

Lake Michigan College

Space Needs Assessment

Final Report: November, 2008

FY '15 Space Needs Assessment Update

A 2009-14 Lake Michigan College Space Needs Assessment was conducted November 2008 and completed May 2009. Comprehensive Facilities Planning, Inc. administered the study. The Assessment has proven valuable for institution planning. Since this assessment was conducted, the College has completed a number of facility changes highlighted by the following:

Napier Avenue Campus

- Constructed Medical Imaging Career Center – doubling our student capacity for this program.
- Completion of Title III, Science Lab Renovations – providing 11 state of the art science labs, and a central chemical prep and supply facility.
- Constructed a new Dental Lab – increasing student capacity, additional X-ray rooms and student lab.
- Constructed a two-story student center (Hawk's Nest) – with activity space on the lower floor and study space and Student Government conference room on the second floor.
- Renovated the College café, Munchy's – ability to offer a broader menu to students and increased seating capacity.
- Constructed 188-bed Beckwith Hall residence life facility which was opened to student residents in July 2014.
- Expanded Health Science Program to include the Health Education Institute, space devoted primarily to certificate programs.
- Opened a transitional Enology and Viticulture laboratory.

Bertrand Crossing Campus

- Constructed new Chemistry and Biology labs and associated prep spaces – increased student capacity and brought labs up to standard provided by Title III renovation at Napier Avenue Campus.
- Constructed new classrooms – each has capacity of 30 or more, meets students' needs and also provides option for community meeting space.
- Constructed new Dental Lab – replaced existing lab, tripling student capacity, meeting needs of growing program.
- Constructed on site new bookstore – provides student access to text books and support materials.

M-TEC

- Energy Program – emerging program needs have significantly increased use of M-TEC facility.
- Baccalaureate Program – repurposed existing space within M-TEC for 2014 Fall Semester opening.

South Haven Campus

- South Haven Public Schools – entered into partnership with local K-12 district for dual enrollment classes to be offered in our South Haven facility.

Future Identified Space Needs

The College has determined that integral to expansion of College enrollment, programs and services is the renovation and upgrade of the Napier Avenue Campus Academic Facility (FY '16 Capital Outlay Project Request).

Further the College is prioritizing for funding additional projects that support student learning. They include:

- Renovate existing Science Labs at South Haven Campus.
- Renovate existing space at Bertrand Crossing and South Haven Campuses to expand Student Services, Tutoring and Career Counseling.

- Construct a new Technology Center on the Napier Avenue Campus to provide layered certificate programs delivered in modular based, flexible manufacturing/engineering labs, a FAB lab and simulation training room.
- Expand transitional Enology and Viticulture Laboratory to full service Enology, Viticulture, and Culinary Arts program – the Great Lakes Wine Institute – a new facility featuring the College’s historic barn.
- Modernize Mendel Center including centralizing fine arts programs.
- Expand student recreation space on Napier Avenue Campus.

Given the scope of the changes outlined above we are currently engaged in complete revision of our space plan. Upon completion, the final document will be added to the College’s Internet site address.

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Executive Summary

Comprehensive Facilities Planning, Inc. (CFP) was retained to provide a space assessment for the College Master Planning effort being led and coordinated by The Collaborative Inc, an architectural and planning firm in Toledo, Ohio. Space inventory data, class schedules, academic programs and personnel listings provide the framework for the space analysis. CFP made two multi-day campus visits; one in June and one in July to meet with various campus officials to discuss space issues.

A majority of the first campus visit involved updating and correcting room numbers so that floor plans, space inventory and numbers on doors were in synch. In addition, several physical changes as well as assignment changes were in progress during the inventory verification period. These changes could result in some inaccuracies in the inventory.

While we believe that most of the inventory is now up-to date and accurate there are still areas that need measured and updated and there are still room number coordination issues in Mendel Center. The campus should make it a priority to develop an accurate space inventory to assist in day to day space management decisions.

Napier Avenue Campus – Capacity Analysis

The Napier Avenue Campus consists of two buildings: the Napier Academic Building and the Mendel Center. The combined assignable space for both buildings is just under 275,000 square feet.

The following analysis calculates the space need by space type for enrollment increases from the Fall 2007 FTE of 1,358 students to 1,800 FTE. Eighteen hundred FTE is the approximate enrollment that the current instructional space (classrooms and laboratories) can support at “full” utilization, i.e. utilizing the classrooms and labs at generally accepted standards for community colleges (30 hours per week for classrooms and approximately 18 - 22 hours per week for labs depending on the discipline).

Key assumptions are:

- Analysis is based on current instructional programs. New lab based programs may require new or additional lab space beyond the space shown in the following table.
- Campus personnel will remain constant except for those directly related to instruction or student services. For those positions that increase (e.g. faculty) the ratio to students will remain constant at the current level.

The following table summarizes the space by type for enrollment growth in approximately 100 FTE student increments.

Space Type	Current Space	1,500 FTE	1,600 FTE	1,700 FTE	1,800 FTE
Classrooms	25,470	19,981	21,248	22,532	23,806
Instructional Laboratories	49,590	45,996	47,049	47,776	48,847
Offices	50,403	48,376	50,158	51,824	53,466
Library Space	20,406	20,791	21,200	21,600	21,930
Special Use Facilities - Clinic, Training, Demo	8,929	8,929	8,929	8,929	8,929
Athletic/PE/Recreation Space	21,961	26,000	26,000	26,000	26,000
Assembly Facilities	45,064	45,064	45,064	45,064	45,064
Exhibition Space	14,118	14,118	14,118	14,118	14,118
Food Facilities	4,169	9,800	10,287	10,749	11,205
Childcare	3,740	3,740	3,740	3,740	3,740
Student Lounge Space	1,354	2,987	3,198	3,399	3,597
Merchandising Space	3,892	6,300	6,300	6,300	6,300
Meeting Rooms	2,260	2,260	2,260	2,260	2,260
Support Facilities	23,186	22,500	22,500	22,500	22,500
Health Care Facilities	0	747	800	850	899
Totals	274,542	277,589	282,851	287,641	292,661
Space/FTE	202	185	177	169	163

- The calculations reveal the campus has sufficient instructional space (classrooms and labs) but shortages of amenity type space such as food service, student lounge space and athletic / physical education / recreation space.
- Based on reasonable utilization guidelines, the classrooms are underutilized especially in the afternoon. Most space planning guidelines suggest that community college classrooms should be used at least 30 or more hours per week on average. The calculated classroom need in the above table uses a utilization rate of 30 hours per week with a station occupancy of 67% and an average station size of 22 square feet. Therefore, the campus has sufficient classroom space to support an enrollment to at least 1,800 FTE (an increase of more than 30% over Fall 2007). *In developing a long range plan the campus will need to decide whether space efficiency is more important than the scheduling flexibility a “surplus” of classroom space provides.*
- Likewise, the teaching laboratories for the most part are underutilized. In the case of laboratories, if the program is offered and requires lab space, then there is a minimum amount of space that must be provided regardless of the low usage. As the above table shows the campus has sufficient laboratory space to support a growth to 1,800 FTE. However, there are a few laboratories that may exceed their ideal utilization including : Biology; Transitional Studies (Reading and Writing Centers); and Radiology. *Note: if new lab based programs are added, new or additional laboratory space may be needed.*
- Office type space (offices, conference rooms, lounge space and service space) may become a problem as the enrollment exceeds 1,600 FTE students. However, an examination of the detailed data in the body of this report indicates that most of the potential deficits are in conference space, office lounge space, and office service space. There is actually a small

surplus of offices but this may be because several of the academic office suites are only classified as general office space even if they have conference or lounge areas.

- While the calculations show that the Library has about the correct amount of space the distribution may need to be adjusted. The Library indicates that more group study rooms are needed (7 additional rooms) along with at least one more office and additional archive space. However, a growth to 1,800 FTE shows a need for about 1,500 square feet of additional space, primarily in seating, study rooms.
- Space calculations for Athletic/Physical Education/Recreation produce a need of about 26,000 square feet. This compares to the current space of 21,961 a shortfall of about 4,000 square feet. Most guidelines for these types of spaces provide a minimum amount of space for campuses up to 3,000 FTE students.
- The food facility space includes both Mendel Center food service for conferences and events as well as the Student Center which services primarily the students and faculty on campus. While the major problem with the Mendel Center space is more functional, the Student Center has insufficient space for a campus of this size *located remotely from off campus food services*. Currently only 1,500 square feet is available in the Student Center, a shortage of about 7,100 square feet of food service space at 1,800 FTE.
- The childcare facility is a candidate for relocation.
- A campus of this size should have about 3,000 square feet of student lounge space. With only 1,354 square feet available, this is a significant shortage of this type of space. An increase to 1,800 FTE increases the lounge need by about 600 square feet to a total need of about 3,600 square feet.
- The bookstore is currently located in 3,892 square feet of space. The Merchandising Space (Bookstore) need of 6,300 square feet is based on a plan developed by the current bookstore operator, Barnes and Nobel, and goes well beyond the “traditional” campus bookstore. If the campus were to operate a traditional bookstore then the current space would be sufficient.
- The campus should consider a health care facility to provide emergency treatment services for students and staff. Calculations show a facility of about 900 square feet should be adequate for a 1,800 FTE.
- While the amount of support space (physical plant) is adequate, long range planning should include moving some of these operations from the heart of campus to a more remote location.
- Spaces such as assembly, exhibition, meeting rooms etc. are judged to be adequate to meet the long term campus needs.

M-TEC

The M-TEC Campus provides specialized facilities for high skill jobs in the manufacturing, construction and services industries. The new 43,000 gross square feet campus has programs in:

- Drafting & Design Technology
- Electronics/Electrical Technology

- Industrial Maintenance Technology
- Machine Tool Technology
- Home Appliance Technology

A new Energy Production Technology program was recently approved.

While state of the art training facilities for these programs are available at the M-TEC Campus, core college requirement courses such as English and political science are offered at the Napier Avenue, Bertrand Crossing and South Haven campuses.

The space by type is shown below.

Space Type	Current Space
Instructional Space	22,136
Offices and Conference Room	4,347
Small Business Resources Center	956
Vending and Student Lounge	981
Meeting Room	1,641
	30,061

- Because the facility is new, the programs offered require hands on training and all of the current facilities are used by at least one of the programs, no changes to the instructional spaces are recommended at this time.
- While the utilization of the facility could be increased the current amount and mix of space should be adequate to meet the near term needs unless new programs are introduced requiring specific lab spaces that are not currently available on this campus.

South Haven Campus

The South Haven Campus was constructed in 2003 and is the newest of the four Lake Michigan College Campuses. The one building has just under 28,000 square feet of assignable space and is located on 22 acres in South Haven, a small community of about 5,000. In addition to gathering space data, class file and personnel listings, the consultants made two visits to the campus and interviewed the Dean to develop data for the analysis.

The following table summarizes the recommended space need by space type compared to the current space.

Space Type	Current Space	Recommended Space	Difference
Classrooms	9,514	9,514	0
Instructional Labs	3,709	3,709	0
Offices	3,592	3,802	-210
Study / Library	0	1,375	-1,375
Recreation	0	600	-600
Food Service	425	500	-75
Student Lounge / Commons	2,586	1,314	1,272

Space Type	Current Space	Recommended Space	Difference
Childcare	2,028	1,050	978
Book Store	1,010	1,000	10
Meeting Rooms	1,776	1,776	0
Physical Plant Support	3,313	3,313	0
	27,953	27,953	0

- Based on reasonable space utilization guidelines, the classrooms and labs are underutilized. Since the campus is relatively new, it does not seem appropriate to discuss a “surplus” of classroom space but rather determine the number of FTE students the current classroom supply could support. Calculations show that the campus could grow 20% to about 340 FTE within existing classroom and lab space.
- While the campus does not have a large number of full time staff, they do need to provide space for visiting faculty and adjuncts. Most of the staff are housed in 2,189 square feet (SAH 151) which is used very efficiently. Space for adjuncts and visiting faculty is tight as is the space for student services. The addition of the vacated Western Michigan University Offices should alleviate some or all of this problem.
- The campus has a large commons area, a bookstore, a holding kitchen and childcare facility. While this space in the aggregate is sufficient to meet the amenity space needs for the campus, the campus should consider adding some recreation space and student study / library space to the mix. To make room for these functions the childcare facility should be reviewed and either down-sized or moved from campus. The current childcare facility is very generous for a campus of this size.
- In summary, the campus has sufficient space to meet a growth of 20% in student enrollment but should consider some reordering of space to provide some recreation and study / library space.

Bertrand Crossing Campus

The Bertrand Crossing campus was constructed in 1998 in an industrial park southwest of Niles, Michigan. The campus has about 22,200 square feet of assignable space in one building. Since the campus was opened, Southwestern Community College and Ivy Tech Community College have expanded their facilities and programs, intensifying the competition within the higher education market.

The following table summarizes the recommended space need by type compared to current space.

Space Type	Current Space	Recommended Space	Difference
Classrooms	6,326	7321	-995
Labs	11,448	8,659	2,789
Offices	2,867	2,600	267
Study/Library	0	875	-875
Recreation	724	500	224
Food Service	235	300	-65
Student Lounge/Commons	655	500	155

Space Type	Current Space	Recommended Space	Difference
Meeting Room	0	1500	-1,500
	22,255	22,255	0

- Calculations show that the campus could grow 20% to 30% or more using a classroom utilization goal of about 25 hours per week. The FTE enrollment for Fall 2007 was about 170 FTE students.
- The campus has need for study/library space and improved recreation, food service and student lounge-commons space. A meeting room would also be a campus enhancement.
- The Metalworking/Plastics lab is underutilized and part of that space could help address the campus amenity space needs.

Space Assessment

Overview

Comprehensive Facilities Planning, Inc. (CFP) was retained to provide a space assessment for the College Master Planning effort being led and coordinated by The Collaborative Inc, an architectural and planning firm in Toledo, Ohio. CFP made a multi-day campus visit in June with a follow-up visit in July to meet with various campus officials to discuss space issues.

Accurate space data is an important component in the development of a long range space plan. Unfortunately, a space inventory was not available; therefore considerable effort was made to develop a space inventory suitable for the master planning effort. Fortunately, CAD drawings did exist, but many of the room numbers were either missing or did not correspond with the numbers on the actual rooms. A majority of the first campus visit involved updating and correcting room numbers so that floor plans, space inventory and numbers on doors were in synch. In addition, several physical changes as well as assignment changes were in progress during the inventory verification period. These changes could result in some inaccuracies in the inventory.

While we believe that most of the inventory is now up-to date and accurate there are still areas that need measured and updated and there are still room number coordination issues in Mendel Center. The campus should make it a priority to develop an accurate space inventory to assist in day to day space management decisions.

Space needs are determined by applying space planning guidelines to the programs, personnel and student enrollments for the campus and comparing the results to the current space. Interviews with campus personnel provide a better understanding of unique operations and the campus culture for the LMC campuses that may lead to modifications of the guidelines.

Napier Avenue Campus

The Napier Avenue Campus consists of two buildings: the Napier Academic Building and the Mendel Center. The combined assignable space for both buildings is just under 275,000 square feet.

Most of the academic programs reside in the Student Center while the Mendel Center provides space for Music and Theatre programs. The Mendel Center is primarily used for community programs and events.

Capacity Analysis

The following analysis calculates the space need for enrollment increases from the Fall 2007 FTE of 1,358 students to 1,800 FTE in approximately 100 FTE increments. Eighteen hundred FTE is the approximate enrollment that the current instructional space (classrooms and laboratories) can support at “full” utilization, i.e. utilizing the classrooms and labs at generally accepted standards for community colleges (30 hours per week for classrooms and approximately 18 - 22 hours per week for labs depending on the discipline).

Personnel assumption

- Campus personnel will remain constant except for those directly related to instruction or student services. For those positions that increase (e.g. faculty) the ratio to students will remain constant at the current level.

Table 1: NAC Enrollment and Personnel Assumptions

	Fall 2007	Student FTE Assumptions			
Student Enrollment FTE	1,358	1,500	1,600	1,700	1,800
Percent Change from Fall 2007		10.5%	17.8%	25.2%	32.5%
Faculty (FTE)	98.5	108.8	115.9	123.2	130.4
Staff (FTE)	159.0	166.8	172.3	177.8	183.2
Student per Faculty FTE	13.8	13.8	13.8	13.8	13.8

Classrooms

The campus currently has 31 classrooms plus 2 lecture halls available for Fall 2008. Several classrooms have been converted to other uses over the past year, including major remodeling of several rooms for the Medical Imaging Career Center. Twenty-two rooms are equipped with tables and chairs, 9 have tablet arm chairs and 2 have a combination of table and chairs and computer stations. All classrooms have multi-media equipment. The College would like to convert all classrooms to tables and chairs in the future.

Table 2: NAC Classroom Space Summary

Room Type	Number	ASF	Seats	Avg. Seat Size	Avg. CR Size	Avg. Seats per Room
Classrooms	31	21,032	898	23.4	678.5	29.0
Lecture Hall	2	2,761	354	7.8	1,380.5	177.0
Teleconference	1	773	30	25.8	773.0	30.0
Totals	34	24,566	1,282	19.2	722.5	37.7

The 773 square foot teleconference room (MC 152) is operated by the Information Technology Department. Additionally there are 3 classroom service rooms totaling 904 square feet. This brings the total classroom type space to 25,470 square feet.

Since there have been a number of classroom changes from Fall 2007, utilization statistics have been prepared using the Fall 2008 master schedule of classes. Since Fall 2008 enrollment numbers will not be available until later this fall, station occupancy percentage were not calculated. The only utilization measure analyzed is the average Weekly Room Hour (WRH) rate. The tables below provide summary data for classrooms, lecture halls and the teleconference room for three time periods.

The following table presents the All Day Utilization – 8 am to 9 pm Monday through Thursday and 8 am to 4 pm on Friday – a total of 60 available hours. Included in the usage are the 39 hours per week set aside for Sienna.

Table 3: NAC All Day Utilization

Room Type	Number	ASF	Seats	WRH	Average WRH	% WRH	Sections
Classrooms	31	21,032	898	780.0	25.2	41.9%	230
Lecture Halls	2	2,761	354	19.3	9.6	16.1%	6
Teleconference	1	773	30	13.4	13.4	22.3%	4
Totals	34	24,566	1,282	813	23.9	39.8%	240

The following table presents the Daytime Utilization – 8 am to 5 pm Monday through Friday – a total of 45 available hours.

Table 4: NAC Daytime Utilization

Room Type	Number	ASF	Seats	WRH	Average WRH	% WRH	Sections
Classrooms	31	21,032	898	494.5	16.0	35.4%	160
Lecture Halls	2	2,761	354	12.4	6.2	13.8%	5
Teleconference	1	773	30	10.0	10.0	22.2%	3
Totals	34	24,566	1,282	517	15.2	33.8%	168

The following table presents the Evening Utilization – 5 pm to 9 pm Monday through Thursday – a total of 20 available hours.

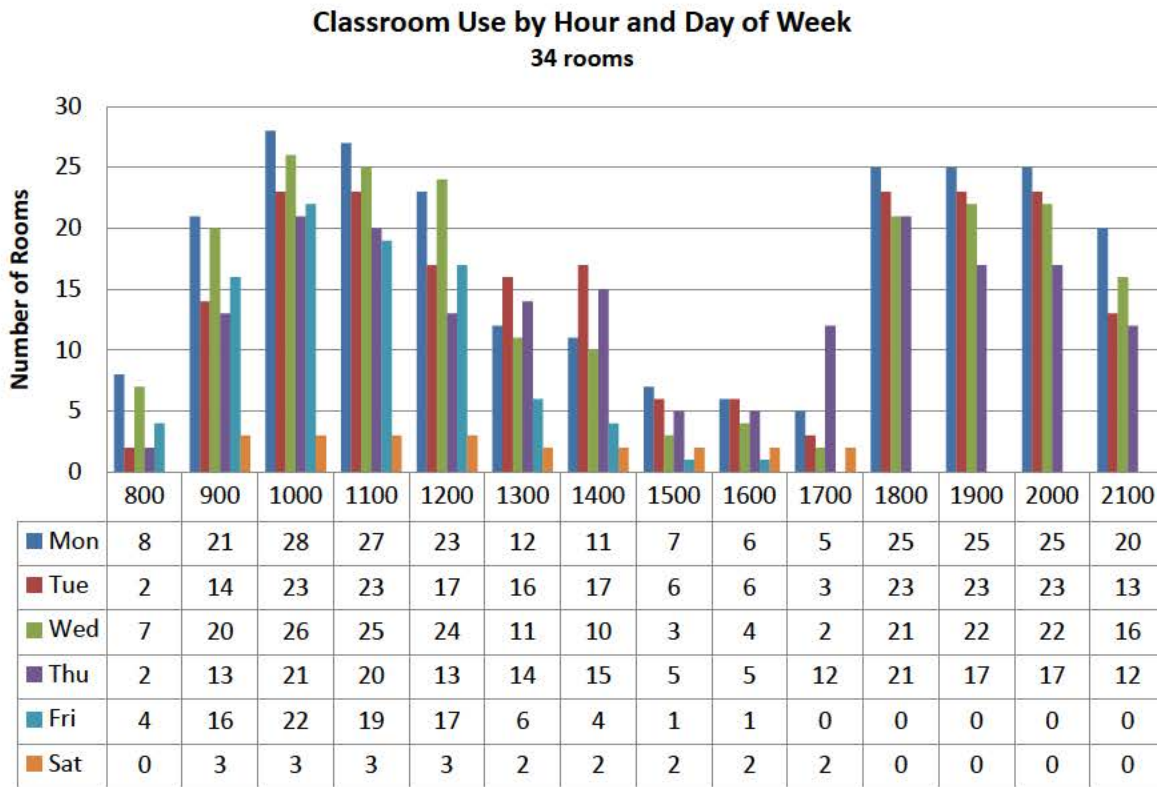
Table 5: NAC Evening Utilization

Room Type	Number	ASF	Seats	WRH	Average WRH	% WRH	Sections
Classrooms	31	21,032	898	285.5	9.2	46.1%	107
Lecture Halls	2	2,761	354	6.8	3.4	17.1%	3
Teleconference	1	773	30	3.4	3.4	17.1%	2
Total	34	24,566	1,282	296	8.7	43.5%	112

- The All Day utilization of the classrooms is just under 24 hours per week which is only about 40% of the available hours.
- Evening classroom usage is around 9 hours which is nearly 44% of the 20 available hours while the rooms are only used about 15 hours during the day.

The following chart shows the intensity of the 34 classrooms throughout the day and the week and illustrates the limited usage between 1 pm and 6 pm.

Table 6: NAC Classroom Use - Time by Day



Calculated Classroom Need

Most space planning guidelines suggest that community college classrooms should be used at least 30 or more hours per week on average. Increasing the utilization to this level would more than likely require more intense usage in the afternoons. At 30 hours of use per week with a station occupancy of 67% and

an average station size of 22 square feet, 23,806 square feet of classroom space would be required to for an enrollment of 1,800 FTE. This compares to the current supply of 25,470 square feet.

In developing a long range plan, the campus will need to decide whether space efficiency is more important than the scheduling flexibility a “surplus” of classroom space provides.

The following table summarizes the classroom space need for the various enrollment increments.

Table 7: NAC Calculated Classroom Space Need

FTE	Current Space	1,500 FTE	1,600 FTE	1,700 FTE	1,800 FTE
Classrooms	25,470	19,981	21,248	22,532	23,806

Possible Space Opportunities.

The Brown Lecture Hall (D 112) and the Blue Lecture Hall (D 105) are only used a combined 19.3 hours per week. The total need could easily be met in only one lecture hall, hence the Brown Lecture Hall could be a candidate for other uses. However, a thorough study of alternative uses and costs associated with converting a tiered lecture hall would need to be undertaken before a final decision could be made.

Likewise the Planetarium (D 116) is only scheduled for use about 4 hours per week and could also be a candidate for other uses.

Class Laboratories and Other Instructional Space

The class laboratories are located primarily in the B and C wings on the 3rd floor. Transitional Studies labs are in the B wing 2nd floor. This fall Radiology is moving to the 1st floor C wing in newly remodeled space.

The following table summarizes the class labs and the calculated need for the various enrollment increments. In several cases the calculated space is adjusted to provide a minimum sized lab if the credit hours does not produce sufficient space for a functioning lab.

Table 8: NAC Calculated Laboratory Need

Department	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Art	5,528	3,920	3,920	3,920	3,920
Biology	6,176	6,154	6,154	6,176	6,479
Chemistry	2,984	2,984	2,984	2,984	2,984
Computer Info sys	5,384	3,150	3,150	3,150	3,150
Dent Asst	994	994	994	994	994
Geology	1,862	1,440	1,440	1,440	1,440
Graphic Design	2,310	2,310	2,310	2,310	2,310
Health Sciences	686	600	600	600	600
Hospitality	1,529	1,529	1,529	1,529	1,529
Music	3,529	3,529	3,529	3,529	3,529
Nursing	4,646	4,646	4,646	4,646	4,646
Physics	1,925	1,440	1,440	1,440	1,440

Department	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Radiology	3,291	3,291	3,533	3,758	3,975
Transitional Studies	5,548	5,548	5,951	6,325	6,695
IT Open Computer Labs	3,198	4,461	4,869	4,975	5,156
Total Labs	49,590	45,996	47,049	47,776	48,847

Art

Based on credit hours and scheduled weekly room hours there is not sufficient demand to justify the current space. However, since the program is offered and specialized labs are required for ceramics, sculpture and drawing, then 3 labs totaling 3,820 square feet plus 100 square feet for a dark room are required. This compares to the current space of 5,528.

Biology

Biology currently has 4 labs in the C wing 3rd floor. For Fall 2008, the labs are use for lecture as well as lab sections for all biology courses. Current space is well utilized but if enrollment exceeds 1,700 FTE a shortage of lab space starts to develop and additional Biology Lab space could be justified. However, there may other strategies to meet the need such as increasing the hours per of utilization.

Chemistry

Chemistry currently has 2 labs in the C wing 3rd floor. Calculations show the current space is sufficient to meet future needs.

Computer Information Systems

CIS currently has 5 labs in the B wing 3rd floor. Both credit hour calculations and weekly room hour calculations show that this demand can fit into 3 labs totaling about 3,150 square feet compared to their current space of 5,384 ASF.

Dental Assisting

Dental Assisting is currently located in the C wing 3rd floor. While there is no schedule data for Fall 2008 at this time, credit hour calculations show that the program space should be sufficient for reasonable growth.

Geology

Geology currently has 1 lab in the C wing 3rd floor. For Fall 2008, the lab is used 12 hours for 2 geology labs. The lab is also used for Chemistry. Therefore the program space should be sufficient for reasonable growth.

Graphic Design

Fall 2008 is the first term that Graphic Design will be offered on the Napier Avenue Campus. The lab is located in B 303, a former open computer lab that has been re-located into the Library. Based on Fall 2008 schedule data, the lab is heavily scheduled (26 hours per week). While the program has sufficient space at this time, there is not a lot of room for growth.

Hospitality

Hospitality has a lab/kitchen on the 3rd floor L wing. While there is no schedule for Fall 2008 at this time, credit hour calculation shows a need smaller than the current space. However, the future direction of hospitality is under review and this may have an impact on future space needs. For now, the current space is assumed to be adequate.

Health Sciences

The calculation assumes that lab space is needed for the Emergency Medical Technician program.

Music

Music is located in both the Mendel Center and the Student Center:

Mendel Center	ASF
Band/Choral (Assembly) facility	2,498
3 Practice Rooms	482
2 Offices	342
Sub Total	3,322
Student Center	
2 Class Labs	1,501
Practice Rooms (D109)	1,546
Sub Total	3,047
Total for Music	6,369

In addition classes meet in S 116.

While overall Music has a sufficient amount of space, it needs to be consolidated into one location, preferably the Mendel Center. A consolidation might actually reduce the amount of space needed since the use of D 109 for practice rooms is an inefficient use of space.

Nursing

Nursing is currently located in the C wing 3rd floor. While there is no schedule data for Fall 2008 at this time, credit hour calculations show that the program space should be sufficient for reasonable growth.

Physics

Physics currently has 1 lab in the C wing 3rd floor. For Fall , the labs will be used for lecture as well as lab sections for all physics courses. Current space is well utilized and should be sufficient to meet future needs.

Radiology

The Medical Imaging Career Center is currently located in the C wing 1st floor in newly remodeled space. While there is no schedule data for Fall 2008 at this time, credit hour calculations show that the program space should be sufficient for a 10% growth. As enrollments increase beyond 10%, utilization may have to increase to meet the demand. However, since this is a new program and there is not a lot of firm data actual utilization should be monitored over the next few to terms to verify that the space will be sufficient in the long term if the campus were to grow to 1,800 FTE.

Transitional Studies

Transitional Studies is currently in the B wing 2nd floor. Both credit hour calculations and weekly room hour calculations show that the program will be at its limit with the projected 10% growth. If enrollments increase beyond 10% growth then additional space will likely be needed unless the demand for these programs can be reduced.

Theatre

Theatre is located in Mendel Center in space classified as assemble and is not listed in the table above.. Their space includes a 4,098 square feet theatre and an office. Service rooms such as green rooms and prop storage are provided by the space assigned to Conference & Event Services in Mendel Center . Theatre space should be adequate to meet future needs.

Open Computer Labs

Information Technology & Institutional Research operates the open computer labs (room type 240). The open computer lab in B 303 has been moved to the library bringing the total computers in the library to 65. Room B 303 is now Graphic Design. Additionally, L 112 is a 24 station open computer lab which may be scheduled occasionally.

For the purpose of this calculation, the 65 computer stations in the Library have been coded as computer lab space (room type 240). At 35 square feet per station this totals 2,275 square feet. When combined with the space in L 112 the total open computer lab space is about 3,200.

Calculations show that the campus should have about 125 computers available (about 4,400 square feet) for open use so the current 89 falls short of ideal. However, the surplus of CIS computer lab space may very well meet this need. Therefore, between the IT open computers and CIS computer labs, the campus should have sufficient computer space to meet future needs.

Offices

Office space need is determined by the number of personnel and an appropriate office module. The office module is related to position title as follows:

Position Title	Module ASF
President	450
Vice President	250
Executive Deans	200
Faculty	115
Adjuncts	35
Staff	120
Clerical	100

Additionally, there are allocations for staff lounge space and conference room space. Office service space (copy/work room and standard storage) is allocated as a percent of total office, generally between 10% and 20%. Some units may have need for waiting room space, processing space and/or additional storage requirements.

The following table summarizes the current and calculated personnel for the various FTE assumptions campus.

Table 9: NAC Personnel Summary

Student FTE	Current	Calculated Personnel (FTE)			
	1358	1500	1600	1700	1800
Executive Staff	27	27	27	27	27
Faculty and Adjuncts	99	109	116	123	130
Clerical and Professional Staff	132	140	145	151	156
Part Time and Others	86	86	86	86	86
Totals	343	361	374	387	399

The following table summarizes the calculated office type for the campus based on the personnel and modules as displayed in the previous two tables. In addition to offices, there is an allocation for office lounge space, conference room space, and office service. Also some units have needs for waiting room space, processing room space and additional storage beyond what is allocated by the standard office service calculation.

Table 10: NAC Office Need Summary

Description	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Offices	39,743	30,707	31,987	33,186	34,369
Office Lounges	0	1,378	1,441	1,505	1,568
Conference Rooms	1,235	5,245	5,448	5,654	5,858
Service, Waiting, Processing	6,448	6,659	6,896	7,092	7,284
Additional Storage	2,977	4,387	4,387	4,387	4,387
Total Office Need	50,403	48,376	50,158	51,824	53,466

As the above table shows office space may become a problem as the enrollment exceeds 1,600 FTE students. However, an examination of the detailed data indicates that the campus will actually have sufficient office type space. Most of the potential deficits are in conference space and additional storage space. Also there is a need for office lounge space as well as some additional office service space. However, note that the deficits in conference and lounge space may be due to the way the office space is classified in the space inventory. Several of the academic office suites are only classified as general office space even if they have conference or lounge areas.

Office Need by Division

Arts & Sciences Division

The following table summarizes the office need for the Arts & Sciences Division.

Table 11: NAC Arts & Science Office Need

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Offices	10,114	7,758	8,095	8,547	8,993
Lounge	0	408	429	456	482

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Conference Rooms	0	1,372	1,439	1,528	1,616
Office Service	343	954	996	1,053	1,109
Total Office Space	10,457	10,492	10,959	11,584	12,200

As the above table shows office space may become a problem as the enrollment exceeds 1,500 FTE students. At an enrollment of 1,800 FTE the office deficit becomes 1,743 square feet. However, an examination of the table detail indicates that the Division will actually have sufficient office type space. The potential deficits are in conference space, lounge space and office service. However, note that the deficits in conference and lounge space may be due to the way the office space is classified in the space inventory. The academic office suites are only classified as general office space even if they have conference or lounge areas.

Occupational Studies Division

The following table summarizes the office need for the Occupational Studies Division.

Table 12: NAC Occupational Studies Division Office Need

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Offices	5,565	3,809	4,243	4,494	4,742
Lounge	0	224	249	265	280
Conference Rooms	0	796	887	942	996
Office Service	72	483	538	570	602
Total Office Space	5,637	5,312	5,918	6,271	6,619

As the above table shows office space may become a problem as the enrollment exceeds 1,500 FTE students. At an enrollment of 1,800 FTE the office deficit becomes 982 square feet. However, an examination of the table detail indicates that the Division will actually have sufficient office type space. The potential deficits are in conference space, lounge space and office service. However, note that the deficits in conference and lounge space may be due to the way the office space is classified in the space inventory. The academic office suites are only classified as general office space even if they have conference or lounge areas.

Student Services Division

The following table summarizes the office need for the Student Services Division.

Table 13: NAC Student Services Division Office Needs

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Offices	7,613	7,097	7,476	7,839	8,196
Lounge	0	284	301	317	333
Conference Rooms	539	835	883	928	973
Office Service	5,191	3,801	3,896	3,987	4,077
Total Office Space	13,343	12,017	12,557	13,071	13,579

The Student Services Division should have sufficient office space to support an enrollment to 1,700 FTE. At an enrollment of 1,800 FTE the office deficit becomes 236 square feet.

Advising and Retention:

- Includes Counselors and Advisers, Upward Bound; Student Support Services; Talent Search; TRIO and other related programs.
- Most offices located on the 2nd floor A wing and C wing, but Talent Search is located on the 3rd floor in L wing.
- Although some of the Counselors and Adviser are part time, because of the nature of their work, private offices are required (a total of 5).
- The office service component includes calculations for waiting and processing in addition to the general office service calculation.

One Stop Services:

- Located on the 2nd floor, primarily in the A wing and includes Student Financial Aids; Admissions; and Registrar's Office.
- The office service component includes calculations for waiting and processing in addition to the general office service calculation.

Intercollegiate Athletics:

- Located on the 1st floor D wing.
- Coaches are part time and most have offices in other parts of campus, therefore only 2 coaches offices are needed.

Executive Dean's Space:

- Located on the 2nd floor in the A wing and includes the Director of Student Life as well as the Executive Dean's offices.
- The office service component includes calculations for waiting and departmental storage in addition to the general office service calculation.

President

The following table summarizes the office need for the President's Office.

Table 14: NAC President's Office Needs

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Offices	1,838	1,130	1,130	1,130	1,130
Lounge	0	33	33	33	33
Conference Rooms	520	472	472	472	472
Board Room		600	600	600	600
Office Service	39	223	223	223	223

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Total Office Space	2,397	2,458	2,458	2,458	2,458

While the President's Offices has about the correct amount of space a dedicated Board Room should be added. This area is also a candidate for relocation from the 3rd floor A wing. The calculation includes the new department, Fund Raising, located in A307, A309 and A313.

Administrative Services and Special Assistant to the President

The following table summarizes the office need for Administrative Services and the Special Assistant to the President

Table 15: NAC Admin Services Office Needs

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Offices	3,359	1,780	1,780	1,780	1,780
Lounge	0	68	68	68	68
Conference Rooms	0	171	171	171	171
Office Service	420	464	464	464	464
Additional Storage	394	1,800	1,800	1,800	1,800
	4,173	4,283	4,283	4,283	4,283

While the division has about the correct amount of office type space, some of the offices are very crowded because they do not have sufficient file and storage space.

Vice President's Office:

- Calculation includes a new position - Director for Diversity.
- Need two work study stations
- Office space is very crowded because of large volume of file storage and other departmental storage. The space needs calculation includes adjustments for this requirement.

Human Resources:

- Added a work study station.
- Office space is very crowded because of large volume of file storage and other departmental storage. The space needs calculation includes adjustments for this requirement.

Facilities Management:

- Calculation includes a new staff – Public Safety Officer
- L310 is the only unit storage the department has. However the department manages the college central storage for many units. (In the inventory unit storage is coded as room type 780, while central storage is code 730.)
- They also have a trailer for storage and an outside area for recycling

External Relations & Planning

The following table summarizes the office need for External Relations & Planning

Table 16: NAC External Relations & Planning Office Needs

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Offices	4299	4740	4740	4740	4740
Lounge	0	185	185	185	185
Conference Rooms	176	504	504	504	504
Office Service	715	543	543	543	543
	5,190	5,972	5,972	5,972	5,972

The VP External Relations and Planning is located in Mendel Center and includes offices for the Vice President, Mainstage, Conferences and events Services, Marketing, and Mendel Center Facilities. As the above table shows they have need for additional office space but there is no room for office expansion in Mendel Center.

VP Financial Services

The following table summarizes the office need for Financial Services

Table 17: NAC Financial Services Office Needs

Type Of Space	Current Space	1500 FTE	1600 FTE	1700 FTE	1800 FTE
Offices	6,955	4,393	4,522	4,656	4,788
Lounge	0	170	176	182	188
Conference Rooms	0	473	492	509	526
Office Service	228	504	519	535	550
Additional Storage	2,023	2,303	2,303	2,303	2,303
Total Office Space	9,206	7,843	8,012	8,185	8,355

For space needs analysis, the vice president's unit is divided into three areas:

- Financial Services (FINS)
- Information Technology & Institutional Research (IT)
- Vice President's Office (VPFIN)

Overall these units have sufficient space to meet the long term need. While these units have various storage locations, storage requirements go up & down over time.

Financial Services

Financial Services primarily housed in C206 suite. Cashier and account manager are part of the "One-Stop Shop," A206 and A207. They need more space at peak times. Space is sometimes dysfunctional in the One-Stop shop for student accounts. FINS also occupies A302 and A304B.

The Purchasing Director is included with Financial Services personnel for the space needs calculations.

Information Technology & Institutional Research

IT occupies C102 and C103, primarily office space. They operate the Faculty Training and Learning Center (S112) and the Banner Training Room (L108) as well as the Copy Center (S114).

IT also operates the interactive classroom (F152) as well as a recording studio (TV studio) (F154) and production center in Mendel Center.

The open computer lab in B303 has moved to the library providing a total of 65 computers in the Library. Additionally L112 is an open computer lab (which also may be scheduled occasionally) with 24 stations. B303 becomes a lab for the Graphics Media program

Offices A307, A313 were reassigned from IT to FUND RAISING (as well as A309 which was VPADM) and B300 moves from IT to VPFIN.

VP Financial Service

The VPFIN also occupies the A308 suite.

While these units have various storage locations, storage requirements go up & down over time.

Two staff were added to the VPFIN office to provide space for grants that come and go.

Library

It is clear we are entering a new era for libraries. The shift towards digital information is changing the dynamics of libraries and the space they occupy.

Students entering college now have grown up on cell phones, iPods, video games, email, the Web, and Google. The arrival of electronic information products doesn't mean an end to libraries as institutions, although a new kind of library service is certainly evolving. No longer will librarians serve primarily as gatekeepers to print collections, a role they have traditionally played in higher education. Until recently the impetus for libraries sprang from a need to house expanding print collections. Electronic storage and retrieval are gaining momentum.

Learning has become more social. We now have group study rooms, library cafes, information arcades, etc. However, whether or not library users actually visit the building depends on several factors, including their research-skill level and the type of information they seek.

The library of the future may take various forms depending on the type and location of the institution. It is about taking advantage of technology and the space to deliver services that support the mission and vision of the institution. Libraries at major research universities will look different than those at small liberal arts colleges or community colleges.

For major research universities some differences will occur based on convenience or collaboration. Most faculty members obtain their information research on-line. This reduces the interaction between their colleagues outside their departments. Specific disciplines such as Law and Medicine will require space suited for their use. The question is should the University have divisional silos that are convenient for the researchers or in a neutral location to foster collaboration. This issue must be resolved by the institution and not by a formula. On the other hand, for smaller campuses the library should be convenient to the main academic center.

In either case there are certain facilities that may or may not be part of the library based on other existing or planned facilities such as IT training/experimentation centers, hybrid /prototype classrooms, writing and math centers, faculty support centers, and lounge and food facilities. These may or may not be in the best interest of the institution to include these in the library.

At institutions like Lake Michigan College where one library or learning center serves the campus, consideration should be given to incorporating facilities such as individual and group study areas, a café, and a learning commons with computers.

The following calculations assume that the library will continue to operate as typical traditional college library. If major operational changes are planned in the near future then a more detailed analysis should be undertaken. The Library currently has about 89,500 current volumes and is expected to add about 6,000 titles over the next 5 years. Additionally the Library just learned that a substantial donation of between 3,000 and 5,000 books is being made to the library in the next 30 days. This brings the estimated future collection to about 102,700 volumes.

The following table calculates the amount of space by type based on the growth in volumes and the various enrollment assumptions increase in students. The 65 computer stations include the computers being moved to the library as a result of the closing of the open computer lab in B 303. Also the Library estimates that 15% of its space is set aside for art exhibition space.

Table 18: NAC Library Space Needs

Space Type	1500 FTE	1,600 FTE	1,700 FTE	1,800 FTE
Stacks	10,270	10,270	10,270	10,270
Casual Seats	600	640	680	720
Standard /seats	2,325	2,475	2,625	2,775
Carrels	1,000	1,075	1,150	1,225
Reserved/Group	840	900	960	990
Process/workroom/circulation	2,432	2,450	2,520	2,550
Computers	2,275	2,310	2,485	2,660
Offices	600	600	600	600
Exhibition Space (est)	3,400	3,400	3,400	3,400
Total Library	23,742	24,120	24,690	25,190
Current Space	23,145	23,145	23,145	23,145

While the calculations show that the Library has about the correct amount of space the distribution may need to be adjusted. The Library indicates that more group study rooms are needed (7 additional rooms) along with at least one more office and additional archive space. However, a growth to 1,800 FTE shows a need for about 1,600 square feet of additional space, primarily in seating, study rooms. The computers in the library calculation are assumed to be part of the total campus IT open computer need. The total IT open computer need is calculated in the “Class Laboratories and Other Instructional Space”

The Appendix contains additional comments by Library staff about space.

Athletic/Physical Education/Recreation

Intercollegiate Athletics is located on the 1st floor D wing and includes gym, seating and storage space totaling 15,387 square feet. Additionally, there are several offices which are included in the office analysis in an earlier section of this report. The Executive Dean of Student Services reports that the current gym size is adequate and the 1,500 seats are never full.

A multi-purpose facility and a Health & Wellness Center are located on the 3rd floor L wing. The Health & Wellness Center is being expanded which will bring the total space for these functions to 6,574 which should be sufficient to meet long term needs.

Space calculations for Athletic / Physical Education /Recreation produce a need of about 26,000 square feet. This compares to the current space of 21,961 a shortfall of about 4,000 square feet.

Assembly / Exhibition

All of the 45,064 square feet of assembly space for the campus is located in the Mendel Center. A total of 38,468 square feet is operated by the Mendel Center and is used primarily for community events. The academic programs for Music and Theatre have about 6,500 square feet between them. See the Class Laboratories and Other Instructional Spaces section of this report for a discussion of these programs.

Exhibition space (Upton Hall) is located in the Mendel Center and totals 14,118 square feet. It is operated by Conferences and Events. While this space may be available for use by the academic units, its primary use is for community events.

Although it does not show up in the space inventory as exhibition space, about 15% of the Library (3,400 square feet) is set aside for academic exhibits. Space guidelines for a campus of this size suggest about 3,000 square feet for this function.

Overall the campus has adequate assembly and exhibition space to meet the academic needs for a campus of this size.

Food Service

There are about 2,700 square feet of food service space in the Mendel Center which supports the programs operated by the Center. The Center feels that additional food storage and preparation space

is needed. Of special concern is the remote location of the freezer from the kitchen and preparation area. An addition to the current kitchen could solve that problem.

The following summarizes the square feet of food service need as the campus enrollment increases to 1,800 FTE. The calculation and current space includes the Mendel Center food service space mentioned above.

Table 19: NAC Food Service Space Need

	Current Need	1,500 FTE	1,600 FTE	1,700 FTE	1,800 FTE
Calculated Need	9,176	9,800	10,287	10,749	11,205
Current Space	4,169	4,169	4,169	4,169	4,169

Because there are no restaurants or other food service facilities in the general area of the campus, then quality of campus food service becomes an important student service component. This could even have some impact in increasing the use of instructional facilities in the afternoon. Currently only 1,500 square feet is available in the Student Center. At 1,800 FTE the campus would be short over 7,000 square feet of food service space.

Childcare

The childcare facility is currently located in B wing 1st floor of the Student Center in about 3,740 square feet of interior space. Additionally there is an outdoor play area located adjacent to the interior space. However the play area is located near the lake and the drop off area conflicts with semi deliveries to the building. They are licensed for 60 children. The amount of space is adequate for the number of children.

This facility is a candidate for relocation.

Student Lounge

Student lounge space is at a premium on the campus. Some space in the A wing on the 2nd floor is identified as student lounge but it functions more as a waiting space than lounge space. The other “lounge” space is near the vending machines on the 1st floor. In practice, the Library services as both study area and student lounge space.

The following table summarizes the student lounge space calculated need as the enrollments increase to 1,800 FTE.

Table 20: NAC Student Lounge Space Need

	Current Need	1,500 FTE	1,600 FTE	1,700 FTE	1,800 FTE
Calculated Need	2,715	2,987	3,198	3,399	3,597
Current Space	1,354	1,354	1,354	1,354	1,354

While the inventory shows the campus has 1,354 ASF of lounge space, this is significantly less than needed.

Bookstore

The bookstore is currently located on the 1st floor S wing of the Student Center in 3,892 square feet of space. For a campus of this size that is adequate. The bookstore is operated by Barnes and Noble which has developed a plan for a 6,300 square feet bookstore.

Other Space

Other spaces listed below are assumed to be adequate.

Space Type	Sq Ft
Studio (MCF154) and Related Space (IT)	1,798
Training Facility (S112) (IT)	1,548
Dental Clinic (C wing - 3rd Floor)	1,213
Upward Bound Tutoring Center (C 211)	418
Training Rooms - Mendel Center	3,952
Meeting Rooms-Mendel Ctr 3rd Floor	2,260
Totals	11,189

Treatment

The campus should consider a health care facility to provide emergency treatment for students and staff. Calculations show a facility of about 750 square feet should be adequate.

Support Space

Support space includes central computer facilities, shop, central storage, central services, and hazardous materials storage. Current space in these categories total 23,186 square feet. The calculated need totals 22,500 square feet which is near the current space total.

Since many of these operations are located in the heart of the campus, long range planning should include moving some of these operations to a more remote location.

M-TEC Campus

The M-TEC Campus provides specialized facilities for high skill jobs in the manufacturing, construction and services industries. The new 43,000 gross square feet campus has programs in:

- Drafting & Design Technology
- Electronics/Electrical Technology
- Industrial Maintenance Technology
- Machine Tool Technology
- Home Appliance Technology

A new Energy Production Technology program was recently approved.

While state of the art training facilities for these programs are available at the M-TEC Campus, core college requirement courses such as English and political science are offered at the Napier Avenue, Bertrand Crossing and South Haven campuses.

Instructional/Training Space

The following training facilities are available to support the technologies and programs listed above:

Table 21: M-TEC Instructional/Training Space

Bldg	Room	Current Space	Comment
MT	MT111	1,845	CNC LAB
MT	MT112	3,400	MACHINING LAB
MT	MT115	2,000	WELDING LAB
MT	MT117	438	QUALITY LAB
MT	MT119	1,297	COMPUTER LAB (CAD)
MT	MT122	1,260	CAD LAB
MT	MT127	2,422	HYDRAULICS LAB
MT	MT129	1,377	PLC LAB
MT	MT131	3,284	ELECTRONICS LAB
10 Labs		17,323	
MT	MT120	151	LAB PREP
7 Classrooms		4,662	Classrooms
Total Training Space		22,136	

Classroom and laboratory utilization is normally measured by the number of hours per week scheduled (credit) classes meet in each room and how many stations are occupied during each scheduled hour. Because several courses are offered as “open entry / open exit” and 40% of the Community and Business Service program is offered on the M-TEC campus in less structured classes, traditional utilization measures are less meaningful.

For example, for the Fall 2007 Semester, M-TEC generated 332 credit hours of instruction and 869 CEU credit hours in non-credit courses. Therefore standard utilization measures would miss the majority of the facility utilization. Since much of the non-credit instruction is irregular a much more comprehensive study, well beyond the scope of this project, would be required to provide an accurate utilization picture. While no firm utilization data are available, the general observation is that the utilization of the facilities can be increased.

Because the facility is new, the programs offered require hands on training and all of the current facilities are used by at least one of the programs, no changes to the instructional spaces are recommended at this time.

Other Space

In addition to the instructional spaces listed above the campus has sufficient office and support space.

The table below summarizes all of the campus space by type.

Table 22: M-TEC Current Space by Type

Type of Space	Current Space
Instructional Space	22,136
Offices and Conference Room	4,347
Small Business Resources Center	956
Vending and Student Lounge	981
Meeting Room	1,641
	30,061

While the utilization of the facility could be increased the current amount and mix of space should be adequate to meet the near term needs unless new programs are introduced requiring specific lab spaces that are not currently available on this campus.

South Haven Campus

The South Haven Campus was constructed in 2003 and is the newest of the four Lake Michigan College Campuses. The one building has just under 28,000 square feet of assignable space and is located on 22 acres in South Haven, a small community of about 5,000. South Haven is a tourist community with many properties owned as 2nd homes. The community has embraced the new campus and uses the campus for many community meetings and activities. Western Michigan University is moving from the campus thus freeing up rooms SH 124 and SH 125.

In addition to gathering space data, class file and personnel listings, the consultants made two visits to the campus and interviewed the Dean to develop data for the following analysis.

Classrooms

The table below lists the classrooms and computer labs on the South Haven Campus. Included are the two computer classrooms, SH 140 and SH 143 which are used primarily by English for scheduled classes including remedial instruction.

Excluded from this list are rooms SH 141 and SH 142 which can be divided into rooms but are used most of the time as one large room. While these rooms can be used for scheduled instruction, their primary use is for non-scheduled activities and community meetings, especially community education courses. For this analysis, these two rooms are assumed to be meeting rooms and are excluded from the classroom calculations even though they could occasionally be used for scheduled classes.

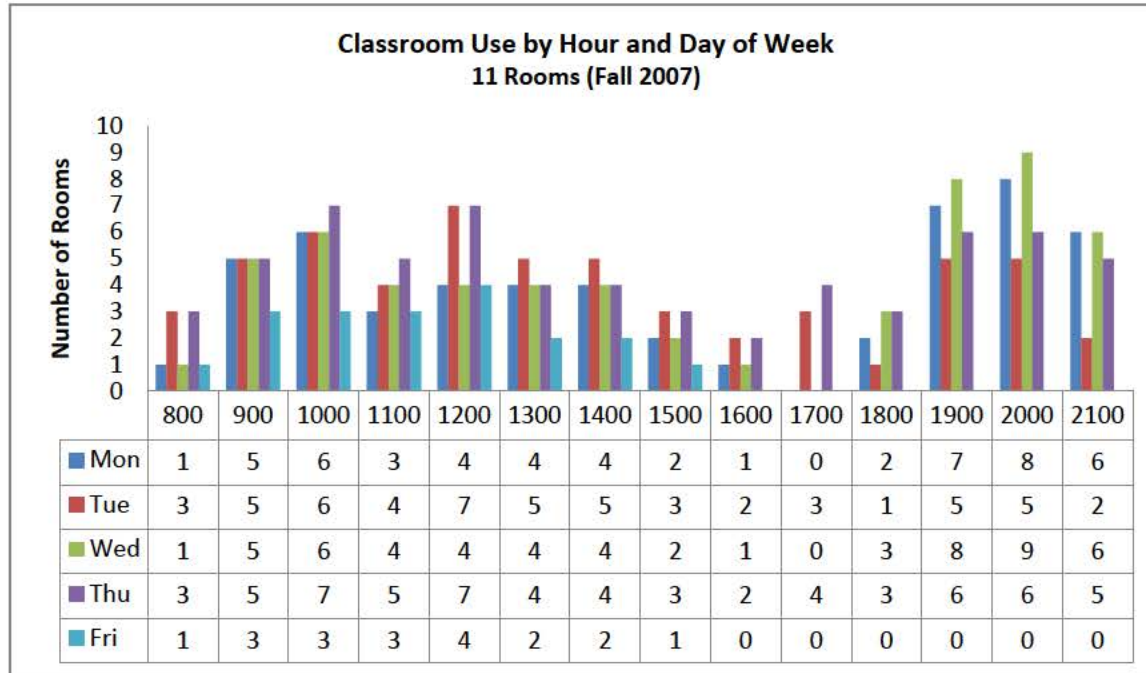
Table 23: SHC Classrooms & Computer Labs

Bldg Num	Room Num	Current Space	Seats	Sq Ft/ Seat	Comments
SH	SH125	805	22	36.6	Former WMU classroom
SH	SH140	886	24	36.9	Computer Classroom
SH	SH143	710	16	44.4	Computer Classroom
SH	SH144	568	18	31.6	
SH	SH145	714	40	17.9	
SH	SH146	731	40	18.3	
SH	SH204	825	30	27.5	
SH	SH217	713	25	28.5	
SH	SH219	712	21	33.9	
SH	SH220	561	20	28.1	
SH	SH221	714	25	28.6	
SH	SH222	732	21	34.9	
	12 Rooms	8,671	302	28.7	

While SH 125 was not used in Fall 2007, the other 11 classrooms were used an average of 21 hours per week throughout the day 8 am to 9 pm Monday through Thursday and 8 am to early afternoon on Friday. Daytime usage was 12.7 hours while evening use was 8.3 hours.

The following chart shows the intensity of use of the 11 classrooms for Fall 2007 during the day and throughout the week. The chart shows the heaviest use in the evening with the peak on Wednesday evening. Day time shows moderate to low classroom usage.

Table 24: SHC Classroom Use - Time by Day



While most space planning guidelines suggest that community college classrooms be used at least 30 hours or more per week on average, because of the low population of the campus service area it is unlikely the campus could achieve this level of utilization in the near term. An average of 25 hours per week is suggested as a more reasonable planning utilization goal for the campus.

Campus Capacity

Since the campus is relatively new it does not seem appropriate to discuss a “surplus” of classroom space but rather determine the number of FTE students the current classroom supply could support. Calculations show that the campus could grow about 20% to about 340 FTE students using a classroom utilization goal of 25 hours per week. This compares to the Fall 2007 FTE of about 285 FTE.

Classroom Size

The Dean expressed interest in adding some larger classrooms so that section sizes could be increased. Although a complete analysis of classroom space was not a scope of this study, a review of floor plans and a brief inspection of classrooms during the campus visits suggests well proportioned rooms with good sight lines. Combining rooms might have a negative impact on sight lines as well as overall room quality. Also a review of sections sizes from the fall 2007 class file show only one course with greater than 25 students. If larger rooms are needed on occasion then SH 145 and 146 or SH 221 and 222 could be operated as single rooms as needed.

Specialized Instructional Space

The campus has several specialized instructional spaces as discussed below.

Art – Room SH 215 is an 889 square feet drawing room with 20 stations. The room is only scheduled for about 7 hours for Fall 2008. It is assumed that the campus will continue to offering drawing courses, therefore the facility is required but could be better utilized.

Biology – Room SH 209 is a 776 square feet biology lab with 18 stations. This facility is well utilized (23 hours per week) with both Biology lab and lecture courses. The average station size of 43 is below the normal 55 to 60 square feet recommended for biology labs.

Chemistry - Room SH 205 is an 845 square feet chemistry lab with 24 stations. The lab is only scheduled for about 7 hours for Fall 2008. It is assumed that the campus will continue to offering chemistry courses, therefore the facility is required but could be better utilized.

Distance Learning – SH 203 is an 843 square feet, 25 station, interactive classroom. Utilization of this room could be increased since it is only scheduled about 10 hours per week.

Open Computer Lab – SH 216 which was the Graphic Design Studio last year will become an open computer lab. It is 892 square feet with 22 stations and should provide sufficient open computer stations for this size campus.

Possible New Programs

The campus is considering the following new programs:

- Small Business Center
- Glass Technology (off-campus)
- Spanish
- Nuclear Power Technology
- Horticulture (may require a greenhouse).

It is assumed that the Small Business Center program, Spanish, the non-lab part of the Nuclear Power Technology program and the non-lab part of Horticulture instruction can be accommodated in the current classrooms and computer labs. It is assumed that the Glass Technology program as well as any lab needs for the Nuclear Power Technology program will occur off campus. As noted above Horticulture may require a greenhouse on campus.

Conclusion: While the instructional spaces are underutilized according to most space planning guidelines, no changes are recommended to these spaces. Although the Dean does not expect the campus enrollment to grow significantly in the near term, there is the untapped market to the north that could impact the campus growth in the future. Based on achievable utilization assumptions the campus could grow by 20% within the current instructional spaces and could absorb the classroom instruction for the new programs under consideration. Even with this growth there would be room for expanded community services.

Offices

The campus has nearly 3,600 square feet of office spaces. This includes 842 square feet of space leased to Michigan Works and 228 square feet of office that will be released when Western Michigan University moves from the campus.

Table 25: SHC Office Space

Bldg Num	Room Num	Current Space	Comments
SH	SH123	842	Leased to Michigan Works
SH	SH127	228	Former Western Michigan Office
SH	SH128	178	Facility Office
SH	SH129	155	Commons Room
SH	SH151	2,189	Main Office
Totals		3,592	

While the campus does not have a large number of full time staff they do need to provide space for visiting faculty and adjuncts. Most of the staff are housed in 2,189 square feet (SAH 151) which is very efficiently used. Space for adjuncts and visiting faculty is tight as is the space for student services.

The addition of the Western Michigan University office space should alleviate some or all of this problem. Also as noted below, if the bookstore storage issue can be solved, then the space (SH 126) now used for bookstore storage could revert to an office.

Amenity Spaces

The campus has a large commons area, a bookstore, a holding kitchen and childcare facility, totaling 5,839 square feet, as summarized in the following table.

Table 26: SHC Current Amenity Space

Space Type	Sq Ft
Commons	2,586
Bookstore excludes storage	800
Holding Kitchen	425
Childcare	2,028
Totals	5,839

While this space in the aggregate is sufficient to meet the amenity space needs for the campus, the campus should consider adding some recreation space and student study / library space to the mix. To make room for these functions the childcare facility should be reviewed and either down-sized or moved from campus. The current childcare facility is very generous for a campus of this size.

The following table summarizes the recommended mix of amenity spaces for the campus assuming a downsizing of the childcare facility. If the childcare operation is moved from the campus then the study space library should be increased accordingly.

Table 27: SHC Recommended Amenity Space Mix

Recommended Space	Sq Ft
Study Space / library	1,375
Recreation	600
Food Service (includes existing kitchen)	500
Student Lounge / commons	1,314
Bookstore	1,000
Childcare	1,050
Totals	5,839

The bookstore occupies space in the “commons” area. It is secured every evening by a movable gate which is stored in SH 126 during the day. If the bookstore can be located in secure space along with sufficient storage then SH 126 could revert to an office and help some of the office crowding.

Meeting Rooms

Rooms SH 141 and 142 are currently classified as classrooms but they are heavily used for community education programs. It is recommended that they be reclassified as meeting rooms in the campus space inventory. According to the Dean, with certain furniture configurations the space is crowded. Perhaps some minor remodeling is in order.

Support Space

The campus has about 3,300 square feet of support (physical plant) space which is sufficient for a campus of this size. However, the campus has limited storage. A building is planned for equipment storage which would allow the exiting garage to be used for storage.

Space Summary

The table below summarizes the recommended space by space type compared to the current space.

Table 28: SHC Current vs. Recommended Space

Space Type	Current Space	Recommended Space	Difference
Classrooms	9,514	9,514	0
Instructional Labs	3,709	3,709	0
Offices	3,592	3,802	-210
Study / Library	0	1,375	-1,375
Recreation	0	600	-600
Food Service	425	500	-75
Student Lounge / Commons	2,586	1,314	1,272
Childcare	2,028	1,050	978
Book Store	1,010	1,000	10
Meeting Rooms	1,776	1,776	0
Physical Plant Support	3,313	3,313	0
	27,953	27,953	0

Bertrand Crossing Campus

The Bertrand Crossing campus was constructed in 1998 in an industrial park southwest of Niles, Michigan. The campus has about 22,200 square feet of assignable space in one building. Since the campus was opened, Southwestern Community College and Ivy Tech Community College have expanded their facilities and programs, intensifying the competition within the higher education market.

Instructional Facilities

The campus has about 17,800 square feet of instructional space to serve the approximately 170 FTE students. The table below lists the instructional facilities on the Bertrand Campus.

Table 29: BCC Instructional Facilities

Space Type	Number	ASF
General Purpose Classrooms	5	4,048
Computer Classrooms	2	1,550
Interactive Classroom	1	728
CIS Classroom	1	857
Drafting / CNC Lab	1	969
Metalworking/Plastics/Fabrication Labs	2	5,944
Biology Lab	1	857
Chemistry Lab	1	802
Dental Assisting Lab	1	1,219
Service Space		800
Total	15	17,774

While this study is not a classroom and laboratory utilization study, basic room hour utilization data is helpful in understanding classroom and lab need. Both the Fall 2007 class data as well as the Fall 2008 class schedule lists several courses without meeting times and meetings days. To get a more complete picture of the utilization, reasonable estimates of room hours and locations were made and added to the known existing utilization data.

For Fall 2007 the 5 general purpose classrooms and 2 computer classrooms were scheduled about 20 hours per week with credit instruction. The CIS classroom, Biology Lab, Dental Assisting Lab and interactive classroom were also used reasonable well.

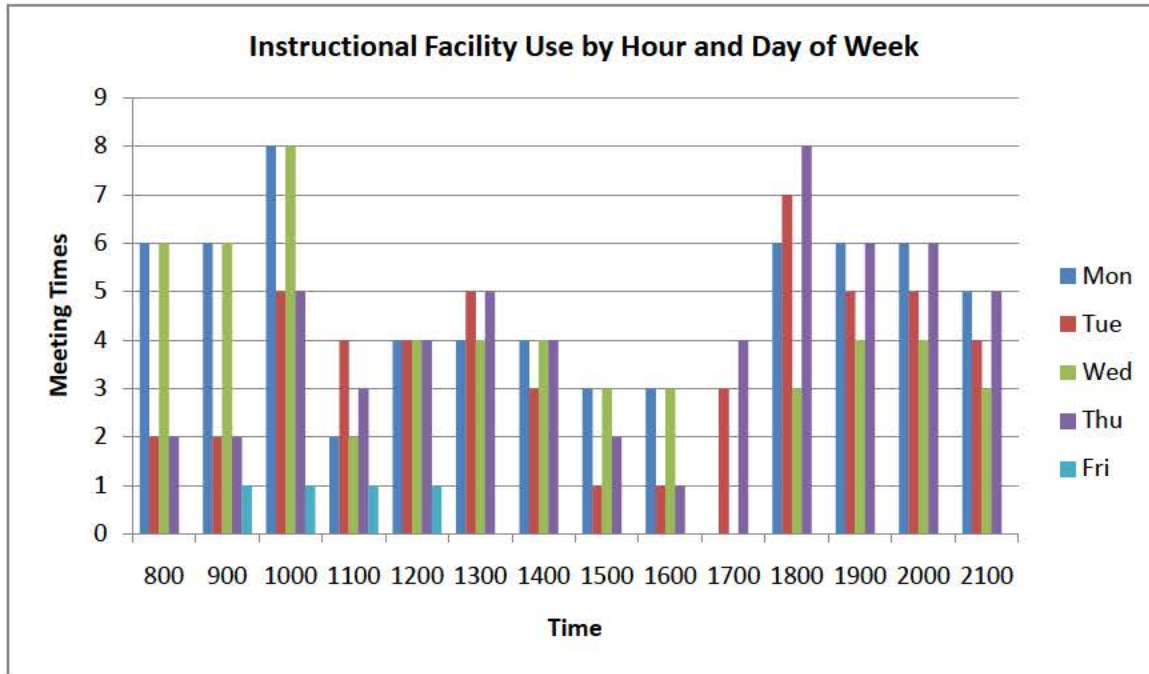
The Drafting / CNC Lab and Metalworking/Plastics/Fabrication Labs as well as the Chemistry Lab were less well used with credit instruction.

It was noted that 109A and B did not have any scheduled credit courses for either Fall 2007 or 2008.

Several courses that would normally be expected to meet in general purpose classrooms were scheduled in rooms such as the Dental Assisting Lab or the Biology lab. It is assumed that this happened because they are offered at a time when general purpose classrooms are heavily used.

The following chart shows the intensity of use of the instructional facilities throughout the day and the week. The chart shows peak use in the morning and again in the evening.

Table 30: BCC Instructional Facilities - Time by Day



Comments and Observations:

Overall the classrooms are used less than 20 hours per week. While most space planning guidelines suggest that community college classrooms be used at least 30 hours or more per week on average, because of the relatively low population of the campus service area and the increased completion from Southwestern Community College and Ivy Tech it is unlikely the campus could achieve this level of utilization in the near term. An average of 25 hours per week is suggested as a more reasonable planning utilization goal for the campus.

Calculations show that the campus could grow 20% to 30% or more using a classroom utilization goal of about 25 hours per week. The FTE enrollment for Fall 2007 was about 170 FTE students.

The campus has indicated that additional general education classrooms are needed. Utilization calculations do not show that need. However, as the above chart shows the morning and evening peaks show that instructional facilities could be tight at certain times. Because time of offering may be important to maintaining and attracting students and the campus has sufficient space, converting 106A and 108 to general purpose classrooms may be appropriate. These rooms are classified as labs in the current inventory but are not heavily scheduled, so remodeling them to be general purpose classrooms may make them more usable.

When the campus was constructed an even split in enrollment between manufacturing and plastics was assumed. The campus also developed facilities for a two year degree program in plastics. The enrollment assumptions and the plastics degree program did not materialize. This leaves room 106 the

Metalworking / Plastics Lab very underutilized. This room becomes an opportunity to address some of the other campus amenity needs as outlined in a following section.

Offices

The campus has 2,867 square feet of office space:

- 1,348 square feet of administrative office space (room 101)
- 993 square feet of faculty office space adjacent to the plastics lab
- 2 offices carved from room 102
- 2 offices near Dental Assisting.

The campus has 6 FTE staff including physical plant staff. Additionally there is a need to provide space for visiting faculty and adjuncts. While overall the campus has sufficient office space to meet their long term need, the Office (101) is in need of some maintenance and the faculty office area needs a ceiling. Since the campus relies on visiting and adjunct faculty for most of the instruction, the 993 square feet of faculty office space seems very generous. This space might be reduced to provide some of the amenity space out lined in the next section.

Amenity Space

Currently the campus has 655 square feet of space (room 100) that could become student lounge space. Room 108A currently serves as recreation space (724 square feet). Snack and beverage vending machines are available in the student commons located along the main corridor

The following table summarizes the recommended mix of amenity spaces for the campus. The amount of space for each category listed in the table is an approximate guide for a campus of this size but can be adjusted to fit available space if needed.

Table 31: BCC Amenity Space

Space Type	Current Space	Recommended Space	Difference
Study/Library	0	875	-875
Recreation	725	500	225
Food Service	235	300	-65
Meeting Room	0	1,500	-1,500
Student Lounge/Commons	655	500	155
	1,615	3,675	-2,060

Childcare and Bookstore space is not included in these recommendations but could be added if there is community support. Also the campus expressed an interest in locating a “min-conference center” on the campus. Insufficient data is currently available to determine the square feet for such a facility.

Space Summary

Since the campus is generally underutilized, adding to the building to address the amenity space needs is probably not a viable option. The obvious area of opportunity is to capture space from the

Metalworking/Plastics lab (room 106). In the summary table below, the Metalworking/Plastics lab is reduced from about 5,000 square feet to about 3,200 square feet. A reduction of about 270 in faculty office space is also assumed.

The following table summarizes the recommended space need by type compared to current space.

Table 32: BCC Space Summary

Space Type	Current Space	Recommended Space	Difference
Classrooms	6,326	7321	-995
Labs	11,448	8,659	2,789
Offices	2,867	2,600	267
Study/Library	0	875	-875
Recreation	724	500	224
Food Service	235	300	-65
Student Lounge/Commons	655	500	155
Meeting Room	0	1500	-1,500
	22,255	22,255	0

Lake Michigan College

Space Needs Assessment Report Addendum

Classroom Utilization Update

The classroom section in the Space Assessment Report was based on the Fall 2008 master schedule of classes. Since student enrollments were not available, station occupancy percentages were not calculated and the capacity size ranges were not analyzed. The Fall 2008 class file has now been received and this addendum updates utilization data and provides a capacity size range analysis.

Data Adjustments

A preliminary review of the Fall 2008 class file raised a few questions that were resolved in a conversation with Roberta Wagner, Coordinator Career Education who prepares the master schedule of classes.

- The original analysis showed heavy usage of room B 209 for Reading and other remedial courses. The class file showed no scheduled usages for this room. However, it is still heavily used but as an “open” classroom type facility with no scheduled classes; hence it is excluded from this classroom utilization analysis.
- The Planetarium (D 116) has no scheduled usage (credit courses) for Fall 2008 and is also excluded from this analysis.
- The class file reports enrollment for Nursing clinical courses (NURS 180, 280, 281 and 282) which results in enrollment well beyond the capacity of the classrooms. Since these courses are taught in 3 five week blocks for the term, the total enrollments in these courses were divided by 3 for this analysis to reflect the way the classrooms are really used. This brings the section enrollments in line with the classroom capacities.
- It was also noted that the various sections of Physical Education (PHED) 212 were listed several times in the class file. This was driving the section sizes in several rooms well above the room capacity. When these duplicates were removed the section sizes were in line with the room capacities.

Fall 2008 Utilization Summary

Classroom Supply

The campus currently has 31 classrooms plus 2 lecture halls available for Fall 2008. Several classrooms have been converted to other uses over the past year, including major remodeling of several rooms for the Medical Imaging Career Center. Twenty-two rooms are equipped with tables and chairs, 9 have tablet arm chairs and 2 have a combination of table and chairs and computer stations. All classrooms have multi-media equipment. The College would like to convert all classrooms to tables and chairs in the future.

For this utilization analysis room B 209 and D 116 have been excluded from the classroom supply since they have no scheduled credit sections. The classroom supply for this analysis is as follows:

Table 1: NAC Classroom Space Summary

	Number	ASF	Seats	Avg. Seat Size	Avg. CR Size	Avg. Seats per Room
Classrooms	29	19,628	849	23.1	676.8	29.3
Lecture Halls	2	2,761	354	7.8	1,380.5	177.0
Teleconference	1	773	30	25.8	773.0	30.0
Total	32	23,162	1,233	18.8	723.8	38.5

Utilization Summary

The following tables present summary utilization for the 29 classrooms, 2 lecture halls and the teleconference room for three time periods as described with each table. , Utilization measures include:

- Weekly Room Hour utilization (WRH) is the total number of hours per week the rooms are used for scheduled credit instruction. The WRH includes the class change times. Excluded from these totals are the 39 hours per week set aside for Sienna.
- The Average Weekly Room Hour utilization is the average number of hours each classroom is used each week. The percentage WRH is based on the *available hours* for the time period.
- The Station Occupancy is the percent of seats occupied when the room is in use and uses the final section enrollment as reported in the class file divided by the “official” number of seats in the room.
- The number of sections counts cross listed courses as one section.
- The average section size divides the total final section enrollments by the number of sections.
- The Daytime Utilization and the Evening Utilization are sub sets of the All Day Utilization. Since some classes span the dividing time (5 pm in this case) some sections are included in both sub set and hence may not total to the All Day Utilization.

The following table presents the All Day Utilization – 8 am to 9 pm Monday through Thursday and 8 am to 4 pm on Friday – a total of 60 available hours.

Table 2: NAC All Day Utilization

	Number	ASF	Seats	WRH	Average WRH	% WRH	Station Occupancy	Total Sections	Average Section Size
Classrooms	29	19,628	849	698.6	24.1	40.2%	63.9%	205	18.4
Lecture Halls	2	2,761	354	27.5	13.7	22.8%	15.6%	13	27.2
Teleconference	1	773	30	13.4	13.4	22.3%	42.5%	4	12.8
Total	32	23,162	1,233	739.5	23.1	38.5%	49.2%	222	18.8

The following table presents the Daytime Utilization – 8 am to 5 pm Monday through Friday – a total of 45 available hours.

Table 3: NAC Daytime Utilization

	Number	ASF	Seats	WRH	Average WRH	% WRH	Station Occupancy	Total Sections	Average Section Size
Classrooms	29	19,628	849	464.8	16.0	35.6%	69.2%	146	19.0
Lecture Halls	2	2,761	354	19.4	9.7	21.6%	17.9%	10	30.7
Teleconference	1	773	30	10.0	10.0	22.2%	44.4%	4	10.0
Total	32	23,162	1,233	494.2	15.4	34.3%	53.0%	160	19.5

The following table presents the Evening Utilization – 5 pm to 9 pm Monday through Thursday – a total of 20 available hours.

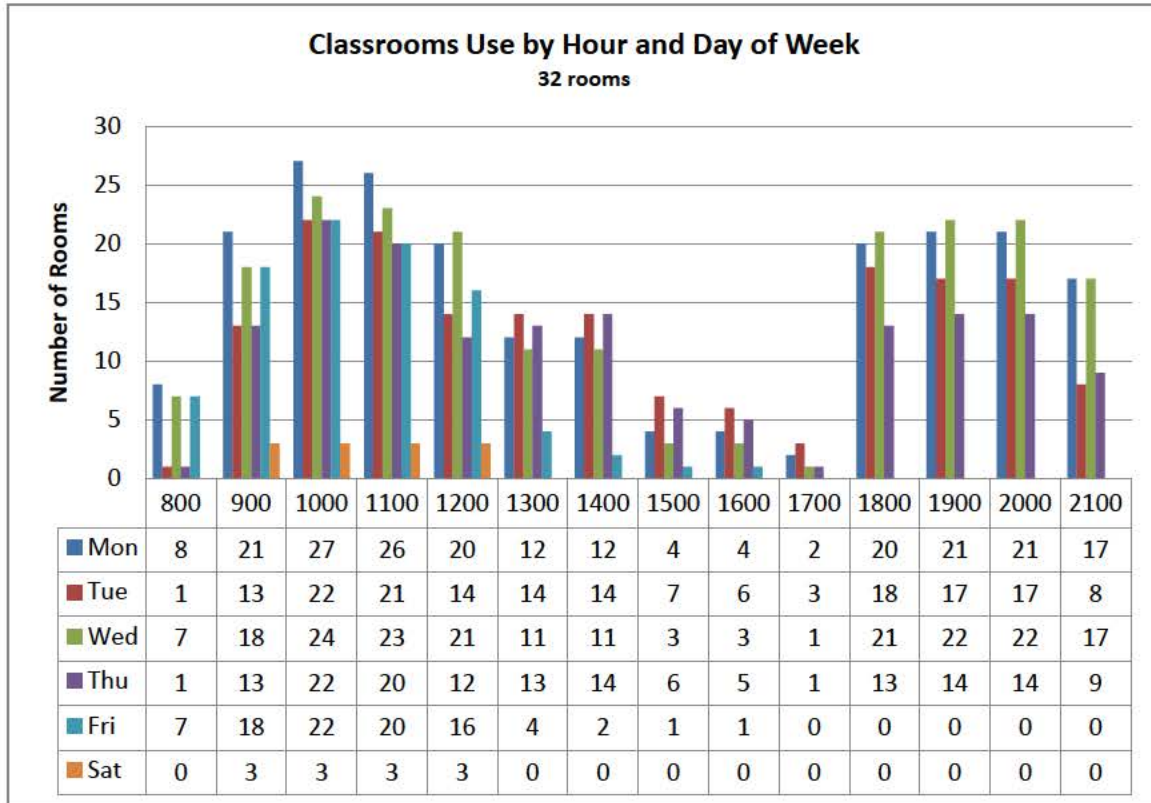
Table 4: NAC Evening Utilization

	Number	ASF	Seats	WRH	Average WRH	% WRH	Station Occupancy	Total Sections	Average Section Size
Classrooms	29	19,628	849	233.9	8.1	40.3%	54.5%	91	11.6
Lecture Halls	2	2,761	354	8.0	4.0	20.0%	10.2%	5	9.2
Teleconference	1	773	30	3.4	3.4	17.0%	37.0%	1	11.0
Total	32	23,162	1,233	245.3	7.7	38.3%	41.4%	97	11.5

- The All Day utilization is just over 23 hours per week which is less than 40% of the available hours. Most space planning guidelines suggest that community college classrooms should be used at least 30 or more hours per week on average.
- If the 39 hours set aside for Sienna are included then the utilization increases to more than 24 hours per week.
- Evening classroom usage is around 8 hours which is just over 41% of the 20 available hours while the rooms are only used about 15 hours during the day.
- The classroom Station Occupancy is about 64% which approaches 70% for the day time period. Most classrooms utilization lines suggest that station occupancy should be at least 67%.
- The lecture halls Station Occupancy is only 15.6%. Most sections in these rooms have fewer than 35 students and could be scheduled in the other classrooms.
- The average section size is 19 for the classrooms which compares to the average classroom size of 29.3 seats.

The following chart shows the intensity use of the 32 classrooms throughout the day and the week and illustrates the limited usage between 1 pm and 6 pm. Peak usage occurs at 10 and 11 am on Monday.

Table 5: NAC Classroom Use - Time by Day



Size Range Analysis

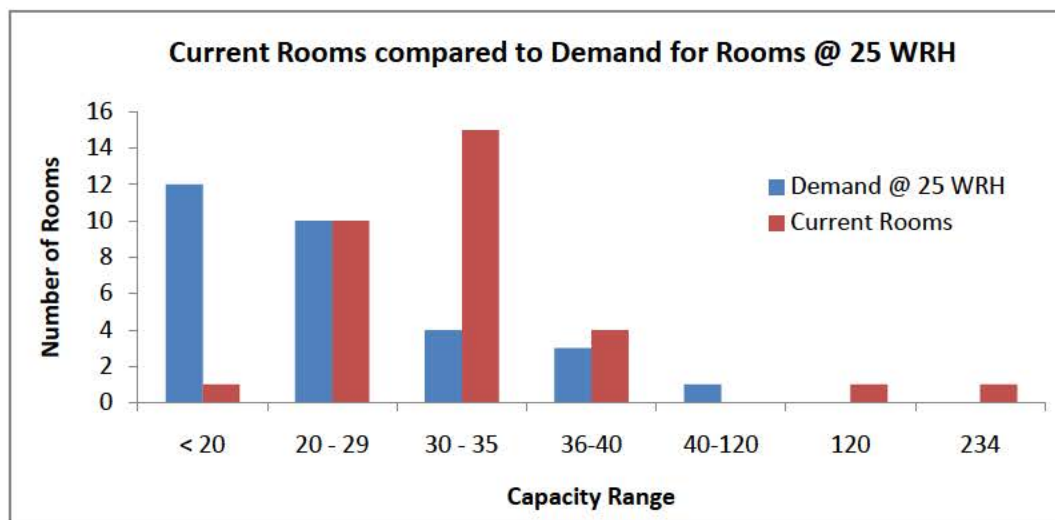
The following analysis compares section size ranges to classroom capacity size ranges to test the “fit” of the classroom supply to the section sizes. This analysis is for the class sections scheduled in the 32 rooms in this study and uses enrollment data from the Fall 2008 class file.

The following chart displays the number of class sections and the number of Weekly Room Hours generated for the 7 capacity ranges listed. The column – Demand @ 25 WRH – calculates the number of classrooms that would be required to meet the schedule demand (WRH) if the rooms were scheduled an average of 25 hours per week. The 25 hour demand was chosen because that is just above the current classroom utilization. The Current Rooms column is the current classroom supply grouped by capacity (seats) range.

Table 6: NAC Section Size vs. Classroom Size

Capacity Range	Sections	WRH	Demand @ 25 WRH	Current Rooms
< 20	96	311.9	12	1
20 - 29	74	247.1	10	10
30 - 35	26	91.1	4	15
36-40	25	78.3	3	4
40-120	4	11.6	1	0
120	0	0.0	0	1
234	0	0.0	0	1
	225	740.0	30	32

This chart provides a graphical comparison of the classroom supply to the schedule demand by size range.



This chart shows that most of the demand is generated in section sizes less than 20 while most of the supply is in classrooms of 30 to 35 seat capacity. Therefore the current mix of classrooms is sufficient to meet the current scheduling patterns.

Calculated Classroom Need

Most space planning guidelines suggest that community college classrooms should be used at least 30 or more hours per week on average. Increasing the utilization to this level would more than likely require more intense usage in the afternoons. At 30 hours of use per week with a station occupancy of 67% and an average station size of 22 square feet, 23,806 square feet of classroom space would be required to for an enrollment of 1,800 FTE.

This compares to the current supply of 25,470 square feet. Even thou the supply used in the utilization analysis excluded B 209 and D 116, they are included in the overall classroom ASF (along with the classrooms service space) since they are still classified as classrooms.

In developing a long range plan, the campus will need to decide whether space efficiency is more important than the scheduling flexibility a “surplus” of classroom space provides.

The following table summarizes the classroom space need for the various enrollment increments.

Table 7: NAC Calculated Classroom Space Need

FTE	Current Space	1,500 FTE	1,600 FTE	1,700 FTE	1,800 FTE
Classrooms	25,470	19,981	21,248	22,532	23,806

Possible Space Opportunities.

The Brown Lecture Hall (D 112) and the Blue Lecture Hall (D 105) are only used a combined 27.3 hours per week. However, most of the classes are small enough so that the total need could easily be meet in only on lecture hall, hence the Brown Lecture Hall could be a candidate for other uses. However, a thorough study of alternative uses and costs associated with converting a tiered lecture hall would need to be undertaken before a final decision could be made.

Likewise the Planetarium (D 116) was not scheduled for credit instruction for Fall 2008 could also be a candidate for other uses.

Lake Michigan College

Space Needs Assessment Follow-Up

This is a follow up report to the Space Needs Assessment study completed in November 2008 and the Addendum report which provided a more detailed look at the classroom utilization for Fall 2008. This study provides a more comprehensive examination of classroom use for non-credit activities and other supporting functions in addition to the credit instruction delivered by the College. Specifically, in addition to the credit instruction, the college provides instructional space for Siena Heights classes, Upward Bound programs, community education classes, US Coast Guard instruction, professional development, testing such as ACT and CAAP as well as meeting space for various student clubs and activities. This analysis uses the 2009 Winter Semester data and integrates the regularly scheduled credit hours from the class file with all other activities scheduled into the classrooms over the Winter 2009 semester .

Summary of Findings

- The 29 classrooms were used 24.2 hours per week on average for credit LMC instruction during the Winter 2009 semester. This compares to an average use of 24.1 hours per week for Fall 2008. This usage is for the time period 8 am to 9 pm Monday through Thursday and 8 am to 3 pm on Fridays (59 available hours).
- Siena Height classes and the documented “non-credit” activity in classrooms add about 2.7 hours per week per classroom for a typical week during Winter term bringing the total average usage to 26.9 hours per week.
- The two lecture halls were only used 10.7 hours per during Winter 2009 which is down from 13.7 hours for the Fall 2008 term for credit LMC instruction.
- The documented “non-credit” activity in the 2 lecture halls adds about 12.5 hours per week per room for a typical week during Winter term bringing the total average usage for the lecture halls to 23.2 hours per week.
- Unless class sizes increase significantly, the College should have sufficient lecture space for any reasonable growth.
- Many classroom utilization guidelines suggest 30 hours per week as a reasonable utilization goal for credit instruction. Based on the 59 hour week as defined above, there would be nearly as many classroom hours available for other non-credit instruction (29 hours) as there is for credit instruction (930 hours).
- While the utilization data for the entire day does not reveal a classroom scheduling problem, an examination by time period highlights some potential “pinch” points. The 8 am to noon time period shows some unused capacity but this capacity is at the 8 am times. In fact from 9 am to noon classrooms are used nearly 65% of the available hours with several hours in this time period using nearly every classroom.

- Likewise when Siena Heights and the other non-credit activity is added to the credit mix, the use of the classrooms between 6 pm and 9 pm Monday through Thursday shows that they are used more than 65% of the available hours.
- However, the situation between noon and 6 pm is entirely different. For this six hour time period (27 available hours, excluding Friday after 3 pm), the classrooms were only used 3 hours per week on average (11% of the available hours) for credit instruction. Other activity added 7.5 hours per week bring total usage to only 10.5 hours per week or 39% of the available hours.
- In short, the college is approaching a practical limit on classroom space in the morning and evening but has significant classroom resource available from noon to 6 pm.
- If the College maintains the current distribution of classes throughout the day, then the current classroom supply will only support about 12 to 15% more enrollments. This assumes that the utilization can increase by 1.5 hours to 25.7 hours per week and the average section size will increase from about 16.7 to 18 students.
- On the other hand, if more classes can be scheduled in the afternoon time periods so that the total hours used for credit instruction increase by 6 hours per room per week to 30.2 hours, then the classrooms can support an enrollment increase of 32 to 34% assuming the average section size will increase from about 16.7 to 18 students.
- Also of note, the large number of scheduling patterns and the class time per credit hour have a negative impact on utilization rates.

Supporting Detail

Winter 2009 Utilization Summary – Credit Instruction

The Winter Term classroom supply is unchanged from the Fall 2008 supply. There are 29 classrooms and 2 Lecture Halls. In addition there is a teleconference facility which is excluded from this analysis.

	Number	Square Feet	Seats	Avg. Seat Size	Avg. CR Size	Avg. Seats per Room
Classrooms	29	19,628	849	23.1	676.8	29.3
Lecture Halls	2	2,761	354	7.8	1,380.5	177.0
Total	31	22,389	1203	18.6	722.2	38.8

Definition of Terms

- Weekly Room Hour utilization (WRH) is the total number of hours per week the rooms are used for scheduled credit instruction. The WRH includes the class change times. Excluded from these totals are the periods set aside for Sienna Heights.
- The Average Weekly Room Hour utilization is the average number of hours each classroom is used each week. The percentage WRH is based on the *available hours* for the time period.
- The Station Occupancy is the percent of seats occupied when the room is in use and uses the final section enrollment as reported in the class file divided by the “official” number of seats in the room.
- The number of sections counts cross-listed courses as one section.
- The average section size divides the total final section enrollments by the number of sections.
- The term “Non-Credit Activity” is used in this report to refer to any activity in an instructional space that is not part of the regular degree course offerings taught by LMC faculty and listed in the master class schedule.

Classroom Utilization – Winter 2009 – All Day

The following table summarizes the classroom utilization for Winter Semester 2009 for LMC credit instruction for the time period: Monday through Thursday, 8 am to 9 pm and Friday 8 am to 3 pm (59 available hours).

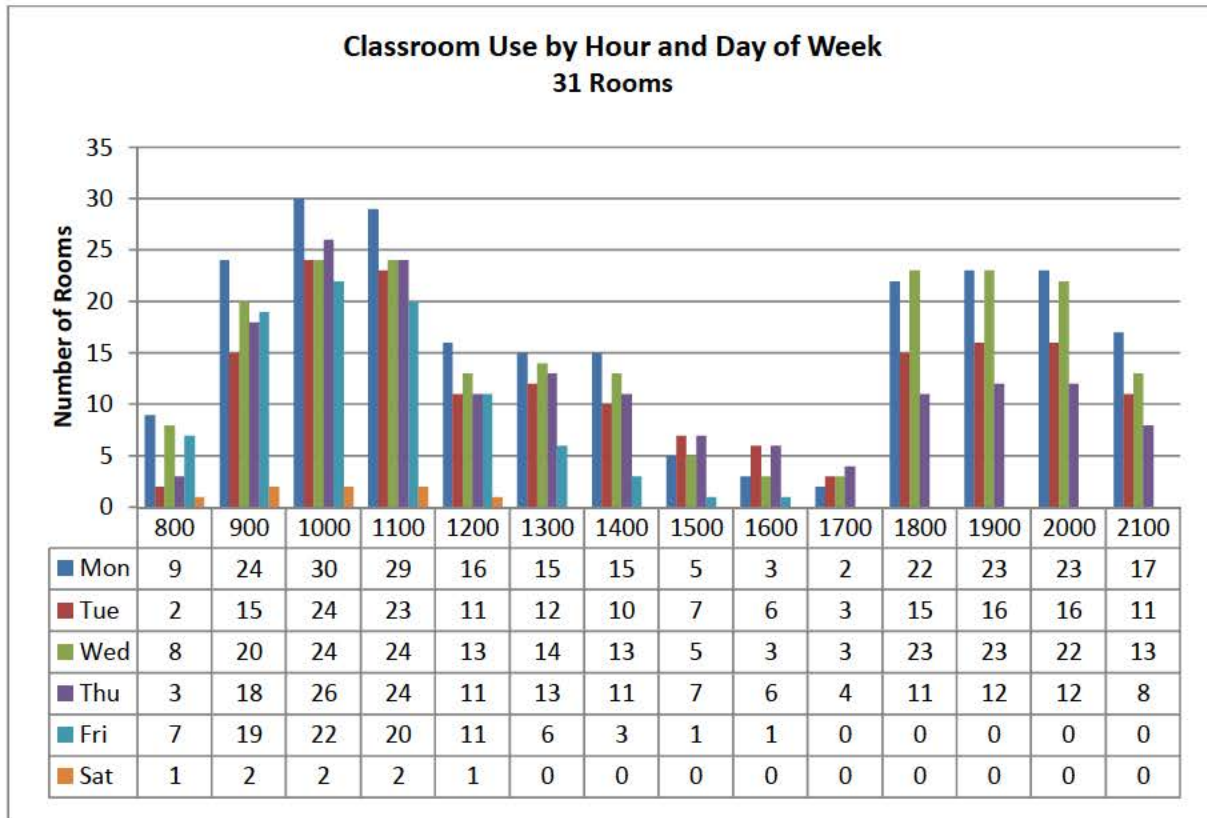
	Number	Available Hours	WRH	Average WRH	% WRH	Station Occupancy	Total Sections	Average Section Size
Classrooms	29	59	702.2	24.2	41.04%	60.90%	205	16.7
Lecture Halls	2	59	21.3	10.7	18.05%	18.90%	7	36.3
Total	31	59	723.5	23.3	39.56%	46.70%	212	17.4

- The 29 classrooms were used on average 24.2 hours per week for regularly scheduled classes. This is about the same as the 24.1 hours these rooms were scheduled during the Fall 2008 term.
- Overall the classrooms and lecture hall were used 23.3 hours per week, which is just under 40% of the available hours.
- Station Occupancy for the classrooms was just under 61%.

- The lecture halls were only used 10.7 hours per week for credit instruction during the Winter 2009 Semester. This compares to a use of 13.7 hours per week for Fall 2008.
- Space planning guidelines suggest that community colleges should use their classrooms at least 30 hours per week or more on average for credit instruction, with a Station Occupancy of 65 to 70%.

Time by Day

The following chart shows the number of classrooms scheduled each hour of the day throughout the week. Note: nearly all rooms are used between 10 am and noon on Mondays. No more than half of the rooms are used between noon and 6 pm.



Scheduling Patterns

The large number of different scheduling patterns at LMC has an impact on utilization and can present some scheduling difficulty. A scheduling pattern consists of the class start time, end time and days of the week. As an example classes that start at 9:10 and end at 10:10 on Monday and Wednesday would be one schedule pattern.

There are 107 different scheduling patterns for the 205 sections in general purpose classrooms. The following table shows the top ten scheduling patterns. There are 78 scheduling patterns that consist of only one section. While this may not present a scheduling problem at this time, as number of sections increase, fitting new sections into available rooms is likely to become more difficult.

Number of Sections	Beg Time	End Time	M	T	W	R	F
13	1800	2115	M				
12	1800	2115			W		
11	1800	2115		T			
9	1020	1120	M		W		F
8	1020	1150		T		R	
7	830	1000		T		R	
6	1130	1230	M		W		F
6	1240	1410		T		R	
5	910	1010	M		W		F
5	1800	2115				R	

Class Time per Credit Hour.

Another issue that impacts utilization is the number of minutes in classrooms per credit hour. At LMC, 60 minutes of classroom time is required for each credit hour (labs and other class activities increase the number of contact hours per credit hour for a number of course). At many college and universities, 50 minutes is the standard number of minutes per credit hour. While this is an academic decision, it has space implications, a 50 minute period makes available an additional period per day. While classroom space is not currently a problem at LMC, as enrollments and number of sections increase and classroom space becomes more scarce, class time per credit hour may be an option for future discussion.

Non-Credit Activity in Classrooms

In addition to the scheduled credit instruction detailed above, the classrooms are used for a variety of other functions. The following sections examine the impact of these activities on the overall classroom use. The term “Non-Credit Activity” is used in this report to refer to any activity in an instructional space that is not part of the regular degree course offerings taught by LMC faculty and listed in the master class schedule.

Siena Heights University: In Winter 2009 Siena Heights offered 15 undergraduate sections and 2 graduate sections. Long term they expect to add 3 or 4 sections. Sections are offered from 6 to 9 pm Monday through Thursday and on Saturdays using various classrooms.

Upward Bound: Upward Bound is primarily a pre-college program and provides services to prepare high school students for college. Typical programs include: Saturday college prep sessions; orientation; ACT workshops; financial aid workshops; scholarship meetings; Night of the Arts; and LiveWire. In addition, they use three classrooms Monday thru Thursday for 3 hours each week of the semester for Academic Advancement Services.

Professional Development: Professional Development provides services to the College’s faculty and staff. Winter Semester events included: Opening Days; Martin Luther King, Jr. Celebration Week; Diversity Conference; Collegewide Professional Development Day; Supervisory Lunch N/Learn; Emergency Drill and Talk Down; Women’s History Month; Above and Beyond/ Retirement Reception; Child to Work Day and Political Debate. Most of these activities do not

require classroom space. In fact during Winter Semester these activities used 12.5 hours of classroom space including 8.5 hours in the Blue Lecture Hall.

Community Education: Community education is an integral part of the College’s mission to serve the local community. All campuses offer CE courses but South Haven appears to have the most extensive offerings. In fact South Haven experienced an 8% growth last fall and could use a large community/multi purpose room. On the Napier Avenue campus for Winter Semester, nearly 65 hours of instructional space was provided for CE activities.

Student Life: The College has 19 clubs on campus. Overall, they use classrooms space for meetings several hours each week.

Non-Credit Activity Detail

The following detailed analysis is based on the actual schedule for each room as maintained and provided by Roberta Wagner, Coordinator of Career Education, who prepares the master schedule of classes.

During the Winter Semester 2009 non-credit activity totaled 1,755 hours in classrooms, lecture halls, laboratories, the gym and the multipurpose room (L301). The 1,755 hours is for the full term and includes some activity before and after regularly scheduled classes and Saturday activity. As a comparison the 29 classrooms were used for nearly 11,000 hours for the 15 week semester.

The following table summarizes this activity by type. Meetings are generally activities that meet once during the term while “classes” usually meet for several weeks generally at the same times each week.

Meetings, classes and tutoring account for just under 90% of the non credit activity

Activity by Type	Total Hours for Semester	% of Total Hours
Meetings	499	28.4%
Classes (non credit)	543	30.9%
Community Education	64	3.6%
Professional Development	13	0.7%
Tutoring	513	29.2%
Testing	26	1.5%
Other	98	5.6%
Total Hours	1,755	

Additionally 58% of these activity hours take place in classrooms, 17% in lecture halls and 22% in labs. During a typical week only three labs had non-credit activity with most of the lab activity in classes scheduled in C123, a Radiology Tech lab.

Composite Utilization

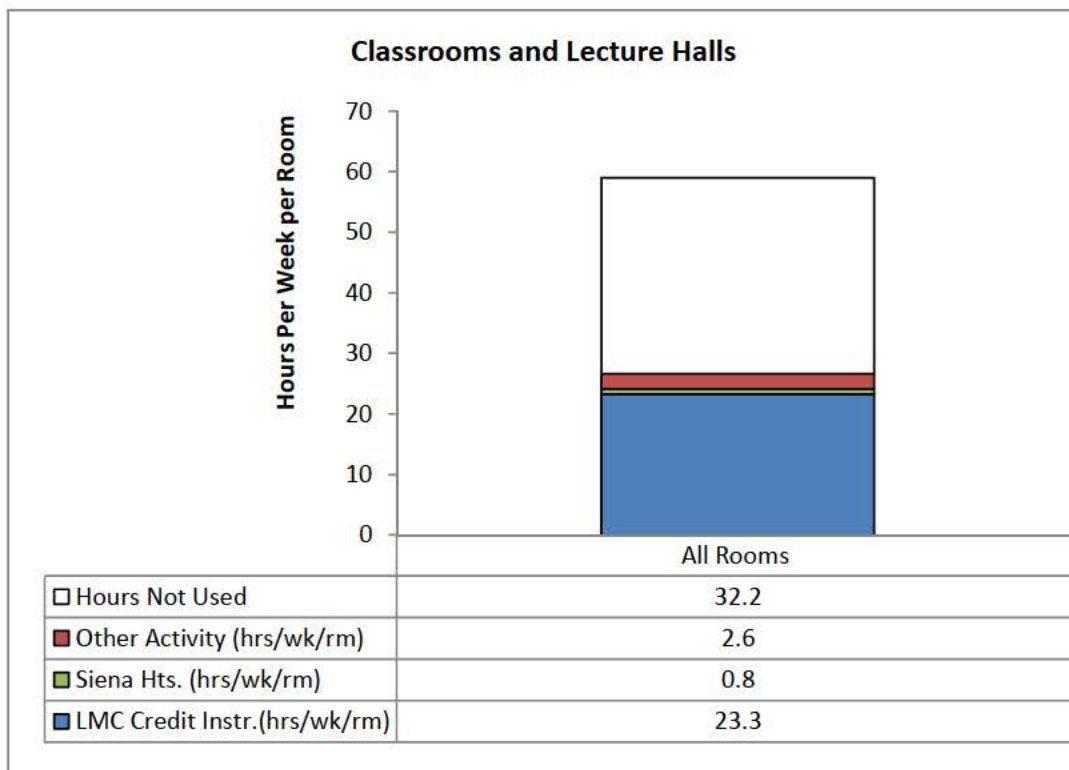
The next sections integrate the non-credit activity with the regularly scheduled credit classes.

To integrate the non-credit activity with the regular weekly classroom utilization requires selecting a typical week during the term to include in the analysis. The last week of February was used for this analysis.

All Day Use – All Classrooms and Lecture Halls

The following chart shows the average number of hours that a classroom (including the 2 lecture halls) was used during a typical week (the last week of February) for scheduled LMC credit courses (23.3 hours); Siena Heights courses (0.8 hours); and other non-credit activity (2.6 hours). The non-credit activity, including Sienna Heights, increases the classroom utilization by 3.4 hours per week bringing the average weekly hour utilization to 26.7 hours per week.

The available hours is for the time period 8 am to 9 pm Monday through Thursday and 8 am to 3 pm on Friday, a total of 59 hours per week. On average each classroom had 32.2 hours not used during the week for this time period.

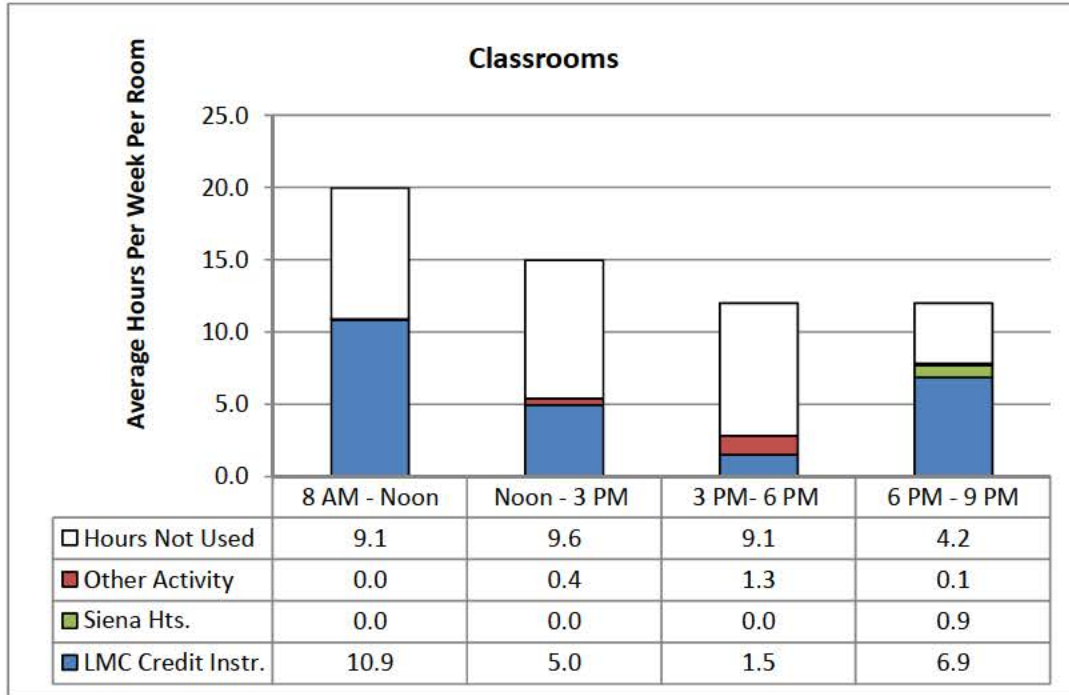


Time Block Analysis

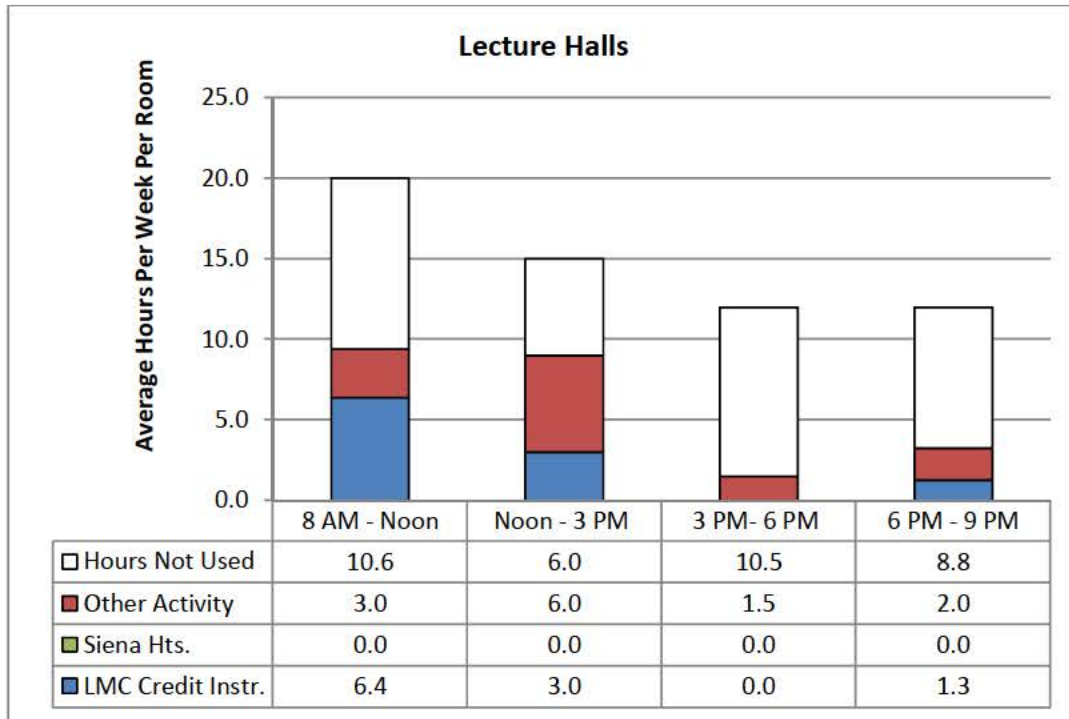
The Winter 2009 class schedule data continues to follow the same scheduling pattern as described in the November report with heavy morning and evening use and low usage during the afternoon and early evening (See Time by Day chart earlier in this report). To identify any potential “pinch” points in classroom scheduling the class day is divided into 4 three hour segments: 8 am to noon; noon to 3 pm; 3 pm to 6 pm and 6 pm to 9 pm. Also the 29 classrooms and 2 lecture halls are separated for this analysis.

The following two charts show the average use of the 29 classrooms and the 2 lecture halls for the four time periods. Each time period shows the number of hours a typical room was used for the week within

each time period for credit instruction, other activities and Siena Heights instruction. The “hours not used” is the difference between the available hours and the number of hours in use. For the 8 am to Noon block, available hours total 20; and for the noon to 3 pm block the available hours total 15. For the other two blocks, there are 12 available hours, which exclude Friday hours.



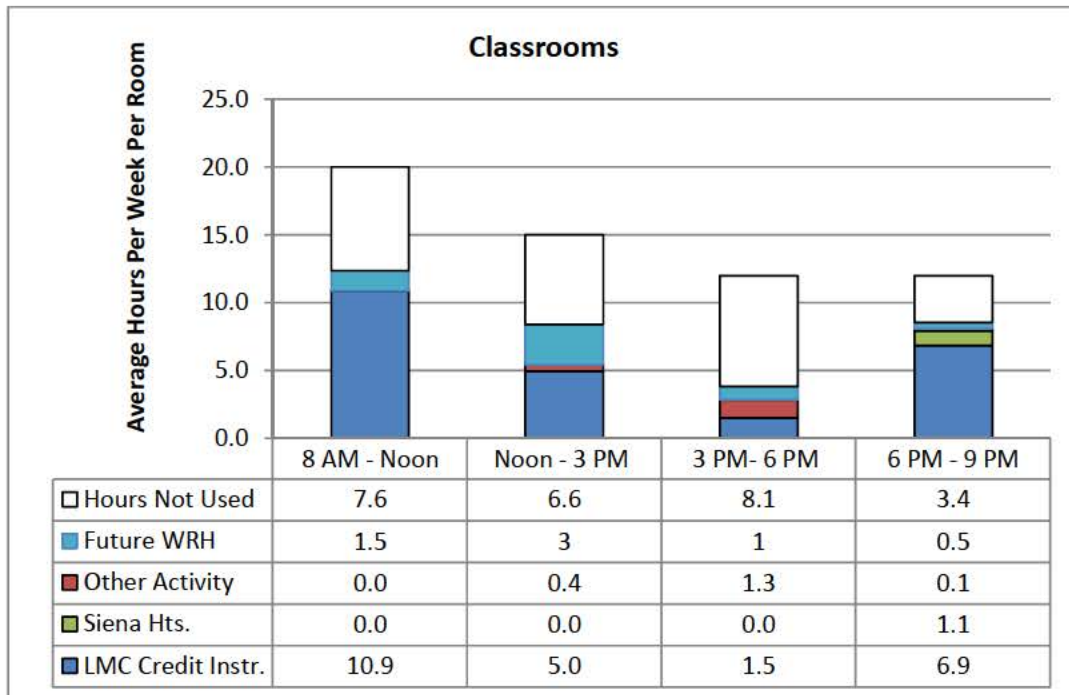
- 55% of the available hours are used during the morning time block while 57% of the available hours are used in the evening.
- Just over 35% of the available hours are used from noon to 3 pm and only about 25% of the available hours are used from 3 pm to 6 pm with nearly as much “other activity; as credit instruction.



- The 2 lecture halls are used more for “other activities” than for LMC credit instruction.

Enrollment Capacity of Current Classroom Supply

The above charts shows that the current classrooms have more unused hours than used hours including the “non-credit” activity. The following chart adds a “future Weekly Room Hour” segment to each of the time blocks that should be achievable. It adds 1.5 weekly room hours to the 8 am to noon time block which would bring the total number of WRH’s to 12.9 or 64% of the available hours. Overall 6 weekly room hours are added. This would bring the total weekly room hours to 33.2 including Siena Height and the Other Activity.



If section sizes are also increased so that station occupancy approaches 65% then the current classrooms could support an enrollment increase of at least 30% above the Winter 2009 enrollment.