

**Central Michigan University**  
**Fiscal Year 2015 Capital Project Request**  
**Recommended 5-Year Master Plan Components**

**I. University Vision Statement**

Central Michigan University, an inclusive community of scholars, is a national leader in higher education, inspiring excellence and innovation.

– Adopted by the CMU Board of Trustees, December 6, 2012

**Mission Statement**

At Central Michigan University, we are a community committed to the pursuit of knowledge, wisdom, discovery and creativity. We provide student-centered education and foster personal and intellectual growth to prepare students for productive careers, meaningful lives and responsible citizenship in a global society.

– Adopted by the CMU Board of Trustees, December 2, 2010

**Core Values**

To achieve our mission, we adhere to the core values of integrity, respect, compassion, inclusiveness, social responsibility, excellence and innovation.

– Adopted by the CMU Board of Trustees, December 2, 2010

**II. Instructional Programming**

**A. Existing Academic Programs and Projected Changes:**

CMU has grown from a teachers' college founded in 1892 to a robust, tier-one university — one of the top 200 U.S. universities, according to U.S. News & World Reports. CMU is one of the 80 largest universities in America and offers more than 200 academic programs at the undergraduate, master's, specialist and doctoral levels. Its nationally acclaimed degrees include programs ranging from the health professions and biosciences to business and communications. In August 2013, CMU opened the nation's 137th College of Medicine with an inaugural class of 64 students committed to addressing a growing shortage of primary care physicians in medically underserved areas of the state — primarily rural and inner-city communities. Of the 64 students, 57 are Michigan natives.

The proposed capital project would enhance CMU's ability to deliver several programs in the health care area. First and foremost is expansion of existing programs within The Herbert H. and Grace A. Dow College of Health Professions —

programs that have reached maximum facility capacity and therefore no longer can grow despite significant demand. These are:

- Communication Disorders
- Speech-Language Pathology
- Audiology
- Doctor of Physical Therapy
- Physician Assistant
- Community Health Education
- Health Administration
- Athletic Training

More than 1,600 CMU students, including 1,226 on campus this fall are majoring in programs such as those cited above. About 15 percent of students admitted to CMU for the 2013-14 freshman class indicated an interest in health careers. Interest in a number of these majors has more than doubled in the past five years.

*It should be noted that CMU graduates in the speech-language pathology, audiology, PA, PT and athletic training programs have a notable 100 percent, first-time pass rate on their national certification exams. Job placement in most programs is 100 percent, and many students receive multiple job offers.*

During the next five years, CMU is confident of growth in a number of fields within The Herbert H. and Grace A. Dow College of Health Professions *if space allows*. These include:

1. Master of Public Health — This program is in development through the curricular pipeline and would serve 15 to 40 students per cohort. Once operating on campus, CMU would expand it to online offerings to meet the demand of more students and fill a greater need within the state and across the nation for expertly trained public health professionals.
2. Health Sciences — This major is in the conceptual stage; high demand at universities nationwide indicates a significant need for this program, with a focus that includes environmental health.
3. Communication Disorders — This current program could offer more non-major courses and some of the five prerequisite courses.
4. Doctor of Physical Therapy — This current program could be expanded but is totally maxed out until further classroom and laboratory space is constructed. CMU offers a joint PT program with Michigan Technological University in Houghton, in an arrangement that could be expanded to other universities if space in Mount Pleasant allowed.

5. Physician Assistant — This existing master's level program is completely at capacity until larger spaces for classroom and laboratory activities are secured. The PA program also presents an opportunity to leverage distance-learning sites.
6. Health Administration — This current major has exploded in recent years. If it continues to grow, CMU will explore use of online courses rather than increasing face-to-face instruction.

With additional space, CMU has other degree programs that could be brought into the Center for Integrative Health Studies with tremendous results for students and the state. These would positively impact health care and our understanding of medical treatment, while modeling the integration that has been shown to be most transformative in delivering positive results. Such programs could be created only with the development of new class and laboratory facilities. They include:

- Biomedical Engineering. This specialized area within CMU's mechanical engineering program in the College of Science and Technology is linked to biomechanics. The understanding of the way human bodies work and the importance of structure on function make this an important cognate program in health professions.
- Health Information Management. Information systems management is an exciting, growing program in CMU's College of Business Administration. With the impetus of the Affordable Care Act, electronic medical records are rapidly expanding and evolving. CMU's goal is to train students to become leading professionals in this area.
- Other possible programs include clinical laboratory sciences, occupational therapy and respiratory therapy.

Beyond health care, new programs in development at CMU — whether in preliminary discussion or in some stage of approval or implementation — include:

- Applied Biostatistics
- Master in Information Technology
- Engineering Science
- Master in Engineering
- Technology Management Concentration
- Graduate Certification in Geographic Information Systems
- Applied Environmental Geoscience
- Computational Math
- Master in Applied Statistics and Analytics
- Medical Physics Minor

- Ph.D. in Earth and Ecosystem Science
- Ph.D. in Cellular-Molecular Biology/Biochemistry/Biomedical, a collaborative program among biology, chemistry and the College of Medicine

These programs would be a mixture of on-campus and online programs and in some cases, have the potential for implementation in collaboration with other colleges and universities.

CMU's current degree listing is:

Bachelor of Arts  
 Bachelor of Applied Arts  
 Bachelor of Science in Electrical Engineering  
 Bachelor of Science in Engineering Science  
 Bachelor of Science in Engineering Technology  
 Bachelor of Fine Arts  
 Bachelor of Individualized Studies  
 Bachelor of Science in Mechanical Engineering  
 Bachelor of Music  
 Bachelor of Music Education  
 Bachelor of Science  
 Bachelor of Science in Athletic Training  
 Bachelor of Science in Business Administration  
 Bachelor of Science in Computer Engineering  
 Bachelor of Science in Education  
 Bachelor of Social Work  
 Master of Arts  
 Master of Arts in Teaching  
 Master of Business Administration  
 Master of Music  
 Master of Public Administration  
 Master of Science  
 Master of Science in Administration  
 Specialist in Education  
 Specialist in Psychological Services  
 Doctor of Audiology  
 Doctor of Education  
 Doctor of Health Administration  
 Doctor of Medicine  
 Doctor of Philosophy  
 Doctor of Physical Therapy

The university's academic planning process involves an analysis of the needs of students and demands of public and private sector employment markets. Thus, the potential for new and/or revised academic programs reflects a continuous feedback cycle in the university's planning system.

A comprehensive review of academic programs was completed in 2012 to assign prioritization based on factors such as student demand, learning outcomes, faculty productivity and employment forecasts. The review has allowed CMU to be more responsive to the needs of students and the communities it serves. The successfully completed prioritization process — often mired in debate and dissent at other universities — has allowed CMU to discontinue 25 programs.

- B. Unique Characteristics: Central Michigan University is classified as a doctoral/research university. The university is working to add more research doctoral programs, while also having introduced the Doctor of Medicine as part of America's 137th College of Medicine.

CMU's degree programs serve 26,902 on-campus and Global Campus students.

The mission of CMU relies heavily on community engagement, hence the predominance of professional doctorates. Indeed the use of education to serve the public is a hallmark of our university. Not only was CMU started to increase the number of professionally educated teachers, we also have the oldest audiology program in the country. CMU has Michigan's only undergraduate meteorology program, the only undergraduate leadership minor and the first entrepreneurship minor. CMU's online M.B.A. is ranked sixth in the nation by U.S. News and World Reports, and CMU is the nation's leader in SAP certification.

CMU leads the way in research efforts to sustain and manage the world's largest supply of fresh water, overseeing a \$10 million EPA grant to monitor and assess Great Lakes Coastal wetlands with nine other universities and three governmental agencies. It was a CMU biology researcher who first discovered evidence of Asian carp in the Great Lakes, and CMU team members now are leading the way in mussel research. More than 900 CMU students major in biology; 7,500 a year take biology courses.

CMU's new M.D. program falls within the same public service model with a goal of producing physicians who are committed to practicing in medically underserved rural and urban regions, especially those in the state of Michigan. Fifty-seven members of the first class of 64, which started classes this past August, are native Michigan residents. Twenty-five are from central and northern Michigan.

Within the health professions (College of Health Professions as well as the College of Medicine), the thrust has been service to people in our region. The Carls Center for Clinical Care and Education, for example, provides services such as state-of-the-art hearing and balance diagnostics, hearing aid sales and service, a cochlear implant clinic, speech and language therapy, and its world-renowned summer speech clinics.

Going further, the College of Humanities and Social and Behavioral Sciences has just opened a Center for Children, Families and Communities to help improve the mental health and well-being of children and families in our region. Further, two CMU psychology faculty are using a \$500,000 grant from the State of Michigan to train students in the leading treatments for children with autism. In addition, a neuroscience researcher is conducting a new study with the potential to help reduce cognitive deficits after stroke.

Central Michigan University awards the third-most education degrees and remains key to the preparation of educators to meet the needs of Michigan. The university also is one of six in the nation to have a youth concentration in sociology.

CMU is one of just five institutions to enroll students from every county in Michigan last year. A full 92 percent of CMU students are from the state.

CMU's Global Campus offers online programs to students around the world as well as degree programs at 50 locations in the United States, Canada and Mexico. Twenty-two of those locations are on military bases, continuing CMU's long-standing commitment to serving those who serve our country.

- C. Other Initiatives and Their Impact on Facilities Usage: Central Michigan University next summer will break ground on a new Biosciences Building, which will add essential wet lab research and classroom space in the biosciences area — another of CMU's premier educational and research focuses. CMU also continues to repurpose facilities as new academic programs/initiatives are implemented. This summer, CMU completed a \$14 million renovation and upgrading of its busiest academic space, Anspach Hall, which serves 25,000 students a week.
  
- D. Economic Development Impact: The state of health care in Michigan is undergoing significant change due to the aging of our population and continued changes at national and state levels in health care delivery. As a consequence, there is greater importance than ever in training professionals — in addition to M.D.s — to provide preventative and remedial health care. These are precisely the professionals who are alumni of CMU's College of Health Professions and who would graduate in even greater numbers if the CMU Center for Integrative Health Studies were built.

The economic impact of these new health care professionals would be significant for two major reasons:

- (a) CMU graduates stay in Michigan and so, with an average salary of \$90,000 for a physician assistant (based on data from Salary.com) the new center would have a direct fiscal impact on the regional economy, and
- (b) the improved health of the general population resulting from the care provided by CMU's additional graduates would indirectly raise the income of other Michigan residents while also decreasing health costs of employers and the state.

In addition to the impact of our health care graduates, the new construction would enable CMU to further grow the economy through other university activities.

Beyond health care, the Michigan Economic Development Corp. has designated CMU's Center for Applied Research and Technology a Michigan SmartZone. The City of Mount Pleasant and CMU have developed a 300-acre technology park that includes an incubator and business accelerator, called CMURC, which houses 17,000 square feet of wet laboratories and 12,000 square feet of offices. CMURC leverages CMU's diverse capabilities to assist start-up businesses, which in turn enhances the local learning environment.

Designed to advance economic development by accelerating the success of entrepreneurs, startups and growing companies, CMURC offers hands-on expertise and CoWork opportunities to connect like-minded individuals. CMURC services include but are not limited to: a competitive, three phased scholarship program for early stage entrepreneurs, industry, market and feasibility analysis; product, manufacturing and supply chain development; business strategy and implementation; marketing services; and investor relations and partnerships. More than 30 companies are active between feasibility and launch in this Right Choice Program.

### **III. Staffing and Enrollment**

#### **A. Full- and Part-Time On-Campus Student Enrollment (Fall 2013):**

Central Michigan University is one of the 80 largest universities in America. It is the fourth-largest university in Michigan, although it today is within 1,000 students of becoming the third largest.

Classification of Instructional Program (CIP)	Mount Pleasant Campus		Off Campus (MI)	
	Full time	Part time	Full time	Part time
Architecture & related services	0	0	0	0
Area, Ethnic & Cultural & Gender Studies	1	1	0	0
Biological & Biomedical Sciences	715	120	39	4
Business Management, Marketing & Related Support Services	2149	216	427	1454
Communication, Journalism & Related Programs	827	99	54	25
Computer & Information Sciences & Support Services	300	46	36	41
Education	1668	225	60	481
Engineering	178	22	7	0
Engineering Technologies/Technicians	163	19	12	15
English Language & Literature/Letters	148	45	8	7
Family & Consumer Sciences/Human Sciences	322	58	34	53
Foreign Languages & Literatures & Linguistics	50	21	1	0
History	103	43	5	3
Legal Professions & Studies	41	2	1	1
Liberal Arts & Sciences, General Studies & Humanities	3	9	1	1
Mathematics & Statistics	57	43	1	1
Multi/Interdisciplinary Studies	4	3	0	0
Natural Resources & Conservation	151	12	7	0
Other Health Professions	1153	73	107	267
Parks, Recreation, Leisure & Fitness Studies	714	201	55	71
Philosophy & Religious Studies	26	7	3	1
Physical Sciences	149	71	6	1
Psychology	681	113	181	156
Public Administration & Social Service Professions	188	47	186	514
Social Sciences	588	77	45	15
Visual & Performing Arts	351	48	9	2
Undecided / Unsigned	6949	334	222	288
<b>Total</b>	<b>17679</b>	<b>1955</b>	<b>1507</b>	<b>3401</b>

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B. Future Enrollment:

If one considers the size of Michigan’s high school graduating class alone, CMU’s overall enrollment would be predicted to gradually decrease through the next five years:

<u>Year</u>	<u>Enrollment</u>
2014	23,754
2015	22,566
2016	22,002
2017	21,452
2018	21,130

However, CMU has completed a thorough enrollment management planning process and is implementing a number of strategies to maintain and grow its student population to an ideal enrollment that benefits students, employers and the state as a whole. For example, while the fall 2013 freshman class has 2,963 students, CMU has set a 2014 goal of 3,300.

CMU is determined to maintain a high caliber of students who have demonstrated an ability to be successful in college. We believe this is a fiscal responsibility we must ensure on behalf of those students and their families who invest in college. Our current mean ACT score is 22.4; our mean high school GPA is 3.32.

Further, CMU has implemented several measures to increase retention and four-year graduation rates. These measures include a new Office of Student Success, additional academic advisors, and an online Advising Workbench that allows faculty and students to see how well they’re progressing toward graduation and what classes they still need to take.

CMU was a national pioneer in distance learning, offering its first off-campus programs in 1971. At first, most of its programs were at the graduate level. Today, CMU’s Global Campus serves 2,763 undergraduate students, compared to 1,985 a decade ago. Many of these are taking classes online, as today’s CMU Global Campus has become a renowned pioneer in classes available anytime, anywhere — delivering the flexibility students demand.

C. Enrollment History: (Michigan Students Only)

Central Michigan University’s total enrollment has remained relatively stable for the past decade. As the data below show for Michigan-based enrollment, the range between CMU’s highest and lowest enrollments is 1,829 students — about 7

percent. Throughout this time, more than 90 percent of CMU's students have come from the state of Michigan.

Fiscal Year	FYES*	Fall Headcount		
		Mount Pleasant	Off Campus-MI	Unduplicated Total
2001-02	20,961	19,188	5,466	24,492
2002-03	21,307	19,380	5,384	24,594
2003-04	21,447	19,402	5,195	24,496
2004-05	21,431	19,792	4,929	24,550
2005-06	21,579	19,917	4,787	24,562
2006-07	21,356	20,025	4,177	24,033
2007-08	21,142	19,867	4,511	24,083
2008-09	21,529	20,246	4,507	24,348
2009-10	21,888	20,444	4,875	24,799
2010-11	22,522	21,290	5,169	25,583
2011-12	22,510	21,220	5,842	25,473
2012-13		20,504	6,196	24,744
2013-14		19,634	6,258	23,754

\* Based on 30 SCH for undergraduates

D. Staff/Student Ratios:

Classification of Instructional Program (CIP)	Student/Instr. Staff Ratio	Student/Admin. Staff Ratio
Area, Ethic & Cultural & Gender Studies	5.6	113.3
Biological & Biomedical Sciences	12.8	27.2
Business Management, Marketing & Related Support Services	23.5	109.7
Communication, Journalism & Related Programs	16.4	78.5
Computer & Information Sciences & Support Services	15	69.9
Education	16.5	72.8
Engineering	7.0	41.45
Engineering Technologies/Technicians	10.0	41.45
English Language & Literature/Letters	11.3	84.8

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Family & Consumer Sciences/Human Sciences	22.4	60.5
Foreign Languages, Literatures, & Linguistics	12.5	139.3
History	11.7	115.6
Legal Professions & Studies	23.7	86.3
Liberal Arts & Sciences, General Studies & Humanities	16.2	51.7
Library Sciences		
Mathematics & Statistics	17.7	117.0
Reserve Officer Training Corps		18.3
Multi/Interdisciplinary Studies	19.7	21.7
Natural Resources & Conservation	18.1	137.1
Other Health Professions	17.5	31.6
Parks, Recreation, Leisure & Fitness Studies	20.1	126.0
Philosophy & Religious Studies	24.0	212.1
Physical Sciences	15.6	61.9
Psychology	17.0	65.4
Public Administration & Social Service Professions	13.4	
Social Sciences	18.0	111.0
Visual & Performing Arts	10.4	60.6
<b>Total</b>	<b>16.6</b>	<b>74.4</b>

E. Future Staffing Needs:

Year	Fall Enrollment Changes	Additional Staffing Needs
2013	-990	0
2014	-1,188	0
2015	-564	0
2016	-550	0
2017	-322	0

*This chart reflects staffing needs with current academic programs and projected enrollments based on high school graduating class sizes only. Additional academic programs would require instructional and administrative staff levels to be adjusted upward. For example, an occupational therapy program would require about seven full-time faculty and three staff. A respiratory therapy program would require about three*

faculty and two staff members; a master’s in public health will require three faculty and one staff member.

Average Class Size:

At CMU, class sizes remain small, giving students optimal opportunity to interact directly with their professors (93 percent of CMU classes are taught by professional faculty rather than teaching assistants or graduate students). Students at CMU are more than a number; they’re known by name. In many cases, even undergraduate students are able to do research in concert with their instructors. At larger universities, this hands-on experience typically is reserved for graduate-level students.

Course Level	2012-2013 Average Class Size			2013-14 Projected
	On Campus Avg. # of Stu.	Off Campus-MI	Overall Avg. # of Stu.	
<100	14	0	14	15
100-299	30	19	29	29
300-499	24	19	23	23
500-599	20	9	15	15
600 +	15	15	15	15

**IV. Facility Assessment**

- A. A comprehensive Campus Master Plan, which includes an overall facilities condition assessment, space utilization, utility infrastructure assessment, land use, telecommunications infrastructure and capital planning was completed July 2013. The comprehensive plan for the physical campus reflects and upholds the vision, priorities and initiatives established for CMU in its strategic plan. **Attached is a summary description of CMU facilities.** The university is in the process of updating this document to match the DTMB categories and will have buildings with more than one ‘type’ of space broken down by percentage by August 2014.
- B. Building and/or Classroom Utilization Rates:  
A comprehensive utilization and space needs analysis was completed as part of the master planning process in 2013 by Paulien and Associates. This study was completed in accordance with the Postsecondary Education Facilities Inventory and Classification Manual.

- Classroom Utilization: CMU's 180 classrooms are utilized an average of 34 hours per week, with an average student station occupancy of 63 percent. The average space per student station is 21 ASF.
- Teaching Laboratory Utilization: CMU's 102 teaching laboratories are utilized an average of 24 hours per week, with average student station occupancy of 77 percent. The average space per student is 54 ASF.
- Classroom utilization rates were studied for peak (M-F, 10-3) and off peak (M-F, 8-10 a.m., 3-9 p.m.) time frames as shown in the following charts:

**Scheduled Classroom Use by Day and Time** (Fall 2011)

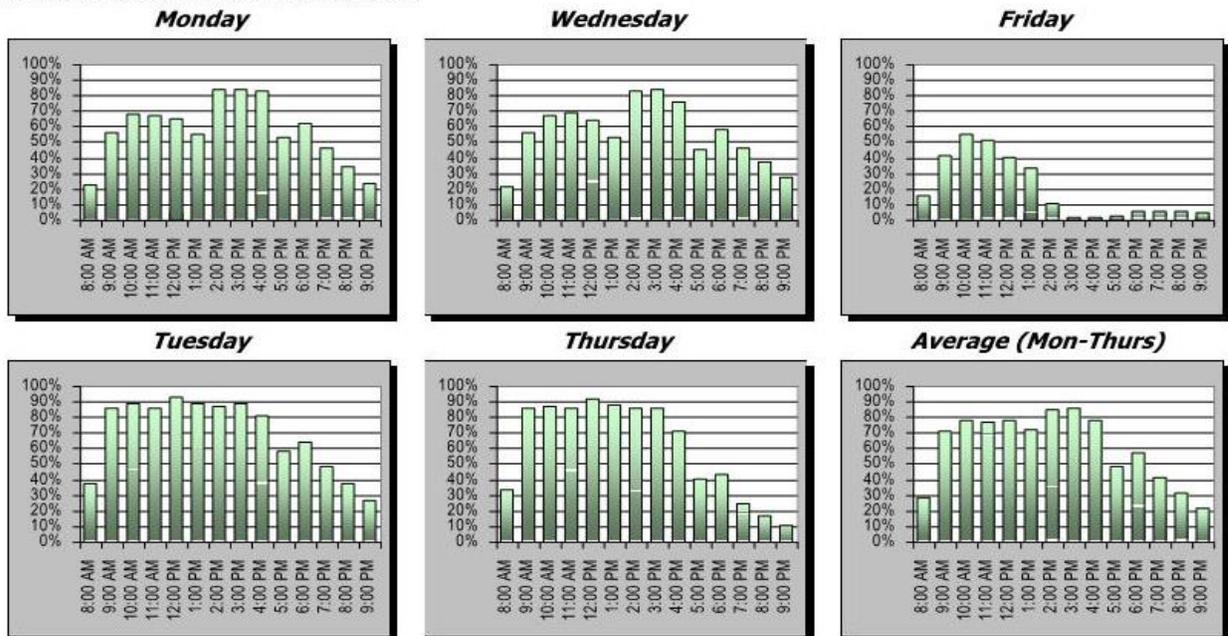
(Darker colors indicate a large percentage of rooms are scheduled.)

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average*	
	Rooms in Use	% In Use										
8:00 AM	41	23%	68	38%	39	22%	62	34%	28	16%	53	29%
9:00 AM	100	56%	154	86%	100	56%	154	86%	75	42%	127	71%
10:00 AM	122	68%	160	89%	121	67%	156	87%	99	55%	140	78%
11:00 AM	121	67%	155	86%	124	69%	155	86%	91	51%	139	77%
12:00 PM	117	65%	167	93%	116	64%	165	92%	73	41%	141	78%
1:00 PM	99	55%	161	89%	96	53%	159	88%	61	34%	129	72%
2:00 PM	151	84%	157	87%	150	83%	154	86%	19	11%	153	85%
3:00 PM	152	84%	160	89%	152	84%	154	86%	4	2%	155	86%
4:00 PM	149	83%	146	81%	137	76%	128	71%	4	2%	140	78%
5:00 PM	96	53%	104	58%	82	46%	74	41%	6	3%	89	49%
6:00 PM	112	62%	115	64%	105	58%	80	44%	10	6%	103	57%
7:00 PM	84	47%	89	49%	84	47%	45	25%	10	6%	76	42%
8:00 PM	63	35%	69	38%	69	38%	30	17%	10	6%	58	32%
9:00 PM	43	24%	48	27%	50	28%	20	11%	9	5%	40	22%

Total classrooms = 180

\* Based upon the consultant's experience, Friday is typically underutilized, therefore the average is calculated on Monday thru Thursday use.

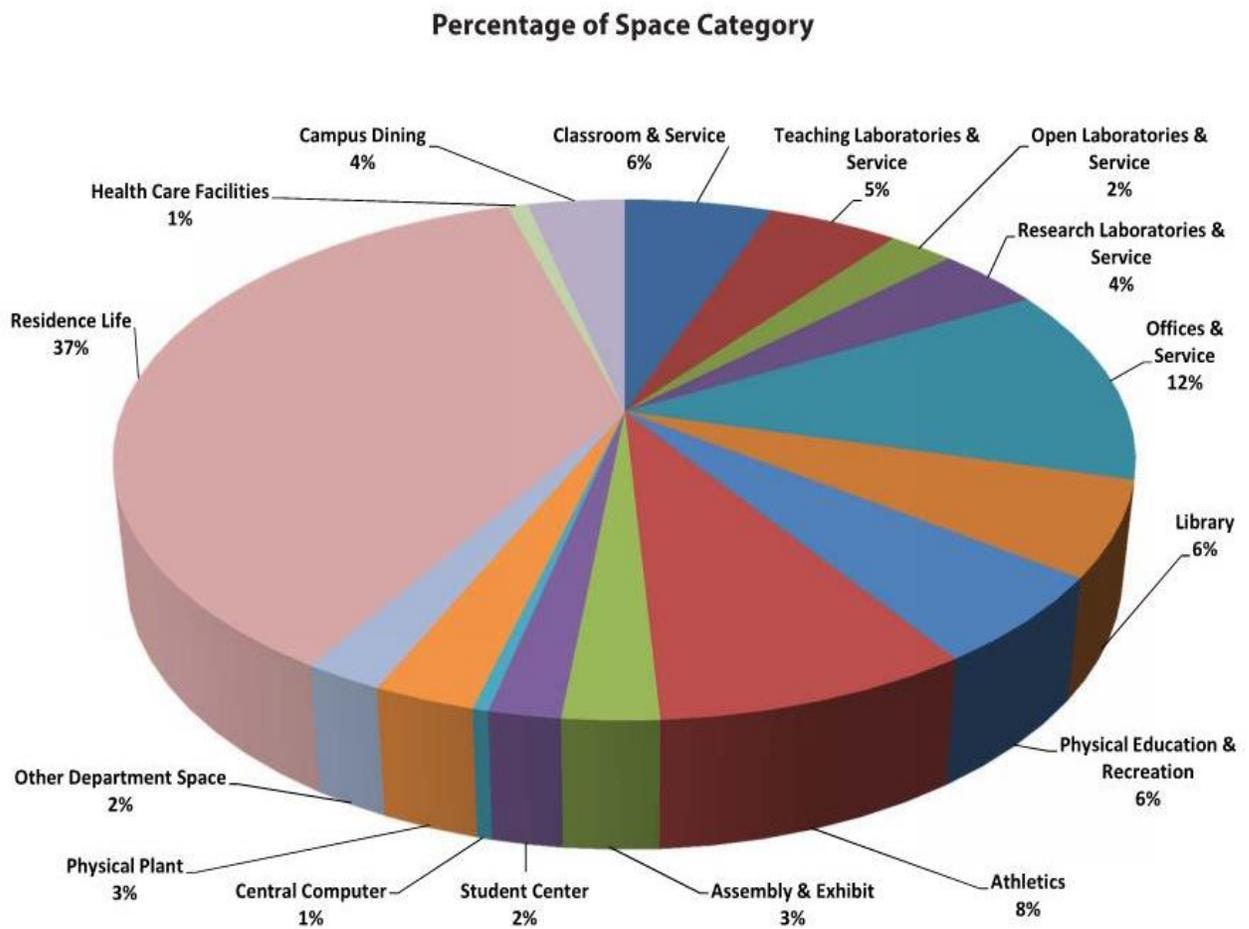
**Percent of Classrooms In Use**



C. Mandated Facility Standards: CMU meets general and minimum space requirements as noted in federal accreditation standards. This includes successfully meeting higher levels of space and equipment standards for specialized programs such as the physician assistant and physical therapy programs, biology and chemistry laboratories, speech and hearing clinics, performance spaces, library collections, and art exhibit spaces. Programs also meet the stringent mandated facility standards of the National Association of Industrial Technology. In programs such as those in the health professions area, CMU is at capacity as allowed by the standards and cannot grow to serve more students nor meet the increasing needs of Michigan employers and of Michigan residents in seeking medical care and services.

D. Functionality and Space Allocation:

Found in the Campus Master Plan, the following chart depicts the percentage of space on campus by category:



<i>Average age of buildings:</i>	General Fund	36.0 years
	Auxiliary	<u>39.0 years</u>
	All buildings	37.5 years

E. Replacement Value of Existing Facilities (Insured Value):

General Fund		\$624,489,069
Auxiliary		<u>336,250,404</u>
	Total	\$960,739,473

F. Utility System Condition:

The 2013 campus master plan includes a Facilities Infrastructure Assessment that evaluated each of the major systems in all of the buildings on CMU’s main campus. Systems assessed included but are not limited to HVAC, electrical and domestic hot water.

The majority of CMU buildings have served the campus for more than 40 years. The buildings have been well maintained, are structurally sound and functioning reasonably well. In a number of cases, mechanical and electrical systems are functioning successfully beyond their projected useful lives. The Facilities Condition Index for the campus is 0.096.

The deferred maintenance needs identified as part of the Facilities Condition Assessment total \$129 million in projected repair, upgrade and replacement costs over the next 10 years for building assets valued at \$1.5 billion.

CMU has campus utility distribution system assets totaling approximately \$125 million.

1. City Water: CMU is working with the city of Mount Pleasant to improve on documentation of system age and our shared responsibilities for maintaining the distribution system.
2. Sanitary Sewage System: The 12.7 miles of sanitary sewer collection system, which is integrated with the city of Mount Pleasant system, is sufficient for the existing and future needs of CMU in Mount Pleasant.
3. Storm Sewer System: The 21 miles of storm sewer on CMU’s campus are in generally good condition. CMU has completed maintenance of manholes and catch basins across campus as identified in the 2007 storm sewer assessment. Inspection of the 54” storm sewer, owned by the city of

Mount Pleasant that passes under and near buildings in the campus core will require \$460,000 in maintenance in the next one to four years.

4. **Electrical Distribution System:** Ongoing assessments during planned electrical shutdowns have identified immediate repair and long-term repair requirements. A short circuit analysis and an arc flash study have been completed. The campus electric distribution system is in generally good condition. The campus has a redundant electricity supply from Consumers Energy.
5. **Steam and Condensate System:** The campus has 7.05 miles of steam and condensate lines located both within our 3.5 miles of utility tunnels and direct-buried. These lines are generally in good shape. CMU has recently upgraded the treatment of condensate and has reduced plugging of coils/filters and corrosion due to an improved pH. In addition, we are in the last phase of tunnel repair work identified in the 2007 Tunnel Inspection report as necessary to bring the condition of all tunnels to "good."
6. **Chilled Water System:** The 9.7 miles of chilled water lines, supply and return, are in generally good condition.
7. **Central and Satellite Energy Facilities:** These facilities house 1 wood boiler, 3 gas boilers, 1 steam turbine, 1 gas turbine, 6 electric chillers and 5 steam absorption chillers and are in generally good condition. The Central Energy Facility has a Facilities Condition Index of 0.02 and the Satellite Energy Facility, which was built in 2006 has a Facilities Condition Index of 0.00.

G. Facility Infrastructure Condition:

1. **Roads:** Roads are generally adequate. Repairs are made on a planned basis. An all-campus pavement condition study was completed in 2004, with follow-up annual inspection by CMU personnel. Several campus roads, particularly West Campus Drive, serve significant city and county/state traffic.
2. **Parking lots:** Central Michigan University has 92 acres of parking lots with 11,058 spaces. Parking lots were inspected and condition rated in 2007; lots are on a specific schedule for sealing, crack filling and overlayment.
3. **Parking structures:** None
4. **Sidewalks:** Central Michigan University has nearly 29 miles of sidewalks, and work occurs every year to replace and repair designated portions. With

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increasing reliance on bicycles, the university recognizes that bike paths are needed to separate pedestrians and bicyclists.

5. Bridges: None
6. Computer and telephone lines: There are two infrastructure components:
  - a. A new CMU Data Center began operations in July of 2013. The facility was designed to address vulnerabilities and inefficiencies in the present data center and should serve the university's needs well into the future. Many of the university's IT assets have already been moved to the new facility, and work continues to transition the remaining assets. Networking, electrical and physical security systems will be augmented and enhanced during the current fiscal year.
  - b. The university's network infrastructure has been strengthened in order to transition the existing Cable TV and traditional voice telephone systems to Voice and Video over Internet Protocol (VOIP) solutions. Initial phases of a plan for converting traditional telephone and cable technologies to Internet Protocol-based ones are funded and proceeding.

H. Adequacy of existing utilities and infrastructure systems to current and 5-year projected programmatic needs:

As part of the 2013 campus master plan, the overall facilities condition assessment, utility infrastructure assessment, land use, and capital planning work products have identified the following utility and infrastructure upgrades that are required to support current and 5-year project programmatic needs.

1. East Utility Loop: Detailed modeling of the existing steam and condensate systems, including future campus needs, determine that 16" steam and 8" condensate lines to connect South Main and Center Main Tunnels are required. This connection is needed for system redundancy and reliability and to provide capacity for current and future buildings included in the five- and 10-year capital plan. This \$5.4 million project was approved by CMU's Board of Trustees in July 2013. Construction will begin in the summer of 2014.
2. Cooling Tower Addition: Install an additional cooling tower to satisfy the load of the existing 1,250-ton absorption chiller located in the Central Energy Facility. This \$560,000 project has been approved and will be on-line in time to support peak 2014 demands.

3. Storm System Upgrade: Ongoing observation of the storm system during periods of intense rain and associated engineering studies has determined a section of the storm sewer on campus is undersized and requires a \$1,390,000 upgrade.
4. See Computing and Telecommunications infrastructure above. The university has completed construction of a new data center which will be substantially occupied during the current fiscal year. In addition, the university will begin transition to Voice over IP services in the current year.

The remainder of the utility and infrastructure systems has the capacity necessary to support current and five-year needs.

I. Enterprise-wide energy plan:

Central Michigan University takes great pride in being a national leader in sustainability and the conservation of energy and other resources. The Princeton Review's 2013 Guide to Green Colleges ranks CMU in the top 15 percent of universities in the U.S. The ranking recognizes CMU's energy conservation initiatives, which save the university nearly \$3 million annually.

A few examples of CMU's commitment to sustainability include:

- CMU since 2006 has upheld a firm policy that all new buildings, additions and major renovations would be designed, constructed and certified under the LEED Green Buildings Rating system.
- The newly opened Graduate Student Housing complex has been awarded LEED Platinum certification, the first such homes project in the Midwest, with cost savings of \$52,000 or 36 percent energy savings annually.
- Solar panels installed on CMU's Education and Human Services Building, which received CMU's first LEED certification, provide 60 percent of the facility's heat. The building was granted gold LEED status and has received numerous awards including the 2011 Green Building of the Year award from CAM Magazine, 1st place Regional Technology Award for Outstanding Design Innovations and Successful Achievements of 2011 from the American Society of Heating, Refrigerating and Air Conditioning Engineers, and the 2010 Sustainability and Innovation Award —Educational Design Showcase Award from College Planning and Management.
- CMU residence halls have been retrofitted with 4,681 radiator valves, resulting in savings of \$227,500 annually.

- Campus ponds retain storm water used for irrigation.
- 99 percent of CMU's lighting fixtures use energy-efficient bulbs and exterior fixtures are being replaced with energy-efficient LED fixtures.
- CMU has received more than \$410,000 in combined rebate checks from Consumers Energy and DTE Energy since 2009. It is the No. 1 public university in the state for rebates from DTE and No. 3 from Consumers.
- CMU ranked 47 out of 180 schools nationwide in waste minimization during the 2012 Recyclemania competition.
- CMU's utility budget has been static for five years, with the bulk of savings coming from energy-conservation measures.

The list of energy reduction projects at CMU is endless. In the academic setting, environmental studies and programs related to conservation of natural resources are offered in biology, business, chemistry, physics and outdoor recreation among others.

CMU has established an Institute of Sustainable Systems and a Campus Sustainability Advisory Committee that help advance sustainability on campus through a number of initiatives. At least three other student groups have formed to promote and help create a university-wide culture of sustainability and conservation. Under their guidance, programs such as composting, a campus garden and an expansion of recycling have been launched.

Facilities Management has played a significant role in shifting conservation consciousness at CMU. Geothermal energy is used to heat and cool the university's academic center on Beaver Island. All diesel fuel on campus has been converted to B20 biodiesel, and water-conserving aerators and discs have been installed on 4,500 faucets across campus.

In addition, CMU has undertaken an effort to Retro Commission HVAC systems in existing buildings. To date, 24 buildings have been retro commissioned with improvements delivering more than \$250,000 in annual energy savings.

From cleaning supplies used to the approximately 2,700 small- to mid-size recycling containers and more than 30, 18-yard roll-off recycling containers, CMU is at the forefront of the sustainability movement.

J. Land Owned by the University:

Improved (landscaped)	575.01 acres
Unimproved	1,183.72 acres
<b>Total</b>	<b>1,758.73 acres</b>

The Land Use Study completed as part of the 2013 Campus Master Plan confirmed that capacity exists to meet immediate and long-range (100 year) future demands. CMU may need to change some of its land use strategies such as migrating to parking structures or increasing building density, however there is currently sufficient land to support the university’s needs for the next 100 years. Furthermore, understanding the long-term land use plan will allow CMU to make short-term building decisions with the confidence that we are doing what’s right for the future of CMU.

K. State Building Authority: Central Michigan University has three buildings obligated to the State Building Authority. The buildings include: Park Library, The Herbert H. and Grace A. Dow Health Professions, and Education and Human Services Building. The expiration dates of the State Building Authority leases are shown in the table below:

<b>Building</b>	<b>Proposed Lease Expiration Date</b>
Library	04/01/2037
Health Professions	11/01/2040
Education and Human Services	12/01/2044

V. **Implementation Plan**

A. Prioritized Major Capital Projects Requested:

As part of the campus master plan, a 10-year capital plan project wish-list was approved by the CMU Board of Trustees in July 2013. This list was developed by a cross-campus team of faculty and staff based on input from thousands of on-campus and community stakeholders. The CMU Center for Integrative Health Studies is on that 10-year capital plan and was selected as CMU’s Fiscal Year 2013 Capital Outlay Project based on student and state needs. Student demand for these programs is high and is not met by Michigan’s higher education system. This, in turn, leaves critical gaps in the delivery of health services across the state. What’s more, expanded and new health care academic programs can be facilitated

by space constructed with a moderate investment. For more detail, please see the attached Capital Outlay Project Request Form.

- B. Impact of Addressing Deferred Maintenance and Structural Repairs: The 2013 Facilities Condition Assessment of buildings on CMU's main campus identified \$129 million in projected repair, upgrade and replacements costs ideally implemented during the next 10 years. In addition, deferred maintenance funds will be required to maintain the utility distribution systems valued at \$125 million and site infrastructure valued at \$45 million.
- C. Status of Ongoing SBA Projects: Design development documents for the \$89.4 million Biosciences Building are 95 percent complete. Work on construction documents will start in November. The project will be substantially complete in June of 2017. This project takes a significant step in addressing CMU's 54 percent space deficit for academic research laboratories and services identified in the 2013 utilization and space needs analysis.
- D. Rate of Return on Planned Capital Expenditures: Increased enrollments through the CMU Center for Integrative Health Studies would generate tuition and auxiliary service dollars across campus, through University Program required courses as well as major courses. Most importantly, the new programs would add critically needed health care providers across the state, improving the health and well-being of Michigan residents as well as contributing to the state's economy.
- E. Alternatives to New Infrastructure: Addressing health care education specifically — the traditional method for course delivery has been face-to-face. This type of instruction requires great amounts of classroom and laboratory space. During the last decade, many health care disciplines have shifted gradually toward a hybrid model in which some of the content also is delivered using distance learning technologies (both synchronous and asynchronous). When considering the programs that CMU believes will fit best in the new Center for Integrated Health Studies, the hybrid face-to-face and online model will be used. Indeed, in considering space for the requested infrastructure, we are planning the dual delivery. Thus it is not an "either-or" but a "both." CMU's plan at this point is to introduce new programs as face-to-face and then, over time, migrate content to an online mode. Under all circumstances, laboratory sessions will be delivered face-to-face. In the health care education world, this has been shown to be the best delivery mode.

As indicated in previous sections, CMU anticipates including infrastructure space for components of information science (specifically for health care informatics) and, possibly, biomedical engineering in the biomechanics realm. The intent is to leverage interaction between students and faculty involved in direct health care

delivery (from physical therapists to audiologists to physicians) and those in informatics and engineering. By establishing these links in the education venue, CMU will build the connectivity that fuels excellence among health care teams in hospitals and in community health. This type of team formation requires face-to-face interaction at least at the initiation, and hence the requested infrastructure is critical for optimal program success.

F. Maintenance Schedule for Major Items:

As defined in the 2013 facilities condition assessment, priority areas for major maintenance are:

- Repair/improve life safety systems (all meet code; this work would take us forward voluntarily)
- Protect the building envelope
- Mechanical, electrical, plumbing, including HVAC
- Utility infrastructure

Therefore major maintenance spending projections are as follows:

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Life Safety	\$2,900,000	\$1,000,000	\$2,900,000	\$1,000,000	\$1,000,000
Building Envelope	\$1,500,000	\$1,500,000	\$1,500,000	\$1,000,000	\$1,000,000
MEP	\$800,000	\$1,800,000	\$800,000	\$2,300,000	\$2,300,000
Utility Infrastructure	\$400,000	\$900,000	\$400,000	\$1,000,000	\$1,000,000
Other	\$100,000	\$500,000	\$100,000	\$400,000	\$400,000
<b>Total</b>	<b>\$5,700,000</b>	<b>\$5,700,000</b>	<b>\$5,700,000</b>	<b>\$5,700,000</b>	<b>\$5,700,000</b>

G. Non-Routine Maintenance:

For the past three years, CMU has allocated \$5.7 million toward deferred maintenance. This year, an additional \$1.3 million in one-time funds was budgeted for roof replacement. Therefore the total budget for 2013-14 deferred maintenance is \$7 million. Funding for deferred maintenance comes from the institution’s capital budget, which is funded by Auxiliary Services, Parking Services and a general fund allocation of \$2.8 million. Since 2008, CMU also has invested \$1.8 million renovating and upgrading 75 individual classrooms and five auditoriums.

**Building Historical Data**

<b>Building Name</b>	<b>Gross Square-foot</b>	<b>Assignable Square-foot</b>	<b>Functionality</b>	<b>Date Built</b>	<b>Age of Building</b>	<b>Date Remodel</b>
Anspach Hall	119,179	61,308	Academic/Administration	1966	47	
Bohannon School House-Poor Mus	1166	898	Miscellaneous	1972	41	2005
Botanical Gardens Pavilion	616	616	Academic/Administration	2012	1	
Bovee University Center	151,317	85,927	Academic/Administration	1960	53	1970
Brooks Science Hall	128,461	68,211	Academic/Administration	1964	49	1993
Carlin Alumni House	11,574	8,864	Academic/Administration	1941	72	1971, 1990
CART (Center For Applied Researc	31,313	20,616	Academic/Administration	2006	7	2006 renovation
Central Energy Facility	65,058	6,721	Miscellaneous/Powerhouse	1961	52	1983, 1992
Combined Services Building	70,906	61,716	Academic/Administration	1990	23	
Data Center	5,016	4,500	Academic/Administration	2013	0	
Dow Science Complex **	170,676	105,772	Academic/Administration	1992	21	
Events Center	47,569		Academic/Administration	2010	3	
Finch Field House	142,964	70,390	Academic/Administration	1951	62	
Flammable Storage Bldg.	630	518	Miscellaneous	1979	34	
Foust Hall	53,880	30,390	Academic/Administration	1973	40	1980, 1991
Grawn Hall	102,493	48,362	Academic/Administration	1915	98	1966, 1989
Greenhouse	5,676	4,408	Academic/Administration	1992	21	
Grounds East	442	408	Miscellaneous	1965	48	
Grounds North - Pole Bldg	8,243	672	Miscellaneous	1986	27	
Grounds South - CHIP	16,002	26,472	Academic/Administration	1987	26	1988
Health Professions Building	234,373	131,851	Academic/Administration	2003	10	
Health Professions Gazebo	300		Academic/Administration	2008	5	
Industrial Education Technology Bl	118,207	73,772	Academic/Administration	1989	24	
Indoor Athletic Complex	237,908	151,139	Academic/Administration	1998	15	
Intramural Sports Complex	2,119	1,275	Athletic Fields/Stadiums	1999	14	
Kelly/Shorts Stadium	177,093	24,292	Athletic Fields/Stadiums	1973	40	1985,1998
Lot 1 Storage Building	11,088		Miscellaneous	1984	29	
Moore Hall & Bush Theatre	197,567	87,915	Academic/Administration	1971	42	
Motor Pool-University Attorney's O	4,421	3,480	Academic/Administration	1987	26	1988
Music Building	109,033	53,260	Academic/Administration	1997	16	
Bennett Track Grandstand,Pressbox	6,117		Athletic Fields/Stadiums	1999	14	
Education Building	146,630	75,996	Academic/Administration	2009	4	
North Art Studio	18,089	10,195	Academic/Administration	1976	37	
Park Library	282,298	208,166	Academic/Administration	1969	44	2002
Pearce Hall	131,122	63,562	Academic/Administration	1967	46	
Powers Hall	49,565	25,035	Academic/Administration	1939	74	1960
Public Broadcasting	11,332	6,506	Academic/Administration	1981	32	1981
Research Laboratory Facility	14,168	9,160	Academic/Administration	2013	0	
Rinsing Station	389	378	Miscellaneous	1994	19	
Ronan Hall	66,184	41,431	Academic/Administration	1954	59	
Rose-Ryan/Student Act. Cntr.	441,051	260,417	Academic/Administration	1973	40	1990
Rowe Hall	47,427	23,515	Academic/Administration	1958	55	1993
Salt Storage Facility	1,625	1,550	Miscellaneous	1986	27	
Satellite Energy Facility	16,800	1,346	Power Plant	2006	7	
Sloan Hall	48,134	26,157	Academic/Administration	1941	72	1960, 1969
Smith Hall	20,478	8,858	Academic/Administration	1934	79	1980
Special Olympics Center	14,424	8,065	Academic/Administration	1939	74	1989
Theunissen Stadium	25,627	13,145	Athletic Fields/Stadiums	2002	11	
University Art Gallery	5,264	3,194	Academic/Administration	1960	53	1989
Margo Jonker Varsity Softball Stadi	6,398	2,338	Athletic Fields/Stadiums	1997	16	1997
VS - Field Dugouts	804	671	Athletic Fields/Stadiums	2006	7	
Warriner Hall	101,750	56,690	Academic/Administration	1928	85	1956
West Hall	9,168	5,610	Academic/Administration	1942	71	1948, 1957, 1962, 1985
Wightman Hall	73,325	43,632	Academic/Administration	1948	65	1955, 1990
<b>SELF LIQUIDATING FACILITY</b>						
<b>Building Name</b>	<b>Gross Square-foot</b>	<b>Assignable Square-foot</b>	<b>Functionality</b>	<b>Date Built</b>	<b>Age of Building</b>	<b>Date Remodel</b>
Barnes Hall	52,464	35,747	Dormitory	1951	62	1956
Barnes Kitchen	10,294	3,668	Dining Hall	1939	74	1960
Beddow Hall	65,688	41,486	Dormitory	1962	51	

**SELF LIQUIDATING FACILITY - continued**

<b>Building Name</b>	<b>Gross Square-foot</b>	<b>Assignable Square-foot</b>	<b>Functionality</b>	<b>Date Built</b>	<b>Age of Building</b>	<b>Date Remodel</b>
Calkins Hall	68,218	43,805	Dormitory	1958	55	
Campbell Hall	87,468	52,391	Dormitory	2003	10	
Carey Dining Commons	72,807	51,650	Dining Hall	1969	44	
Carey Hall	66,474	43,921	Dormitory	1969	44	
Celani Hall ***	79,899	50,438	Dormitory	2006	7	
Cobb Hall	71,117	45,285	Dormitory	1970	43	
Emmons Hall	65,028	44,794	Dormitory	1964	49	
Fabiano Hall ***	79,899	47,582	Dormitory	2006	7	
Graduate Housing East	51,675	36,173	Apartment Complex	2013	0	
Graduate Housing West	58,520	40,966	Apartment Complex	2013	0	
Herrig Hall	65,085	44,742	Dormitory	1966	47	
Kesseler Hall	80,089	48,388	Dormitory	2003	10	
Kewadin Village Apt. Pole Barn	2,500	2,206	Miscellaneous	2013	0	
Kewadin Village Apts. Total	73,714	61,716	Apartment Complex	1972	41	
Kulhavi Hall	82,904	50,973	Dormitory	2003	10	
Larzelere Hall	80,068	50,939	Dormitory	1957	56	1972
Merrill Dining Commons	61,009	41,891	Dining Hall	1960	53	2001
Merrill Hall	69,756	44,274	Dormitory	1960	53	
Northwest Apartments	142,511	122,213	Apartment Complex	1967	46	1968
Robinson Dining Commons	67,791	50,362	Dining Commons	1954	59	
Robinson Hall	68,351	41,985	Dormitory	1954	59	
Saxe Hall	65,884	46,655	Dormitory	1966	47	
South Quad Success Center Additio	2,272		Miscellaneous	2004	9	
Sweeney Hall	74,557	44,793	Dormitory	1960	53	
Thorpe Hall	74,842	44,488	Dormitory	1962	51	
Trout Hall	65,861	41,580	Dormitory	1959	54	
Troutman Hall	104,192	40,824	Dormitory	1969	44	1962, 1966
Washington Court Apts.	52,354		Apartment Complex	1957	56	
Wheeler Hall	71,117	46,617	Dormitory	1970	43	
Woldt Dining Commons	105,257	39,820	Dining Hall	1964	49	1968
Woldt Hall	65,222	43,882	Dormitory	1964	49	