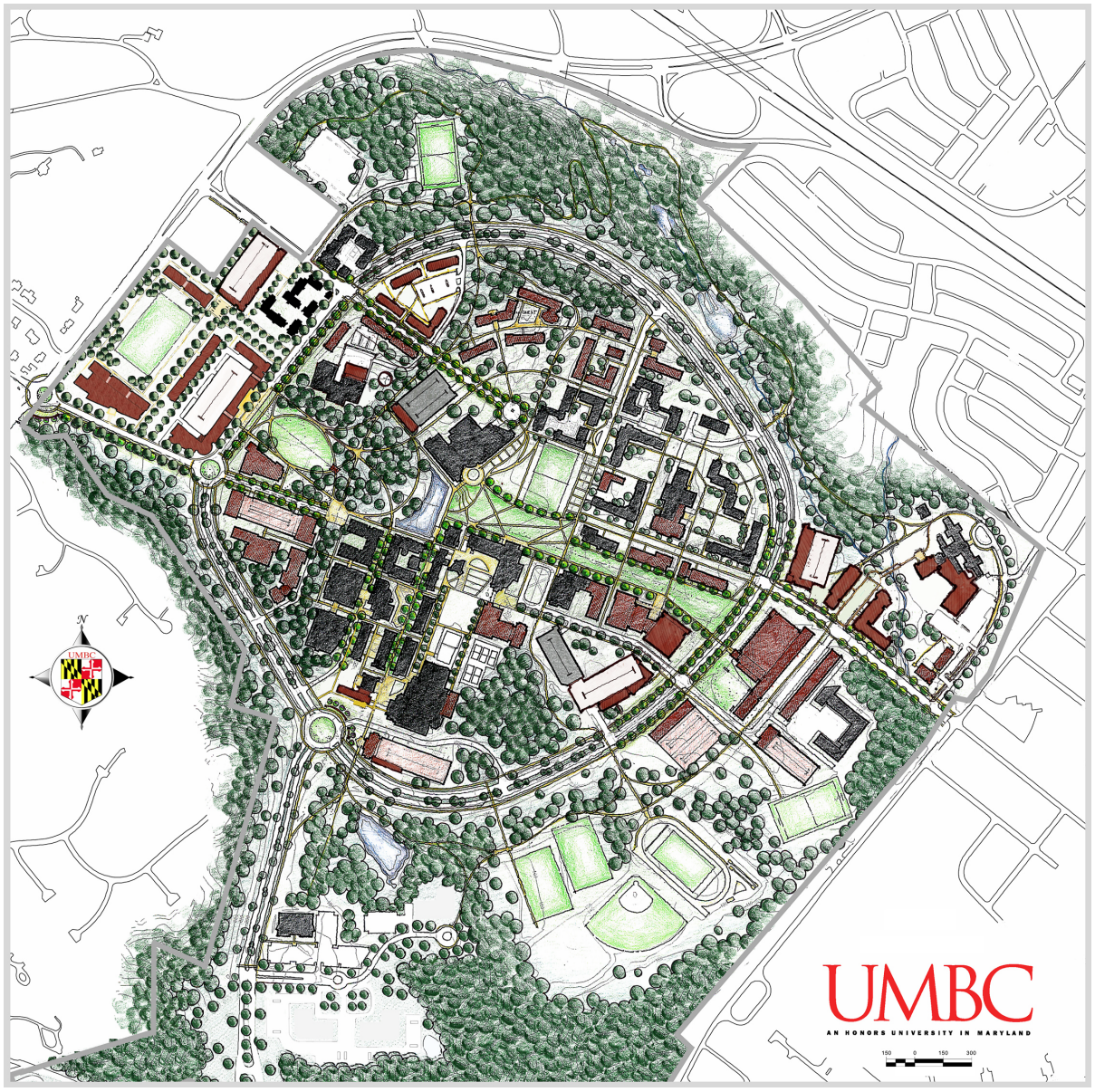
Executive Summary

UMBC FACILITIES MASTER PLAN



2003 - 2013

UMBC in 2004

Mission Statement

UMBC is a dynamic public research university integrating teaching, research and service to benefit the citizens of Maryland. As an Honors University, UMBC offers academically talented students a strong undergraduate liberal arts foundation that prepares them for graduate and professional study, entry into the workforce and community service and leadership. Known for its outstanding faculty and cutting-edge research, UMBC emphasizes science, engineering, information technology, human services and public policy at the graduate level. UMBC contributes to the economic development of the State and the region through entrepreneurial initiatives, workforce training, K-16 partnerships and technology commercialization in collaboration with public agencies and the corporate community. UMBC is dedicated to cultural and ethnic diversity, social responsibility and lifelong learning.

INTRODUCTION

UMBC is a public research university, emphasizing graduate programs in the sciences, engineering, public policy and human services and building on a strong undergraduate liberal-arts-and-sciences core. Established in 1966, UMBC is one of thirteen institutions and research centers that together constitute the University System of Maryland.

UMBC's rapid development as a major research university is reflected by its recognition and classification as a *Carnegie Doctoral/Research University-Extensive,* which constitutes the top tier of American research universities. Only 152 (4%) of the nation's 3,500 colleges and universities are in this elite category. Among the nation's research universities, UMBC is distinctive because of its emphasis on undergraduate education, and in 2003 the University was named by *Newsweek* as one of America's "hot schools." UMBC also is recognized increasingly as a major resource for both building the State's economy and addressing its social concerns.

UMBC's more than 12,000 students come from nearly all 50 states and more than 80 other nations, creating a richly diverse student body and an exciting atmosphere for learning and teaching. More than 80% of UMBC's 40,000 alumni live and work in Maryland, contributing significantly to the State's economic and social vitality.

The *2003-2013 UMBC Facilities Master Plan* presents a comprehensive, long-term vision of UMBC's development, a plan that takes into consideration the University's academic mission, its institutional values and its impact on the landscape environment and the surrounding community. The final product is a road map guiding immediate additions and renovations to UMBC's campus buildings, grounds and infrastructure, as well as anticipated long-term campus growth. Ultimately, it serves to help realize UMBC's aspirations: to become one of the nation's best research universities; to contribute to the intellectual, economic and cultural richness of the greater Baltimore area; and to engender pride among the faculty, staff, students, alumni and friends and the citizens of Maryland.

PROGRAM INITIATIVES

Overview

Academics: UMBC currently offers 39 undergraduate majors leading to the B.A., B.S. and B.F.A. degrees; 46 minors; 12 post-baccalaureate certificates; 34 master's degree programs and 24 doctoral programs through its four major units: Arts and Sciences, Engineering and Information Technology, Social Work and the Graduate School. In addition, adult learners are served by courses and programs offered through the Division of Professional Education and Training and the UMBC Training Center, LLC.

Inquiry is central to UMBC's curriculum. UMBC faculty and researchers actively seek collaborative research opportunities and consistently encourage students to obtain "real-world" experiences via research, internships, co-op experiences and service-learning. Undergraduates are encouraged to pursue their own research questions with the support of faculty mentors.

The University attracts high-achieving students through the nationally acclaimed Meyerhoff Scholars Program and a number of other specialized programs including the Humanities Scholars, the Linehan Artist Scholars, the Sondheim Public Affairs Scholars and the Center for Women and Information Technology (CWIT) Scholars.

Research: UMBC has a dynamic faculty committed to research, a commitment borne out in professors' successes in competing for research funding and external support. Grants and contracts now total more than $85 million annually, up from just $8 million in 1990. The University ranks 16th nationally in funding from NASA and also is one of the top institutions in the nation in terms of the number of inventions produced per dollar of research expenditure.

The University is home to a number of research centers, including the Center for Advanced Studies in Photonics Research (CASPR), the Center for Health Program Development and Management (CHPDM), the Center for Urban Environmental Research and Education (CUERE), the Goddard Earth Sciences and Technology (GEST) Center, the Imaging Research Center (IRC), the Joint Center for Astrophysics, the Joint Center for Earth Systems Technology (JCET), the Maryland Institute for Policy Analysis and Research (MIPAR) and the only Howard Hughes Medical Institute laboratory at a public university in Maryland.

Connections with the greater community: Synergies between research and economic development also are enhanced through the techcenter@UMBC, the University's business incubator, and the bwtech@UMBC Research and Technology Park. Gallery exhibitions and the performing arts draw an audience from the Baltimore-Washington corridor to the campus, and the University has an active outreach program with area schools.

Modifications to Programs and Activities
UMBC, because of its youth, lacks the full complement of programs one expects a Carnegie research-extensive university to possess. Although we do not project a similar number of degree programs found at our peers because of our focused mission, it is critical for the health of the institution (we do not wish to be overly dependent for enrollment upon one subject area or field) and its future growth that we add a modest number of undergraduate and graduate programs to our program inventory.

Projected Programs and Activities
At the undergraduate level, we plan to introduce new programs that relate to and complement our mission. Such degree programs might be public health, international affairs and area studies, communications, entrepreneurial studies and areas related to the environment and engineering. Other program activities will build on our existing strengths in the sciences, engineering, technology, human services and public policy. Finally, at the undergraduate level, in order to guarantee a strong liberal arts foundation for our majors we need to strengthen our offerings in the humanities and arts, which is not possible at present due to inadequate facilities.

At the graduate level, we expect to introduce several new applied masters programs within our mission to meet market demand and a select number of Ph.D. programs that stress interdisciplinarity. We believe that by creating interdisciplinary graduate programs we will be more efficient in the use of our faculty, provide stronger programs that are responsive to societal needs and be more competitive for major research grants, especially in the sciences.

INSTITUTIONAL DESCRIPTION

Campus Setting
UMBC is located in suburban Baltimore County, on I-95 corridor between Washington, D.C., and Baltimore and surrounded by one of the greatest concentrations of commercial, cultural and scientific activity in the nation. The location is a strength that gives UMBC a high profile in the metropolitan area and attracts new entrepreneurial partnerships.

The campus is comprised of 544 acres (an area equivalent in size to the heart of Baltimore's Inner Harbor) in two major parcels: The campus core is located on 418 acres connected by Hilltop Circle. The bwtech@UMBC Research & Technology Park is on a 41-acre site adjacent to UMBC's main campus, as is the 45-acre Conservation and Environmental Research Area (CERA). The University's business incubator, techcenter@UMBC, is a five-building, 30-acre complex nearby on a site overlooking I-95.

UMBC is located at the juncture between Maryland's rocky piedmont and coastal plane. The campus' rolling topography and landscape are characteristic of this location's unique geological composition, and the University is adjacent to a rich network of green spaces along rivers leading to the Chesapeake Bay. These areas are important sources of beauty, recreation and biodiversity in and around Baltimore.

INSTITUTIONAL DEMOGRAPHICS

Enrollment
Overall, UMBC's headcount grew 15.6% to 11,872 in Fall 2003. This enrollment growth was consistent with the USM Board of Regents' approved projections since the mid-1990s. Total undergraduate enrollment has increased significantly over the last five years, growing from a headcount of 8,854 to 9,646, a 9% increase. During that period, part-time enrollment of undergraduates decreased and the growth of full-time undergraduates increased by 12.7%. Enrollments at the graduate level have increased dramatically. Graduate student enrollment in Fall 1999 was 1,411; in Fall 2003 it was 2,226, an increase of approximately 58%. The growth in full-time and part-time was approximately the same percent in each category.

Looking ahead, the Regents' approved projection shows a modest increase of only 5% during the next ten-year period. The campus' total headcount is projected to grow to 12,461. Most of the growth is projected at the graduate level. Undergraduate enrollment will grow by approximately 2% while graduate enrollments will grow by 19%.

Table 1

UMBC Headcount Enrollment
Fall 1999 – Fall 2013

	Actual					Current	Projected		
	1998	1999	2000	2001	2002	2003	2008	2013	% chg F'03 to F'13
Undergraduate FT	6,602	6,983	7,267	7,572	7,793	7,872	8,006	8,014	1.8
Undergraduate PT	2,036	1,871	1,834	1,756	1,756	1,774	1,804	1,806	1.8
Graduate FT	625	627	765	920	986	996	1,047	1,100	10.4
Graduate PT	859	784	893	989	1,176	1,230	1,421	1,541	25.3
Total	10,122	10,265	10,759	11,237	11,711	11,872	12,278	12,461	5.0

The projection of credit hours follows the projection for headcount at the undergraduate and graduate level as does the full-time equivalent growth. These projections reflect current realities regarding constrained resources.

The projections do reflect a change in the distribution between credit hours delivered before 5 p.m. and those delivered after 5 p.m. The projection reflects a shift to more day-time credit hour delivery and includes more teaching in laboratory settings instead of classroom settings. In Fall 2003, 88% of the credit hours were taught in classroom settings. The remaining 12% were delivered in teaching laboratories. This situation is caused by an inadequate number of appropriate facilities, particularly appropriate teaching spaces for lab instruction.

Anticipating new facilities allows our projected distribution of credit hours taught in teaching laboratory settings to grow from 12% of the total to 16%, revising the ratio to 84% classroom and 16% teaching laboratory. The weekly student contact hours would grow proportionately, maintaining the current ratio of 1.6 weekly student contact hours for every 1 credit hour delivered in a laboratory setting.

Table 2

UMBC Credit Hours:
Fall 1999 – Fall 2013

	Actual					Current	Projected		
	1998	1999	2000	2001	2002	2003	2008	2013	% chg F'03 to F'13
All									
Undergraduate	109,576	114,676	118,520	122,893	126,593	129,559	131,107	132,150	2.0
Graduate	7,665	7,773	9,207	10,634	11,374	11,377	12,179	13,539	19.0
Total	117,241	122,449	127,727	133,527	137,967	140,936	143,286	145,689	3.4
Before 5:00, On Campus									
Undergraduate	91,556	95,389	97,154	100,944	103,517	106,828	112,001	116,292	8.9
Graduate	4,685	5,022	5,904	7,239	7,506	7,888	9,081	10,154	28.7
Total	96,241	100,411	103,058	108,183	111,023	114,716	121,082	126,446	10.2
Before 5:00, On Campus									
Classrooms	84,692	88,362	90,691	95,201	97,700	101,073	104,869	106,215	5.1
Class Labs	11,549	12,049	12,367	12,982	13,323	13,643	16,213	20,231	48.3
Total	96,241	100,411	103,058	108,183	111,023	114,716	121,082	126,446	10.2

Table 3

UMBC FTE* Enrollment
Fall 1999 – Fall 2013

	Actual					Current	Projected		
	1998	1999	2000	2001	2002	2003	2008	2013	% chg F'03 to F'13
Undergraduate	7,305	7,645	7,901	8,193	8,440	8,637	8,824	8,832	2.3
Graduate	694	705	826	947	1,016	1,021	1,101	1,183	15.9
Total	7,999	8,350	8,727	9,140	9,456	9,658	9,925	10,015	3.7

* MHEC/DBM definition.

Table 4

UMBC FTDE* Enrollment
Fall 1999 – Fall 2013

	Actual					Current	Projected		
	1998	1999	2000	2001	2002	2003	2008	2013	% chg F'03 to F'13
Undergraduate	6,104	6,359	6,477	6,730	6,901	7,122	7,467	7,753	8.9
Graduate	390	419	492	603	626	657	757	846	28.7
Total Before 5:00, On-Campus	6,494	6,778	6,969	7,333	7,527	7,779	8,224	8,599	10.5

* Undergrad/15; Grad/12

Table 5

UMBC WSCHS (Before 5:00, On Campus)
Fall 1999 – Fall 2013

	Actual					Current	Projected		
	1998	1999	2000	2001	2002	2003	2008	2013	% chg F'03 to F'13
Classrooms, all disciplines	96,848	99,248	98,116	102,413	109,635	101,073	104,869	106,215	5.1
Class Labs, all disciplines	22,055	22,713	23,614	23,791	24,368	21,650	25,941	32,370	49.5
Total	118,903	121,961	121,730	126,204	134,003	122,723	130,810	138,585	12.9

Faculty and Staff

Faculty

The ratio of UMBC's full-time faculty to full-time equivalent (FTE) students needs to improve, both to be comparable to peers and to reduce the reliance on part-time instructors, in order to improve the quality of the undergraduate experience.

In order to catch up, UMBC should increase the number of instructional full-time faculty from the Fall 2003 level of 481 faculty to 9,658 FTE students (a 20:1 ratio), to a ratio of 18:1, or 55 additional faculty. The ten-year projection includes growth of 357 FTE students which, at 18:1, would require an additional 20 faculty. Therefore, the projected increase in the number of instructional faculty is 75 (65 of those in ranked positions).

The number of faculty supported by sponsored programs will grow as contract and grant activity continues to increase. Currently, there is $90M in sponsored activity supporting approximately 211 full-time research faculty. Over the next 10 years, sponsored programs are projected to grow to $120M, bringing 70 additional faculty.

Staff

Support staff numbers are projected to grow both because of the large number of staff supported by sponsored program activities, e.g. CHPDM and Shriver Center, as well as the continuing requirement to meet various federal and State regulations (compliance issues) together with program and enrollment growth. The number of staff is projected to grow by 10% over the 10-year period. Approximately 10% of the total staff do not require offices.

Table 6

UMBC Faculty & Staff
Fall 1999 – Fall 2013

	Actual					Current	Projected		% chg
	1998	1999	2000	2001	2002	2003	2008	2013	F'03 to F'13
FACULTY									
All Faculty									
FT (SGAP formula)*	502	537	584	644	710	692	764	837	21.0
PT (SGAP formula)	295	298	365	290	277	230	230	230	0.0
Total	797	835	949	934	987	922	994	1,067	15.8
Externally Funded Faculty									
FT (SGAP formula)	81	86	116	173	217	211	242	281	33.2
PT (SGAP formula)	10	13	12	7	7	9	9	9	0.0
Total	91	99	128	180	224	220	251	290	31.8
Instr.(State-Supp) Faculty									
FT (SGAP formula)	421	451	468	471	493	481	522	556	15.7
PT (SGAP formula)	285	285	353	283	270	221	221	221	0.0
Total	706	736	821	754	763	702	743	777	10.7
FTE All Faculty (SGAP)	576	612	675	717	779	750	822	895	19.4
FTES/FT Instr.Fac (SGAP)	19.0	18.5	18.6	19.4	19.2	20.1	19.0	18.0	-10.4
FTE Instr Fac (SGAP: FT*0.25 PT)	492	522	556	542	561	536	578	612	14.1
FTES/FTE Instr Fac (SGAP: FT*0.25 PT)	16.1	15.9	15.6	16.8	16.7	17.9	17.2	16.4	-8.4
STAFF									
All Staff (except faculty)									
FT (SGAP formula)*	984	1,071	1,128	1,183	1,214	1,201	1,243	1,335	11.1
PT (SGAP formula)	49	57	56	58	58	76	65	70	-7.6
Total	1,033	1,128	1,184	1,241	1,272	1,277	1,308	1,405	10.0
Grad Assistants	532	596	652	744	937	956	1,037	1,109	16.0

EXISTING FACILITIES OVERVIEW AND ASSESSMENT

In the time period since approval of UMBC's last *Master Plan Update* (1997), the University has had a period of substantial facilities growth. As of fall 2003, the campus (not including the techcenter@UMBC or bwtech@UMBC) consisted of 50 buildings with 3,365,594 gross square feet (GSF), of which 2,035,557 is net assignable square feet (NASF). Twenty-six of these buildings are State-funded totaling 1,761,731 GSF / 905,755 NASF. Renovations to the campus' oldest academic building (Biological Sciences) were completed since the last *Master Plan Update* and extensive renovations to the Chemistry Building (built in 1971) are well underway. Of the remaining older buildings, replacing the Fine Arts building is the priority; details of other renovation needs are outlined in the full *UMBC Facilities Master Plan.*

UMBC is reaching the age where major building systems will require repair or replacement (i.e. Biological Sciences and Chemistry Buildings). Facility renewal funding has not kept pace with our aging infrastructure, reducing the useful life of major building systems. This lack of investment in the capital infrastructure will result in the need for greater dollars in the near future to replace these systems.

Auxiliary facilities comprise 24 of the remaining buildings, totaling 1,601,863 GFS / 1,129,802 NFS. This includes residence halls, the Retriever Athletics Center (RAC), The Commons and dining facilities. The Commons is the most recent addition in our auxiliary facilities; completed in 2001, it is situated on the site of the original Gym I building. Currently the RAC is undergoing some renovations to accommodate the needs of the student-athletes. Residence halls are undergoing utility upgrades.

Table 7

Building Condition Overview

Fall 2003

Condition Code	Number of Buildings	GSF	NASF	Percent of GSF Total
Code 1 (normal maintenance)	18	1,187,402	703,017	35.30%
Code 2 (minimal renovation)	12	1,002,871	516,928	29.82%
Code 3 (major updating)	8	514,976	402,294	15.31%
Code 4 (major remodeling)	11	567,954	357,150	16.89%
Code 5 (immediate replacement required)	1	68,691	45,231	2.04%
Code 6 (planned termination)	1	21,700	10,937	0.65%
Total Inventory	**50**	**3,363,594**	**2,035,557**	**100.00%**

UTILITIES INFRASTRUCTURE/ENERGY SYSTEM ASSESSMENT

Chilled Water Generation

The existing chilled water generation capacity of the Central Plant is comprised of five 1,000-ton electric centrifugal chillers and a 10,500 ton-hour chilled water storage tank capable of supplying 1,500 tons of chilled water capacity. The total capacity of the system is 6,500 tons with a firm capacity of 5,500 tons. The firm capacity is defined as the total installed capacity minus the capacity of the single largest generation subsystem. To serve the future peak load (5,310 tons) with adequate firm capacity, no additional capacity is required.

The existing chilled water generation capacity of the Satellite Plant (which serves four residence halls and the main dining hall) is comprised of two 750-ton electric centrifugal chillers. The total capacity of the system is 1,500 tons with a firm capacity of 750 tons. To satisfy the future peak load (1,220 tons) with adequate firm capacity to complete the phased renovations of three residences hall and the main dining hall, an additional 470 tons is required.

Hot Water Generation
The existing hot water generation system located within the Central Plant consists of four High Temperature Hot Water (HTHW) generators with a total capacity of 150,000 MBH. Two of the 50,000 MBH hot water generators are scheduled for replacement in the summer 2004 with funding assistance from the Maryland Energy Administration.

The existing hot water generation capacity of the Satellite Plant is comprised of Low Temperature Hot Water (LTHW) generators, two of which are rated at 17,250 MBH. The third LTHW generator is utilized for summer operation and is rated at a capacity of 3,450 MBH. The total capacity of the system is 37,950 MBH with a firm capacity of 34,500 MBH. To satisfy the future peak load (87,510 MBH) with adequate firm capacity, no additional capacity is required.

The existing hot water generation capacity of the Satellite Plant is comprised of LTHW generators, two of which are rated at 17,250 MBH. A third LTHW generator is utilized for summer operation and is rated at a capacity of 3,450 MBH. The total capacity of the system is 37,950 MBH with a firm capacity of 34,500 MBH. No additional capacity is needed to provide for the future peak load of 18,250 MBH.

Electric Generation
The electric substation is comprised of two pairs of transformers, the first pair is dedicated to the buildings located on campus and second pair is dedicated to the Central Plant. The capacity of the transformers serving the campus is 10,500 kVA (9,450 kW) each. The total capacity of this system is 21,000 kVa and a corresponding firm capacity of 10,500 kVa. The capacity for each transformer serving the Central Plant is 7,500 kVA (6,750 kW). This correlates to a total capacity of 15,000 kVa and a firm capacity of 7,500 kVa. To serve the existing and future peak loads (11,210 kW) with adequate firm capacity, larger transformers are required. The 1999 Electrical Master Plan recommended that the two transformers serving campus buildings be replaced with two 20,000 kVa transformers.

Telecommunications
UMBC voice services are provided by Rolm/Siemens technology. In the one – three year term, an upgrade of the older nodes of the campus voice mail system is recommended to maintain the system's reliability. Also in the one – three year term, the one card platform will require a full-scale upgrade due to phase-out of support by the manufacturer. Other communications infrastructure components should remain adequate through regular and periodic upgrades as part of planned maintenance. The five – ten year objective should focus on planning in support of the next generation of users.

Summary
Based upon the identified building and renovation projects, additional chilled water generation capacity is needed in the existing Satellite Plant to satisfy the cooling requirements of the dormitories to be added to the system. The existing chilled water and HTHW capacities of the Central plant and the LTHW capacity of the Satellite Plant is sufficient to satisfy the future cooling and heating loads of the respective systems. As recommended in the 1999 Campus Electrical Master Plan, the Central Plant Substation building transformers should be replaced with two new 20,000 kVa (18,000 kW) transformers to provide electric power to the future buildings.

EXISTING TRANSPORTATION NETWORK ASSESSMENT

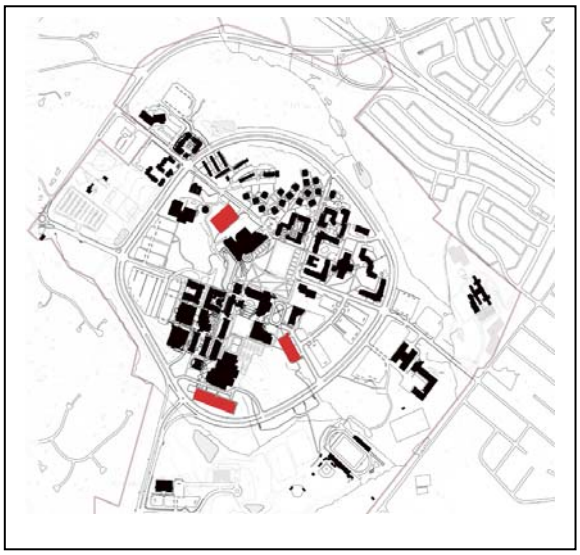
Vehicle Circulation
Currently, vehicular circulation allows ample access to all parts of the campus. However, throughout the observation and concept development phases of the *Campus Master Plan*, the campus community clearly expressed desires to soften—or even eliminate—the unofficial border created by Hilltop Circle (aka "The Loop"). The road was described as "cold," encouraging high speeds because of its wide width and dangerous for pedestrians crossing it.

Surface Parking
UMBC's origins as a "commuter school" required ample parking near all major academic buildings. Now, large parking lots at key entrances create a negative first impression of the campus. These lots also reach far enough into campus to interrupt a cohesive pedestrian experience. Although much parking has been relocated or transformed into more efficient parking decks, there are still large parking lots at key entrances that contribute to a negative "first impression" of the campus. The current number of spaces is adequate to meet current enrollment, with the exception of peak traffic

periods such as the beginning of each semesters. An additional 400 spaces are required during these periods.

SURFACE PARKING LOTS: 5,365 SPACES

THREE PARKING GARAGES: 1,458 SPACES



Pedestrian Circulation

UMBC's constantly sloping topography makes the campus hard to comprehend as a "whole." The Hilltop Road and Walker Avenue entrances to campus sit on higher ground; the academic core sits on a relatively flat northeast-southwest "shelf" in the middle ground; the athletic fields, Physical Plant complex and Technology Resource Center are on a lower level. While the academic core and central green already exhibit a fine network of pedestrian paths, creating a sense of connectedness throughout the campus' length was one of the challenges voiced at campus community meetings.

SPACE NEEDS ASSESSMENT

The use of the MHEC Space Planning Guidelines assists the University and the State in identifying the overall amount of space required by category. The data represented below show the calculated space allowance derived from the application of the Guidelines.

In Fall 2003 (the plan base year), the Guidelines project a space deficit of 155,085 net assignable square feet (NASF) in classroom, teaching labs, research labs and offices, indicating that the campus has 76% of the space needed for teaching and research for the current enrollment. The projected space inventory in Fall 2003 includes the addition of the Public Policy Building and completion of the Chemistry Building renovations, the only projects in the current Governor's Ten-Year Capital Projects Program. Including the growth of faculty, staff and students projected above, the deficit grows to 261,071 NASF. The projected space deficit in all non-auxiliary categories rose to 427,138 NASF.

Table 8

Inventory and Space Guideline Allowances
Base Year (Fall 2003) and Projected (Fall 2013)

		Fall 2003			Fall 2013		
CODE	CATEGORY	Existing Inventory	Existing Allowance	Existing Deficit/ Surplus	Projected Inventory	Projected Allowance	Projected Deficit/ Surplus
110/5	CLASSROOM	86,417	112,191	(25,774)	87,855	117,899	(30,044)
210/5	TEACHING LAB	118,193	140,921	(22,728)	122,598	197,965	(75,367)
250/5	RSCH LAB	138,008	200,080	(62,072)	148,570	239,207	(90,637)
300/5	OFFICE	309,811	354,322	(44,511)	336,180	401,203	(65,023)
Sub-Total 110 through 300		**652,429**	**807,514**	**(155,085)**	**695,203**	**956,274**	**(261,071)**
410/5	STUDY	186,503	203,551	(17,048)	187,163	238,816	(51,652)
500/5	SPECIAL USE	120,966	147,639	(26,673)	120,578	156,156	(35,578)
600/5	GENERAL USE	164,538	173,412	(8,873)	150,919	159,564	(8,645)
710/5	DATA PROC	5,663	5,334	329	5,663	5,949	(286)
720/45	SHOP/STOR	53,683	117,629	(63,946)	54,834	122,891	(68,057)
750/60	CEN SVC	15,034	12,993	2,041	15,284	14,153	1,131
800/5	HEALTH	0	2,734	(2,734)	0	2,980	(2,980)
050/080	UNCLASSED	70,969	70,969	0	65,731	65,731	0
090	OTHER ORG	6,552	6,552	0	6,548	6,548	0
900	RESIDENT	596,783	596,783	0	667,822	667,822	0
	TOTAL	**1,873,120**	**2,145,109**	**(271,989)**	**1,969,745**	**2,396,883**	**(427,138)**

PLANNING ISSUES

Enrollment Growth

UMBC's current enrollment of 11,800 students ranks it among the smallest of its performance peers; the average size of a public research-extensive university is 26,312 students. UMBC's land capacity would support a maximum headcount of 16,000 students. However, to realize growth, new academic programs will be necessary to attract and retain larger student enrollments. New programs require new faculty and space for their offices, teaching, and research. With enrollment growth, UMBC will require increased space to provide students with necessary support services. General support services also will require increased space as a result of increased government regulation (such as homeland security, international services, and disability services to students and employees).

For planning development, both the deficit of facilities to adequately support existing enrollment as well as the capacity build-out, were examined. This ten-year plan addresses adequate facilities to support the approved ten-year enrollment plan.

Facilities Conditions

As an Honors University in Maryland, UMBC attracts high quality students. The quality of our facilities should not only meet the expectations of high-quality students, but be capable of attracting larger numbers of such students and permit programming that meets their interests and needs. Our ability to attract and retain outstanding faculty and staff is also affected by the quality of their offices and labs, and as the research enterprise grows, those needs must be addressed. The *Facilities Master Plan* has

identified construction and renovation projects that are outlined in greater detail in the sections that follow.

Transportation and Parking Considerations
Surface parking lots require a significant amount of UMBC's land. Although some surface parking will always be needed on campus, the amount of existing surface parking represents an inefficient use of land at a time when UMBC's future development will require maximizing efficiency to create a cohesive, coherent, and connected campus. The *Facilities Master Plan* proposes to reduce the visual impact of parking on UMBC's arrival experience while maximizing efficient land use through additional parking structures.

Ecological Considerations
Maryland's native topography guided the campus' development since UMBC's inception. The academic core is located on a flat "shelf" between the steady slopes from Wilkens Avenue and through the athletic complexes. The *Facilities Master Plan* recommends that future building development should take the continuous northwest/southeast slope into consideration when selecting building sites and creating outdoor spaces between buildings.

Planning Principles
There are four main reasons to create a campus master plan:

- To realize and facilitate UMBC's aspirations to become one of the nation's best public research universities, distinctive for its commitment to undergraduate education.
- To attract and retain the best faculty, staff and students.
- To create a unified level of aesthetic quality throughout campus.
- To plan for growth in an efficient and elegant way.

UMBC already has made significant progress toward achieving its mission and goals. The *Master Plan* and future development proposals should reflect and facilitate the mission and vision. To ensure this outcome, UMBC's leadership has created goals that specifically address the physical development of the campus.

Goal: Provide the facilities needed to support teaching and research strengths and related needs through:

- Reconstructing the entry roadway intersection to address safety and access concerns.
- Adequate, functional classroom and teaching laboratory spaces and associated faculty offices for arts and humanities departments.
- Additional research space, especially for sciences and engineering departments.
- Adequate general education classroom and teaching laboratories and supporting offices.

Goal: Address future needs through the selective acquisition of property near the UMBC campus, including:

- Property immediately adjacent to campus and south campus to support growth of the research and technology park and research centers and institutes.
- Acreage contiguous to the campus to support expansion of housing, ancillary functions and auxiliary and recreation activities.

Goal: Improve the ambiance of campus and the quality of campus life through:

- Additional housing for both undergraduate and graduate students, including a cluster of retail spaces for options for service and leisure on campus.
- Additional recreational and intercollegiate athletic facilities to enhance student experiences on campus, including an arena/large performance space.
- A new campus meeting and social activity venue, including a new ballroom.

Goal: Create a sense of warmth on a campus that is relatively young and with a scientific emphasis and approach by:

- Creating more residential spaces and courtyards.
- Creating more gathering places, both formal and informal.
- Adding landscaping to soften "hard" building exteriors.
- Creating more pedestrian walkways and paths.

Goal: Connect the disparate parts of the campus and blend the campus into the greater community by:

- Breaking through “The Loop” by extending the campus core both east and west across Hilltop Circle.
- Interweaving academic and residential areas.
- Creating a continuum of open spaces to act as “connective tissue” throughout the campus core.
- Extending the strength of the academic core through a compact and coherent arrangement of buildings around a series of connected open spaces.

THE PLAN

Proposed Campus Plan

The *Facilities Master Plan* acknowledges UMBC’s youth and puts forth the goal of facilitating UMBC’s maturation as a research university. UMBC is still young relative to its peers and has vast potential if permitted to round out its academic program and develop its mission areas. This will require: facilities to both catch up to current enrollments and to accept modest enrollment growth, especially at the graduate level; increased space to support research and research-related activity; and space to permit the connections with the surrounding external community.

This plan presents two scenarios for development: (1) additional facilities to adequately support current projected enrollment, and (2) expansion to 16,000 students.

New Facilities

As an Honors University in Maryland, UMBC attracts high quality students. The quality of our facilities should not only meet the expectations of high-quality students, but be capable of attracting larger numbers of such students and permit programming that meets their interests and needs.

New space is needed for the humanities and arts teaching programs. The four-story, 175,000 gross square foot Fine Arts Building was constructed in 1973 and currently houses 10 academic departments (American Studies, Ancient Studies, Dance, English, Interdisciplinary Studies, Music, Philosophy, Theatre, Visual Arts, and Women’s Studies), a recital hall, a dance studio and the Center for Art and Visual Culture (an exhibition gallery). As part of the information-gathering stage of preparing the *Facilities Master Plan,* building users described problems they face daily.

The existing building can no longer accommodate incompatible uses:

- Performing arts rehearsal and practice spaces for Music, Dance and Theatre are located adjacent to academic classroom, seminar and office spaces used by American Studies, Ancient Studies, English and Philosophy, with insufficient soundproofing. The sound of drumming, dancing and loud theatre exercises disrupt humanities classes and faculty’s ability to work in their offices throughout the building.

- Public performance spaces also are used heavily as classroom and rehearsal spaces causing conflicts which interfere with arts teaching activities. In addition, many of these performance spaces are often difficult for the public to access and require complicated signage for every performance.

There are significant problems, inefficiencies, deficiencies and safety issues:

- There is a critical shortage of office space for faculty in the arts and humanities. The Department of English has 30 of its faculty and instructors sharing seven offices. Ancient Studies, American Studies and Visual Arts have faculty in “borrowed” offices that must either be moved or re-negotiated each year. Some departments do not have any offices for their part-time faculty, so faculty meet with students in hallways.

- The facility does not meet current ADA and National Fire Protection Association Guidelines.

- Health hazards in the Fine Arts Building include a Photo Lab without ventilation and disintegrating fiberglass-lined ductwork, causing potential respiratory problems.

- We need to replace 4,500 square feet of art studio space that currently is leased off-site.

Analysis will continue to determine if the facility should be demolished or used for other purposes to support campus space needs. Renovation will require the building be taken off line for two to three years.

New space should recognize the important role of the humanities and arts to UMBC's instructional and research mission. For the arts, space should follow the recommendation of the Arts Task Force Report and reflect the high quality of instruction in the arts.

New performing arts space is badly needed. The desire to design space that will allow theatre faculty to offer a wider range of productions, promote interdisciplinary activities and allow the use of modern technology as a part of and in support of performance. There should be a variety of spaces in adequate amounts to permit rehearsals as well as instruction to occur simultaneously without disturbing other university functions.

Space is needed to support increased numbers of faculty in departments engaged with the general education program. In order to provide quality instruction, the number of core faculty needs to be increased to lower UMBC's student-faculty ration so that it is more comparable with our peers. Additionally, we recognize that a nucleus of part-time faculty will exist and that this group of faculty can add much to the academic program. Space is needed for part-time faculty to meet the Board of Regents policy on part-time faculty and to provide students an opportunity to meet in conditions that are conducive to maintaining the privacy of conversations and allowing other student-faculty interaction to take place.

Instructional and meeting space is needed to support the Honors College and UMBC's Scholars programs. This can occur in a building dedicated to undergraduate education, housing study abroad, interdisciplinary studies, scholarships, service-learning, internships and career placement, advising, first-year seminars and other activities designed to engage the undergraduate in his or her learning. Such space will support efforts to improve the graduation rate and to provide a more efficient and effective organizational structure to support undergraduate education.

UMBC's research activity increases annually and its growth is limited primarily by space. Research is projected to more than double in ten years if adequate space is provided. As research activity increases, space also will be necessary for research-related activities such as grants and contract management, technology transfer, regulatory compliance, risk management, hazardous waste management, laboratory animal care and protection, as well as the additional research faculty that funded research requires and supports. Research conducted in UMBC's mission areas (especially engineering, science and technology) consumes large quantities of space. A core facility for the life sciences is badly needed.

Research increasingly will become interdisciplinary and new space should encourage the crossing of disciplinary boundaries. UMBC's centers funded by NASA and EPA, and its Howard Hughes biochemistry laboratory, model such interdisciplinarity. Emerging centers on aging, photonics and health policy reflect this trend as well. We anticipate further interdisciplinary activity in areas of the life sciences, bioengineering, computer-human interaction, bioinformatics and language, literacy and culture. A building designed to house interdisciplinary centers will signal UMBC's strengths and allow these areas to grow.

UMBC is a vital part of the Baltimore region. Its facilities should invite Maryland citizens to campus and offer a secure environment to enjoy the intellectual, artistic and athletic programming of the university. An auditorium capable of hosting public meetings, a performing arts facility and improved athletic facilities are necessary to realize the University's potential to be a center for activities that bring thousands of citizens to campus annually.

UMBC's research and instructional activity will be better leveraged to promote economic development with space that serves the adult population's life-long learning needs and corporate demand for on-time instruction. A building serving the Division of Professional Education and Training will allow UMBC to expand on-line learning opportunities and to better market services to the corporate community. It would allow us to maximize current space for new corporate clients in UMBC's technology center, and it also would create a synergy with UMBC's research park, which is expected to be fully built out by 2008.

Auxiliary Facilities

The ambiance at UMBC has been greatly enhanced by the addition of privatizing housing units, a total of four complexes housing 1,700 additional students. It is important to continue meeting the demand for on-campus housing by continuing the development of both privatized housing and, in conjunction with the housing, developing a small retail area to add alternative services. The land use surrounding

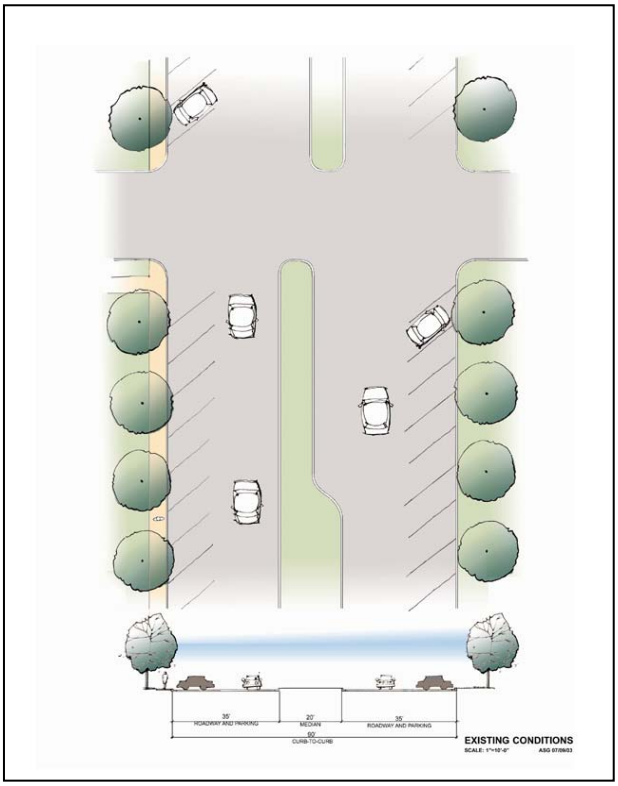
UMBC is exclusively residential; there is no opportunity for students to walk to any stores or shops. Although The Commons has added tremendously to campus life, additional services and alternatives to the campus food operations would be welcomed by students. New housing would be in new configurations, including loft-style apartments and small, compact apartments of 250 square feet for single person units that would include kitchen, bath, study and sleep space. These additional units are intended for graduate student housing.

Old residence halls are currently under renovation. By previous action, the Board of Regents approved the construction of a satellite plant and renovation of the first and second facilities. Three more residences require renovation to be hooked up to the satellite plant.

Parking continues to be an issue on campus. Although currently parking is adequate except during peak periods, the projected need over the next 10 years will require construction of additional parking facilities, both surface lots and a four-level structure.

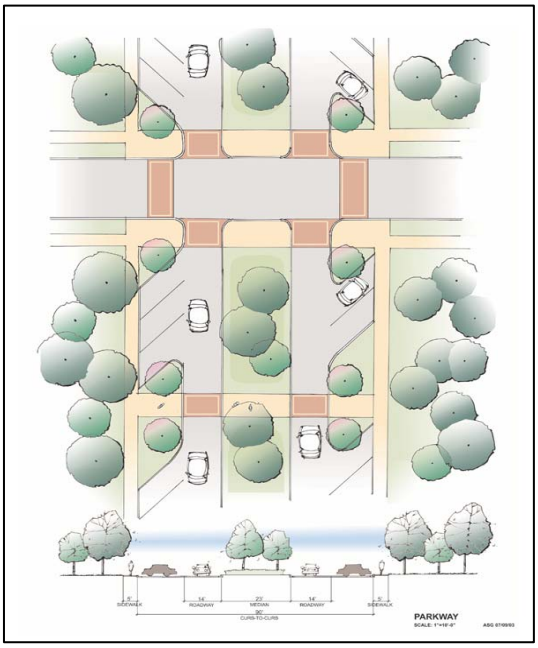
Pedestrian Circulation
Future campus building should make walking across campus accessible while providing a continuous campus experience that bridges the higher, middle and lower parts of the campus. The *Facilities Master Plan* recommends building on this strength by creating pedestrian paths that connect all parts of the campus in a safe, accessible and enjoyable manner. These paths also extend into the CERA parcels and the wooded stream valley north and east of the campus core.

Traffic and Parking
The *Facilities Master Plan* recommends altering the character of Hilltop Circle to create a “softer” feeling that would also act as traffic-calming measures for the too-wide and too-fast road.

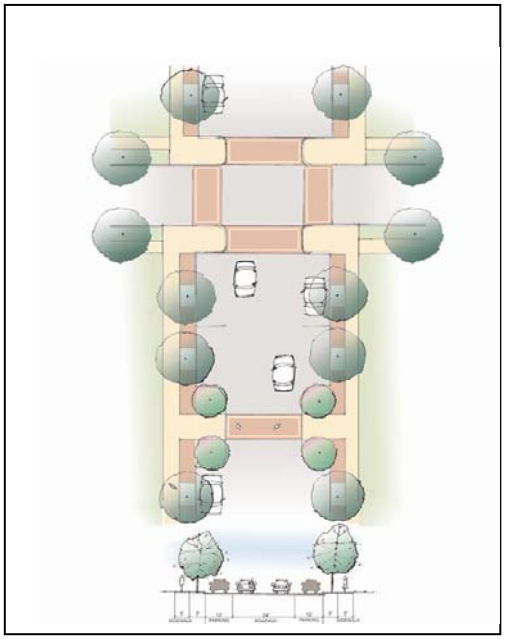


Hilltop Circle – Current Conditions

The plans would treat sections of Hilltop Circle as a heavily wooded "parkway" when adjacent to CERA and other natural areas or as an "urban street" in areas where campus buildings line both sides of Hilltop Circle.



"Parkway"



"Urban Street"

The first project is the creation of a traffic circle at the intersection of UMBC Boulevard and Hilltop Circle. This project addresses safety concerns as well as improving access to campus.

Campus Landscape and Ecological Considerations

Perennial streams and springs naturally flow through the campus. These water bodies present opportunities for unique campus areas that highlight UMBC's native woodland landscape. Adding to the tree canopy also will soften the campus' appearance, provide more shaded gathering spaces, increase the campus' plant and animal biodiversity and help reduce the "heat island effect" that is created by pervious surfaces radiating heat generated by sunlight.

If the character of Hilltop Circle's medians is "softened" through planting, they might also perform important aesthetic and ecological functions. Native trees, shrubs, flowers and grasses planted in medians or by major roads will create a warm and welcoming atmosphere while celebrating UMBC's native landscape. Many native flowers and grasses also require less maintenance—mowing and irrigation—than the typical turf grasses. In addition, median strips can be designed to receive stormwater runoff. As "infiltration strips," the medians would slow down, filter and cool off polluted rainwater from major roadways before that water enters nearby streams and rivers.

Property Acquisition Plans

Master plans are most effective when they test the responsible capacity of the land for future development. Locating more building sites than are immediately needed means that UMBC has maximum flexibility in case some building sites become encumbered through unforeseen circumstances. Looking also at the potential to acquire property near campus is part of sound planning for the future.

- The State reallocated four acres of land at the Wilkens Avenue / Walker Avenue entrance to campus for a district courthouse. This key entry location needs to be returned to campus use to provide support to residential students and meeting/teaching venues. The court-related activity has outgrown the facility and support facilities are also unable to locate near the building.

- Spring Grove State Hospital is a large tract of land adjacent to UMBC's campus across Wilkens Avenue. When thinking of UMBC's potential expansion over the next 10-20 years, the Spring Grove parcel is a logical choice to consider. Its location near I-695, BWI Airport and downtown Baltimore, plus the parcel's size, makes Spring Grove ideal for university-corporate partnerships, as well as for academic and research needs.

- Property adjacent to the South Campus' techcenter@UMBC would complement the current incubator activities and possibly support a retreat or residential facility. Both the large tracts contiguous to South Campus, the Oblate Sisters' Convent and the Keech Estate, would be suitable.

Summary of Proposed Capital Projects

In order to address the deficit in square footage shown by the SGAP analysis and to meet the space requirements outlined above, the *Facilities Master Plan* over the next 10 years includes: 1) construction of a new facility for the humanities and fine arts departments; 2) renovation or demolition and replacement of the existing Fine Arts Building to respond to space deficiencies in both general office, classroom and research facilities; 3) an addition to the Physics Building to provide laboratory science research and instruction space; and 4) construction of a traffic circle at the south entry to campus to address safety and access concerns.

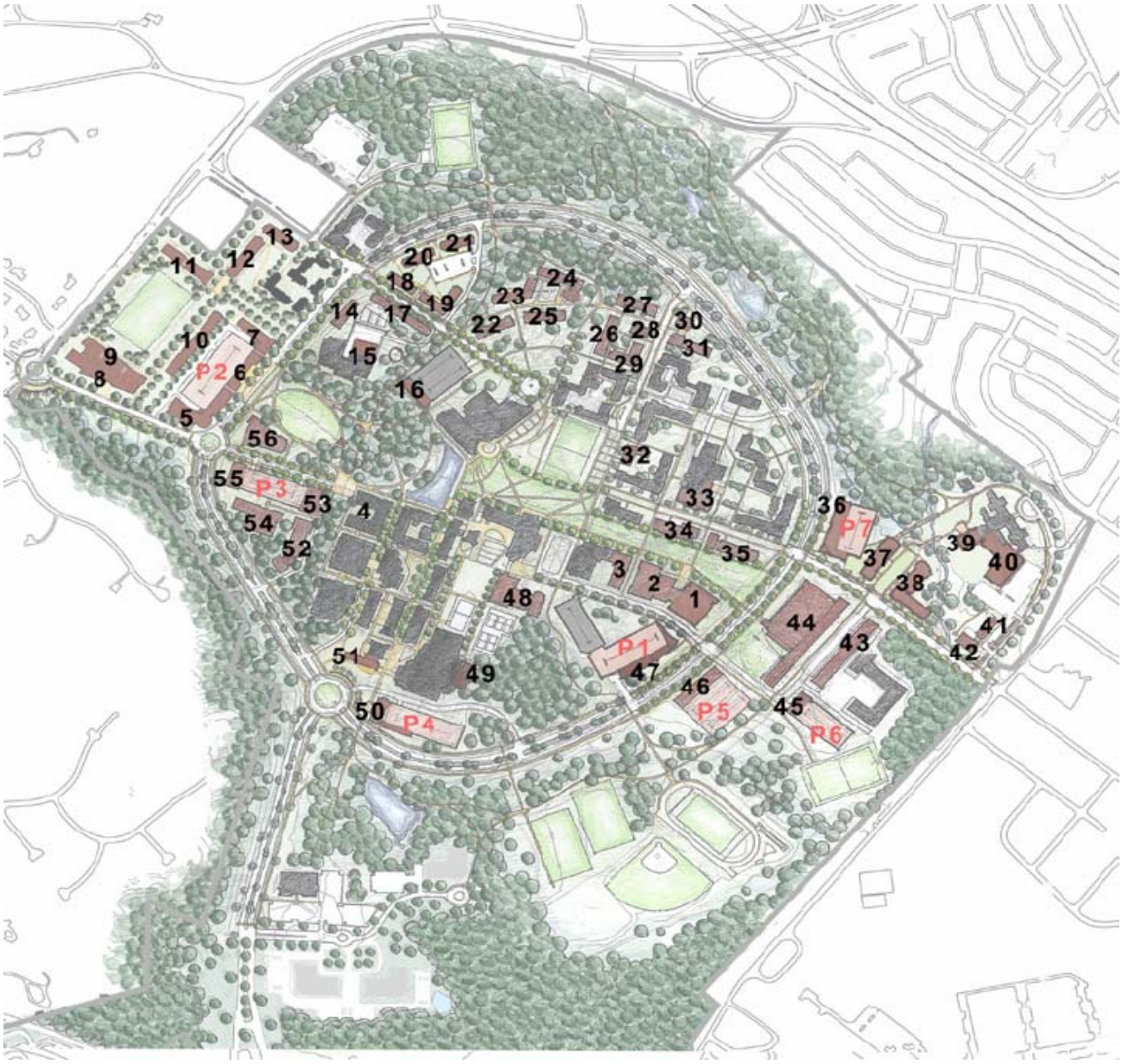
Auxiliary facilities support needed during the 10-year period include the private/public partnership to construct 1,000 additional beds along the west side of campus at Hilltop Circle, clustered with 40,000-50,000 square feet of retail space. Also envisioned is the construction of a parking garage connecting to the existing Commons Garage and the completion of the renovations and utility upgrades for the older, traditional residence halls.

The acquisition of the courthouse property, four acres located on the northwest corner of campus at Walker and Wilkens Avenues, is very important to the campus, both because of the parking and general space that would be provided. Addition of this property to the campus inventory would allow us to bring compatible uses to the campus community. There also are concerns with criminals coming to the courthouse on their own recognizance, using public transportation that runs through the campus. The courthouse is too small to serve the district court needs and there is conversation with DGS to have them relocate.

CHANGES FROM THE PREVIOUS PLAN

Since the presentation and approval of UMBC's master plan update in 1997, the University has enriched its academic core with the construction of the Physics Building, the Information Technology/Engineering Building and the Public Policy Building and renovations to the Biological Sciences Building. Through public-private partnerships, UMBC has added new two new residence halls (Erickson Hall I & II, Harbor Hall I & II) and is nearing completion of the Walker Avenue apartments on Hilltop Circle. Student life also has been enhanced by a new student center, The Commons, and the Retriever Activities Center, which adjoins the Fieldhouse and provides additional recreational facilities. Important infrastructure needs have also been addressed, including an upgrade and expansion of Central Plant facilities, technology upgrades and additional parking. Through strategic land acquisition along Wilkens Avenue, the University continues to plan for future needs.

UMBC Master Plan – Full Build-out



UMBC Master Plan Proposed Building SqFt and Demolition
Full Build Out #2

Proposed Buildings						Res. Hall Bed Counts
Bldg #	Use	Description	Footprint GSF	Stories	Total GSF	# Beds - Traditional [300 sq. ft./bed]
1	A	Academic - Fine Arts	35,400	3	106,200	
2	A	Academic - Humanities	33,025	3	99,075	
3	A	Academic – Life Sciences	17,500	4	70,000	
4	A	Academic - Fine Arts renovation	43,750	4	175,000	
5	M	Retail/Office/Residential Mixed Use	21,712	4	86,848	
6	M	Retail/Office/Residential Mixed Use	23,625	4	94,500	
7	M	Retail/Office/Residential Mixed Use	13,800	4	55,200	
8	M	Retail/Office/Residential Mixed Use	35,050	4	140,200	
9	R	Housing	19,500	4	78,000	260
10	R	Housing	20,500	4	82,000	273
11	R	Housing	15,350	4	61,400	205
12A	R	Housing	23,500	4	94,000	313
13		None [deleted]				
14	R	Admin/Back of House	8,500	4	34,000	113
15	G	Addition to Plant	9,600	**2**	19,200	
16	G	Addition to Library Parking Lot	8,550	4	34,200	
17	G	Admin/Back of House	17,500	4	70,000	
18	R	Housing	8,000	4	32,000	107
19	R	Housing	14,000	4	56,000	187
20	R	Housing	8,500	4	34,000	113
21	R	Housing	8,500	4	34,000	113
22	R	Housing	12,600	4	50,400	168
23	R	Housing	13,000	4	52,000	173
24	R	Housing	18,000	4	72,000	240
25	R	Housing	12,600	4	50,400	168
26	R	Housing	13,800	4	55,200	184
27	R	Housing	13,650	4	54,600	182
28	R	Housing	6,000	4	24,000	80
29	R	Housing	12,800	4	51,200	171
30	R	Housing	4,500	4	18,000	60
31	R	Housing	15,000	4	60,000	200
32	G	Admin/Admissions/Visitor Reception	9,000	4	36,000	
33	G	Dining Hall Addition	18,400	2	36,800	
34	A	Academic	18,000	4	72,000	
35	A	Academic	20,100	4	80,400	
36	G	Auxiliary/Dining Hall Addition	26,150	4	104,600	

37	G	Admin/Back of House	17,500	4	70,000	
38	G	Admin/Back of House	28,550	4	114,200	
39	A	Academic	8,000	4	32,000	
40	A	Academic	20,000	4	80,000	
41	G	day care	6,500	1	6,500	
42	G	day care	7,700	1	7,700	
43	G	Admin/Back of House	27,000	2	54,000	
44	G	Convocation Center	112,300	1.5	168,450	
45	G	Admin/Back of House	8,400	4	33,600	
46	G	Admin/Back of House	16,800	4	67,200	
47	G	Admin/Back of House	13,650	4	54,600	
48	A	Commons Addition	35,400	3	106,200	
49	G	RAC addition	8,400	2	16,800	
50	G	Admin/Back of House	9,100	4	36,400	
51	G	Admissions/Visitor Reception/Admin	8,400	**3**	25,200	
52	A	Academic	26,900	4	107,600	
53	A	Academic	12,600	4	50,400	
54	A	Academic	27,600	4	110,400	
55	A	Academic	9,800	4	39,200	
56	A	Academic	27,400	4	109,600	
60 Buildings		**Totals:**	1,031,462		**3,563,473**	**3,311**

Parking Structures (See map on next page)

Lot #	Use	Footprint GSF	Stories	Total GSF	# parking spaces (300 sqft/space)
P1	P	53,200	4	212,800	709
P2	P	58,800	4	235,200	784
P3	P	44,200	4	176,800	589
P4	P	53,300	4	213,200	711
P5	P	58,800	4	235,200	784
P6	P	37,700	4	150,800	503
P7	P	33,800	4	135,200	451
P8	P	45,500	4	182,000	607
		Total – Square Feet		**1,541,200**	**5,137**


P2
7
6
5
4
3
2
1
P1

Summary of Findings for Fine Arts Building

1. Building Exterior

The exterior wall consists of cavity wall construction, with 4" face brick supported by 8" CMU with a 2" airspace. The cast-in-place concrete structure is exposed to view at window heads and vertical columnar expressions. Large horizontal windows are provided along each elevation, composed of bronze tinted glass in dark bronze anodized aluminum frames. A large precast concrete fascia panel is used to "cap" the façade. An enclosed mechanical penthouse completes the exterior enclosure.

Recommended improvements include:

- Re-point and repair the brickwork and flashing to eliminate efflorescence
- Replace the window system
- Replace the roof

2. Building Interior

The building interior includes not only classrooms and offices, but a number of special use spaces, including the Recital Hall, Exhibition Gallery, sloped floor classrooms and two-story dance studios. Interior finishes are "lean" and are showing extreme signs of age. Lobbies have exposed concrete floors and brick walls, while interior corridor and classrooms have vinyl floor tile and painted CMU walls. Toilet rooms have ceramic tile on the floor and walls. Carpeting and painted gypsum board partitions are typical in the faculty office areas.

A suspended acoustical tile ceiling is used throughout the facility, with recessed lighting and air conditioning diffusers. The ceiling has discolored, sags in places, and many tiles are damaged.

Recommended improvements include:

- Remove and replace all interior floor finishes
- Remove and replace the suspended ceiling system, including acoustical tile, light fixtures, HVAC diffusers and accessories
- Walls should be cleaned or re-painted where damaged

3. Handicapped Accessibility

The building is accessible at all grade levels, with automatic door-opening devices provided at most public entrances. Thresholds are beveled and/or level at all floor transitions. Two elevators are provided, and each is at least minimally accessible. Stairwells provide sufficient width and clearances, but handrails do not meet ADA standards. Doors appear to be sufficiently wide, but for the most part use door knobs and not lever type hardware.

Drinking fountains do not meet ADA standards. Emergency equipment (fire extinguisher cabinets, standpipes and emergency telephones) are to too high to be reached from a wheelchair. Only one set of toilet rooms per sex (on the first floor next to the Recital Hall and Exhibition Gallery) have been adapted for the entire building. Some shower and locker facilities are provided (although not currently in use) and these facilities are not fully accessible.

The fire alarm system does not appear to meet ADA requirements for audible and visual devices. Signage, with both standard and Braille letters, is provided at most doors. Only one public pay telephone with volume control is provided, but it is not equipped to support a portable text telephone.

Assembly areas are provided (Recital Hall, Exhibition Gallery, sloped floor classroom, etc.) but are not fully accessible. Wheelchair locations are not provided, and an assistive listening system (ALS) is not provided.

Recommended improvements include:

- Provide audible signals and Braille signage at elevator cab (one only)
- Provide signage at all inaccessible toilet rooms identifying the location of the accessible toilet rooms or provide one unisex toilet room on each floor
- Provide at least one accessible drinking fountain on each floor
- Replace door knobs with lever handles on all classroom and office doors
- Lower emergency equipment (fire extinguisher cabinets, standpipes and emergency telephones) to be within wheelchair reach range
- Upgrade the fire alarm system to provide audible/visual devices that meet ADA standards

- Provide wheelchair spaces in the Recital Hall, along with an Assisted Listening System

4. Mechanical Systems

HVAC systems have been kept in operational condition, but the equipment and controls are showing signs of age. The Photo Lab does not have adequate ventilation to meet ASHRAE and OSHA standards

Recommended improvements include:

- Replace the HVAC system with a modern, energy-efficient system to serve the building
- Install appropriate ventilation system in the Photo Lab

5. Plumbing Systems

Plumbing systems appear to be in good order, but additional insulation should be provided and hot water heaters should be replaced.

Recommended improvements include:

- Inspect the plumbing system and repair where needed

6. Electrical Systems

Electrical systems have been kept in operational condition, but the equipment, light fixtures and controls are showing signs of age. There is no capacity for additional changes within the facility without significant modifications and upgrades.

Recommended improvements include:

- Replace the electrical system with a modern, energy-efficient system to serve the building

7. Life Safety Evaluation

The building is served by a fully automatic fire suppression system, including sprinklers, standpipes and a fire alarm system. The building design does not meet current NFPA codes for egress.

Recommended improvements include:

- Update the fire alarm system as required to meet current code, especially ADA requirements for audible/visual devices
- Modify corridors to allow for emergency egress