrinos Drive
Traverse City, MI

1 Extended Education
2 University Center (UC)

Aero Park Campus

2600 Aero Park Drive
Traverse City, MI



Appendix M

Energy Audit Report

Energy & Water Conservation Audit Report

for

Northwestern Michigan College

July 22, 2010

sodexo
EDUCATION

Table of Contents

Energy Audit Report----------Tab 1

College Description
Summary of Audit and Recommendations
Sustainability
Carbon Footprinting
Utility Cost Summary and Performance Metrics
Utility Rebates
Building Heating, Ventilation and Air Conditioning – HVAC
General HVAC Recommendations
Building Automation System – BAS
Domestic Hot Water Generation
Lighting Upgrades
Water Conservation
Dining Facility
Operational and Low Cost Opportunities
ENERGY STAR Partner
Conclusion

College Description

Northwestern Michigan College (NMC) was founded in 1951 and is located near Traverse City, Michigan. NMC was established to meet the needs of the citizens of Northwestern Michigan who wanted the benefits of higher education for their children and themselves. From the college's earliest home in borrowed facilities at the local airport, NMC moved in 1956 to a spacious 100-acre campus under the pines and today has facilities at four additional locations in the Grand Traverse area.

There are 4,500 students who use the campus daily and more than 10,000 people that participate in non-credit community education programs each year. Northwestern Michigan College is made up the Central Campus, University Center Campus, Great Lakes Campus, Aero Park Campus and Observatory. There are 25 buildings with a total of 773,067 square feet. Tab 2 provides the list of the buildings and their square feet. At the request of the Sodexo GM, we did not audit the Facilities Farm, Rogers Observatory or the Maritime Vessel .

Summary of Audit and Recommendations

This energy, lighting and water audit was conducted on May 4th through 6th, 2010. The audit team performed site interviews, inspections, billing data reviews and utility program reviews to become familiar with the college's buildings, energy issues, water issues and potential opportunities. This information was used to develop short range and long range energy and water cost reduction goals.

Pricing, Categories and Priorities

Pricing Methodology

Pricing provides cost estimates for all aspects of the total project solution provisioning including materials, labor, demolition, administration, project management, final design, engineering and risk mitigation. However, costs for items such as asbestos abatement, mold remediation and other environmental hazards not obvious during the audit are not included.

This "all in" pricing provides a budget for full implementation of the scope of work by Sodexo. Such arrangements are designed to limit risk and resource needs on the part of the owner.

Project Categories

There are three general **categories** for recommended projects.

- **Category 1.** Primarily applies to low cost and no cost solutions. Category 1 projects can be based on experience and rules of thumb, such as savings from an energy awareness program. They can also be based on turnkey pricing provided by manufacturers.
- **Category 2.** Applies to capital projects with pricing that is based on energy reductions that can be accurately calculated, such as a lighting retrofit, or turnkey pricing quotes obtained from appropriate vendors.
- **Category 3.** The third category is projects that require a more specific, detailed engineering review beyond the scope of this study and report. In this case, we have provided an estimated budget and savings only that will need to be verified during local contractor or engineering evaluations as final scopes are determined.

Project Priorities

Recommendations are further sub-divided by recommended **priority**:

- **Priority 1**. Projects in this group generally are low/no cost or have very attractive returns on investment. Priority 1 is also recommended when equipment is at or close to its end of life and could fail unexpectedly.
- **Priority 2**. Capital projects that generally have a longer term return on investment than Priority 1 projects or the equipment is not in danger of imminent failure.
- **Priority 3**. Projects with a very long term return on investment or are provided so senior staff is aware of future opportunities to save energy. Priority 3 projects are frequently recommended for completion during building renovations.

Project Cost and Payback Summary

The audit team identified a total potential savings of $250,316 in recommended Category 1 and 2 projects. This represents approximately 17.7% of the expected annual energy and water costs for Northwestern Michigan College. The total estimated cost for these projects is $1,657,092. The average simple payback for all projects is 6.3 years after an estimated $69,271 in utility rebates.

Additionally, there are two Category 3 projects that are recommended for more extensive evaluations. Because these projects deal with major building and system upgrades, we have not included them in the total above.

Most Significant Category 2 Projects

The three most significant Category 2 energy conservation opportunities at Northwestern Michigan College in order of priority are:

- BAS Improvements and Expansion
- Health Science VSDs and Exhaust Hood/VAV Recommissioning
- Install Vending Misers

Project Recommendation Table

Energy Savings Committee/Faculty and Student Awareness	$14,200	$1,500	$0	0.1	1
Controlling Plug Loads	$7,100	$4,000	$0	0.6	1
0.7 gpm Pre-Rinse Spray Nozzle	$1,320	$840	$0	0.6	1
Programmable & Light Based Thermostats	$489	$2,160	$0	4.4	1
Air Curtains on Walk In Coolers and Freezers	$450	$1,500	$0	3.3	1
Water Conservation (Lavatory Aerators)	$820	$2,000	$0	2.4	1
Walk In ECMs	$2,100	$7,500	$0	3.6	1
Sub Total/Average Category #1 Projects	*$26,479*	*$19,500*	*$0*	*0.7*	

Category #2 Projects - Recommended Capital Energy/Water Projects

Project Name	Annual Savings	Turnkey Pricing	Estimated Known Rebate	Payback Years w/Known Rebates	Priority
BAS Improvements & Expansion	$72,670	$679,100	$0	9.3	1
Health Science VSDs and Exhaust Hood/VAV Recommissioning	$22,564	$91,610	$4,800	3.8	1
Vending Misers	$6,800	$17,580	$0	2.6	1
Lighting Upgrade Projects with ≤ 7.5 Year Payback	$38,960	$275,214	$37,776	6.1	1
Museum HVAC System Upgrades	$22,000	$95,000	$3,900	4.1	1
Great Lakes Boiler & Static Air Pressure Controls	$4,900	$22,400	$0	4.6	1
Kitchen Exhaust Hood MELINK System	$36,080	$189,700	$0	5.3	1
VSDs in PE Building	$3,250	$14,030	$1,800	3.8	2
Intellidyne Hot Water Boiler Controls	$626	$3,900	$0	6.2	2
Lighting Upgrade Projects with > 7.5 Year Payback	$15,989	$249,018	$20,995	14.3	3
Sub Total/Average Category #2 Projects	*$223,837*	*$1,637,552*	*$69,271*	7.0	
Total of All Category 1 & 2 Projects	**$250,316**	**$1,657,052**	**$69,271**	**6.3**	

Category #3 Projects - Projects Requiring A Detailed Engineering Evaluation

Project Name & Comments	Estimated Annual Savings	Estimated Budget Cost	Estimated Known Rebate		Priority
Tanis Renovation	$2,000	$350,000	$0		3
Renovation of Physical Eduation Building	$2,500	$207,000	$0		3
Sub Total/Average Category #2 Projects	*$4,500*	*$557,000*	*$0*		
	SUMMARY				

Sustainability

This audit is one of many steps along the path of Sustainable Organizational Practices - or more simply put – sustainability. All we touch in life is about sustainability: energy, waste, attitude, infrastructure, productivity, transportation, community, life cycle assessment, product design, process flows, best practices, climate change, transparency, disclosure, accountability - the list goes on. Sustainability is not a destination but a process. People and organizations are either more or less sustainable in their approach to the consumption of natural, capital and human resources. The three core aspects of sustainability are:

- Economic Sustainability
- Environmental Sustainability
- Social Sustainability

These are often referred to as the "Triple Bottom Line – TBL" of sustainability, or sometimes referred to as "people-planet-profit". Some of the largest global businesses and organizational operators have fully embraced sustainable practices for many years.

This audit encompasses portions of economic and environmental sustainability. In addition, it will introduce some aspects of social sustainability. Social sustainability is the essence of an individual's or organization's commitment to changing the values system of behavior that informs the trajectory or desire to reduce resource consumption and balance economic outcomes.

Carbon Footprint

A Carbon Footprint (CF) is the carbon consumption impact of an organization. It represents the total amount of greenhouse gas (GHG) produced to directly and indirectly support the organization's activities. A complete and comprehensive organizational CF includes three types of emissions:

- Direct Emissions – From on-site consumption of energy, such as boilers, space conditioning systems, furnaces, owned vehicles and equipment, etc.
- Indirect Purchased Electricity Emissions – Purchased electricity consumed at the facility.
- Indirect Operational Emissions – Caused or influenced as a consequence of the activities of the organization. These may occur from sources not owned or controlled by the organization. Examples include faculty, staff and student commuting, air transportation, research, production, purchasing, waste streams, contractor-owned vehicles, outsourced activities and events.

According to the international standard Green House Gas Protocol, the hierarchy for reporting and taking action on GHG emissions is to:

- Measure and report climate-impacting emissions
- Reduce or eliminate GHG emissions by reducing or eliminating carbon consumption
- Replace, if possible, fossil fuel energy sources with renewable energy sources
- Neutralize unavoidable GHG emissions

If the CF is reduced, the organization has started down the path of greater sustainability: there is greater economic sustainability (costs are reduced, allowing reallocation of funds to higher value activities) and improved environmental sustainability (fewer fossil fuels are consumed). A CF is clear, concise and has a useable output. A change to sustainable behavior makes exceptionally good operational and capital sense. The organization and the environment both benefit.

All greenhouse gases (there are six types, including carbon dioxide) have a scientific "equivalency" to carbon dioxide. The total emissions are reported as "Carbon Dioxide Equivalent" (CDE) emissions, which is used interchangeably with equivalent carbon dioxide (ECO_2). CDE for an organization or business is recorded and reported annually in metric tons (tonnes, about 2,205 pounds), which is the international standard for reporting greenhouse gas emissions. Large organizations may report CDE as MTCDE (million-of-tonnes of CDE).

Source Energy Carbon Footprint

As mentioned above, a complete CF would include all activities, such as employees driving to and from work (some may take the less carbon intensive public transportation), the amount and type of fuel used by vehicles and lawn equipment, the amount of solid waste sent to landfills, etc. For this report, we just used the total annual electricity and natural gas consumption to develop a Source Energy Carbon Footprint, or how much carbon was generated to produce and deliver the energy from all sources used by the campus in a year.

The values used to calculate the lbs CO_2 per kWh are different for each state and depend in large measure on the electrical generation mix in that state (e.g. coal, nuclear, natural gas, hydro, waste to energy, etc.).

- Based on the EPA's eGrid tables, Michigan's electric delivery is equal to 1,565 lbs CO_2/mWh (mega Watt hours or 1000 kWh).
- We used the Energy Information Agency's (an arm of DOE) conversion of 121 lbs CO_2/therm for natural gas, which is the same in every state.

The table below identifies the Source Energy Carbon Footprint reductions for the major energy projects recommended in this report. The table also provides some equivalent actions, such as the equivalent number of cars removed from the road as a result of a project.

The total energy Carbon Footprint for Northwestern Michigan College is 9,731 tonnes of CO_2. The projects recommended in this report will reduce the total Carbon Footprint by 1,758 tonnes, or 18.1% of the current tonnes.

Environmental Impact Table

Project Name	Estimated kWh Reduction	Estimated Natural Gas Therm Reduction	Tonnes CO_2 Removed by Project	Project Equivalent: Number of Cars Taken off the Road Annually	Project Equivalent: Acres of Trees Planted Annually
Energy Savings Committee/Faculty and Student Awareness	76,260	6,830	91	20	27
Controlling Plug Loads	95,320	0	68	15	21
0.7 gpm Pre-Rinse Spray Nozzle	0	160	1	0	0
Vending Misers	91,300	0	65	14	20
Air Curtains on Walk In Coolers and Freezers	6,040	1	4	1	1
Water Conservation (Lavatory Aerators)	0	30	0	0	0
Walk In ECMs	4,230	0	3	1	1
BAS Improvements & Expansion	292,700	40,770	431	95	130
Health Science VSDs and Exhaust Hood/VAV Recommissioning	90,880	12,660	134	30	40
Lighting Upgrade Projects with ≤ 7.5 Year Payback	523,070	0	371	82	112
Museum HVAC System Upgrades	88,610	12,340	130	29	39
Great Lakes Boiler & Static Air Pressure Controls	19,740	2,750	29	6	9
Kitchen Exhaust Hood MELINK System	217,980	15,910	242	53	73
Programmable & Light Based Thermostats	1,970	270	3	1	1
VSDs in PE Building	43,630	0	31	7	9
Intellidyne Hot Water Boiler Controls	0	500	3	1	1
Lighting Upgrade Projects with > 7.5 Year Payback	214,660	0	152	34	46
Grand Total Reductions & Equivalents	**1,766,390**	**92,221**	**1,758**	**388**	**531**

Money Is Not All You Are Saving

Utility Cost Summary and Performance Metrics

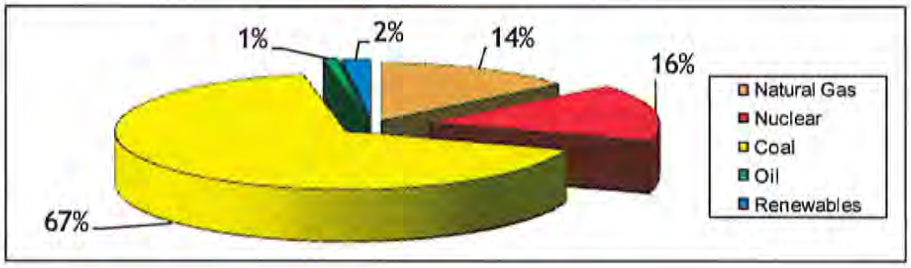
Utility data for electricity, natural gas and water was analyzed to identify opportunities for savings and to develop performance metrics for each utility. In addition, data for natural gas and electricity was combined to calculate the total energy performance metrics of total cost/ft^2 and total Btu/ft^2. These metrics were also compared to similar Educational Facilities managed by Sodexo to illustrate Northwestern Michigan College's position among its peers. These metrics do not take into consideration the differences in geographic location that affect drivers such as weather and commodity pricing. However, they are indicative of the relative energy effectiveness of the campus.

Electric

Northwestern Michigan College receives its electricity from Traverse City Light & Power. On all of the campuses, the audited buildings receive their energy through 54 meters. The electricity billing history date range provided to the audit team for this report is August 2008 to August 2009. During that period, the audited buildings used 9,562,184 kWh at a total cost of $712,219. The average cost of electricity was $0.074/kWh.

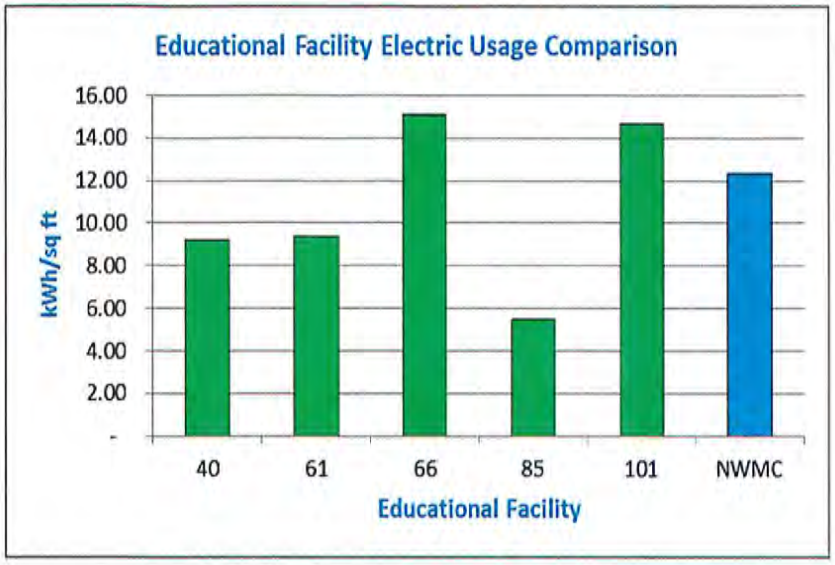
Michigan - Generation Fuel Mix

The graph below shows the generation fuel mix for Michigan. Fuel mix information is a breakdown of how the electricity supplied to the campus has been generated. This blend has a significant impact on the Carbon Footprint of a facility. It shows what percentage of each fuel source is used to generate electricity and includes hydro, coal, natural gas/petroleum and nuclear energy.



Electricity Consumption Benchmarking

Using the annual consumption, the electricity usage (kWh/ft^2) performance metric of Northwestern Michigan College and of similar Sodexo Educational Facilities was calculated. The college uses 12.37 kWh/ft^2, which is approximately 15.0% above the average electricity usage of 10.75 kWh/ft^2 for similar Educational Facilities. The following chart shows the electricity usage per square foot performance metric for similar Educational Facilities in the database.

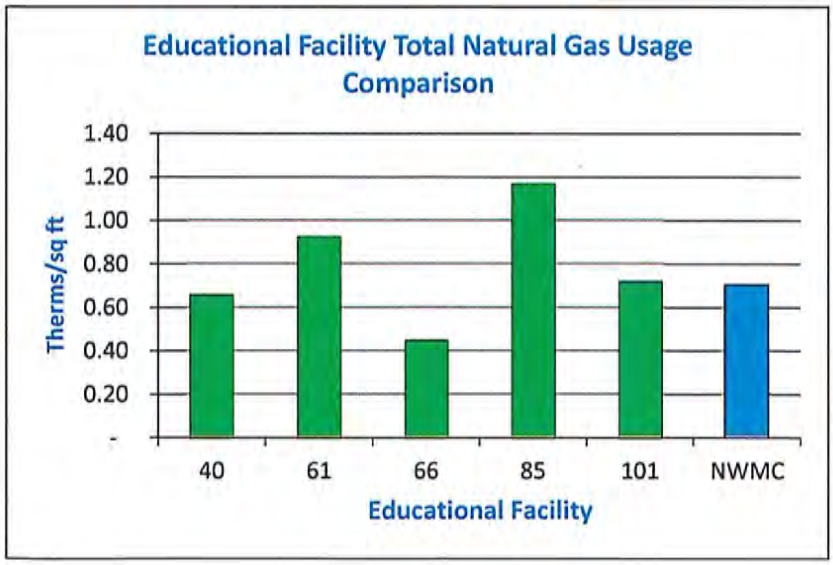


Natural Gas

DTE Energy provides natural gas to the campus via Integrys Energy Services Inc. Each of the audited buildings at the Northwestern campuses is metered separately. The natural gas billing history date range provided to the audit team for this report was from September 2008 to August 2009. Northwestern Michigan College used roughly 538,476 therms during that twelve month period at cost of $671808. The average cost for natural gas was $1.25 therm.

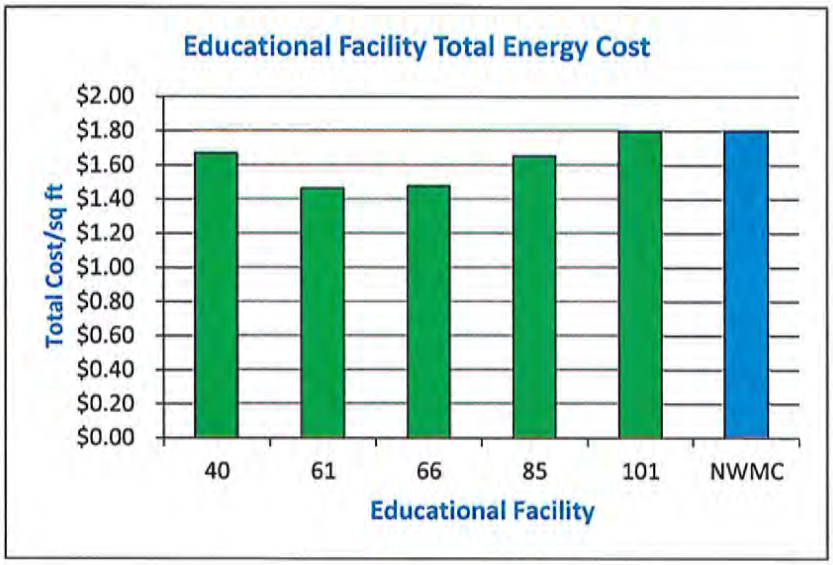
Natural Gas Consumption Benchmarking

Using annual consumption, the natural gas usage per square foot performance metric of Northwestern Michigan College and similar Educational Facilities was calculated. Northwestern Michigan College uses approximately 0.70 therms/ft^2 which is 10.8% below the average natural gas usage of 0.78 therms/ft^2 at similar Educational Facilities. The following chart shows the natural gas usage per square foot performance metric for similar Educational Facilities in the database.



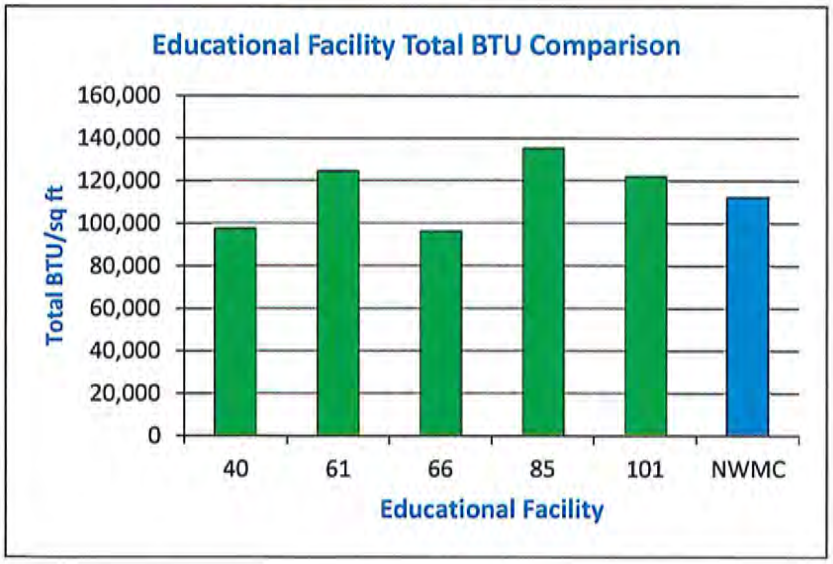
Total Energy Cost - Combined Electricity and Natural Gas

The following chart compares Northwestern Michigan College's total cost/ft^2 energy performance metric of \$1.79/ft^2 to other similar Educational Facilities. Northwestern Michigan College ranks approximately 1.61% above the average cost of \$1.61/ft^2 for similar Educational Facilities.



Total Energy Use (Btu/ft^2) – Combined Electricity and Natural Gas

The following chart compares Northwestern Michigan College's total Btu/ft^2 energy performance metric of 111,871 Btu/ft^2 to other similar Educational Facilities. Northwestern Michigan College ranks approximately 2.5% below the average of 114,760 Btu/ft^2 for similar Educational Facilities.

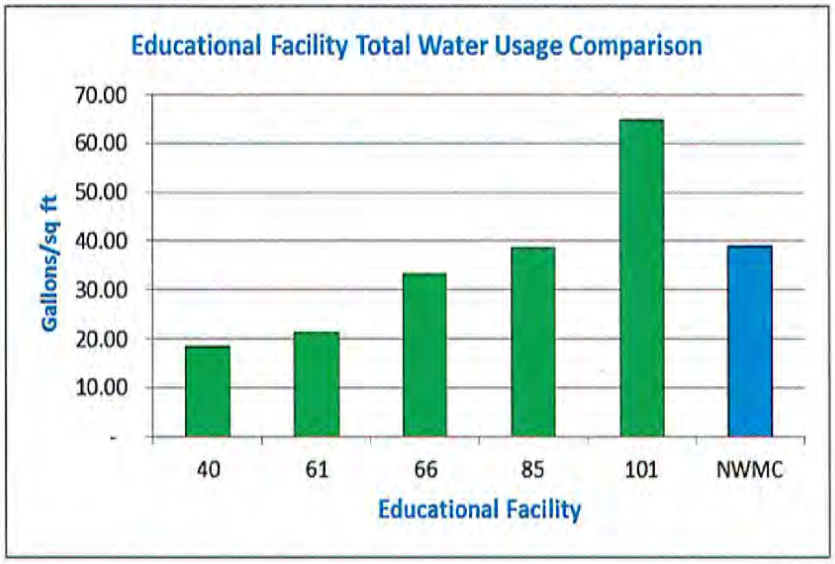


Water/Sewer

The water/sewer billing history date range provided to the audit team for this report was from April 2009 to March 2010. During that period, the campus used 6,363,000 gallons at a cost of $31,793. The combined water/sewer cost for Northwestern Michigan College is $5.00/kgal.

Water/Sewer Benchmarking

The following chart compares Northwestern Michigan College's total gal/ft^2 water/sewer usage performance metric of 38.89 gal/ft^2 to other similar Educational Facilities. Northwestern Michigan College ranks approximately 10.6% above the average of 35.18 gal/ft^2 for similar Educational Facilities.



Utility Rebates

A comprehensive review of incentive and grant programs available to Northwestern Michigan College has been performed. The incentives listed below are prescriptive measures available for lighting retrofits through Detroit Edison. Program details can be found through the following link:

https://websafe.kemainc.com/ProjectCenter/Default.aspx?tabid=2244

Variable Speed Drives (VSDs)

$60 / hp installed drives.

Compact Fluorescents & LEDs

CFL - $1.50 (screw-in <=31 Watts) or $8.00 (screw-in > 31W), per lamp

CFL reflector flood lamps - $8 per lamp

CFL fixture - $22/fixture

42W 8 lamp high bay CFL fixture - $35/fixture

Linear fluorescents

Energy Star qualified LED recessed down light - $20/fixture

Standard Linear Fluorescent Retrofit (T12 to T8 or T5): Ranges from $4 per fixture to $13 per fixture

High Output (HO) Linear Fluorescents (T12 to T8HO or T5HO): Ranges from $5/fixture to $18/fixture

High Performance (HP) and Low Wattage (LW) 4-foot Linear Fluorescents:

- Ranges from $0.75/lamp to $25/fixture.
- Interior High-Intensity Discharge (HID) to Fluorescent Fixtures:
- Ranges from $30/fixture to $160 per fixture.
- Exterior High-Intensity Discharge (HID) Conversion:
- Ranges from $45/fixture to $120/fixture.
- Garage High-Intensity Discharge (HID) Conversion:
- Ranges from $100/fixture to $180/fixture.

Controls

Occupancy Sensors (≤ 500 Watts Controlled) - $20/sensor

Occupancy Sensors (> 500 Watts Controlled) - $50/sensor

Central lighting control - $600/10,000 sq. ft

Daylight sensor controls - $900/10,000 sq. ft

Exterior lighting bi-level control w/ override, 15W to 1000W HID - $50/fixture

Light tube - $35/tube

De-lamping:

Ranges from $3 per lamp removed to $10 per lamp removed

Heating, Ventilation and Air Conditioning - HVAC

Northwestern Michigan College buildings range vastly in age and size. There are several different methods of providing heating, cooling and domestic hot water heating, as shown in the table below.

Heating is primarily provided to the campus via natural gas boilers and industrial sized electric heat pump cycles. In these industrial heat pumps, hot water is used to supplement the heat pump cycle in extreme cold conditions as opposed to electric resitive coils in more domestic applications.

Cooling is provided on campus primarily by central chilled water systems and medium sized DX units. Despite the mild climate, cooling is used on campus as a means of dehumidification.

Heating & Cooling Summary Table

Building Name	Heating Equipment	Cooling Equipment	Domestic Hot Water
Apartment A	Boiler Radiant Heat, Open and Close Solenoid Valve, 1 Boiler in Each	No	Electric
Apartment B	Boiler Radiant Heat, Open and Close Solenoid Valve, 1 Boiler in Each	No	Electric
Apartment C	Boiler Radiant Heat, Open and Close Solenoid Valve, 1 Boiler in Each	No	Electric
Appel Property	Gas Furnace Forced Air	No	On Demand Electric
AutoTech/Shipping & Rec.	Roof Top Package Unit & Gas	Limited Cooling Via Package Unit	Electric
Aviation	Blast Furnace, Forced Air Furnace	None for Hanger, Split for Offices	Electric
Biederman	HW off Central Steam Powerhouse	Air Cooled Scroll System	Electric
University Center	HW VAV Boxes	Forced Air Cooling and Chiller Mix	Small Gas
East Hall	HW Radiant off Central Steam Powerhouse	Limited Cooling in Common Areas, Split Systems	Off Central Steam Powerhouse & Summer Gas
Facilities	Gas Furnace & Large Gas Space Heaters	Split System in Office Space	Electric
Fine Arts	Hot Water Boilers, Forced Air Distribution	Chiller and 1 Split	On Demands & Small Electric
Founders Hall	Package Units	Package Units	Small Gas
GLMA / Conference Center / CA	Hot Water Boilers	Air Cooled Chillers on Roof	Off Main Boilers
Health & Science	HW off of Central Steam Powerhouse	Air Cooled	Off Central Steam Powerhouse
James J. Beckett	Hot Water Boilers, Little Radiant & Heat Pump Supplement	Water Cooled (Shared Heat Pump Cycle)	120,000 Btu
Osterlin Library	HW off of Central Steam Powerhouse	Air Cooled Chiller, Partial VAV, Partial MultiZone	Electric
Dennos Museum Center	Boilers Currently Being Replaced	Chiller Barrel w/Air Cooled Condenser	199,000 Btu
Oleson Center	Gas Fired Package Units	DX Package Units	200,000 Btu
Parsons (MTEC)	Heat Pump w/HW Supplement	Cooling Tower in Conjunction w/Heat Pumps	333,000 Btu
Powerhouse	Steam Boilers	None	None
Rajkovich Physical Education	Hot Water Boilers, Mainless AHUs, limited Perimeter	Limited DX Cooling	Off Main Boilers
Scholars Hall	HW off Central Steam Powerhouse, AHUs and perimeter	screw compressor chiller barrel, cw	3 x Electric DHW Heaters
Tanis	Package Units	Package Units, VVT System	Off Biederman
West Hall	HW off Central Steam Powerhouse	100 Ton Chiller, Air Handlers have cooling coiling, Air Cooled	199,000 Btu

General HVAC Recommendations

V-Belts on Drive Systems

When on campus a mix of standard V-Belts and notched V-Belts was observed, though an effort is currently being made to use V-Belts where possible.

Recommendation

During the next maintenance, replace the standard V-belts with notched V-belts, which slip less than traditional smooth belts on the drives. An improvement in efficiency of roughly 2% can be expected by changing to notched V-belts.

Standard V-belt

Notched V-belt

Building Automation System (BAS)

BAS Overview

Northwestern Michigan College is equipped with several BAS systems including Trane, Johnson Controls, and some local providers. Some buildings are dedicated DDC or pneumatic systems while others are a mix of the two. The combination of these systems allows most of the spaces on campus to be scheduled. Despite the lack of a common BAS front end, the maintenance staff has been very proactive as far as scheduling the buildings on campus with the exceptions of East and West Halls. There is no current justification to install a common front end given the number of buildings maintained by the school; however, there are opportunities to expand the existing systems.

The table below summarizes the suggested changes required to effectively control the HVAC systems on the campus. If a building has unique properties, it will be covered in the *Specific Building Recommendations* section later in the report.

BAS Recommendations Summary Table

Building	Existing Controls	Add System, Network, or Recommission	EMS Notes
Apartment A	No	No	Cost Prohibitive to Control, No AC, Central Heating
Apartment B	No	No	Cost Prohibitive to Control, No AC, Central Heating
Apartment C	No	No	Cost Prohibitive to Control, No AC, Central Heating
Appel Property	No	No	Cost Prohibitive to Control
AutoTech/Shipping & Rec.	Yes	No	On Existing Programmable Tstat
Aviation	No	Yes	Add Programmable Tstats in Office and Hallways
Biederman	Yes	Yes	Older Johnson Control, VAV, Pneumatics
University Center	Partial	Yes	Some DDC, Some Pneumatics, No Night setbacks
East Hall	Yes	Yes	Not Scheduled, Unbalanced Heating in Zones, Needs Recommissioning
Facilities	No	Yes	Add Programmable Tstats in Office & Schedule Tstat in Supply/Shop Area
Fine Arts	Yes	No	Fully Automated, Aggressively Scheduled
Founders Hall	Yes	No	Existing Programmable Stats Are Set Correctly
GLMA / Conference Center / CA	Yes	Yes	Manually Staging Boilers Currently, Recommission, Add Static Pressure Reset
Health & Science	Yes	Yes	Will Rework VFD and Phoenix Exhaust System
James J. Beckett	Yes	No	Fully Automated, Aggressively Scheduled
Osterlin Library	Yes	Yes	Upstairs Has Pressure Issues, Needs Recommissioning
Dennos Museum Center	Yes	Yes	Some DDC, Some Failing Pneumatics
Oleson Center	Yes	No	Fully Automated, Aggressively Scheduled
Parsons (MTEC)	Yes	No	
Powerhouse	Yes	No	Excellently Maintained and Scheduled
Rajkovich Physical Education	No	Yes	Existing Pneumatics, Not on BAS
Scholars Hall	Yes	Yes	Antiquated Pneumatics
Tanis	Yes	Yes	Current VVT System, Needs Complete Renovation
West Hall	Yes	Yes	Not Scheduled

General BAS Recommendations

Several spaces have deviated from their initially designed engineering specifications. This is a result of both equipment replacement and repair as well as typical controls aging that is to be expected with many of the pneumatic systems that are in place at Northwestern Community College.

Recommendation

Standard mechanical retro-commissioning of these buildings should include the necessary practices to ensure a system is operating at the designed engineering specifications. Some examples of common retro-commissioning practices include actuator and damper repair or replacement and a system air balance. In some instances, retro-commissioning alone cannot fully meet the ever changing conditions of a space and so equipment replacements and upgrades should be considered as part of a capital planning budget. The following table reflects some of the general opportunities available for such projects. A specific example of retro-commissioning includes setting the minimum outside air damper position in the Fine Arts building down to zero since some of the air handlers are controlled by CO_2.

General BAS Recommendations Table

Building	Recommissioning Cost	Pneumatic Conversion Cost	Total Cost	Savings	Payback
Biederman	$17,200	$93,400	$116,600	$7,932	14.7
University Center (Basement & Main Floor of South Wing)	$34,900	$130,100	$179,000	$20,092	8.9
East Hall	$18,000	$0	$31,000	$8,059	3.8
Dennos Museum Center	$17,900	$75,500	$93,400	$6,374	14.7
Fine Arts	$7,800	$0	$9,800	$1,196	8.2
Scholars Hall	$22,500	$148,300	$170,800	$11,824	14.4
Osterlin Library	$18,300	$24,800	$48,100	$9,123	5.3
West Hall	$20,400	$0	$30,400	$8,070	3.8
Total	**$157,000**	**$472,100**	**$679,100**	**$72,670**	**9.3**

Specific Building Comments

Health & Science Building

The Health & Science Building is served by one large air handler unit equipped with (2) 40 hp supply motors which are outfitted with inlet guide vanes which account for 55,760 CFM at maximum capacity. Cooling is provided by air cooled units on the roof and heating is provided by HW exchanged from the central steam plant.

An estimated 80% of the usable space in the building is for lab purposes and so 100% makeup air is used to meet air quality standards. The lab exhaust hoods are controlled by a Phoenix exhaust system which controls two of the three exhaust fans in the building. These exhaust fans are each connected to VSDs and were never commissioned correctly since their installation around the year 2000. The VSDs run constantly at 60 Hz, indicating the demand based controls are not functioning as intended.

The building is served by a series of VAV boxes with hot water reheats. Currently, there are several boxes that require hot water to be circulated through them in the summer time to combat unbalanced cooling loads throughout the building.

The maintenance staff reduces the amount of air circulated through the building by manually shutting down one of the lab exhaust fans at night, on weekends, and on holidays; however this is far from an ideal solution.

Recommendation

Install VSDs on the supply fans and fully commission the entire building with special emphasis on the Phoenix exhaust controls. A VSD slows the motor speed down when full load speed is not required. Because most motors are oversized when installed, the VSD "right sizes" the motor load and reduces energy. An example would be when full fan speed is not needed in a vacant classroom. Energy costs and motor heat are reduced and motor life is extended.

The savings per motor is significant because power is the cube of the fan speed. For example, an AHU fan motor connected to a VSD with its speed reduced by 20% will use 50% less energy compared to the motor running at full speed.

Instead of shutting off one of the exhaust fans entirely, allow the system to run in a completely automated mode and reduce the number of air changes in the building during unoccupied times. The expected cost to resolve the issues in the Health & Science building is $91,610. This will provide an anticipated annual savings of $22,564.

Rajkovich Physical Education

The Rajkovich Physical Education building is served by two 800,000 Btu boilers which provide hot water to the building for both HVAC and DHW purposes. The primary distribution of air is through two AHUs, one of which accounts for the majority of the usage as it heats the gymnasium. The building is not air conditioned by any central system; however there are two cooling only RTUs that each service small fitness areas. The field equipment in this building is all pneumatically controlled and the building is not on the central BAS.

Recommendation

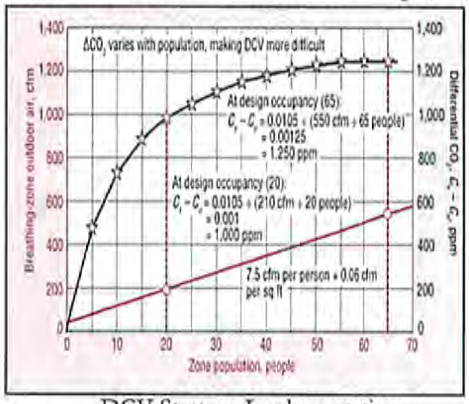
Given the age of the existing systems, it is advised that improvements be broken up into marginal near future upgrades and long term capital improvements.

1. In the near future, the best opportunities that exist are the installation of VSDs on the supply and return motors for the large gymnasium AHU and the addition of setback capable low voltage thermostats on the cooling systems, which will be discussed later in this report. The installation of VSDs is estimated to be $14,030 and will provide an annual electricity savings of $3,250.

2. For future capital planning, it is recommended that the pneumatics in the PE Building be converted to DDC and be properly commissioned. Since the building is not on the BAS it can only be manually scheduled, which creates an opportunity for much more aggressive setback periods. However, the scope of the project is extensive and energy savings alone cannot significantly offset the cost of the renovation. The cost of this project is estimated to be as much as $207,000 and will only yield $2,500 dollars in annual savings from fully scheduling this building.

Museum

The museum is currently served by three (cooling only) AHUs that receive chilled water from an air cooled system. Heating is provided to the building via hot water VAV reheat boxes. Due to the nature of the contents of the museum, relative humidity is kept between 30-50% year round. This requires sub-cooling the makeup air coming into the building to drive out moisture, then reheating it to more acceptable room conditions. In order to accomplish this, the museum is currently running its hot water boilers even in the summer time.



DCV Strategy Implementation

Recommendations

As with the PE Building, there are sources of savings for the museum that are more immediate than long term. The pneumatic to DDC conversion along with building retro-commissioning has been accounted for in the *General BAS Recommendations Table* earlier in this report. The more immediate sources of opportunity at this building are as follows:

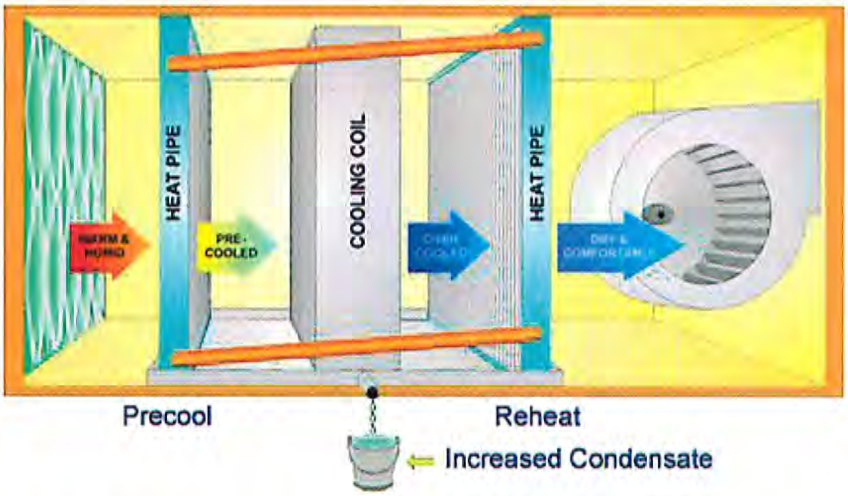
1. Implement Demand Control Ventilation strategies within the HVAC equipment serving the auditorium in the Museum. Demand Control Ventilation (DCV) can reduce the cost of operating an HVAC system by matching the (unconditioned) outdoor air intake to the actual needs of the space. ASHRAE standard 62.1 allows for the use of Carbon Dioxide (CO_2) sensors to evaluate the space need and then to reset the outside air dampers using a building's automation system. We recommend that sensors be installed and programming put in place to implement this strategy.

2. Outfit the supply and return fans on each of the three AHUs with VFDs.

3. Install heat pipes around the cooling coils of the three AHUs. [1]Heat pipes may be described as having two sections: pre-cool and reheat. The first section is located in the incoming air stream. When warm air passes over the heat pipes, the refrigerant vaporizes, carrying heat to the second section of heat pipes, placed downstream. Because some heat has been removed from the air before encountering the evaporator coil, the incoming air stream section is called the pre-cool heat pipe.

   Air passing through the evaporator coil is assisted to a lower temperature, resulting in greater condensate removal. The "overcooled" air is then reheated to a comfortable temperature by the reheat heat pipe section, using the heat transferred from the pre-cool heat pipe.
   This entire process of precool and reheat is accomplished with no additional energy use. The result is an air conditioning system with the ability to remove 50 to 100% more moisture than regular systems.

Typical Heat Pipe Operation



The estimated cost to incorporate all the above mentioned improvements in the museum is $95,000 which provides an annual savings of $22,000.

[1] ©Copyright 1996-2009 Heat Pipe Technology, Inc.

GLMA (Great Lakes Campus)

The Great Lakes Campus is currently equipped with six staged boilers which provide both DHW and HW for the forced air system. Air conditioning is provided by air cooled chillers. In 2009, the controls for the boiler ceased to function properly and so the Northwestern Michigan College staff has been manually controlling them each day. Additionally, the staff manually changes the static duct pressure depending on the season.

Recommendation

Repair the controls for the staged boilers and automate the static duct pressure as a first stage building retro-commissioning project to more effectively control the dynamic environment of the GLMA. There will most likely be a significant improvement from these changes alone that will help to isolate future savings opportunities. The estimated cost to implement this project is $22,400 with a potential annual savings of $4,900.

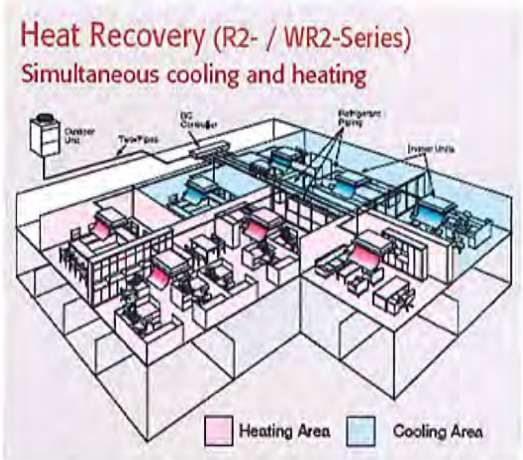
Tanis Building

The Tanis Building is currently served by two new heating and cooling package units. The older units were replaced due to complete failure. Distribution to the office spaces is via a Variable Velocity Terminal (VVT) system of which the controls algorithm is based on a voting principle. For example, if there are three rooms on a common circuit where two rooms call for heating and one room calls for cooling, then all three rooms will receive heating, overheating the one space.

Recommendation

Dramatically improve the occupant comfort within the building by installing a variable refrigerant flow system such as the Mitsubishi City Multi Units. Energy savings alone cannot justify the cost of installing the City Multi Units and so this project should be considered as part of a capital improvement should the building be renovated in the near future. The estimated annual savings with the new technology is conservatively estimated to be $2,000. The estimated cost to implement the solution for 50 spaces is $350,000.

The City Multi Units provide excellent individual space comfort with the added ability to heat and cool various spaces at the same time from one common running condensing unit. To further improve system efficiency, one space can be heated or cooled from heat energy recovered from another zone in the same system. City Multi Units are ductless and operate entirely with small refrigeration lines typical of any outdoor split system, and are not unlike what you may see at home. This system has outdoor compressor units that can serve up to 50 indoor units (see drawing below).



Outdoor Unit

The indoor units come equipped with their own programmable thermostats. This energy efficient system eliminates the need for boilers, chillers and pumps. It also eliminates the need for large ductwork and large air handler rooms, making it a cost effective option for upgrading older buildings. The indoor units come in various mounting arrangements including, ceiling mounted, wall mounted and floor mounted (see pictures below). There are other options for flush mounted units when completely renovating a space.

Wall Mounted

Ceiling Mounted

Floor Mounted

City Multi Units offer variable refrigerant flow zoning which allows the system compressor to vary its speed according to the load demand from the served space. All the units can be scheduled independently and monitored remotely via a networked PC on the same platform as the BAS system.

City Multi Units are ideal for renovation in older brick buildings that do not have the physical structure to cost effectively run ductwork throughout the building. The system modular design facilitates future expansion by simply adding more outside condensers and tying into the original controls network.

More information on this technology can be reviewed at:
http://www.mehvac.com/products/technology.asp?TechnologyID=628295

Domestic Hot Water Boilers

There are multiple gas-fired hot water heaters and boilers for DHW on the Northwestern Michigan College campus (see Heating & Cooling Summary Table above). Some of the larger units provide hot water 24 hours a day when the demand is not always there.

Intellidyne Boiler Controllers

Intellidyne is an energy management control device for hot water generating equipment that monitors system load and delays boiler firing under low load conditions, essentially adding accuracy and intelligence to less than accurate thermostats that come with the boilers.

Intellidyne was independently tested by New York State (NYSERDA) at the Tarrytown, NY Marriott. It reduced boiler cycling by 34% and reduced natural gas use by 12% during the test (some end users report a 24% reduction in gas use). This product could reduce gas costs as much as 10-20% without compromising system performance.

http://www.intellidynellc.com/

Recommendation

Install Intellidyne controls on the boilers in the buildings listed below.

Intellidyne Boiler Controls Table

Building	Domestic HW Heater Size	Estimated Annual Savings	Estimated Project Cost	Simple Payback in Years
Parsons (MTEC)	333,000 Btu	$166	$975	5.9
Oleson	200,000 Btu	$88	$975	11.0
West Hall	199,000 Btu	$200	$975	4.9
East Hall	199,900, Btu	$171	$975	5.7
Total		**$626**	**$3,900**	**6.2**

Small Split Systems and Single Zone Unit

There are several areas on campus with smaller HVAC systems. There is no means of scheduling or setting back temperatures in these buildings, so the heating and cooling units can run 24/7 unless manually changed by local thermostats. Adding these systems to the recommended BAS structure would be cost prohibitive.

Lightstat

Recommendations

We recommend that these smaller systems be equipped with the Lightstat in conjunction with a lighting occupancy sensor, or a simple programmable thermostat if the building is always occupied ,such as the security offices. The Lightstat is preprogrammed to set back HVAC when the lighting is off (it can be programmed for different light levels depending on the location of the existing stat).

Lightstat Recommendation Table

Building	Light Stats	Heating Savings	Cooling Savings	Savings Total	Project Cost	Payback
Aviation	2	$165	$35	$200	$1,310	6.6
Facilities Office	1	$271	$18	$289	$850	2.9
Total	**3**	**$436**	**$53**	**$489**	**$2,160**	**4.4**

Note: When the audit team was on site it was observed that some spaces, such as the warehouse area of the facilities building, were equipped with programmable thermostats. However, they were not set correctly. Savings for these units were not claimed for this report because the space is not cooled, but winter savings for a large volume of air like this would be around $400.

Lighting

General Overview

The lighting at Northwestern Michigan College consists mostly of T8 and T5 linear fluorescent lamp fixtures with electronic ballasts. There are T12 linear fluorescent fixtures with magnetic ballasts and incandescent lamps in a small number of buildings. The Exit Signs being used throughout the campus have either been replaced or retrofitted with LED replacement lamps. There are a number of occupancy sensors in use throughout the buildings in spaces such as offices, classes, etc. as well as corridors and stairwells. The maintenance staff has been very pro-active in replacing energy inefficient lighting with newer high efficiency lamps and ballasts. Several buildings also have EMS systems in place with on/off scheduling for the lighting.

Lighting Technology Update

The following is an overview of current lighting technology that will be recommend in this report.

CFL

Compact fluorescent lamps are now in the mainstream with excellent color rendering, new coating technologies and less mercury to dispose of once the lamp is replaced. Additional benefits include:

- Besides saving energy, these lamps are instant on and last 8,000 to 25,000 hours, depending on the lamp specified (compared to the A lamps currently used that last 1,000 hours).
- CFLs come in a wide variety of shapes and colors (referred to as color temperature in degrees Kelvin). Color temperatures are available from a very warm 2,700 K, which is the same as incandescent lamps, to a very blue 5,100 K.
- CFLs can be specified for dimmable applications or in 3 way where needed.
- For CFL lamps we recommend either Literonics (http://www.litetronics.com/) or TCP (http://www.tcpi.com/corp/corporateHome.aspx). Also, large companies like Phillips, Sylvania and GE may have some other options and should be evaluated as well.

Fluorescent Lamps Ballasts – Why Convert to Electronic from Magnetic?

This section will explain some of the justification for retrofitting T12 linear fluorescent lamps with magnetic ballasts to a T8 system with electronic ballasts.

Ballast flicker

- A Magnetic ballasts operate at 60Hz (cycles per second), the frequency of the AC voltage they run on. This means that each lamp switches on and off 120 times per second, resulting in a barely perceptible flicker and a noticeable hum (sounding like a buzzing low 'A' note on a piano).
    - About 25% of the population is sensitive to magnetic ballast flicker and hum and actually can become physically ill, with symptoms such as headaches, nausea, itching and burning eyes, tension, eye fatigue, and general fatigue.
    - Operating at 60Hz, magnetic ballasts may cause a stroboscopic effect with any machinery which has parts, such as pulleys or gears, running at speeds that are a multiple of 60Hz. The stroboscopic effect will cause the machine to appear motionless, which could be a hazard.
- Electronic ballasts work on high frequency, around 25,000 Hz, which eliminates bothersome flicker and hum and improves the work or classroom environment.

Linear Fluorescent Lamp Lumen Depreciation

Lumen depreciation is the amount lumen output is decreased over the life of the lamp. A major advantage of converting to high efficiency T8 lamp systems is they only lose 5% to 10% of light output (lumen depreciation) over their life expectancy compared to a T12's typical 30% lumen deprecation. As a result, normal failures will tend to be close together for future re-lamping purposes.

Fifth Generation Linear Fluorescent Lamps

Fifth generation reduced-wattage T8 Lamps are designed to replace the old 34 W/T12 lamps in fluorescent luminaire retrofits where standard 32 W/T8 lamps would provide more light than is needed. They are available in 25, 28 and 30 W models and, in a majority of the cases, can replace the original 32 W lamps without noticeable effect.

- Potentially 24% lower energy consumption than standard 32 W/T8, but lumens are reduced only 6%
- Have longer life than standard T8 lamps (as much as 40,000 hours quoted from some manufacturers)

General Lighting Recommendations

T8 Replacements

Replace current T8 lamps with reduced wattage Fifth Generation lamps (the existing ballasts do not need to be replaced). Mock up several rooms with both 25W and 28W lamps and allow the students and staff to experience the lighting prior to deciding on the final lamp. These replacements should be part of a group re-lamping when the current T8's light output has depreciated to unacceptable levels or when maintenance is starting to replace multiple lamps. Because the original lamps were installed at the same time, they will fail around the same time.

We registered high lighting levels in various areas throughout the campus. Classrooms were typically over 50 fc (foot candle). IESNA (Illuminating Engineers Society of North America) lighting level guidelines for classrooms is no less than 30 fc and no more than 70 fc at any desk. For AV mode, the guideline is 10 fc at any desk.

The bottom line is to conduct mockups of rooms and get feedback from teachers and students. Frequently, the higher foot candle is not the preferred level. Because of the current high fc readings, we do not expect any problems with 28 W T8 lamps so they will be the basis for savings calculations. Below is a chart of random foot candle readings taken on campuses.

Foot Candle Readings

Building	Room	Foot Candles (fc)	Height (ft)	Fixture
Auto-Tech	Classroom	85	8	2x4, 3L, T8
	Warehouse	43	22	400W MH
Aviation	Hangar	44	22	400W MH
Beckettt	1st Classrooms (6)	66	10	2x4, 3L, T8 PB
	1st Kitchen/Work Rm	69	10	2x4, 3L, T8 I/O
	2nd Computer Rms (5)	39	10	8'IND4Lx4'-T8 Total
Biederman	Office 1st Flr	68	8	2x4-2L-T5HO
	Open Office 1st Flr	55	8	2x4-2L-T5HO
Facilities	Breakroom	94	8	2x4, 4L, T8
	Offices (7)	65	8	2x4, 4L, T8
	Open Office Area	56	8	2x4, 4L, T8
	Warehouse	58	25	400W HPS
Great Lakes	Classroom 211	97	10	8'IND6Lx4'-T8
Health/Science	Classroom	73	10	8'IND6Lx4'-T8
M-Tec	Classrooms (11)	64	10	2x4-2L-T5HO
	Corridors	39	20	250W MH
	Machine Rm 151	79	14--22	400W MH
	Shop Rm 157	79	14--22	400W MH
Osterlin	2nd Flr Classrooms (4)	38	10	2x4, 2L, T8
	2nd Flr Conf Rm	39	10	1x4, 1L, T8 Cont.
	Book Stack Area	33	10	1x4, 1L, T8 Cont.
	Open Office Areas	55	10	12W LED RC
Scholars Hall	1st Classrooms (7)	80	10	2x4-2L-T5HO
	1st Lounge	87	8	2x4-2L-T5
	2nd Lecture Rm	48	8--16	2x4-2L-T5
University Ctr.	Bsmt Corridors	87	8	2x4, 4L, T8

A number of buildings use a mixture of T5 28Watt and 54Watt lamps. It is suggested that the T5 54Watt fixtures be converted to the 28Watt T5 lamps and ballasts as they begin to fail to streamline the ordering and maintenance process while still maintaining IESNA lighting levels and saving up to 50% in additional utility savings.

T12 to T8 Retrofits

Replace any T12 lamps and magnetic ballasts with newer T8, 28 Watt lamps and electronic ballasts.

Incandescent Lamps

Replace any existing incandescent lamps in the dorm rooms, offices, restrooms and mechanical/storage areas with CFLs.

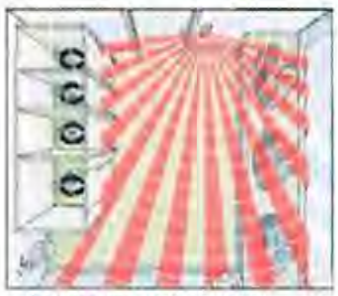
Lighting Occupancy Sensors

As mentioned earlier, a number of lighting occupancy sensors have been used throughout the campus in areas such as classrooms, offices, restrooms, corridors and stairwells. There are still many spaces that would benefit from adding additional wall switch and/or ceiling mounted occupancy sensors.

Recommendation

1. Add lighting occupancy sensors to spaces that have intermittent occupancy such as classrooms, labs, meetings rooms, offices, exercise rooms, bathrooms and "back of the house" spaces.

2. It is recommended that dual technology occupancy sensors that respond to both movement and noise (infrared and ultrasonic) be installed so there is little chance of accidentally turning the lights off in occupied spaces. The picture at right shows how a dual technology occupancy sensor can hear behind stall doors while seeing movement and/or heat in the remainder of the space.



Bathrooms (WSD-PDT-V)
- Senses partitioned spaces
- Most inexpensive sensor approach
- Voice sound activation prevents lights out condition.

Dual technology sensors make the installations "bullet proof" for any space type and ensure that lights are always on when needed. They are not appropriate for mechanical spaces such as the electrical room. Twist timers are a cost effective alternative for janitor's closets or other small, infrequently used spaces.

3. Develop an inventory of all occupancy sensors and test each one for performance during the summer break.
   - Have the appropriate staff member(s) trained by the manufacturer to do maintenance on the units.

Exit Signs

All exit signs currently use LED technology.

Exterior Pole Lamps

All site poles are currently HPS. The campus is investigating upgrading these fixtures to LED and has ordered 4 sample fixtures to be installed for testing purposes. Another option for upgrading

these fixtures using induction fluorescent technology has been incorporated in this proposal for comparison.

Light fixture run hours used for analysis

- Administration: Based on a run time of 10 hours per day for 250 days per year.
- Academic: Based on a run time of 13.2 hours per day for 250 days per year.
- Mechanical spaces: Based on a run time of 3 hours per day for 300 days per year.
- Library: Based on a run time of 13.2 hours per day for 250 days per year.
- Resident Halls: Based on a run time of 18 hours per day 250 days per year.

Specific Building Observations and Recommendations

Osterlin Library, Scholars Hall, Health & Science Bldg, and M-TEC

These buildings all have lobby or vestibule lighting that is exposed to significant daylight throughout any given day. Fixtures used in these areas are on nearly all the time and include fixture types such as 4-lamp T8 indirect to 400W MH floods. The use of a daylight control such as a programmable daylight sensor and contactor combination is recommended to reduce the duty cycle of these fixtures significantly. Such a device is currently in use in the atrium of West Hall.

Rajkovich P.E. Bldg.

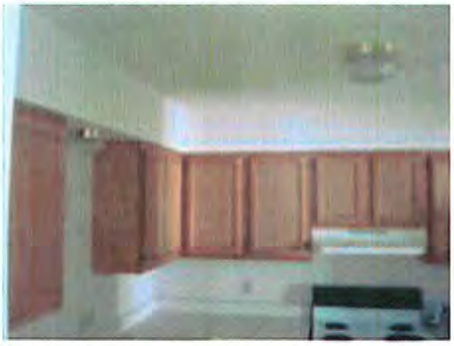
This building houses the gym and fitness center. It is unclear at this time if the building will be remodeled or replaced, according to staff. Lighting over the gym floor consists of (25) 400W MH high bay fixtures that are operational. There are an additional (11) 400W HPS fixtures still hanging but not in operation that should be removed. These fixtures should be replaced with a 6 lamp T8 HO high bay linear fluorescent fixture with cage, reducing energy consumption by more than 50% percent and improving color rendering and uniformity across the gym floor without the harsh glare that exists now. Other benefits of using this type of fixture include zero re-strike time should power service be interrupted.

M-TEC, Facilities, Aviation, Great Lakes Bldg., and Auto-Tech

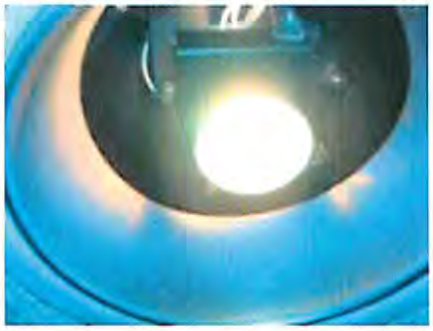
These buildings all use a variation of the above mentioned 400W MH or HPS high bay fixtures in classrooms, garages, and aircraft hangars that would also benefit from being replaced by the 6 lamp T8 HO high bay linear fluorescent fixture. Most of these areas are used for detailed mechanical and machine work applications which require a certain degree of detail to be noticeable, such as small parts or workmanship defects. These new fluorescent high bay fixtures will significantly improve the quality of lighting conditions in these spaces to perform this level of detailed work more efficiently.

Apartments

There are (3) three story apartment buildings on campus that utilize several 60 watt incandescent globe ceiling fixtures in each unit. It is recommended that these fixtures be replaced with new CFL ceiling fixtures for energy and maintenance savings. These fixtures would also update the look of the units.



Health & Science, Oleson, Dennos, and Great Lakes Bldg.
These buildings all utilize various fixtures with MR16 50 watt halogen lamps for track and recessed lighting. Replace with 5 watt MR16 LED which provides significant energy savings as well as 50,000 hr lamp life, reducing maintenance costs.



The following tables provide a project savings analysis and the buildings involved. We assumed outside labor for replacing fixtures, new ballasts, etc. and no outside labor for screw in lamps. These numbers are good for budgeting purpose only and are not based on detailed counts or firm product pricing.

Lighting Retrofit Project Descriptions & Benefits

Lighting Project Number	Lighting Project	Existing	Proposed	Benefits
L1.2	T8 to High Efficiency or "Super" T8	Any Fluorescent luminaires with existing electronic ballasts and 4'T8 32W lamps	Relamp and clean existing luminaires using new high efficiency 28W or 25W T8 lamps and existing electronic ballasts and fixture.	Energy savings, Maintenance savings on longer life equipment, Improved or maintained light levels and appearance, New lighting components with warranties.
L1.3	T12 to T8 Lamp and Ballast	Any Fluorescent luminaires with magnetic ballasts and T12 lamps (2',3',4',8' or u-bents)	Retrofit and clean existing luminaires using new high efficiency electronic ballasts and new T8 lamps	Energy savings, Maintenance savings on longer life equipment, Improved or maintained light levels, Improved color rendering and lumen depreciation and better space aesthetic appearance, New lighting components with warranties.
L1.4	T12 to T8 Retrofit Delamp	Any Fluorescent luminaires with magnetic ballasts and more than two 4'T12 lamps	Retrofit and clean existing luminaires using new high efficiency electronic ballasts and new 28w or 25w T8 lamps. Delamp the fixture from 3 or 4 lamps down to 2 lamps with a customized specular reflector kit with new brackets and lamp sockets.	Energy savings, Maintenance savings on longer life equipment, Improved or maintained light levels, Improved color rendering and lumen depreciation and better space aesthetic appearance, New lighting components with warranties, Brand new "Internal guts"
L1.9	T12 to T8 Conversion Kit	Any Fluorescent luminaires with magnetic ballasts and T12 lamps (2',3',4',8' or u-bents)	Retrofit and clean existing luminaires using new high efficiency electronic ballasts and new T8 lamps and ballast and conversion kit with new brackets and lamp sockets.	Energy savings, Maintenance savings on longer life equipment, Improved or maintained light levels, Improved color rendering and lumen depreciation and better space aesthetic appearance, New lighting fixture and components with warranties.
L2.0	CFL Hardwire	Incandescent Fixtures	Retrofit or replace with fixtures having electronic ballasts and hardwired CFL lamps (compact fluorescent lamps)	Energy Savings, Maintenance savings on longer life equipment, Longer life lamps (10,000 hours versus 1500 hours), New lighting components with warranties, New fixtures.
L2.2	CFL Screw-in	Incandescent Fixtures	Retrofit with screw-in replacement CFL lamps (compact fluorescent lamps)	Energy Savings, Maintenance savings on longer life equipment, Longer life lamps (10,000 hours versus 1500 hours).
L3.0	Wall Mounted Occupancy Sensor	Standard toggle wall switch	New dual technology with passive infrared and ultrasonic wall switch with occupancy detection and automatic shutoff after a preset timeout	Energy savings by reducing the run time of light fixtures when there is no occupancy.
L3.1	Ceiling Mounted Occupancy Sensor	Standard toggle wall switch with wall or partition obstructions	New dual technology with passive infrared and ultrasonic ceiling sensor with occupancy detection and automatic shutoff after a preset timeout	Energy savings by reducing the run time of light fixtures when there is no occupancy.
L3.2	Lighting Controls	All Fixtures, especially outdoor lighting	Install a lighting control panel to be integrated with the HVAC EMS system to shut off lights during unoccupied times and control outdoor lighting signage on a more rigid time schedule	Energy Savings, Eliminate and remove old mechanical time clocks, Better control over outdoor lighting by eliminating inaccurate mechanical time clocks thus reducing maintenance costs for resetting time clocks due to power outages, daylight savings and cha
L4.0	Exit Signs	Exit signs with incandescent lamps	Replace with new LED exit signs with battery backup	Energy Savings, Maintenance savings on longer life equipment, Longer life lamps (100,000 hours versus 1500 hours).
L5.0	New T8 Fixture	Incandescent or T12 Fixtures	New T8 wall vanity fixture	Energy savings, Improved or maintained light levels, Improved color rendering and lumen depreciation and better space aesthetic appearance, New lighting components with warranties.
L5.2	New T-8 High-Bay Fixture	HID Metal Halide or High pressure Sodium Fixtures	Replace with new high efficiency T8 High-Bay fixtures having high power electronic ballasts and up to 6 - T8 lamps and customized specular reflector, power cord whip, and cable hangers.	Energy savings, Improved or maintained light levels, Improved color rendering and lumen depreciation and better space aesthetic appearance, New lighting components with warranties.
L6.0	New HPS or MH Wall Pack	Incandescent, Mercury Vapor, or Quartz Fixture	New MH Flood or Wall pack	Energy savings, Improved or maintained light levels, Improved color rendering and lumen depreciation and better space aesthetic appearance, New lighting components with warranties.
L6.1	New Induction Fixture	HID Metal Halide or High pressure Sodium Fixtures	Replace with new high efficiency Induction fixtures having generators, phosphorus lamps, an electromagnetic inducer and customized specular reflector, power cord whip, and mounting hardware.	Energy savings, Improved or maintained light levels, Improved color rendering and lumen depreciation and better space aesthetic appearance, Maintenance savings on longer life equipment, Longer life lamps (100,000 hours versus 1500 hours), New lighting com
L9.0	LED Lamps	Incandescent or Halogen lamps.	Replace with new LED lamp.	Energy savings, Improved or maintained light levels, Improved color rendering and lumen depreciation and better space aesthetic appearance, Maintenance savings on longer life equipment, Longer life lamps (25,000 - 45,000 hours versus 4000 hours), New ligh

There are two tables – one representing lighting projects with paybacks of less than 7.5 years and the second representing projects with paybacks greater than 7.5 years. The longer payback projects generally involve entire fixture replacements where there is no energy efficient retrofit option. These projects would be good to implement when the buildings are renovated.

Lighting Retrofit Summary Table ≤ 7.5 Year Payback

Lighting Project ID	Building	Retrofit Quantity	Estimated kWh Savings	Estimated Cost Savings	Estimated Cost	Estimated Rebate	Simple Payback in Years
L1.3	Fine Arts, Osterlin, Biederman, Health/Science, Apartments, Aviation, Scholars Hall, PE Bldg, East Hall, West Hall, M-Tec, Dennos, Great Lakes	517	78,436	$5,804	$41,500	$6,092	6.1
L1.4	Osterlin, Biederman, Facilities, Aviation, Auto-Tech, University Ctr., Beckett, PE Bldg, East Hall, West Hall, M-Tec, Dennos, Great Lakes	339	58,391	$4,321	$36,058	$6,444	6.9
L1.9	Osterlin, Auto-Tech	27	4,505	$333	$2,452	$342	6.3
L2.2	Fine Arts, Pow er House, Tanis, Biederman, Apartments, Oleson, PE Bldg, Dennos, Great Lakes	226	84,490	$6,252	$15,649	$918	2.4
L3.0	Fine Arts, Pow er House, Osterlin, Tanis, Biederman, Health/Science, Facilities, Apartments, Aviation, Auto-Tech, University Ctr., Founders Hall, Scholars Hall, Beckett, PE Bldg, East Hall, West Hall, M-Tec, Dennos	534	102,485	$7,584	$66,868	$10,680	7.4
L3.2	Osterlin, Health/Science, M-Tec, Scholars Hall	5	35,625	$2,636	$8,323	$0	3.2
L4.0	Fine Arts	2	666	$49	$181	$25	3.2
L5.2	Facilities, Aviation, Auto-Tech, PE Bldg, M-Tec, Great Lakes	177	156,774	$11,601	$101,031	$13,275	7.6
L6.0	Fine Arts	9	5,108	$378	$3,151	$0	8.3
Total		**1,836**	**526,481**	**$38,960**	**$275,213**	**$37,776**	**6.1**

Lighting Retrofit Summary Table > 7.5 Year Payback

Lighting Project ID	Building	Retrofit Quantity	Estimated kWh Savings	Estimated Cost Savings	Estimated Cost	Estimated Rebate	Simple Payback in Years
L1.2	Fine Arts, Power House, Osterlin, Tanis, Biederman, Health/Science, Facilities, Aviation, Auto-Tech, University Ctr., Founders Hall, Scholars Hall, Oleson, Beckett, PE Bldg, East Hall, West Hall, M-Tec, Dennos, Great Lakes	3,589	107,038	$7,921	$89,182	$7,589	10.3
L2.0	Apartments, East Hall	292	17,190	$1,272	$47,666	$6,424	32.4
L3.1	Fine Arts, Osterlin, Facilities	6	1,152	$85	$1,749	$120	19.1
L5.0	Osterlin	16	2,523	$187	$2,240	$112	11.4
L6.1	Campus	150	72,900	$5,395	$96,195	$6,750	16.6
L9.0	Health/Science, Oleson, Dennos, Great Lakes	112	15,260	$1,129	$11,987	$0	10.6
Total		**4,165**	**216,062**	**$15,989**	**$249,018**	**$20,995**	**14.3**

Lighting Maintenance

CFL, CCCFL and LED technologies are allowing building owners to improve light quality while significantly reducing energy costs. But, unlike the incandescent lamps found throughout the campus, the new technology lamps have a longer life expectancy. The old mindset - change lamps when they burn out - can be a costly error when used with the new technology lamps.

All new technology lamps have a warranty period from one to three years. But there is frequently no inventory of where the lamps should be installed, where they are installed or the date when a lamp is installed into a fixture.

Recommendation

With old incandescent lamps costing $0.25 there was no warranty and little concern for the replacement cost. With today's technology lamps, and some LED lamps costing as much as $60, a more rigorous inventory control and installation monitoring system should be employed. Today's technology lighting has electronic components and a small percentage of failures are expected in any given population of lamps within the first year or two, which is why the products have warranties and incandescent lamps do not. A simple inventory system that includes writing the installation date on the lamp's base should be sufficient.

Water Conservation

During the audit, several staff bathroom faucets were identified with 2.0-2.2 GPM aerators. It is estimated that there are roughly 200 aerators that need to be changed out across campus.

Recommendation

Replace the existing aerators with low flow 0.5 GPM aerators. The expected annual savings for this project is $820. $2,000 has been allocated for this project throughout the campus and yields a 2.4 year payback. The payback will improve if in house personnel install the aerators.

Dining Facility

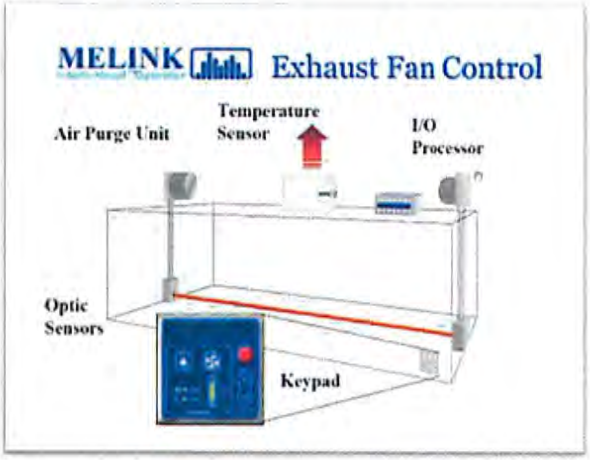
Kitchen Exhaust Hoods

There are three dining/cooking facilities at Northwestern Michigan located in the Great Lakes Campus, Oleson Center, and West Hall.

The exhaust systems of the Great Lakes facility are supplied by eight paired MUA and exhaust systems. These 16 fans account for 79.5 hp and account for roughly 30,000 cfm (cubic feet per minute). For visualization, one cubic foot is about the size of a basketball. These motors waste large amounts of electricity when they are on for no reason (no cooking in process). Additionally, they draw conditioned air from the dining facility around the kitchen and discharge it to the atmosphere, creating additional work for the HVAC systems.

Recommendation

It is recommended that the Melink Intelli-Hood variable speed control device, which slows the motor down when there is no cooking activity, be installed at the Great Lakes Campus Facility. Because most motors are oversized when installed, the variable speed drive (VSD) "right sizes" the motor based on its real time load. In addition to reducing energy costs, motor heat is reduced and motor life is extended.



The savings per motor is significant because power is the cube of the fan speed. For example, a fan motor connected to a VSD with its speed reduced by 20% will use 50% less energy compared to the motor running at full speed.

In a Melink system, optical and heat detecting sensors are installed to monitor the cooking activity and automatically adjust the motor speed to as low as 10% based on the amount of heat, steam or smoke present.

Melink visited Northwestern Michigan College to do a detailed study of the kitchen areas. We estimate a cost of $189,700 to install the Intelli-Hood system. An annual savings of about $36,080 is expected.

Walk-in Coolers and Freezers

There are nine walk-ins at Northwestern Michigan College. Most of the walk-ins have swinging air curtains behind the doors, as seen in the pictures below. When on campus, the audit team observed three units that did not have these air shields.

Curtain Doors Observed @ NWMC

Example of Typical Air Curtain Use

Additionally, the evaporator fans in each of the walk-ins appear to be powered by typical non shaded pole motors. Should this be the case, these motors can be replaced by Electronically

Commutated Motors (ECMs). ECMs are more efficient than typical induction motors and capitalize on the extended run hours of the walk-in evaporator fans.

Recommendations
1) Install air curtains on the three walk-in coolers and freezers without them. This will cost approximately $1,500 and save the school $450 in electricity.

2) Evaporator fans can be converted to high efficiency ECM type motors. The cost to replace 18 identified 1/20 hp motors on campus is $7,500 and yields a 3.6 year payback with $2,100 in annual electricity savings. Additional detail and sources for this equipment may be found at:

http://www.fishnick.com/publications/appliancereports/refrigeration/GE_ECM_revised.pdf.

Pre-Rinse Spray Nozzle
Three standard existing kitchen pre-rinse spray nozzles were identified as having flow rates of 1.6 gpm. A 0.70 gpm nozzle is available that passes the 22 second paste test better than most standard 1.6 gpm nozzles. This nozzle is manufactured by Bricor. Additional information can be found at http://www.bricor.com/prod.htm.

Recommendations
Install three 0.70 gpm pre-rinse spray nozzles at the dishwasher. The Food Safety Technology Pre-Rinse Spray Nozzle Calculator was used to estimate savings. Assuming three hours of operation a day, it is estimated that the kitchen will save about $1,320 per year in natural gas and water/sewer cost.

Operational and Low Cost Opportunities

Energy Conservation/Sustainability Committee
Northwestern Michigan College does not have a firmly established energy conservation committee (aka Green Team, Sustainability Committee, etc) for the college itself. With volatile energy costs and increasing water costs forecasted, all opportunities to reduce cost should be considered. The amount that the maintenance staff can control is limited without the support of everyone on campus. Operational practices can reduce utility costs by as much as 5% (1% was estimated for this report).

Recommendation
Establish an energy conservation committee to develop a campus-wide plan to place emphasis on the importance of conservation and to educate everyone on campus.

- The committee should involve members from all staff departments, faculty and students in developing a written campus energy and water conservation policy. At monthly meetings, they should make recommendations and assess success of ongoing conservation efforts at Northwestern Michigan College.
- Look for a volunteer to become Northwestern Michigan College's energy champion and chairman of the energy committee, preferably a motivated student.
- Through the committee, develop a written energy policy specific to the campus.
- Through the committee, problems can be brought to light so not only do energy costs improve but occupant satisfaction will increase as well.

- It is recommended that the President be present at the kick-off meeting to lend emphasis to the program.
- Tie the success of the program to the environmental impact of actions taken, such as the project impact examples in this report.

Staff/Student/Faculty Awareness

Energy conservation is the responsibility of everyone on campus, not just the facilities department. The best energy and water cost control program is only partly successful unless there is understanding and buy-in from everyone on campus.

Program Assistance

Several colleges and universities have implemented campus-wide education awareness programs that have reduced energy cost significantly. UC Berkeley, University of Buffalo and Cape Cod Community College have reported great success with these programs.

There are two organizations that, between them, have a wealth of information on campus conservation and sustainability issues. One is:

http://www.aashe.org/

The other is the U.S. Environmental Protection Agency's ENERGY STAR program. There are seven guideline steps to a successful energy management program based on best practices from experienced ENERGY STAR partners that can be found at http://www.energystar.gov/index.cfm?c=guidelines.guidelines_index.

The seven steps are:

- Make a commitment
- Assess performance
- Set goals
- Create an action plan
- Implement action plan
- Evaluate progress
- Recognize achievements

The chart below shows the process graphically. It is a process of continuous review and improvement.

For this report, a cost of $1,500 was estimated to fund the committee and awareness programs. It is conservatively estimated that these two programs will reduce energy and water costs a minimum of $14,200 a year (about 1% of the total utility cost).

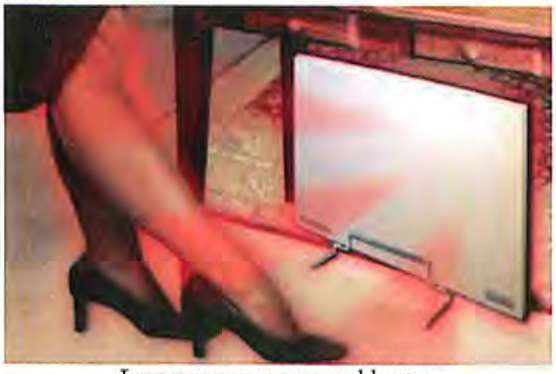
Controlling Office and Plug Load

Plug loads are often called "vampire" or "phantom loads" and can account for 15% or more of an office load.

Recommendations

There are several small steps to help reduce plug load drain.

1. Many classrooms or offices have clocks, radios, refrigerators and microwaves and other electronic devices. Recommend that these units (except refrigeration) be unplugged at night and over the weekend. Refrigerators should be disinfected, unplugged and left with the door open during vacation periods.
2. Add timers to water coolers so they are not cooling water at night and over the weekend.
3. Space heaters are extremely large plug loads and even a modestly sized heater can use 1,000 Watts. Over the course of an 8 hour day that heater will use as much energy as a laptop does in a month. They can also be a fire hazard if left on in a vacant building overnight or for the weekend.
   Recommend a policy banning electric space heaters. Repair and balance the heating system as the first step to removing the space heaters. If that cannot be accomplished, use alternative, personal heating devices that are safer and use much less energy than an electric space heater. Such a device is manufactured by Cozy Products http://www.cozy-products.com/cozy-legs-p-68.html. Their unit uses only 150 Watts, is safe to touch and can be purchased with a timer to automatically turn it off after the work day.



Low energy use personal heater

4. Even when turned off, many pieces of office equipment continue to use energy. This phantom load can range from a few watts to as much as 40 Watts. Use power strips for office equipment and turn the equipment off at night to remove standby power use.
5. When purchasing replacement office, classroom or IT equipment, purchase ENERGY STAR labeled equipment. This will guarantee you will purchase equipment that has been through a process (described in the link below) to ensure recommended products meet certain efficiency standards. They provide product recommendations across 32 different categories of equipment, so a quick check before purchasing any energy using equipment would be prudent. It is estimated that controlling the plug load could conservatively save 0.5% of your electricity expenses which is equivalent to $7,100. $4,000 has been allocated for the purchase of timers and other small, load controlling devices.

http://www.energystar.gov/index.cfm?c=prod_development.prod_development_spec_rev)

Vending Machines

Another way to reduce the building heat load and have an impact on the energy bill is to install Vending Misers on the 50 cold drink and 30 snack machines spread across the campus.

Vending Misers add occupancy based controls to turn off lights and allow the upper portion of the storage chamber to drift up in temperature, but maintain cold temperatures at the bottom 1/3 of the machine. If someone walks up to the machine, the lights will come on and the drink retrieved will be cold.

Vending Miser

Snack Miser

Recommendation

Install Vending Misers on the campus cold drink machines. The estimated cost is $17,580, yielding a total savings of $6,800 per year.

More information on this solution can be found at:

http://www.usatech.com/energy_management/energy_vm.php

ENERGY STAR Partner

Implementing a plan to reduce utility costs will enable Northwestern Michigan College to remain viable in the future. As the ENERGY STAR slogan says: ***Money is not all you will be saving.*** Linking your conservation efforts to the impact on the environment will reflect positively on the college as a responsible and forward thinking institution.

It is recommended that Northwestern Michigan College join the ENERGY STAR Partnership, as many colleges and universities have. Arizona State University, University of Miami, Broward Community College, Harvard University, and Duke University are all ENERGY STAR Partners.

Conclusion

The recommended capital and low cost/no cost projects identified in this report have the potential to reduce Northwestern Michigan College's expected annual utility costs by 17.7%, improve the utility performance metrics and increase occupant satisfaction significantly.

Thank you for the opportunity to perform this energy audit. The audit team would welcome the opportunity to assist Northwestern Michigan College in their efforts to develop a program for further reducing energy and water consumption. Energy partner recommendations or a review of any proposals received from other vendors can be provided upon request.

Appendix N

Land Inventory

Northwestern Michigan College

Property Inventory and Values

October 1, 2020

NMC Property Inventory – List of Property Values

No.	Parcel	Size	Location/Campus	Restrictions/Status	Value / Sold
Main Campus Property Owned - Total Value Building and Land					**$ 90,000,000**
U-5	Beery Property	3.0 Acres	Main College Campus	None / Active	
U-4	City of Traverse City	0.2 Acres	Main College Campus	None / Active	
U-6	DeBruyn Property	2.8 Acres	Main College Campus	None / Active	
U-13	Eastern Ave. Orchard	54.42 Acres	Main College Campus	None / Active	
U-12a	Francis Hotel	3.1 Acres	Main College Campus	None / Active	
U-15	Hulet Property	3.5 Acres	Main College Campus	None / Active	
U-12b	Indian Woods	City Lots 47, 48, 62-65, 83, 84	Main College Campus	None / Active	
U-9	Judge Property	0.7 Acres	Main College Campus	None / Active	
U-7	Leveque Property	52.9 Acres	Main College Campus	None / Active	
U-10	Pharo Property	0.3 Acres	Main College Campus	None / Active	
U-2	Porter-Mulder	4.9 Acres	Main College Campus	None / Active	
U-11	Roman Property	5.9 Acres	Main College Campus	None / Active	
U-8	Sarris Property	3.0 Acres	Main College Campus	None / Active	
U-17	Shadowland Property	0.4 Acres	Main College Campus	None / Active	
U-1	Traverse City Schools	14.6 Acres	Main College Campus	Yes / Active	
U-3	Traverse City Schools	1.2 Acres	Main College Campus	None / Active	
	MDOT Parcel at Front St/ Munson Ave Intersection	135 sq. ft.	Main College Campus	None / Active	

No.	Parcel	Size	Location/Campus	Restrictions/Status	Value / Sold
Main Campus, Eastern Avenue Property Owned - Total Value Buildings and Land					**$ 3,470,000**
U-14	City of Traverse City	56.7 Acres	Main College Campus	Residential / Inactive	
Aviation Campus Property Owned - Total Value Buildings and Land					**$13,275,000**
U-18	Airport Industrial Park	City Lot 13	Aviation Campus	Industrial / Active	
U-19	Site of M-TEC	City Lots 14,15	Airport Industrial Park	Industrial / Active	
U-20	FED EX	City Lot 4	Airport Industrial Park	Industrial / Active	TTL 7.04 acres
	Aero Park Laboratories		Airport Industrial Park	Industrial / Active	5.16 acres
University Center Campus Property Owned - Total Value Buildings and Land					**$ 6,000,000**
	Boardman Lake	31.03 Acres	University Center Campus	Industrial / Active	
Great Lakes Campus Property Owned - Total Value Buildings and Land					**$ 18,250,000**
U-16	Maritime/Tech	8.27 Acres	Great Lakes Campus	Commercial / Active	
Observatory Campus Property Owned - Total Value Buildings and Land					**$ 206,000**
A-8	Lautner-Tezak Gift	5 Acres	Observatory	Residential / Active	
Other College Owned Properties					**$ 157,000**
A-5	Appel Gift	38 Acres	Blair Twp, Grand Traverse Co	Residential / Active	
A-4	Valleau Gift	60 Acres	Mayfield Twp, Grand Traverse Co	Title dispute w/State of MI	
A-11	Tezak Gift	81.94 Acres	Inland Twp, Benzie Co	Cannot sell until year 2017	

Section V – Implementation Plan

Appendix O

FCAP Schedule

Northwestern Michigan College

Main Campus

31Tanis Building

Building Number:	BUILDING_ID_02313	Year Built:	1957
Area(SF):	14,300	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	OFFICE FACILITIES

31Tanis Building

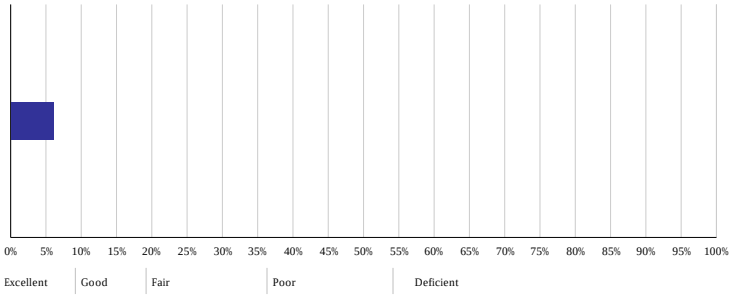
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$264,711
Replacement Value	$4,344,912

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 6%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	151	36	78	0	0	0	0	0	265	0.06	0	0	0	0	0	0	0.00	265	0.06

Requirements List

Roof

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Roof - Single Ply Membrane, Fully Adhered Renewal	B3010 - Roof Coverings	Integrity	2- Due within 2 Years of Inspection	2019	150,668
Subtotal					**150,668**

Ext Envelope

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Clean, patch and paint EFIS	B2010 - Exterior Walls	Integrity	2- Due within 2 Years of Inspection	2019	7,500
Wrought Iron Railings Renewal	B2015 - Balcony Walls and Handrails	Regulatory / Code Compliance	1- Due within 1 Year of Inspection	2018	28,694
Subtotal					**36,194**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Sump Pump - Pedestal - 21 GPM Renewal	D20 - Plumbing	Lifecycle	5- Due within 5 Years of Inspection	2022	755
Ductless Mini-Split Indoor Unit Renewal	D3041 - Air Distribution Systems	Lifecycle	2- Due within 2 Years of Inspection	2019	3,059
Computer Room Split 5 Ton System Renewal	D3050 - Terminal and Package Units	Functionality	1- Due within 1 Year of Inspection	2018	25,529
Rooftop DX 10 ton cooling/200MBH gas heat Renewal	D3051 - Terminal Self-Contained Units	Lifecycle	5- Due within 5 Years of Inspection	2003	18,794
Rooftop DX 15 ton cooling/270MBH gas heat Renewal	D3051 - Terminal Self-Contained Units	Lifecycle	5- Due within 5 Years of Inspection	2003	24,737
Heat pump, air to air split system, 1 ton Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	4,975
Subtotal					**77,849**
Overall					**264,711**

Northwestern Michigan College

Main Campus

Aero Park Laboratories

Building Number:	BUILDING_ID_07124	Year Built:	1980
Area(SF):	29,600	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Aero Park Laboratories

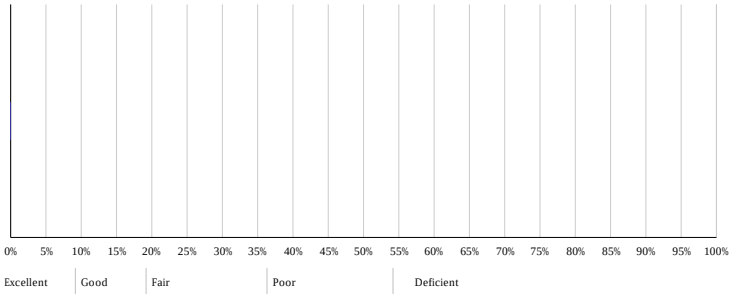
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$0
Replacement Value	$4,121,500

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **0%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0					

Requirements List

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Subtotal					
Overall					

Northwestern Michigan College

Main Campus

Apartment A 1880

Building Number:	BUILDING_ID_02322	Year Built:	1973
Area(SF):	12,399	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	RESIDENTIAL FACILITIES

Apartment A 1880

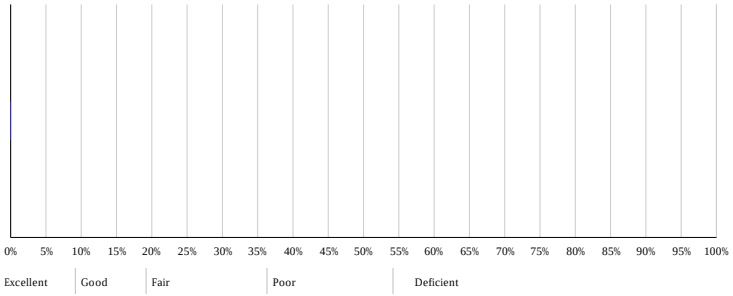
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$0
Replacement Value	$1,941,270

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 0%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0					

Requirements List

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Subtotal					
Overall					

Northwestern Michigan College

Main Campus

Apartment B 1882

Building Number:	BUILDING_ID_02323	Year Built:	1973
Area(SF):	12,399	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	RESIDENTIAL FACILITIES

Apartment B 1882

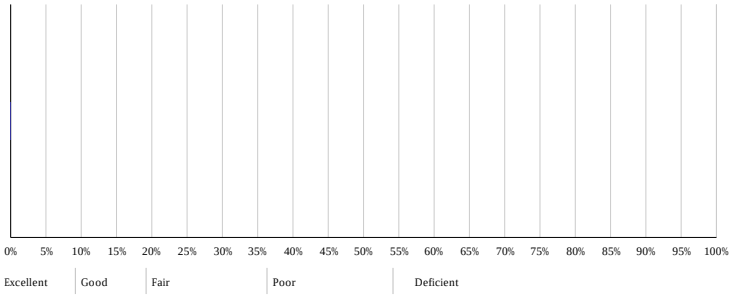
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$0
Replacement Value	$1,740,200

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 0%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0					

Requirements List

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Subtotal					
Overall					

Northwestern Michigan College

Main Campus

Apartment C 1884

Building Number:	BUILDING_ID_02324	Year Built:	1973
Area(SF):	12,399	Inspection Date:	
Floors:	3	Ownership:	
Building Type:	Building	Current Use:	RESIDENTIAL FACILITIES

Apartment C 1884

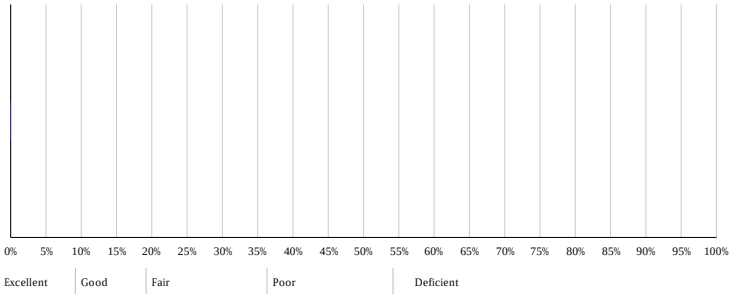
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$0
Replacement Value	$1,740,200

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 0%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0					

Requirements List

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Subtotal					
Overall					

Northwestern Michigan College

Main Campus

Appel Property

Building Number:	BUILDING_ID_02337	Year Built:	1954
Area(SF):	1,160	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	GENERAL-USE FACILITIES

Appel Property

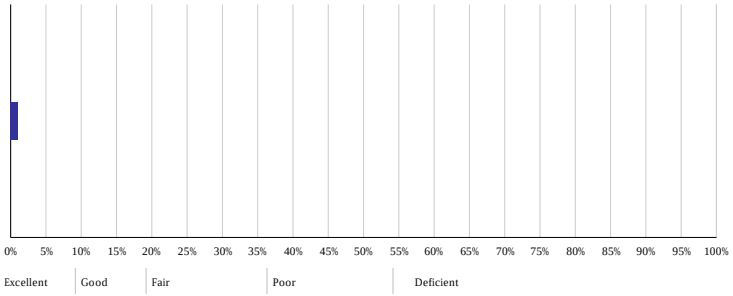
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$1,652
Replacement Value	$153,200

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **1%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	2	0	0	0	0	0	2	0.01	0	0	0	0	0	0	0.00	2	0.01

Requirements List

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water Dist Complete - Low Volume Renewal	D2020 - Domestic Water Distribution	Functionality	1- Due within 1 Year of Inspection	2018	1,652
Subtotal					**1,652**
Overall					**1,652**

Northwestern Michigan College

Main Campus

Athletic Fields

Building Number:	BUILDING_ID_02338	Year Built:	1976
Area(SF):	1	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	SUPPORTING FACILITIES

Athletic Fields

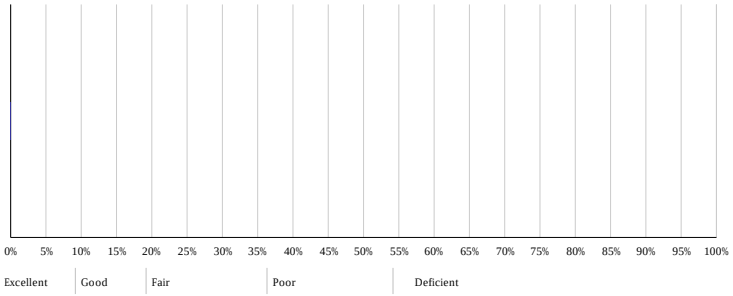
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$0
Replacement Value	$55,000

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **0%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0					

Requirements List

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Subtotal					
Overall					

Northwestern Michigan College

Main Campus

Automotive Technology

Building Number:	BUILDING_ID_02333	Year Built:	1990
Area(SF):	18,309	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Automotive Technology

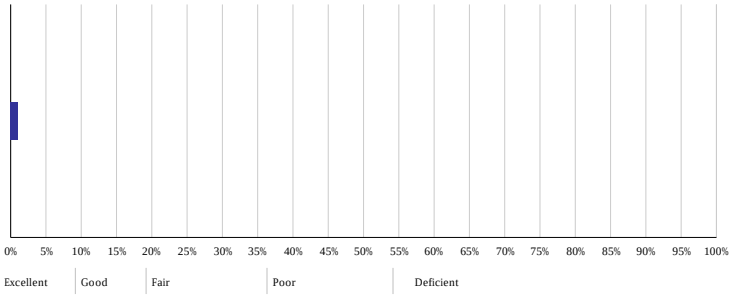
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$34,957
Replacement Value	$3,268,400

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **1%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	9	19	0	7	0	0	0	35	0.01	0	0	0	0	74	74	0.02	109	0.03

Requirements List

Ext Envelope

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Door Assembly - 6 x 7 HM Renewal	B2030 - Exterior Doors	Integrity	2- Due within 2 Years of Inspection	2019	4,761
Overhead Rolling Doors - Electric Operation Renewal	B2030 - Exterior Doors	Integrity	4- Due within 4 Years of Inspection	2021	4,510
Subtotal					**9,271**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Rooftop DX 10 ton cooling/200MBH gas heat Renewal	D3051 - Terminal Self-Contained Units	Lifecycle	2- Due within 2 Years of Inspection	2019	18,794
Subtotal					**18,794**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
VCT - Average Renewal	C3020 - Floor Finishes	Appearance	4- Due within 4 Years of Inspection	2021	6,892
Subtotal					**6,892**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Restroom, Group, (Standard) Renewal	C10 - Interior Construction	Modernization	5- Due within 5 Years of Inspection	2022	73,554
Subtotal					**73,554**
Overall					**108,511**

Northwestern Michigan College

Main Campus

Aviation Building

Building Number:	BUILDING_ID_02336	Year Built:	1977
Area(SF):	20,912	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Aviation Building

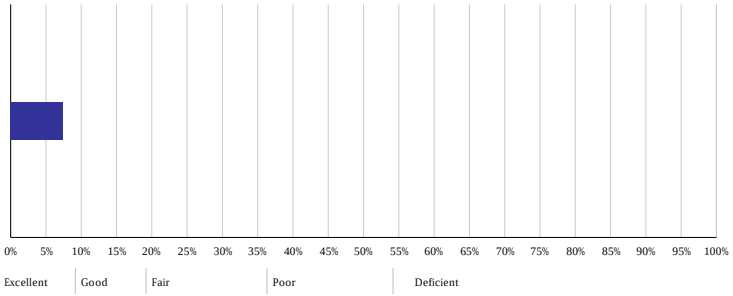
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$178,125
Replacement Value	$2,386,100

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 7%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	28	23	0	39	0	89	0	178	0.07	0	0	0	0	135	135	0.06	313	0.13

Requirements List

Ext Envelope

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Curtain Wall System - Standard Renewal	B2020 - Exterior Windows	Integrity	5- Due within 5 Years of Inspection	2022	20,599
Door Assembly - 3 x 7 HM Renewal	B2030 - Exterior Doors	Integrity	4- Due within 4 Years of Inspection	2021	2,531
Door Assembly - 3 x 7 Storefront Renewal	B2030 - Exterior Doors	Integrity	4- Due within 4 Years of Inspection	2021	4,797
Subtotal					**27,927**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Furnace, Gas Fired, Residentail Type Renewal	D3050 - Terminal and Package Units	Lifecycle	2- Due within 2 Years of Inspection	2019	6,288
Furnace, Gas Fired, Commercial Type Renewal	D3050 - Terminal and Package Units	Lifecycle	1- Due within 1 Year of Inspection	2018	16,482
Subtotal					**22,770**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Tile Renewal	C3020 - Floor Finishes	Appearance	3- Due within 3 Years of Inspection	2020	3,102
VCT - Average Renewal	C3020 - Floor Finishes	Lifecycle	5- Due within 5 Years of Inspection	2022	19,013
ACT System - Economy Renewal	C3030 - Ceiling Finishes	Appearance	5- Due within 5 Years of Inspection	2022	16,500
Subtotal					**38,615**

FFE and Site

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Parking Lot (Front and Rear of Bldg): Asphalt, Per Car, Parked 90 degrees Renewal	G2021 - Bases and Sub-Bases	Lifecycle	4- Due within 4 Years of Inspection	2021	83,927
Site Development - Fencing - Chain Link Renewal	G2041 - Fences and Gates	Regulatory / Code Compliance	1- Due within 1 Year of Inspection	2018	4,887
Subtotal					**88,814**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Metal Paneled Walls - Insulating Exterior Walls Renewal	B2010 - Exterior Walls	Energy	4- Due within 4 Years of Inspection	2021	23,055
Restroom, Group, (Small) Renewal	C10 - Interior Construction	Modernization	5- Due within 5 Years of Inspection	2022	27,427
Restroom, Group, (Standard) Renewal	C10 - Interior Construction	Modernization	5- Due within 5 Years of Inspection	2022	73,554
Site Lighting - Fixtures & Transformers - Flood Light - LED (1 Fixture) Renewal	G4021 - Fixtures and Transformers	Energy	1- Due within 1 Year of Inspection	2018	11,266
Subtotal					**135,302**
Overall					**313,428**

Northwestern Michigan College

Main Campus

Biederman Building

Building Number:	BUILDING_ID_02434	Year Built:	1976
Area(SF):	29,025	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Biederman Building

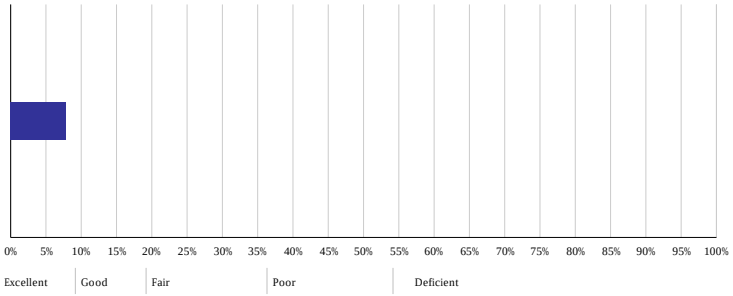
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$691,386
Replacement Value	$8,818,956

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **8%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	130	0	256	0	306	0	0	0	691	0.08	0	0	0	0	78	78	0.01	769	0.09

Requirements List

Roof

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Skylights - Monumental Renewal	B3021 - Glazed Roof Openings	Integrity	1- Due within 1 Year of Inspection	2018	130,040
Subtotal					**130,040**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water Heater - Elec - Residential - 80 Gal Renewal	D2020 - Domestic Water Distribution	Lifecycle	3- Due within 3 Years of Inspection	2020	5,777
Condensate Return System Renewal	D3022 - Boiler Room Piping and Specialties	Lifecycle	4- Due within 4 Years of Inspection	2021	18,266
Circulating pump 1 1/2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	3- Due within 3 Years of Inspection	2020	6,780
Transformer, dry, 75 KVA, 480-120/208 V Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	4- Due within 4 Years of Inspection	2021	11,466
Transformer, dry, 100 KVA, 480-120/208 V Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	4- Due within 4 Years of Inspection	2021	16,482
Electrical Service - 2000A 3 section - 480/277 Volt Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	4- Due within 4 Years of Inspection	2021	174,354
Transformer, dry, 50 KVA, 480-120/208 V Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	4- Due within 4 Years of Inspection	2021	7,809
Variable Frequency Drive (VFD) 40HP Renewal	D5090 - Other Electrical Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	14,818
Subtotal					**255,752**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Restroom, Group, (Standard) Renewal	C10 - Interior Construction	Appearance	4- Due within 4 Years of Inspection	2021	305,595
Subtotal					**305,595**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Elevator, passenger, hydraulic, 3 stop, 2500 lb capacity Renewal	D1011 - Passenger Elevators	Modernization	5- Due within 5 Years of Inspection	2022	77,721
Subtotal					**77,721**
Overall					**769,108**

Northwestern Michigan College

Main Campus

Campus General

Building Number:	BUILDING_ID_02339	Year Built:	1976
Area(SF):	1	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	GENERAL-USE FACILITIES

Campus General

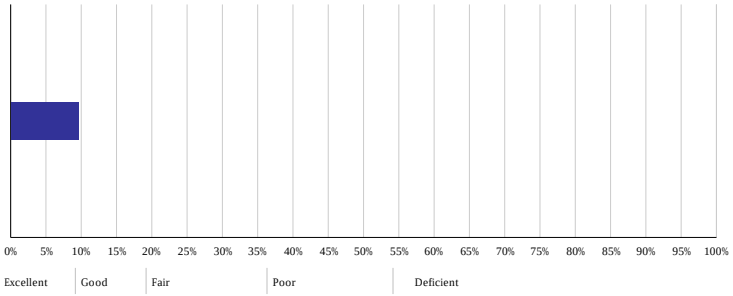
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$672,133
Replacement Value	$7,000,000

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **10%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	672	0	672	0.10	0	0	0	0	0	0	0.00	672	0.10

Requirements List

FFE and Site

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Apt Pine Parking Lot Flexible Pavement - Surface Course Renewal	G2022 - Paving and Surfacing	Lifecycle	4- Due within 4 Years of Inspection	2021	30,685
Aspen Parking Lot Flexible Pavement - Surface Course Renewal	G2022 - Paving and Surfacing	Lifecycle	2- Due within 2 Years of Inspection	2019	92,986
Aspen Parking Lot - Access Control - Parking Gate Arms - Two Lane Renewal	G2024 - Parking Booths and Equipment	Lifecycle	1- Due within 1 Year of Inspection	2018	9,870
Site Security - Blue Light Phone Renewal	G4032 - Site Security and Alarm Systems	Functionality	3- Due within 3 Years of Inspection	2020	538,591
Subtotal					**672,132**
Overall					**672,132**

Northwestern Michigan College

Main Campus

Dennos Museum Center

Building Number:	BUILDING_ID_02309	Year Built:	1991
Area(SF):	53,545	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	SPECIAL-USE FACILITIES

Dennos Museum Center

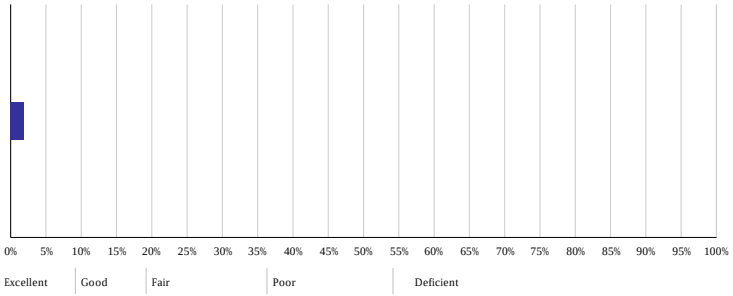
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$321,112
Replacement Value	$17,332,700

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 2%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	59	23	0	0	239	0	0	321	0.02	0	0	0	0	33	33	0.00	354	0.02

Requirements List

Ext Envelope

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Automatic Openers - Single Renewal	B2030 - Exterior Doors	Accessibility	3- Due within 3 Years of Inspection	2020	43,994
Door Assembly - 6 x 7 Storefront Renewal	B2030 - Exterior Doors	Integrity	3- Due within 3 Years of Inspection	2020	15,113
Subtotal					**59,107**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water Heater - Gas - Residential - 80 Gal Renewal	D2020 - Domestic Water Distribution	Lifecycle	2- Due within 2 Years of Inspection	2019	6,854
Circulating pump 3 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	15,852
Subtotal					**22,706**

Fire Protection

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Fire Alarm System - Average Density Renewal	D5037 - Fire Alarm Systems	Regulatory / Code Compliance	3- Due within 3 Years of Inspection	2020	239,300
Subtotal					**239,300**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Building Management (DDC) Control Renewal	D3068 - Building Automation Systems	Energy	5- Due within 5 Years of Inspection	2022	32,826
Subtotal					**32,826**
Overall					**353,939**

Northwestern Michigan College

Main Campus

East Hall

Building Number:	BUILDING_ID_02318	Year Built:	1965
Area(SF):	52,288	Inspection Date:	
Floors:	3	Ownership:	
Building Type:	Building	Current Use:	RESIDENTIAL FACILITIES

East Hall

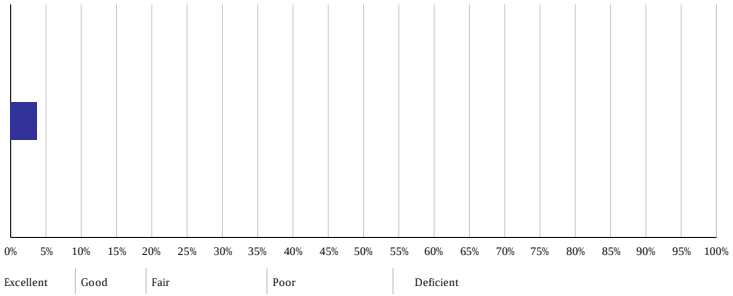
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$448,159
Replacement Value	$11,990,600

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 4% Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	257	0	140	0	0	0	52	0	448	0.04	0	0	0	0	0	0	0.00	448	0.04

Requirements List

Roof

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Roof - Single Ply Trocal PVC Membrane, Fully Adhered Renewal	B3010 - Roof Coverings	Integrity	3- Due within 3 Years of Inspection	2020	256,778
Subtotal					**256,778**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Condensing Unit, 5 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	1- Due within 1 Year of Inspection	2018	4,037
Condensing Unit, 5 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	4,037
Condensing Unit, 3 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	3- Due within 3 Years of Inspection	2020	6,718
Condensing Unit, 2 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	2- Due within 2 Years of Inspection	2019	3,311
Ductless Mini-Split Indoor Unit Renewal	D3041 - Air Distribution Systems	Lifecycle	3- Due within 3 Years of Inspection	2020	3,059
AHU, compact, vertical/horizontal discharge, fan/coil, filter, controls Renewal	D3041 - Air Distribution Systems	Lifecycle	2- Due within 2 Years of Inspection	2019	19,664
Computer room unit, air cooled, includes remote condenser, 3 ton Renewal	D3050 - Terminal and Package Units	Functionality	2- Due within 2 Years of Inspection	2019	33,301
Circulating pump 2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	6,780
Transformer, dry, 250 KVA, 480-120/208 Volt Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	2- Due within 2 Years of Inspection	2019	25,997
Transformer, dry, 45 KVA, 480-120/208 V Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	2- Due within 2 Years of Inspection	2019	7,809
Generator set, NG, 60 kW Renewal	D5092 - Emergency Light and Power Systems	Functionality	2- Due within 2 Years of Inspection	2019	25,141
Subtotal					**139,854**

FFE and Site

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Site Electrical Distribution - Underground Power Distribution - 1000kVA Pad Mounted Transformer Renewal	G4013 - Underground Power Distribution	Functionality	1- Due within 1 Year of Inspection	2018	51,527
Subtotal					**51,527**
Overall					**448,159**

Northwestern Michigan College

Main Campus

Facilities Maintenance Building

Building Number:	BUILDING_ID_02328	Year Built:	2001
Area(SF):	11,900	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	SUPPORTING FACILITIES

Facilities Maintenance Building

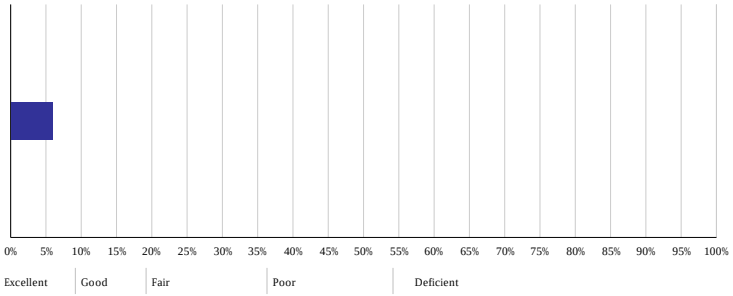
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$62,364
Replacement Value	$1,052,100

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 6%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	18	0	45	0	0	0	62	0.06	0	0	0	0	0	0	0.00	62	0.06

Requirements List

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water heater, residential, electric, 50 gal Renewal	D2022 - Hot Water Service	Lifecycle	2- Due within 2 Years of Inspection	2019	1,668
Condensing Unit, 5 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	3- Due within 3 Years of Inspection	2020	4,037
Furnace, Gas Fired, Residentail Type Renewal	D3050 - Terminal and Package Units	Lifecycle	4- Due within 4 Years of Inspection	2021	3,144
Unit Heater, Gas Fired Renewal	D3050 - Terminal and Package Units	Lifecycle	4- Due within 4 Years of Inspection	2021	8,815
Subtotal					**17,664**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Tile Renewal	C3020 - Floor Finishes	Appearance	2- Due within 2 Years of Inspection	2019	28,200
ACT System - Economy Renewal	C3030 - Ceiling Finishes	Appearance	4- Due within 4 Years of Inspection	2021	16,500
Subtotal					**44,700**
Overall					**62,364**

Northwestern Michigan College

Main Campus

Fine Arts

Building Number:	BUILDING_ID_02320	Year Built:	1971
Area(SF):	18,800	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Fine Arts

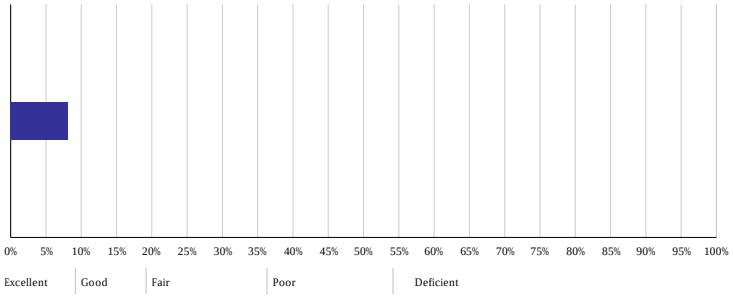
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$394,323
Replacement Value	$4,843,500

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 8%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	149	0	125	0	36	84	0	0	394	0.08	0	0	0	0	116	116	0.02	510	0.11

Requirements List

Roof

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Roof - Asphalt/Fiberglass Shingles Renewal	B3010 - Roof Coverings	Integrity	3- Due within 3 Years of Inspection	2020	149,214
Subtotal					**149,214**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Condensing Unit, 30 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	4- Due within 4 Years of Inspection	2021	21,069
Chiller 25 ton Air Cooled Renewal	D3031 - Chilled Water Systems	Lifecycle	4- Due within 4 Years of Inspection	2021	42,245
Circulating pump 1 1/2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	3,390
Circulating Pump, 5 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	4,524
Circulating Pump, 5 HP - Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	1- Due within 1 Year of Inspection	2018	4,524
Water Treatment System, HVAC, Cool/Heat Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	15,442
Transformer, dry, 300 KVA, 480-120/208 Volt Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 3 Years of Inspection	2020	33,751
Subtotal					**124,945**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Broadloom - Economy Renewal	C3020 - Floor Finishes	Appearance	3- Due within 3 Years of Inspection	2020	36,146
Subtotal					**36,146**

Fire Protection

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Fire Alarm System - Average Density Renewal	D5037 - Fire Alarm Systems	Regulatory / Code Compliance	4- Due within 4 Years of Inspection	2021	84,020
Subtotal					**84,020**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Restroom - Complete - Gang Renewal	C10 - Interior Construction	Modernization	3- Due within 3 Years of Inspection	2020	83,044
DDC System - Basic Renewal	D3060 - Controls and Instrumentation	Energy	5- Due within 5 Years of Inspection	2022	24,909
Lighting - Exterior - HID Wall Packs Renewal	D5020 - Lighting and Branch Wiring	Energy	1- Due within 1 Year of Inspection	2018	7,596
Subtotal					**115,549**
Overall					**509,874**

Northwestern Michigan College

Main Campus

Founders Hall

Building Number:	BUILDING_ID_02316	Year Built:	1976
Area(SF):	4,950	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	OFFICE FACILITIES

Founders Hall

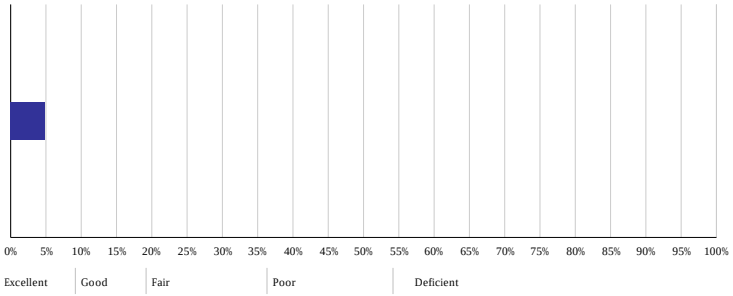
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$57,130
Replacement Value	$1,170,200

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 5%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	23	0	34	0	0	0	57	0.05	0	0	0	0	0	0	0.00	57	0.05

Requirements List

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water Heater - Gas - Residential - 50 Gal Renewal	D2020 - Domestic Water Distribution	Lifecycle	2- Due within 2 Years of Inspection	2019	5,093
Electrical Service - 400A 208/120 Volt Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	5- Due within 5 Years of Inspection	2022	17,697
Subtotal					**22,790**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Broadloom - Medium Range Renewal	C3020 - Floor Finishes	Appearance	4- Due within 4 Years of Inspection	2021	34,341
Subtotal					**34,341**
Overall					**57,131**

Northwestern Michigan College

Main Campus

Great Lakes Campus

Building Number:	BUILDING_ID_02332	Year Built:	2004
Area(SF):	75,364	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Great Lakes Campus

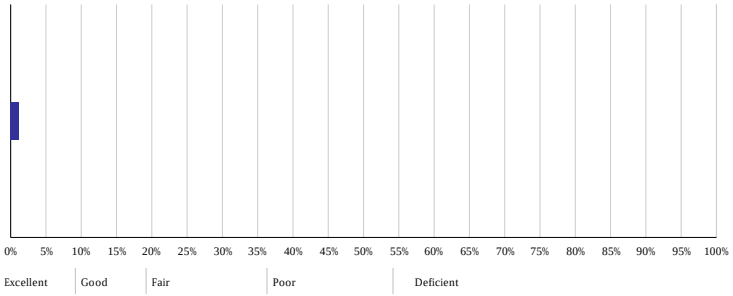
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$263,434
Replacement Value	$21,990,100

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **1%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	115	0	148	0	0	0	263	0.01	0	0	0	0	0	0	0.00	263	0.01

Requirements List

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Condensing Unit, 30 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	3- Due within 3 Years of Inspection	2020	21,069
Circulating pump 3 HP - Main Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	4- Due within 4 Years of Inspection	2021	7,926
Circulating pump 1/2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	4- Due within 4 Years of Inspection	2021	4,121
Circulating pump 3 HP -Zone/Bldg Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	4- Due within 4 Years of Inspection	2021	11,889
Variable Frequency Drive (VFD) 1/2 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	3- Due within 3 Years of Inspection	2020	19,403
Variable Frequency Drive (VFD) 3 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	3- Due within 3 Years of Inspection	2020	14,552
UPS System - 20 Amp Renewal	D5092 - Emergency Light and Power Systems	Functionality	1- Due within 1 Year of Inspection	2018	36,061
Subtotal					**115,021**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Broadloom - Economy Renewal	C3020 - Floor Finishes	Appearance	3- Due within 3 Years of Inspection	2020	148,413
Subtotal					**148,413**
Overall					**263,434**

Northwestern Michigan College

Main Campus

Health and Science Building

Building Number:	BUILDING_ID_02315	Year Built:	2002
Area(SF):	57,477	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Health and Science Building

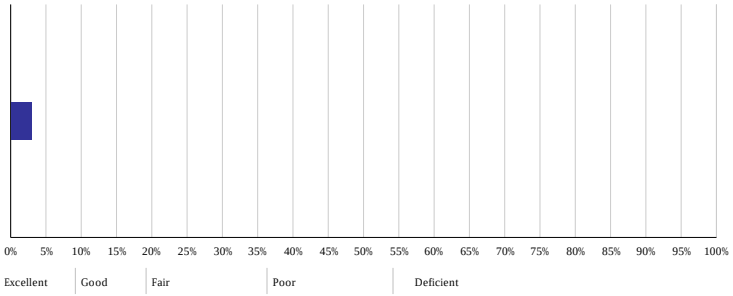
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$519,838
Replacement Value	$17,463,812

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 3%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	270	0	250	0	0	0	520	0.03	0	0	0	0	33	33	0.00	553	0.03

Requirements List

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Chiller, 100 ton, air cooled Renewal	D3031 - Chilled Water Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	163,705
Circulating Pump, 7.5 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	13,380
Circulating pump 2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	6,780
Circulating pump 3 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	7,926
Variable Frequency Drive (VFD) 25 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	2- Due within 2 Years of Inspection	2019	22,741
Variable Frequency Drive (VFD) 7.5 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	2- Due within 2 Years of Inspection	2019	5,531
Variable Frequency Drive (VFD) 30HP Renewal	D5090 - Other Electrical Systems	Lifecycle	2- Due within 2 Years of Inspection	2019	12,753
Variable Frequency Drive (VFD) 3 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	2- Due within 2 Years of Inspection	2019	9,701
UPS System - 20 Amp Renewal	D5092 - Emergency Light and Power Systems	Functionality	1- Due within 1 Year of Inspection	2018	27,046
Subtotal					**269,563**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Tile Renewal	C3020 - Floor Finishes	Appearance	4- Due within 4 Years of Inspection	2021	250,275
Subtotal					**250,275**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Building Management (DDC) Control Renewal	D3068 - Building Automation Systems	Energy	3- Due within 3 Years of Inspection	2020	32,826
Subtotal					**32,826**
Overall					**552,664**

Northwestern Michigan College

Main Campus

James J. Beckett

Building Number:	BUILDING_ID_02321	Year Built:	1996
Area(SF):	34,269	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

James J. Beckett

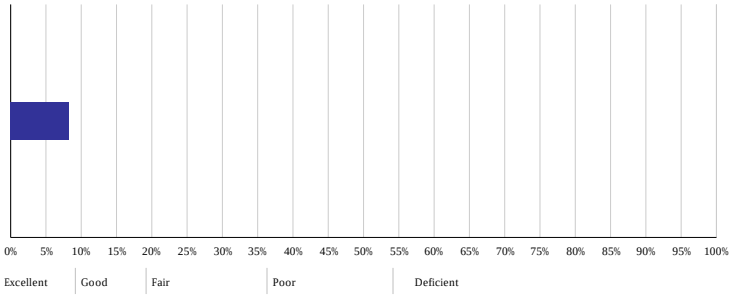
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$678,906
Replacement Value	$8,164,100

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 8%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	432	0	242	0	5	0	679	0.08	0	0	0	0	33	33	0.00	712	0.09

Requirements List

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water Heater - Gas - Comm - 120 MBH Renewal	D2020 - Domestic Water Distribution	Lifecycle	1- Due within 1 Year of Inspection	2018	20,599
Cooling Tower - Stainless Steel - 60 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	4- Due within 4 Years of Inspection	2021	67,844
Heat Pump - Water Source, Residential Unit Renewal	D3050 - Terminal and Package Units	Lifecycle	4- Due within 4 Years of Inspection	2021	327,892
Circulating pump 2 1/2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	4- Due within 4 Years of Inspection	2021	15,852
Subtotal					**432,187**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Tile Renewal	C3020 - Floor Finishes	Appearance	4- Due within 4 Years of Inspection	2021	241,596
Subtotal					**241,596**

FFE and Site

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Site Furnishings - Steel Bench Renewal	G2045 - Site Furnishings	Appearance	1- Due within 1 Year of Inspection	2018	5,123
Subtotal					**5,123**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Building Management (DDC) Control Renewal	D3068 - Building Automation Systems	Energy	1- Due within 1 Year of Inspection	2018	32,826
Subtotal					**32,826**
Overall					**711,732**

Northwestern Michigan College

Main Campus

North Hall

Building Number:	BUILDING_ID_02318	Year Built:	2017
Area(SF):	46,730	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	RESIDENTIAL FACILITIES

North Hall

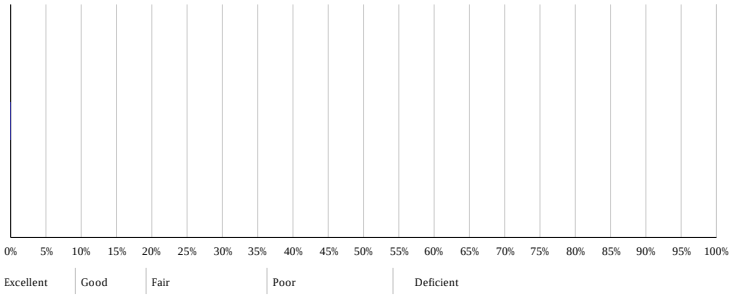
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$0
Replacement Value	$6,818,200

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 0%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0					

Requirements List

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Subtotal					
Overall					

Northwestern Michigan College

Main Campus

Oleson Center

Building Number:	BUILDING_ID_02325	Year Built:	1978
Area(SF):	9,925	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	GENERAL-USE FACILITIES

Oleson Center

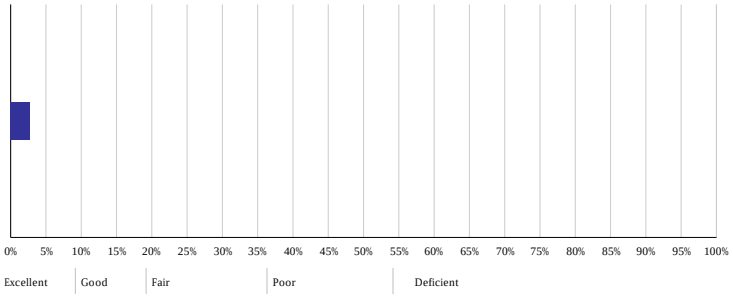
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$68,991
Replacement Value	$2,506,400

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 3%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	69	0	0	0	69	0.03	0	0	0	0	0	0	0.00	69	0.03

Requirements List

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	C3010 - Wall Finishes	Appearance	2- Due within 2 Years of Inspection	2019	7,838
VCT - Average Renewal	C3020 - Floor Finishes	Appearance	3- Due within 3 Years of Inspection	2020	4,753
Carpeting - Tile Renewal	C3020 - Floor Finishes	Appearance	2- Due within 2 Years of Inspection	2019	56,400
Subtotal					**68,991**
Overall					**68,991**

Northwestern Michigan College

Main Campus

Osterlin Library

Building Number:	BUILDING_ID_02311	Year Built:	1961
Area(SF):	46,734	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	STUDY-LIBRARY FACILITIES

Osterlin Library

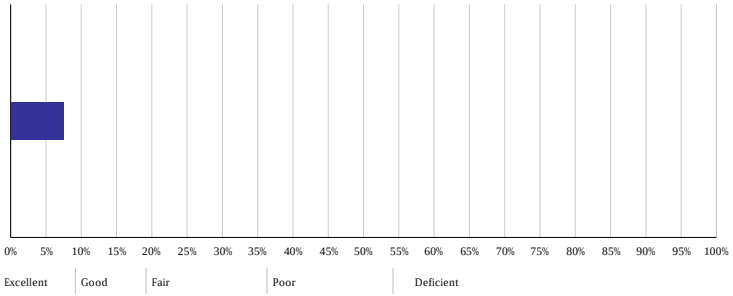
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$903,003
Replacement Value	$12,068,600

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 7%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	174	19	409	0	249	0	53	0	903	0.07	0	0	0	0	135	135	0.01	1,038	0.09

Requirements List

Roof

Name	Prime System	Category	Priority	Action Year	Requirement Cost
BUR (Built-Up Roofing) Renewal	B30 - Roofing	Integrity	2- Due within 2 Years of Inspection	2019	27,378
Skylights - Monumental Renewal	B3021 - Glazed Roof Openings	Integrity	1- Due within 1 Year of Inspection	2018	146,295
Subtotal					**173,673**

Ext Envelope

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Door Assembly - 6 x 7 HM Renewal	B2030 - Exterior Doors	Integrity	5- Due within 5 Years of Inspection	2022	4,761
Door Assembly - 3 x 7 HM Renewal	B2030 - Exterior Doors	Integrity	5- Due within 5 Years of Inspection	2022	5,061
Door Assembly - 3 x 7 Storefront Renewal	B2030 - Exterior Doors	Integrity	4- Due within 4 Years of Inspection	2021	9,594
Subtotal					**19,416**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water Heater - Elec - Residential - 80 Gal Renewal	D2020 - Domestic Water Distribution	Lifecycle	1- Due within 1 Year of Inspection	2018	5,777
Condensate Return System Renewal	D3022 - Boiler Room Piping and Specialties	Lifecycle	4- Due within 4 Years of Inspection	2021	36,531
Chiller, 100 ton, air cooled Renewal	D3031 - Chilled Water Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	81,852
AHU1/Central Station, constant volume, 15,000 CFM Renewal	D3041 - Air Distribution Systems	Lifecycle	4- Due within 4 Years of Inspection	2021	89,608
AHU2/Central Station, constant volume, 12,500 CFM Renewal	D3041 - Air Distribution Systems	Lifecycle	4- Due within 4 Years of Inspection	2021	89,608
AHU3/Central Station, constant volume, 8,000 CFM Renewal	D3041 - Air Distribution Systems	Lifecycle	4- Due within 4 Years of Inspection	2021	51,828
Heat Exchanger, 120 GPM, Shell & Tube Type, HW or Steam Renewal	D3044 - Hot Water Distribution	Functionality	4- Due within 4 Years of Inspection	2021	31,716
Circulating Pump, 5 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	9,047
Circulating pump 2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	6,780
Variable Frequency Drive (VFD) 10 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	2- Due within 2 Years of Inspection	2019	6,113
Subtotal					**408,860**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Tile Renewal	C3020 - Floor Finishes	Appearance	1- Due within 1 Year of Inspection	2018	248,513
Subtotal					**248,513**

FFE and Site

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Demo/Remove/Dispose of Abandoned Satellite Dishes on Roof Renewal	G2048 - Flagpoles	Appearance	2- Due within 2 Years of Inspection	2019	8,831
Site Electrical Distribution - Underground Power Distribution - 750kVA Pad Mounted Transformer Renewal	G4013 - Underground Power Distribution	Functionality	5- Due within 5 Years of Inspection	2022	43,711
Subtotal					**52,542**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
DDC System - Average Renewal	D3060 - Controls and Instrumentation	Energy	4- Due within 4 Years of Inspection	2021	135,471
Subtotal					**135,471**
Overall					**1,038,475**

Northwestern Michigan College

Main Campus

Parsons-Stulen/Michigan Technical Education Center

Building Number:	BUILDING_ID_02335	Year Built:	1999
Area(SF):	65,000	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Parsons-Stulen/Michigan Technical Education Center

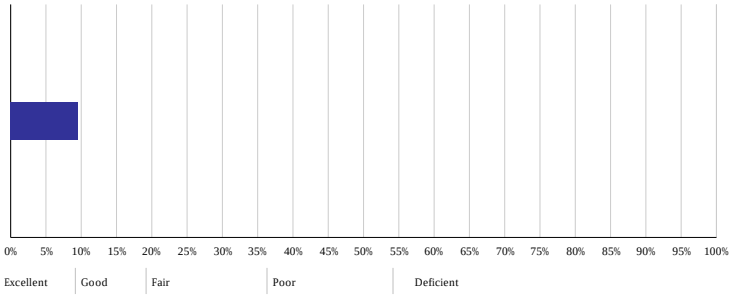
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$1,462,002
Replacement Value	$15,297,900

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **10%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	1,462	0	0	0	0	0	1,462	0.10	0	0	0	0	0	0	0.00	1,462	0.10

Requirements List

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Condensing Unit, 30 Ton Renewal	D3030 - Cooling Generating Systems	Lifecycle	1- Due within 1 Year of Inspection	2018	42,138
Cooling Tower, Water Cooled, 100 Ton Renewal	D3031 - Chilled Water Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	73,429
Cooling Tower, Water Cooled, 60 Ton Renewal	D3031 - Chilled Water Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	0
Heat Pump - Water Source, Residentail Unit - 3 Ton Renewal	D3050 - Terminal and Package Units	Lifecycle	5- Due within 5 Years of Inspection	2022	1,256,452
Circulating Pump, 5 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	9,047
Circulating pump 3/4 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	4,121
Circulating pump 2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	6,780
Circulating pump 1 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	3- Due within 3 Years of Inspection	2020	3,390
Circulating Pump, 7.5 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	40,140
Water Treatment System, HVAC, Cool/Heat Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	15,442
Variable Frequency Drive (VFD) 7.5 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	3- Due within 3 Years of Inspection	2020	11,062
Subtotal					**1,462,001**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
DDC System - Average Renewal	D3060 - Controls and Instrumentation	Energy	5- Due within 5 Years of Inspection	2022	3
Subtotal					**3**
Overall					**1,462,004**

Northwestern Michigan College

Main Campus

Power House

Building Number:	BUILDING_ID_02312	Year Built:	1962
Area(SF):	3,625	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	SPECIAL-USE FACILITIES

Power House

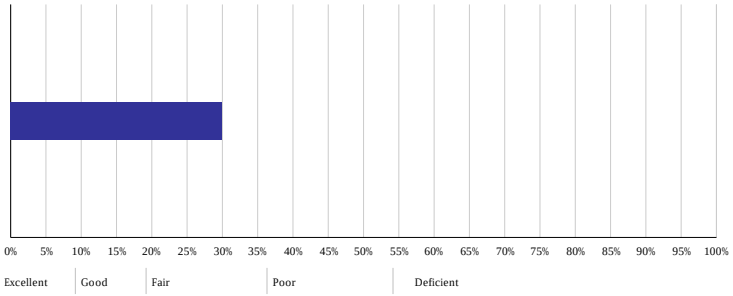
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$638,037
Replacement Value	$2,128,300

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 30%
Fair

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	76	0	482	0	0	0	79	0	638	0.30	0	0	0	0	0	0	0.00	638	0.30

Requirements List

Roof

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Roof - Single Ply Membrane, Fully Adhered Renewal	B3010 - Roof Coverings	Integrity	5- Due within 5 Years of Inspection	2022	76,388
Subtotal					**76,388**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water Heater - Steam - Storage Tank - Comm - 550 GPM Renewal	D2020 - Domestic Water Distribution	Lifecycle	3- Due within 3 Years of Inspection	2020	234,376
Water Softener - System Renewal	D2023 - Domestic Water Supply Equipment	Lifecycle	3- Due within 3 Years of Inspection	2020	15,161
Boiler, cast, gas fired, 500 HP Renewal	D3021 - Boilers	Functionality	3- Due within 3 Years of Inspection	2020	53,612
Boiler, cast, gas fired, 765 MBH Renewal	D3021 - Boilers	Functionality	3- Due within 3 Years of Inspection	2020	40,667
Boiler, cast, gas fired, Steam 700 hp Renewal	D3021 - Boilers	Functionality	3- Due within 3 Years of Inspection	2020	77,511
Circulating pump 2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	3,390
Circulating Pump, 7.5 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	3- Due within 3 Years of Inspection	2020	26,760
Water Treatment System, HVAC, Cool/Heat Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	3- Due within 3 Years of Inspection	2020	15,442
Water Treatment System, HVAC, Cool/Heat Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	3- Due within 3 Years of Inspection	2020	15,442
Distribution Equipment, Panelboards, and Feeders 05 - 400A 480Y/277V & 208Y/120V Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	1- Due within 1 Year of Inspection	2018	4
Subtotal					**482,365**

FFE and Site

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Site Electrical Distribution - Underground Power Distribution - 500kVA Pad Mounted Transformer Renewal	G4013 - Underground Power Distribution	Functionality	1- Due within 1 Year of Inspection	2018	35,573
Site Electrical Distribution - Underground Power Distribution - 750kVA Pad Mounted Transformer Renewal	G4013 - Underground Power Distribution	Functionality	1- Due within 1 Year of Inspection	2018	43,711
Subtotal					**79,284**
Overall					**638,037**

Northwestern Michigan College

Main Campus

Rajkovich Physical Education

Building Number:	BUILDING_ID_02326	Year Built:	1969
Area(SF):	25,674	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	GENERAL-USE FACILITIES

Rajkovich Physical Education

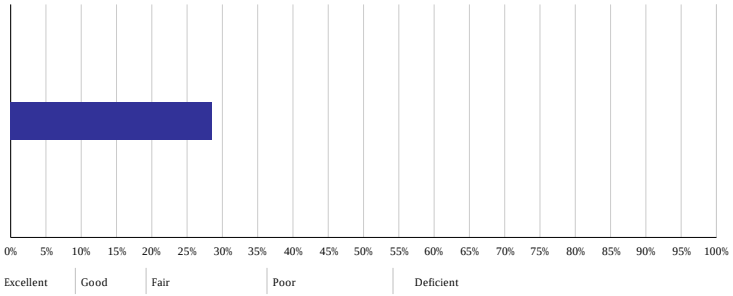
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$1,388,242
Replacement Value	$4,859,396

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 29%
Fair

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	12	531	0	761	0	84	0	1,388	0.29	0	0	0	0	774	774	0.16	2,163	0.45

Requirements List

Ext Envelope

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Door Assembly - 6 x 7 HM Renewal	B2030 - Exterior Doors	Integrity	5- Due within 5 Years of Inspection	2022	9,522
Door Assembly - 3 x 7 HM Renewal	B2030 - Exterior Doors	Integrity	5- Due within 5 Years of Inspection	2022	2,531
Subtotal					**12,053**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Custodial/Utility Sinks - Each Renewal	D2010 - Plumbing Fixtures	Lifecycle	5- Due within 5 Years of Inspection	2022	3,909
Perimeter Heat System - Fin Tube (LF) Renewal	D3040 - Distribution Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	15,916
Cabinet - Fin Tube - Heat Only Renewal	D3040 - Distribution Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	48,416
AHU/Return Air Fan, Centrifical In-Line, 20,000 CFM Renewal	D3041 - Air Distribution Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	84,671
Ductless Mini-Split Indoor Unit Renewal	D3041 - Air Distribution Systems	Functionality	2- Due within 2 Years of Inspection	2019	3,059
AHU/Central Station, constant volume, 5000 CFM Renewal	D3041 - Air Distribution Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	36,762
AHU/Central Station, constant volume, 20,000 CFM Renewal	D3041 - Air Distribution Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	107,282
AHU/Central Station, constant volume, 2500 CFM Renewal	D3041 - Air Distribution Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	31,260
Rooftop DX 5 ton cooling only Renewal	D3051 - Terminal Self-Contained Units	Lifecycle	5- Due within 5 Years of Inspection	2022	12,340
Circulating pump 1 1/2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	6,780
Heat pump, air to air split system, 1 ton Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	2- Due within 2 Years of Inspection	2019	4,975
Circulating pump 3/4 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2022	6,780
Electrical Feeder System, Includes Panel Boards and Transformers Renewal	D5010 - Electrical Service and Distribution	Lifecycle	5- Due within 5 Years of Inspection	2022	145,895
Electrical Service - 400A 208/120 Volt Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	5- Due within 5 Years of Inspection	2022	17,697
Variable Frequency Drive (VFD) 3 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	4,851
Subtotal					**530,593**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Swinging Doors - Pair - 6 x 7 HM - NR Renewal	C1020 - Interior Doors	Lifecycle	5- Due within 5 Years of Inspection	2022	32,257
Swinging Doors - 3 x 7 HM - NR Renewal	C1020 - Interior Doors	Lifecycle	5- Due within 5 Years of Inspection	2022	125,484
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	C3010 - Wall Finishes	Appearance	5- Due within 5 Years of Inspection	2022	21,359
Wood Flooring - Premium Renewal	C3020 - Floor Finishes	Lifecycle	5- Due within 5 Years of Inspection	2022	395,835
Wood Flooring - Premium Renewal	C3020 - Floor Finishes	Lifecycle	5- Due within 5 Years of Inspection	2022	53,978
VCT - Average Renewal	C3020 - Floor Finishes	Appearance	5- Due within 5 Years of Inspection	2022	122,032
Painted Plaster Renewal	C3030 - Ceiling Finishes	Appearance	5- Due within 5 Years of Inspection	2022	10,320
Subtotal					**761,265**

FFE and Site

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Bleachers - Gymnasium Renewal	E2010 - Fixed Furnishings	Lifecycle	5- Due within 5 Years of Inspection	2022	52,503
Pedestrian Pavement - Concrete Renewal	G2031 - Paving and Surfacing	Appearance	5- Due within 5 Years of Inspection	2022	16,045
Site Electrical Distribution - Underground Power Distribution - 50kVA Pad Mounted Transformer Renewal	G4013 - Underground Power Distribution	Lifecycle	5- Due within 5 Years of Inspection	2022	7,788
Site Electrical Distribution - Underground Power Distribution - 45kVA Pad Mounted Transformer Renewal	G4013 - Underground Power Distribution	Lifecycle	5- Due within 5 Years of Inspection	2022	3,998
Site Electrical Distribution - Underground Power Distribution - 75kVa Pad Mounted Transformer Renewal	G4013 - Underground Power Distribution	Lifecycle	5- Due within 5 Years of Inspection	2022	3,998
Subtotal					**84,332**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Restroom, Group, (Standard) Renewal	C10 - Interior Construction	Modernization	5- Due within 5 Years of Inspection	2022	147,109
Restroom/shower, Locker Room, (Standard) Renewal	C10 - Interior Construction	Modernization	5- Due within 5 Years of Inspection	2022	196,282
Restroom (Small) Renewal	C10 - Interior Construction	Modernization	5- Due within 5 Years of Inspection	2022	23,561
CMU Block Walls - Facing 2 Sides Renewal	C1010 - Partitions	Modernization	5- Due within 5 Years of Inspection	2022	141,364
ACT System - Economy Renewal	C3030 - Ceiling Finishes	Appearance	5- Due within 5 Years of Inspection	2022	51,563
Elevator, passenger, hydraulic, 2 stop, 2500 lb capacity Renewal	D1011 - Passenger Elevators	Modernization	5- Due within 5 Years of Inspection	2022	67,909
AHU/Central Station, constant volume, 2000 CFM Renewal	D3041 - Air Distribution Systems	Lifecycle	5- Due within 5 Years of Inspection	2022	26,260
Pneumatic Controls - Basic Renewal	D3060 - Controls and Instrumentation	Energy	5- Due within 5 Years of Inspection	2022	78,868
High Bay Light Fixtures, Metal-Halide with Wire Guard Renewal	D5020 - Lighting and Branch Wiring	Energy	5- Due within 5 Years of Inspection	2022	16,970
Basketball Backstop, Wall Mount-Fixed Renewal	E - Equipment and Furnishings	Modernization	5- Due within 5 Years of Inspection	2022	24,558
Subtotal					**774,444**
Overall					**2,162,687**

Northwestern Michigan College

Main Campus

Rogers Observatory

Building Number:	BUILDING_ID_02334	Year Built:	1981
Area(SF):	1,624	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Rogers Observatory

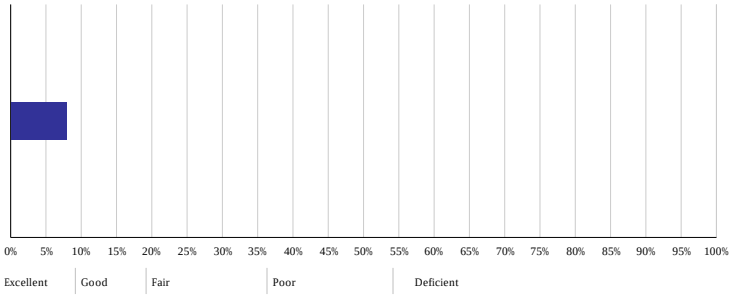
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$31,609
Replacement Value	$398,600

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 8%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	8	0	23	0	32	0.08	0	0	0	0	11	11	0.03	43	0.11

Requirements List

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Broadloom - Medium Range Renewal	C3020 - Floor Finishes	Appearance	4- Due within 4 Years of Inspection	2021	8,325
Subtotal					**8,325**

FFE and Site

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Roadway Asphalt, with Stone Base and Concrete Gutter, 28' Wide Renewal	G2011 - Bases and Sub-Bases	Lifecycle	5- Due within 5 Years of Inspection	2022	23,284
Subtotal					**23,284**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Restroom - Complete - Single Renewal	C10 - Interior Construction	Modernization	4- Due within 4 Years of Inspection	2021	11,108
Subtotal					**11,108**
Overall					**42,717**

Northwestern Michigan College

Main Campus

Scholars Hall

Building Number:	BUILDING_ID_02310	Year Built:	1962
Area(SF):	62,812	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

Scholars Hall

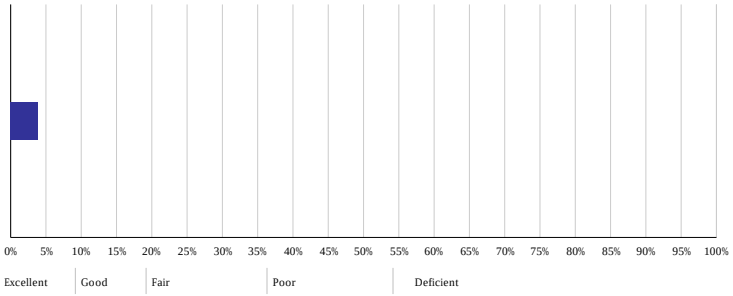
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$595,482
Replacement Value	$15,495,300

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 4%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	241	0	354	0	0	0	595	0.04	0	0	0	0	33	33	0.00	628	0.04

Requirements List

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Water Heater - Elec - Residential - 80 Gal Renewal	D2020 - Domestic Water Distribution	Lifecycle	1- Due within 1 Year of Inspection	2018	11,554
Condensate Return System Renewal	D3022 - Boiler Room Piping and Specialties	Lifecycle	4- Due within 4 Years of Inspection	2021	18,266
Chiller 100 ton air cooled Renewal	D3031 - Chilled Water Systems	Lifecycle	5- Due within 5 Years of Inspection	2008	90,307
Circulating pump 3/4 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	4- Due within 4 Years of Inspection	2021	4,121
Circulating pump 2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	4- Due within 4 Years of Inspection	2021	6,780
Circulating Pump, 5 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	4- Due within 4 Years of Inspection	2021	9,047
Electrical Service - 600A 480/277 Volt Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	4- Due within 4 Years of Inspection	2021	58,356
Variable Frequency Drive (VFD) 10 HP Renewal	D5090 - Other Electrical Systems	Lifecycle	4- Due within 4 Years of Inspection	2021	42,788
Subtotal					**241,219**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Tile Renewal	C3020 - Floor Finishes	Appearance	2- Due within 2 Years of Inspection	2019	354,263
Subtotal					**354,263**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Building Management (DDC) Control Renewal	D3068 - Building Automation Systems	Energy	5- Due within 5 Years of Inspection	2022	32,826
Subtotal					**32,826**
Overall					**628,308**

Northwestern Michigan College

Main Campus

University Center

Building Number:	BUILDING_ID_02329	Year Built:	1986
Area(SF):	59,460	Inspection Date:	
Floors:	3	Ownership:	
Building Type:	Building	Current Use:	ACADEMIC FACILITIES

University Center

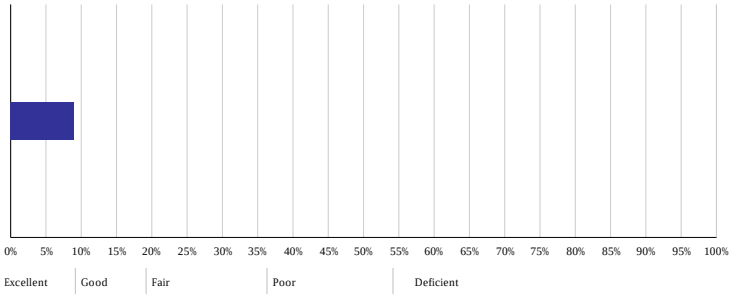
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$1,214,748
Replacement Value	$13,507,600

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= 9%
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	295	0	567	0	352	0	0	0	1,215	0.09	0	0	0	0	744	744	0.06	1,959	0.15

Requirements List

Roof

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Roof - Single Ply Membrane, Fully Adhered Renewal	B3010 - Roof Coverings	Integrity	5- Due within 5 Years of Inspection	1999	295,015
Subtotal					**295,015**

MEP

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Boiler, steel, gas fired, 520 MBH Renewal	D3021 - Boilers	Lifecycle	5- Due within 5 Years of Inspection	1997	27,480
Cooling Tower, Water Cooled, 50 Ton Renewal	D3031 - Chilled Water Systems	Lifecycle	3- Due within 3 Years of Inspection	2020	36,864
VAV, fan powered, reheat, 600 cfm Renewal	D3041 - Air Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	2018	227,066
Pad mount DX 40 ton cooling only Renewal	D3051 - Terminal Self-Contained Units	Lifecycle	1- Due within 1 Year of Inspection	2018	72,155
Exhaust, Fan (1 phase belt driven) Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	5- Due within 5 Years of Inspection	2006	2,486
Circulating pump 3/4 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	1- Due within 1 Year of Inspection	2018	6,182
Circulating pump 2 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	1- Due within 1 Year of Inspection	2018	13,560
Circulating pump 3 HP Renewal	D3090 - Other HVAC Systems and Equipment	Lifecycle	1- Due within 1 Year of Inspection	2018	7,926
Transformer, dry, 500 KVA, 480-120/208 Volt Renewal	D5012 - Low Tension Service and Dist.	Functionality	5- Due within 5 Years of Inspection	2022	46,760
Main Electrical Service - 1200A 480Y/277V Renewal	D5012 - Low Tension Service and Dist.	Lifecycle	5- Due within 5 Years of Inspection	2022	126,752
Subtotal					**567,231**

Int Constr + Structr

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Carpeting - Tile Renewal	C3020 - Floor Finishes	Appearance	2- Due within 2 Years of Inspection	2019	352,500
Subtotal					**352,500**

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Restroom, Group, Medium Renewal	C10 - Interior Construction	Modernization	2- Due within 2 Years of Inspection	2019	328,982
Elevator, passenger, hydraulic, 3 stop, 2500 lb capacity Renewal	D1011 - Passenger Elevators	Modernization	5- Due within 5 Years of Inspection	1991	77,721
DDC/Pneumatic System - Hybrid - Average Renewal	D3060 - Controls and Instrumentation	Energy	1- Due within 1 Year of Inspection	2018	284,158
Site Lighting - Fixtures & Transformers - Parking Lot/Roadway - LED (1 Fixture) Renewal	G4021 - Fixtures and Transformers	Energy	1- Due within 1 Year of Inspection	2018	53,410
Subtotal					**744,271**
Overall					**1,959,017**

Northwestern Michigan College

Main Campus

Utility Tunnels

Building Number:	BUILDING_ID_04097	Year Built:	1970
Area(SF):	6,925	Inspection Date:	
Floors:	1	Ownership:	
Building Type:	Building	Current Use:	SUPPORTING FACILITIES

Utility Tunnels

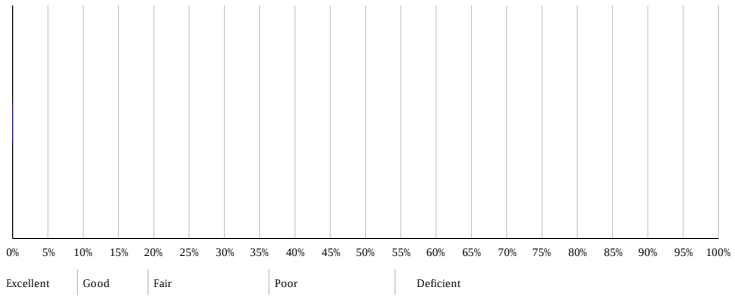
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$0
Replacement Value	$1,924,000

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **0%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0					

Requirements List

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Subtotal					
Overall					

Northwestern Michigan College

Main Campus

West Hall

Building Number:	BUILDING_ID_02317	Year Built:	1965
Area(SF):	35,800	Inspection Date:	
Floors:	2	Ownership:	
Building Type:	Building	Current Use:	GENERAL-USE FACILITIES

West Hall

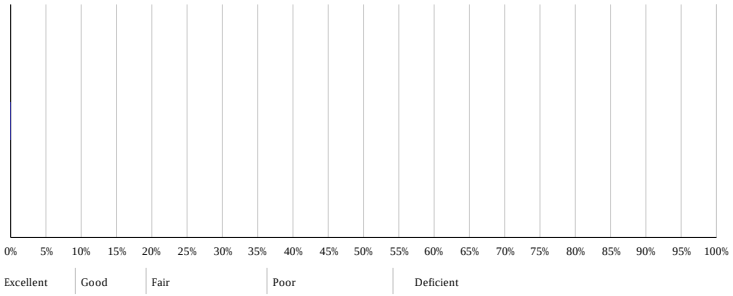
What is our condition?

Deferred Maintenance Needs (incl. next 5 YR, in current USD, rounded)	$0
Replacement Value	$9,596,500

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

= **0%**
Excellent

5-Year Facility Condition Index (FCI)



What are potential projects?

5-Year Costs by Group

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM+Progr Cost	FCNI
0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0					

Requirements List

Other

Name	Prime System	Category	Priority	Action Year	Requirement Cost
Subtotal					
Overall					