



# UNIVERSITY OF MASSACHUSETTS

*Amherst • Boston • Dartmouth • Lowell • Worcester*

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## Fiscal Year 2012 to 2016 Five-Year Capital Plan Update

*September 2011*

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## University of Massachusetts FY2012 to 2016 Capital Plan Update Executive Summary

The Board of Trustees, the President's Office and campus leadership have identified capital issues as one of the biggest challenges facing the University. Image, reputation, capacity and mission effectiveness require modern and functional facilities.

Investing in the University's capital assets is essential to continuing to improve educational quality at all five UMass campuses and to giving our students the top-notch facilities they all deserve. The facilities at the University of Massachusetts consist of more than 21 million gross square feet, with buildings on the campuses ranging from historic to modern, from agricultural to sophisticated laboratories. Some facilities have been constructed expressly for academic purposes; others have been acquired and converted.

Upgraded facilities will enhance academic achievement and student experience and will bolster the University's ability to continue advancing the Commonwealth's competitiveness by graduating a prepared workforce. Upgraded infrastructure at UMass will also grow the economy by improving the environment for public/private collaborations, innovation, and research & development. Due to the age of our infrastructure and a long period in the 1980s and 1990s of limited investment in capital upgrades, the University found itself with a significant backlog of funding needs in the late 1990s. Moving to address this issue, a major capital evaluation and investment program was implemented that has resulted in more than \$2.4 billion of capital projects completed over the last ten years. Approximately 85% of this activity has been self-funded from campus operating funds and borrowing. The remaining 15% has been supported by the state.

Despite these major investments, the University is still faced with the fact that many of our facilities are nearing the end of their useful lives:

- **Amherst Campus - 65% built in 1960's & '70's; 25% prior to the 1950's**
- **Boston Campus - opened in 1974**
- **Dartmouth Campus - core of campus opened in 1970's**
- **Lowell Campus - most buildings date to pre-1975 merger**
- **Medical School - core campus opened 1970**

This presents the University with the enormous challenge to maintain and upgrade our capital assets including infrastructure, buildings, and grounds over the next five to ten years. No single source of funds has the capacity to address the vast capital needs of the University. In order to have a successful capital program, the University must rely on a combination of revenue sources to fund its investment in capital improvements. The four general categories of revenue sources are: state support either through general obligation bond funds or economic stimulus and supplemental legislative appropriations, financing through the University of Massachusetts Building Authority (UMBA), the Massachusetts Health and Educational Facilities Authority (HEFA), or other legally available sources, operating funds and external funding such as private giving and grants.



A number of important developments occurred from 2008 through 2010 that continue to play a primary role in the overall success of the University's efforts to improve and invest in its infrastructure:

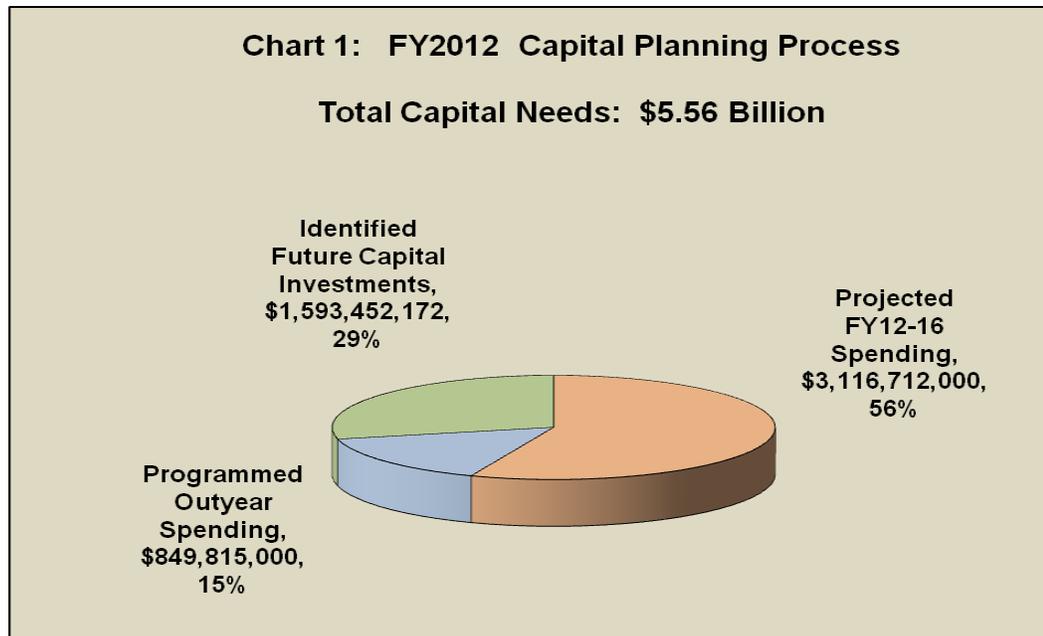
- The Commonwealth passed a \$2 billion Higher Education Bond Bill that included over \$1 billion for University projects;
- The Commonwealth passed a \$1 billion Life Sciences Investment Bill that could provide up to \$240 million of capital support to the University.
- The UMASS Building Authority borrowed \$380 million in April and June of 2008 to fund critical projects at Amherst, Dartmouth, Lowell and the Medical School.
- The UMASS Building Authority borrowed \$550 million in October 2009 to initiate projects at all of the University's campuses.
- The UMASS Building Authority borrowed \$547 million in November 2010 to initiate a third round of projects across the University

These important new developments will build on the University's efforts over the past few years to provide new first-class facilities and to address an existing backlog of building repair and renovation projects.

Maintenance and repair projects represent 31% or more than \$975 million of the total spending projected over the next five years. The University is committed to maintaining and upgrading our capital assets so degradation of facilities does not hamper the learning and research environment in the future. The University will need to invest a significant amount of its own operating funds in capital projects. The attached plan shows that the University continues to put funding of its capital plan as one of its top priorities.

**FY2012 to FY2016 University Capital Needs**

The University’s capital planning process focuses on a five-year planning period, but incorporates planning assumptions, needs assessments, and funding projections for the next decade. The FY2012 capital planning process has identified \$5.56 billion of capital needs across all campuses and the University is projecting to spend \$3.12 billion over the next five years to address these needs.



**Capital Plan Summary**

The President’s Office works closely with the campuses to coordinate and facilitate the capital planning effort. Due to the fact that each campus has its own unique set of capital needs, the capital plans are different from each other reflecting the strategic priorities of each campus. Therefore, the listings of capital projects are presented in priority order for each campus. The campuses have developed ten-year capital spending plans following guidelines from the President’s Office. These ten year plans are updated annually with particular attention given to the first five years of the plan. It is the rolling five-year part of the University capital program that is brought to the Board each year for review, reaffirmation and approval. This year the campuses prepared ten-year plans for the period FY2012 to FY2021.

The University’s Five Year Capital Plan Update for FY2012 – FY2016 represents an assessment of the capital priorities for our campuses based on currently available information. From direct experience, all of the campuses are acutely aware that planning assumptions, priority changes, and emergencies can and do alter the best of plans. We also know that both the availability and the manner in which funds are made available will have a significant impact on plans and priorities. Nevertheless, we believe the Capital Plan Update is an accurate assessment, broad enough in scope to accommodate the vagaries of funding as well as emergencies.



The FY2012 to FY2016 five-year spending plan is summarized by source of funding in Table 1 below. Additional analysis is attached as are summaries of the reports submitted by each campus.

**Table 1:**

<b>Source of Funds</b>												
<b>University of Massachusetts</b>												
<b>Five Year Capital Plan</b>												
<b>FY2012- FY2016</b>												
	<b>Amherst</b>		<b>Boston</b>		<b>Dartmouth</b>		<b>Lowell</b>		<b>Worcester</b>		<b>Total</b>	
<b>Estimated Funds To be Spent FY2012-FY2016</b>												
University Local Funds	\$132,885,000	7%	\$6,775,000	1%	\$7,068,000	1%	\$27,700,000	3%	\$127,140,000	15%	\$301,568,000	5%
Private Fundraising & Federal Funding	\$22,744,000	1%	\$7,500,000	1%	\$23,000,000	4%	\$29,950,000	3%	\$5,200,000	1%	\$88,394,000	2%
University Borrowing	\$517,340,000	28%	\$642,425,000	50%	\$94,500,000	15%	\$290,750,000	30%	\$273,000,000	31%	\$1,818,015,000	33%
State Capital Support	\$347,700,000	19%	\$156,713,000	12%	\$118,391,000	19%	\$192,040,000	20%	\$93,891,000	11%	\$908,735,000	16%
Programmed Outyear Spending	\$83,350,000	5%	\$172,250,000	14%	\$287,415,000	47%	\$290,800,000	30%	\$16,000,000	2%	\$849,815,000	15%
Currently Undesignated Investments	\$715,200,000	39%	\$289,350,000	23%	\$82,076,000	13%	\$150,500,000	15%	\$356,326,172	41%	\$1,593,452,172	29%
<b>Total Capital Projects</b>	<b>\$1,819,219,000</b>		<b>\$1,275,013,000</b>		<b>\$612,450,000</b>		<b>\$981,740,000</b>		<b>\$871,557,172</b>		<b>\$5,559,979,172</b>	
<b>FY12-16 Projected Spending</b>	<b>\$1,020,669,000</b>		<b>\$813,413,000</b>		<b>\$242,959,000</b>		<b>\$540,440,000</b>		<b>\$499,231,000</b>		<b>\$3,116,712,000</b>	

As indicated above, the University has supported 85% of its total capital spending over the last decade. As construction begins on major projects being supported by the Higher Education Bond Bill and the Life Sciences Bond Bill, the Commonwealth's support for capital activity at the University will continue to grow. Governor Patrick's Administration has pledged to direct at least 10% of the state's capital spending to higher education. For the next five years, our capital plan anticipates that the state will support approximately 29% of the projected capital activity at the University.

In developing this year's capital plan update, the University has identified more than \$5 billion of capital investments that should be made over the next decade. For the projects that have been identified but not programmed into a campus funding strategy, we have categorized the project as "undesignated." This designation allows the University flexibility to move forward in the planning of projects and to seek out appropriate funding sources and/or take advantage of funding opportunities from external sources should they develop.

The table (Table 2) below displays the shifts in funding sources and total spending projected for the University between the proposed 5-year plan (FY2012-2016) and last year's plan for the FY2011-2015 time period:

**Table 2:**

**Summary of Changes in University Capital Plan  
 FY2011 and FY2012 Plan Updates**

<b>Source of Funds</b>	<b>LAST YEAR'S PLAN</b>		<b>CURRENT PLAN</b>		<b>Variance</b>	
	<b>Total Planned Spending</b>		<b>Total Planned Spending</b>			
	<b>FY2011-2015</b>		<b>FY2012-2016</b>			
University Local Funds	\$278,120,000	11%	\$301,568,000	10%	\$23,448,000	8%
Private Fundraising & Federal Funding	\$71,300,000	3%	\$88,394,000	3%	\$17,094,000	19%
University UMBA/HEFA	\$1,423,613,725	57%	\$1,818,015,000	58%	\$394,401,275	22%
State Support	\$729,328,834	29%	\$908,735,000	29%	\$179,406,166	20%
<b>Five- Year Spending Projections</b>	<b>\$2,502,362,559</b>	<b>100%</b>	<b>\$3,116,712,000</b>	<b>100%</b>	<b>\$614,349,441</b>	<b>25%</b>

While the overall spending projection has increased by 25% due to the fact that major projects will be entering construction during the next five years, the anticipated distribution of funding sources remains largely consistent.

Table 3 summarizes the University’s capital spending plan for FY2012-2016 by project type:

**Table 3:**

<b>FY2012-2016 Capital Plan Spending by Project Type</b>	<b>Total Planned Spending</b>	
Deferred Maintenance	\$266,274,000	9%
Building Rehabilitation & Renovation	\$677,097,000	22%
Compliance	\$31,875,000	1%
<b>Subtotal Maintenance &amp; Repair</b>	<b>\$975,246,000</b>	<b>31%</b>
New Construction	\$1,950,175,000	63%
Information Technology & Equipment	\$32,965,000	1%
Other Capital Spending	\$158,326,000	5%
<b>Total Planned Spending</b>	<b>\$3,116,712,000</b>	<b>100%</b>

In addition to listing projects in priority order and categorizing projects by source of funds, we also organize projects by program type in order to demonstrate the manner in which requested projects in the FY2012-FY2016 update will support the University’s mission:

**Table 4:**

<b>FY2012 to 2016 Capital Plan Spending by Program Type</b>	<b>Total Planned Spending</b>	
Basic Infrastructure	\$760,096,000	24%
Research	\$762,190,000	24%
Student Life	\$591,032,000	19%
Teaching / Learning	\$1,003,394,000	32%
<b>Total</b>	<b>\$3,116,712,000</b>	<b>100%</b>

- Basic Infrastructure projects benefit the entire campus and are critical to all operations. Steam lines, power plants, roadways, general public safety improvements such as fire alarm systems and hazardous waste removal systems, and administrative computing are projects that would fall into this category.
- The Research category includes projects such as new research building construction or renovations and improvements to existing research facilities as well as large acquisitions of lab equipment.
- Student Life projects include improvements, renovations or the new construction of student centers, dining halls, recreation facilities, dormitories or other facilities that improve the student experience.
- The Teaching & Learning category includes capital projects such as improvements to or new construction of classroom facilities, auditoria, studios, library facilities and instructional equipment.

## **State Funding**

The five year plan reflects the University's continued efforts to present a full picture of capital needs. Realization of the full plan depends upon a financial situation in which the state provides adequate financial support to the University's capital improvement program in addition to the funds that the University is committed to investing from operating funds, debt financing and external fundraising.

Statutory authorizations, which are approved through capital bond bills, are necessary to allow the Governor to spend state general obligation bond (G.O.) proceeds on University projects. The Executive Office of Administration and Finance (EOAF) and the Division of Capital Asset Management and Maintenance (DCAM) are the state agencies that develop the state's capital plan, file bond bills, approve projects that will receive state funding, allocate state funds to approved projects and in the case of DCAM, design, manage and construct public facilities and improvements. The University works with EOAF and DCAM to identify capital needs to be supported by bond bill authorizations, develop project priorities and funding schedules and to work through the entire project completion process from study to design through construction.

In June of 2006, the Legislature passed chapters 122 and 123, the Economic Stimulus and Supplemental Appropriations bills which included funding for UMASS projects are included in the University's capital plan. \$50 million was transferred to UMBA to support deferred maintenance projects, \$4 million was spent on creating the Venture Development Center at the Boston Campus, \$35 million has been pledged to support the construction of the Emerging Technology and Innovation Center at the Lowell Campus, and \$15 million has been dedicated for a Biomanufacturing Facility in Fall River which will support the research enterprise of the Dartmouth Campus.

In May of 2007 the University submitted an \$840 million higher education bond bill request to the administration and the legislature. The request reflected master planning and facilities condition reviews that were underway at each of our campuses. Later that year, Governor Patrick filed his Life Science Initiative and the Higher Education Bond Bill that incorporated the University's capital priorities. Both bills were passed into law and serve as funding sources for a group of significant projects underway across the University. The following two sections summarize the impact of the two new laws on UMASS.



**Chapter 258 of 2008 – The Higher Education Capital Improvement Act**

The Higher Education Capital Improvement Act (the Higher Education Bond Bill) authorizes more than \$1 billion of funds toward projects exclusive to UMass. Of the funds dedicated to the University, 63% or \$628,682,500 is earmarked for specific projects. DCAM has recognized the importance of the higher education investment program and has reorganized itself accordingly. DCAM has assigned a project manager to each of our campuses and is moving forward on many of the projects earmarked in the bond bill.

**Table 5:**  
**Chapter 258 of 2008 The Higher Education Capital Improvement Act**

<b>Earmarked (designated) UMass Projects</b>	<b>Project Cost</b>
<b>Amherst campus</b>	
New academic classroom building	\$85,000,000
New laboratory science building	\$100,000,000
Repairs to Machmer Hall	\$12,600,000
Repairs and renovations to Lederle Research Center	\$41,250,000
Repairs and renovations to Morrill Science Center	\$51,300,000
<b>subtotal Amherst</b>	<b>\$290,150,000</b>
<b>Boston campus</b>	
Stabilization of the campus substructure & alternate parking improvements	\$25,000,000
Construction of a new academic building	\$100,000,000
<b>subtotal Boston</b>	<b>\$125,000,000</b>
<b>Dartmouth campus</b>	
Renovations and infrastructure repairs to the library	\$8,000,000
Building and retrofitting of vacated spaces	\$11,000,000
Planning and design of dormitories	\$250,000
Classroom space upgrades	\$6,000,000
Air conditioning improvements to facilities	\$2,100,000
Major infrastructure repair projects, construction of Charlton College of Business and construction of a Marine science facility at SMCT	\$70,000,000
Portuguese American Archives	\$1,000,000
Center for Portuguese Studies	\$500,000
<b>subtotal Dartmouth</b>	<b>\$98,850,000</b>
<b>Lowell campus</b>	
New south academic building	\$26,000,000
North quad modernization	\$10,000,000
MA Medical Device Development Center (M2D2)	\$4,000,000
Deferred maintenance	\$5,000,000
Civic and Athletic Facilities	\$10,000,000
Storm water management	\$1,500,000
Renovations to Olney Hall	\$2,500,000
<b>subtotal Lowell</b>	<b>\$59,000,000</b>
<b>Worcester campus</b>	
Repairs, renovations, and improvements to buildings, systems and other facilities	\$43,500,000
Improvements to the Medical School's Shriver Center facility in Waltham	\$8,500,000
Expansion of the Medical School	\$3,682,500
<b>subtotal Worcester</b>	<b>\$55,682,500</b>
<b>Total Amount of Earmarked Projects</b>	<b>\$628,682,500</b>
<b>Total Undesignated</b>	<b>\$372,817,500</b>
<b>TOTAL UMASS FUNDING</b>	<b>\$1,001,500,000</b>

**Chapter 130 of 2008 – The Life Sciences Industry Investment Act**

The law is designed to enhance the state’s strengths in the fields of medicine and science and fill gaps in federal funding to ensure the state’s ability to support life sciences innovations from idea to product. In addition to capital funding, the \$1 billion Life Sciences Initiative provides a number of opportunities for the University to participate in the planning and program implementation of this important economic development effort.

The package includes:

- \$500 million in Capital Funding to be spent over a 10 year period; \$299.5 million for targeted infrastructure projects and the balance - \$200 million in unrestricted funds for investment in public infrastructure projects, at the discretion of the Massachusetts Life Sciences Center (MLSC). \$241 million of the designated projects are directed toward UMASS campus facilities and programs.
- \$25 million each year for 10 years for the MA Life Sciences Investment Fund, held at the MLSC, for loans, grants, fellowships, and investments to stimulate increased research and development in the life sciences sector.
- \$25 million each year for 10 years in tax incentives to be awarded to certified life sciences projects.

*Table 6 lists the full set of University projects that are indentified for state capital support through the initiative.*

**Table 6:**  
**Chapter 130 of 2008 The Life Science Industry Investment Act**

<b>Earmarked (designated) UMASS Projects</b>	<b>Project Cost</b>
An Advanced Therapeutics Cluster (the "Albie Sherman Center"), Worcester	\$90,000,000
Life Sciences Research Center Complex, Amherst	\$95,000,000
Emerging Technology Innovation Center, Lowell	\$10,000,000
Grant to acquire the ATMC facility, Dartmouth	\$11,400,000
Marine Biological Lab at Woods Hole, Dartmouth	\$10,000,000
Center for Personalized Cancer Therapy, Dana-Farber Harvard Cancer Center, Boston	\$10,000,000
Appropriation for Pioneer Valley Life Sciences Initiative lease, Amherst	\$5,500,000
New Bedford Life Sciences Incubator, Dartmouth	\$5,000,000
Taunton Life Sciences Incubator, Dartmouth	\$5,000,000
<b>Total UMASS Earmarks</b>	<b>\$241,900,000</b>
<b>TOTAL LIFE SCIENCES CAPITAL PROGRAM</b>	<b>\$500,000,000</b>

## **State Support in FY2012 - 2016**

The University has been working closely with EOAF as it develops the state's FY12-16 capital spending plan. The plan lays out state capital investment for the next five years, including investments the University can expect via the Higher Education Bond Bill. For many of the projects earmarked in the higher education and life sciences bond bill, construction is underway or ready to commence. EOAF remains committed to spending the full bond authorization in a ten-year period and this prioritization of higher education has been reflected in the Administration's planning documents. The University continues to lobby EOAF to spend out the University's state-funded capital authorizations in the quickest, most strategic manner possible. On several projects, including the New Laboratory Science Building at Amherst, the Academic Classroom Building at Amherst, and the Integrated Science Complex at Boston, the campuses have matched the Commonwealth's funding in order to increase the project pace and to create facilities that will anchor the campuses for decades.

## **Sustainability as a Central Component of Capital Investments**

Sustainability, while long an interest of the University community, continues to gain a more prominent role in capital project design, construction, and operating practices. The University is committed to minimizing our impact on the environment and the capital investment strategies put in place by the campuses reflect this commitment. The campuses aim, within budgetary limitations and program requirements, to incorporate the principles of energy efficiency and sustainability in all capital projects. There are endless examples across the University of sustainability being a driving force within campus capital investment decisions, some of which are highlighted below:

- The Amherst Campus's new Central Heating Plant recently won an Energy Star award from the Environmental Protection Agency for its efficiency and clean technology.
- At the Boston Campus, The Integrated Science Center and the General Academic Building are being designed to achieve LEED Silver certification
- The Dartmouth Campus is in the middle of a \$35 million dollar energy performance contract and they are also erecting a 600 kw wind turbine this fall
- Solar installations are being completed at the Boston, Dartmouth and Lowell Campuses
- The Lowell Campus has committed to having new buildings and significant renovations designed to meet the criteria of LEED Silver
- The Medical School will achieve LEED Silver on its Ambulatory Care Center and the Albert Sherman Center

## **New Collaborations**

The University, along with the Massachusetts Institute of Technology, Boston University, Harvard University, and Northeastern University, is organizing a regional consortium of academic and research institutions to develop a high-performance computing facility to be located in Holyoke, MA. The consortium is working closely with the state and industry leaders with a significant presence in Massachusetts, including EMC and Cisco Systems. The facility will provide scientific computing support

to researchers, catalyze collaborations in research fields requiring significant computational resources (such as climate change prediction and system-level modeling for immune response to disease), support workforce training and science education, improve management of enterprise computing systems and spur regional economic development. The benefits to UMass are significant. Faculty on all campuses will have access to unprecedented levels of computational resources for research and the opportunity to participate in joint research. The campuses and the system office will have a more robust and efficient information technology infrastructure, and the University overall will have an enhanced position through its leadership in research and education. Locating the facility in Holyoke will provide environmental benefits, reduce capital and operating costs, and present regional economic development opportunities. Construction on the facility is set to begin within the next few months.

### **University Borrowing**

The capital plan proposes using \$1.818 billion in funds borrowed primarily through the UMass Building Authority (UMBA), although there are other financing avenues used by the University for segments of the capital plan. Examples include clean energy bond programs sponsored by the Commonwealth and financing agencies such as the Massachusetts Health and Education Facilities Authority (HEFA).

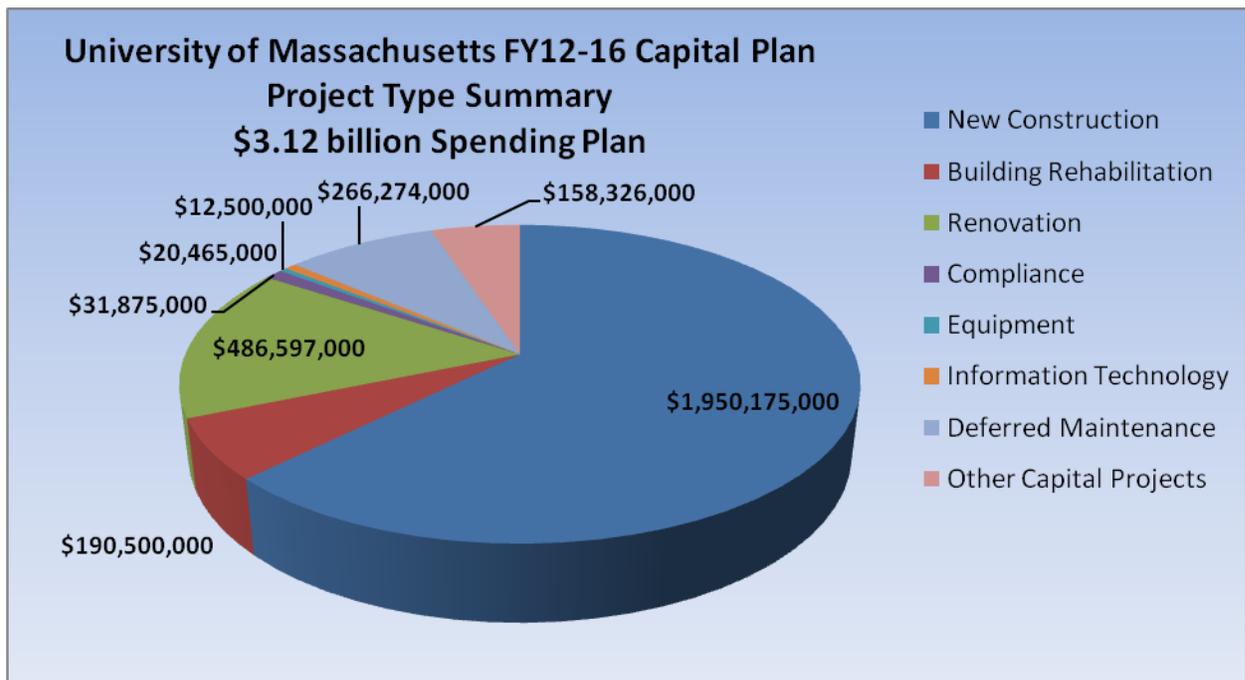
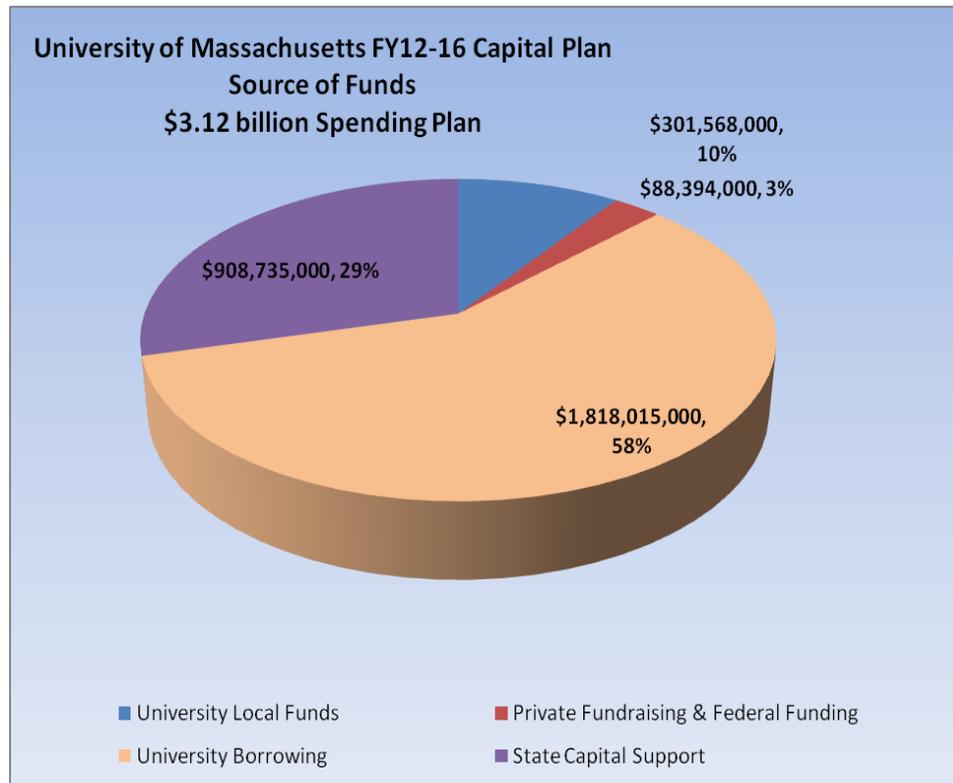
It is important to note that the University has approximately \$1.132 billion of funds currently borrowed for the projects identified on the capital plan leaving approximately \$685 million to be borrowed during the five-year planning period. With major bond issuances completed by UMBA in FY2010 and FY2011, the University anticipates that the next bond issuance will not occur until FY13.

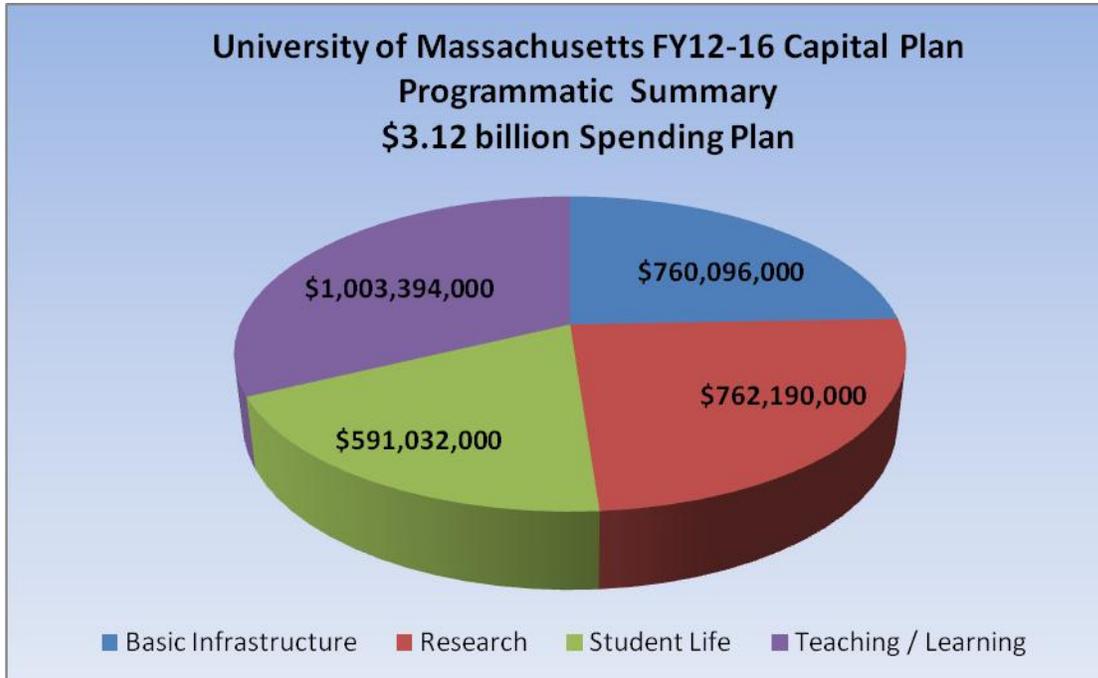
### **What the Board is being asked to approve**

The trustees are being asked to approve the University's capital plan detailing our capital funding needs for the five year period FY2012 to 2016. This will include:

1. any new construction project over \$1,000,000 as required by University policy (detailed in Appendix A) and,
2. any update in total project cost for individual projects that are estimated to have increased by 20% or more over amounts previously approved by the Trustees (detailed in Appendix B).

The following pages provide greater detail and analysis on the University's capital plan including summaries of campus capital plans and a full listing of capital projects.





**CAPITAL PLAN UPDATE  
FY2012-2016  
UNIVERSITY OF MASSACHUSETTS - AMHERST**

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The Amherst campus capital plan is focused on a five-year planning timeframe from FY12 through FY16. This capital plan submission is organized to identify funded projects with designated funding sources as well as capital project priorities that are not yet funded. The funded project list includes projects that are currently underway or that are planned to begin in the next year. The project list with undesignated funding sources includes projects that have been identified as current needs as well as projects that respond to our long range goals.

The Amherst campus maintains an updated comprehensive database of facilities condition and space utilization information for the campus built environment. The campus relies on comprehensive academic program and space utilization studies of science, engineering, classroom and academic space to inform the development of the master plan and capital priorities. Our capital plan will provide new and modernized facilities to meet the demands of an increasingly competitive market in higher education. It also recognizes that our deferred maintenance backlog and growing inventory of obsolete space must be addressed to remain competitive as a leading public research university.

As the University's "flagship" institution, the Amherst campus has established a goal to become one of the best public universities in the country. The Chancellor's "Framework for Excellence" published in spring 2009 outlines a ten year strategy to attain this goal. Primary among the challenges is the need to maintain a strong, nationally competitive faculty in order to maintain top quality instructional and research programs that will in turn attract and retain top quality students. This requires the ability to attract new and retain existing faculty that are nationally and internationally recognized in their fields. The Amherst capital plan is structured with priorities that support the strategic challenges and campus goals of improving teaching, increasing research, enhancing student life and recruiting/retaining quality students and faculty. The underlying strategy of our plan is to balance capital investments between all of our facility needs required to support the goals and strategic priorities of the campus and the University. Thus, the priorities within the capital plan are balanced between new construction, facilities modernization and sustaining existing facilities through the reduction of deferred maintenance.

In order to make continual progress on our facilities improvement and development goals, the campus will need to continue to pursue an aggressive funding strategy to complete high priority capital projects. The Amherst campus continues to rely heavily on allocations from the campus operating budget, including borrowing through the UMBA, to fund capital projects. The campus has committed \$88M of campus operating funds to service debt and support the implementation of our capital plan. This plan anticipates additional borrowing through the UMBA within the next five years.

The current capital plan includes significant State funding from the Higher Education Bond Bill and the Life Science Initiative to address several important capital projects including new construction and much needed renovations. The State has committed \$100M to the construction of one of our highest priority, the New Laboratory Science Building which is a key component in supporting the campus goal to increase research and recruit top faculty. However, on-going fiscal constraints at the State level have delayed the release of State capital for other important campus projects. The campus continues to lobby the State to release funding for our next highest priority, the new academic classroom building, which is critical in supporting our enrollment growth. The delay in releasing funds for several

renovation projects and the uncertainty of the funding for the Life Science Building requires the campus to adjust our capital planning efforts accordingly.

In order to sustain and build upon our current progress, the campus recognizes the need to seek additional funding from other sources including private donations and Federal grants. In the past, private donations supported construction of the addition to the Isenberg School of Management and renovations to the Campus Center for the Hotel and Travel Management program. The campus continues to pursue private donations for new construction. The campus was successful in obtaining over \$2M in private fundraising and \$5M in Federal grants to support the construction of the new Integrated Sciences Building. We have obtained a \$2M federal grant to be used for construction of the New Laboratory Science Building. The campus obtained a \$7M grant from the NIH for renovations to the Lederle Graduate Research Center to support research. The College of Natural Sciences has raised nearly \$2M for laboratory renovations for the Health and Wellness Center in the Food Science Department. We have raised \$1.4M to support the construction of a new building for the marching band. The Isenberg School of Management has received \$1M in private donations and is targeting an additional \$13M to support the construction of new classrooms for their academic programs. The campus is also seeking external funds through grants and private donations for fit-out of the shell space in the new science building. Successful fundraising to support our capital needs remains a high priority.

### **FY12 Current Projects:**

The campus has completed or is nearing completion of several major new projects that will provide modern facilities to support our teaching and research mission. Many more projects are underway and many of the previously funded major projects are in the construction phase. At the completion of FY11, capital expenditures in the past three years at the Amherst campus topped \$380M with over \$139M expended in FY11. The priorities in the current plan are highlighted below.

1. **Reduction of deferred maintenance/code compliance:** The reduction of deferred maintenance and upgrades to address code compliance continues to be a high priority in the Amherst campus capital plan. Our capital plan addresses deferred maintenance in several ways; reduction of DM through building repairs, reduction through modernization of outdated facilities and reduction through demolitions enabled by new construction. In the past year the campus completed over \$50M of projects that reduced our deferred maintenance and code compliance backlog with several other projects in the planning and design phase. With the assistance of Sightlines, the campus maintains a comprehensive database of critical facility repair needs that guides the prioritization of capital projects. This data also allows the campus to track progress in reducing our deferred maintenance liability. The campus has made significant progress in reducing our deferred maintenance liability through capital expenditures over the last three years. However, the campus must continue to address deferred maintenance and this year's capital plan continues to place a high priority on DM.
2. **New Construction:** The campus took occupancy of the new **Police Facility** in the Spring 2011. As planned, the new facility provides adequate state-of-the-art police facilities enhancing the ability of Police Department to serve the campus public safety needs. The new Police Facility qualifies for LEED Gold and is the first LEED certified building on campus. The new **Marching Band facility** completed in July 2011 will provide the UMass Amherst Marching Band with adequate rehearsal space, instrument and uniform storage and offices in a convenient location for students. This new facility will earn a LEED Gold rating. The new **Bowditch Greenhouses** will be completed in September 2011. These new greenhouses replace the deteriorated and functionally obsolete French Greenhouses and provide state-of-the-art greenhouse facilities for teaching and research in Plant, Soil and Insect Science. The new greenhouse will earn a LEED Silver rating. Construction of the new **Laboratory Science Building** has progressed in the past year. The superstructure is completed and will be

enclosed before winter. The new building is on schedule for completion in the fall 2012 with a target for LEED Gold certification. Construction of the new **Commonwealth Honors Residential College Complex** began in May 2011 and will include 1,500 student beds, faculty apartments, classroom space and administration/student services space for the Honors College. The new complex is targeted for LEED Gold certification. Design of the new **Academic/Classroom Building** has progressed with a construction start planned for March 2012 and completion in the winter 2014. This facility will provide new classrooms and academic department space for Communications/Journalism and Linguistics fit-out with state-of-the-art technology. This building is targeted for LEED Gold. In the next year the campus plans to initiate design for academic/classroom facilities to replace Hills and Bartlett Hall, a new football team facility and press box to support the upgrade of the football program and a practice facility for men's and women's basketball with funding from a major private donation.



*New Laboratory Science Building – Wilson Architects*

- 3. Renovations/Modernization:** In the past year, the campus completed several renovation/modernization projects to support new faculty hires in Chenoweth, Morrill and Hasbrouck for the departments of Food Science, Biology and Physics. Major modernization projects in the Dubois Library, Fine Arts Center and Stockbridge Hall were also completed. With funding from NIH, construction has begun in Lederle Graduate Research Tower and construction is underway in Goessmann Lab. Completed renovations in the Morrill Science building provide a modern animal care facility to replace obsolete space in Thayer building. These major renovations replace outdated laboratories and provide modern science labs for teaching and research in chemistry, biochemistry, public health, biology and chemical engineering. This Fall, the campus is completing two pilot Team-Based Learning classrooms to support evolving teaching and learning needs. We are proceeding with several other important renovations to support new faculty hires and research activities in various academic programs. These and other renovations are part of the campus strategy to upgrade existing facilities and provide modern laboratory and teaching space.
- 4. Energy Performance/ Sustainability:** The campus has completed several projects that have improved energy performance in facilities on the Amherst campus in the past several years with a remarkable return on our investment. These efforts have reduced steam, water and electric consumption at the same time we have added new facilities. The campus is committed to an on-going strategy of achieving significant energy performance improvements in existing and new facilities. In the past year, the campus completed a major infrastructure

improvement project replacing deteriorated steam, water and electric utilities servicing the north campus. Design has begun on a similar infrastructure improvement project in the central campus that will replace deteriorated infrastructure and provide reliable and efficient utility connections for the new Academic/Classroom building and the new Commonwealth Honors Residential College. In the past year, the campus Facilities Planning office established a Green Building Design Committee to provide leadership in sustainability efforts for the built environment. This committee has published Green Building Design Guidelines for new construction and is sponsoring a pilot project to establish a program for retro-commissioning existing buildings to reduce energy usage. With the installation of a 1.6MW steam turbine in the new Central Heating Plant, the campus now generates over 70% of our electric usage. Working with DCAM, we are investigating the installation of a biomass boiler that is projected to save the campus \$4.5M/year in fuel cost. If feasible, this project will be funded through the State Clean Energy Investment Fund. The campus is continuing to implement smaller energy reduction projects that are financed through the energy savings achieved by the project.

5. **Campus Master Plan Update:** The Amherst campus has developed an understanding of our challenges, opportunities and facility needs through past studies that assessed our science/engineering and academic/classroom needs. In the past year, the campus has made progress in developing an updated campus master plan that includes key issues and planning principles that reinforce the campus strategic plan and will guide the development of the campus for the next ten years and beyond. The plan has developed through a participatory process with input gathered from a diverse constituency of campus groups in over 85 meetings held throughout the past year. A draft plan will be completed this Fall and presented to the campus leadership for adoption. The goals highlighted in the updated master plan include:

- Addressing the programmatic needs of the Amherst campus
- Providing up-to-date facilities
- Integrating a large campus with overlapping neighborhoods
- Strengthening campus open spaces
- Improving campus connections
- Creating a compact, vibrant and sustainable campus

The projects included in the FY12-16 capital plan reflect the strategic goals and priorities of the campus. The Amherst campus has several important goals as we look to the future. They include increasing the number of faculty and students as well as research grants. Projects in the capital plan support these goals in several ways.

**Teaching and Learning:** The campus has completed two pilot projects providing new team based learning classrooms in our existing facilities. These new classrooms are designed to support group interactive learning and serve as a model for the development of future classrooms on campus. The planned new academic/classroom building will provide a mix of state-of-the-art classrooms and academic space to improve our inventory of campus teaching and learning space. The planned new academic building(s) to replace Hills and Bartlett is part of our strategy to improve the teaching and learning experience on campus. These new facilities will help in retaining and recruiting quality faculty and will support student recruitment to achieve our enrollment goals.

**Research:** The plan includes the development of new animal care facilities and quality research space in the new laboratory science building currently in construction. These premier projects as well as several renovations included in the plan will support current and enable development of new research initiatives. These projects provide modern research space that is essential to achieve our goals for recruiting new faculty and increasing research grant funds. The plan includes the planned development of additional

research space in the future with the Life Science Building, renovation of backfill space upon completion of the NLSB and a planned new Physical Science Building.

**Campus Life:** The new Commonwealth Honors Residential Complex is an exciting new development and will provide a quality living/learning environment for existing students and support the expansion of the Honors College program and enrollment growth in general. The new facility for the Minuteman Marching Band will provide adequate dedicated space for the band program for the first time in the history of the program. In addition, planned renovations in the residence halls will improve the student housing experience and improvements to the southwest exterior concourse will provide improved accessibility, rain gardens with integrated seating areas and improved site lighting for the students residing in the Southwest Dorms.

The Amherst campus is committed to protect its investment in new facilities as they are constructed. The campus sets aside 1.5% of the construction cost/year for all newly constructed facilities to fund term maintenance needs. This represents our on-going strategy to provide funding for facility renewal over the life cycle of the facility and prevents the deferral of required maintenance. In addition, we budget 3.5% of the construction cost/year for operational and routine maintenance required to keep the new buildings in good shape. These budget amounts are consistent with industry standards in facility management aimed at providing the appropriate stewardship of our new facility assets.

The FY12-16 capital plan represents a continued major investment in the future of the Amherst campus. It reflects the established goals of the campus and strategic priorities of the University through a balanced investment program that addresses critical repairs, maintains health and safety standards, provides new and modern teaching and research facilities and improves student life.

### **Deferred Maintenance Status Report – August 2011**

The reduction of deferred maintenance on the Amherst campus has been a high priority for over ten years. A comprehensive facilities condition assessment completed in 1998 documented the deferred maintenance deficiencies for all campus buildings. This assessment showed that 25% of the campus space was in deficient condition. Subsequently, the campus leadership established a capital pool from the campus operating budget to provide annual funding to address our deferred maintenance problem. In addition to this pool, there have been several one-time allocations to fund the reduction of DM and the percentage of our borrowing dedicated to DM reduction has grown steadily over the past five years. Working with Sightlines Facilities Asset Advisors, the campus has established a program to track the results of our investments in DM reduction. Physical Plant personnel identify and enter new deficiencies in our database as they are found in the field. As deficiencies are corrected through repairs, renovations, demolitions or new construction, the database is updated by removing the deficiencies. This report provides summary information on our strategy for reducing the campus DM liability.

### **Facilities Portfolio**

The Amherst campus has 10.7M gross square feet of building space on the 1,400 acre main campus. A large infrastructure network including roadways, walkways, steam, water, electric, sewer and drainage systems support the campus buildings. The facilities portfolio is comprised of diverse building types and space ranging from simple office space to complex research laboratories. The campus has 500 buildings ranging in age from 1-year to 160 - years old. 80% of our campus buildings are over 25 years old and 53% are over 40 years old. Typically, at the age of 25 years many building systems and components are worn out and should be replaced. At the age of 40 years most major building systems have reached the end of their useful life and should be replaced. The failure to

replace systems at these intervals results in a deferred maintenance backlog. The deferred maintenance backlog on the Amherst campus is estimated at over \$1.6B.

### **Recent DM Projects**

The campus has over 80 projects currently underway focused on DM that are at various stages of completion. The total value of the investment in these projects is over \$96M. These projects span a large cross-section of campus buildings and infrastructure including multiple projects in Lederle Graduate Research Center, Morrill Science Complex, Dubois Library and others. Major infrastructure projects include the North Campus Infrastructure and Southwest Concourse replacement projects. In addition, we have over 40 renovation/modernization projects that will correct some DM deficiencies. These include renovations in Goessman Lab, LGRC, Hasbrouck, Paige, Marks Meadow, Chenoweth and others.

### **Campus Long-term Strategy for DM Reduction**

#### **Construction Strategy:**

The reduction of DM on the Amherst campus is a large scale and complex problem. It took a long time to accumulate this DM backlog and it requires a multi-faceted approach over a long period of time to reduce it. Our strategy places a high priority on targeting critical repair projects that not only correct deficiencies but also eliminate or prevent collateral damage in buildings. For example, building roof and envelope repairs/replacements are targeted as a high priority to prevent water/weather damage to building interiors which can be more costly to repair than the building envelope. Building mechanical/electrical/plumbing system and infrastructure repair/replacement is a high priority to improve operational efficiency and reduce energy consumption. All of our large renovation and modernization projects reduce DM by replacement of obsolete building systems as well as code compliance improvements. Renovations also increase the value of our facilities by making functional improvements. In smaller renovation projects we proactively look for opportunities to correct building deficiencies and we provide adequate project budgets to address DM while we have a contractor working in a building. We also target DM reduction through new construction. At the completion of the Bowditch Greenhouse project, we are planning to demolish French Greenhouses that are deteriorated beyond repair. Our plan includes the replacement and demolition of Hills and Bartlett buildings. As we build and occupy some new buildings, the reuse of the vacated space is targeted for its highest and best use. The campus has developed general building design guidelines and green building design guidelines that set standards for new construction and renovations. The purpose of these standards is to increase longevity and reduce life-cycle costs of our buildings.

#### **Financial Strategy:**

At the completion of all new buildings, the campus allocates 3.5% of the construction cost to the Physical Plant operating budget. This funding is dedicated to the routine operations and maintenance of the new building. In addition, the campus sets aside 1.5% of the construction cost for long-term maintenance and repairs. We have significantly increased our reliance on borrowing dedicating a considerable investment in reducing DM through building repairs, renovations and new construction. We have an on-going E+ program whereby the campus provides funding for projects that can generate operational/energy savings to pay for themselves in seven years or less. Revenue operations on the campus maintain R&R funds for routine and long-term maintenance needs. Although we face challenges in obtaining the funding required to address all of our needs, the FY12-16 capital plan targets an 11% reduction of DM by FY16. The following chart illustrates how we plan to achieve the reduction.

**UMass Amherst**  
**Deferred Maintenance Roll Forward (FY12-FY16)**  
(in millions of \$)

	<b>FY2012</b>	<b>FY2013</b>	<b>FY2014</b>	<b>FY2015</b>	<b>FY2016</b>	<b>Totals</b>
<b>Total Starting Deferred Maintenance</b>	<b>1,686</b>	<b>1,665</b>	<b>1,640</b>	<b>1,610</b>	<b>1,591</b>	
Spending on Deferred Maintenance projects (1)	(21)	(21)	(21)	(21)	(21)	(105)
Spending on Deferred Maintenance in renovation projects (2)	(14)	(14)	(14)	(14)	(14)	(70)
Deferred Maintenance escalator - 1%	17	17	16	16	16	82
Decrease in Deferred Maintenance from demolition (3)	(3)	(7)	(11)	0	(72)	(93)
<b>Total Ending Deferred Maintenance</b>	<b>1,665</b>	<b>1,640</b>	<b>1,610</b>	<b>1,591</b>	<b>1,500</b>	
Percent Reduction from 7/1/11	(1.3%)	(2.7%)	(4.5%)	(5.6%)	(11.0%)	

Notes:

- (1) 100% of spending on projects coded as DM per FY12-16 capital plan.
- (2) 50% of spending on projects coded as RV per FY12-16 capital plan.
- (3) Reduction to existing Deferred Maintenance balances due to demolition of Bartlett, French Greenhouse, Power Plant, Hills and Munson Annex.

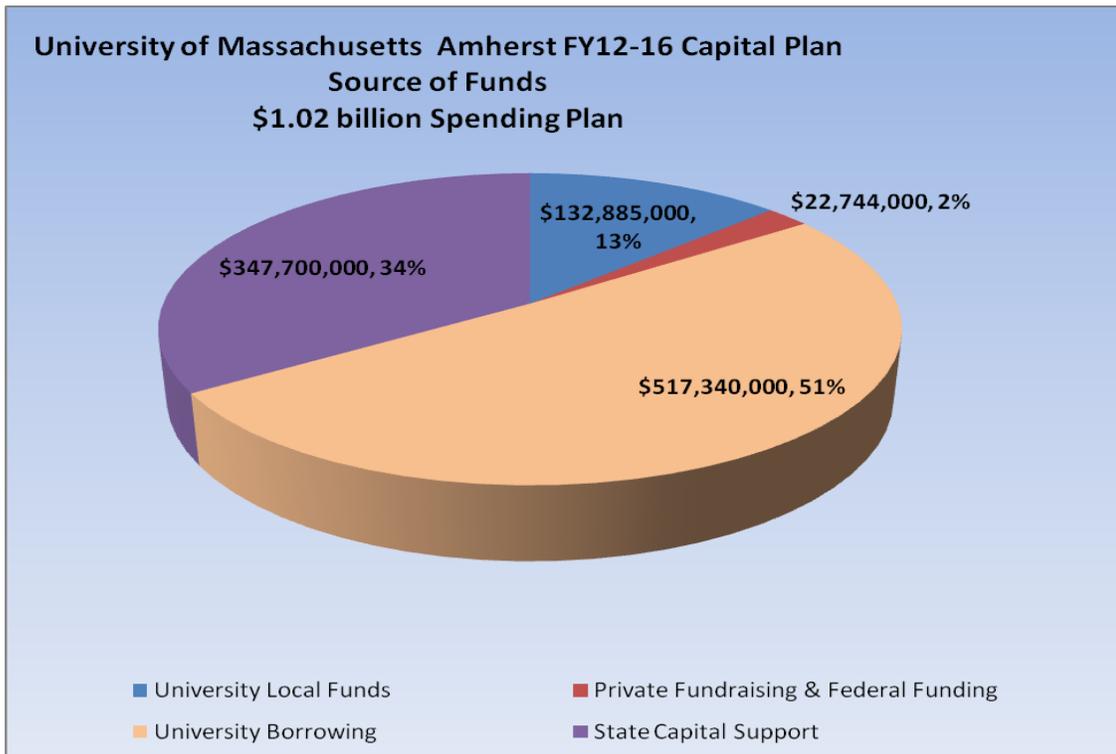
**University of Massachusetts FY12 Capital Plan Update  
Amherst Campus Projects**

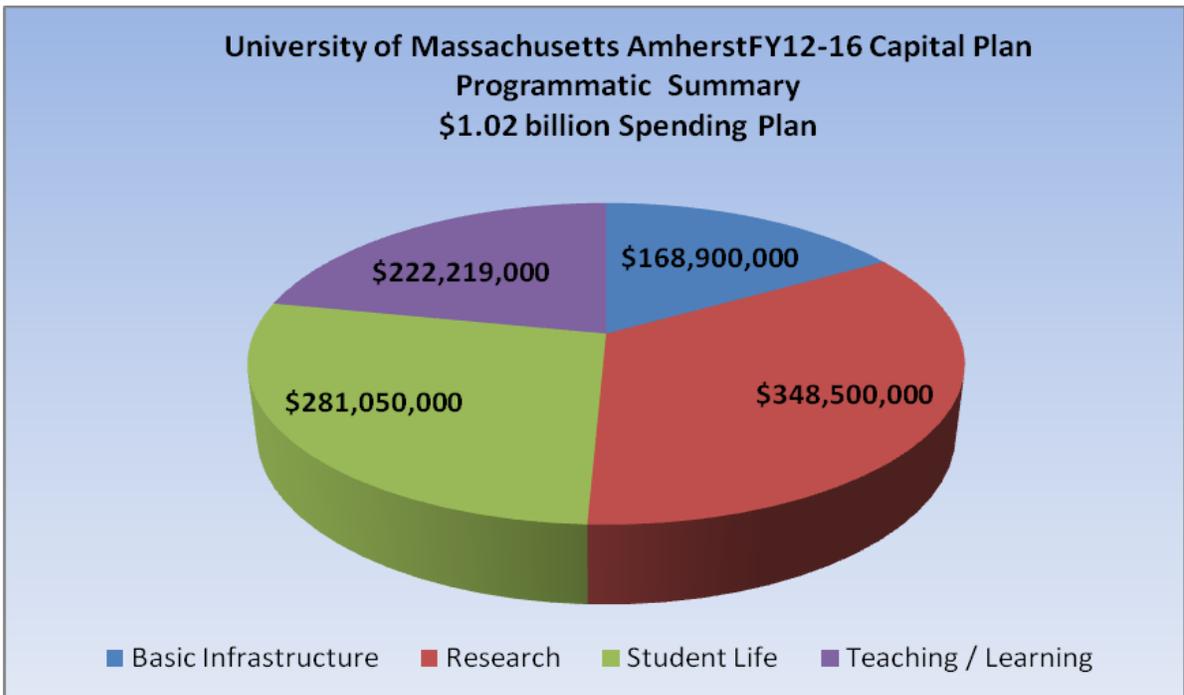
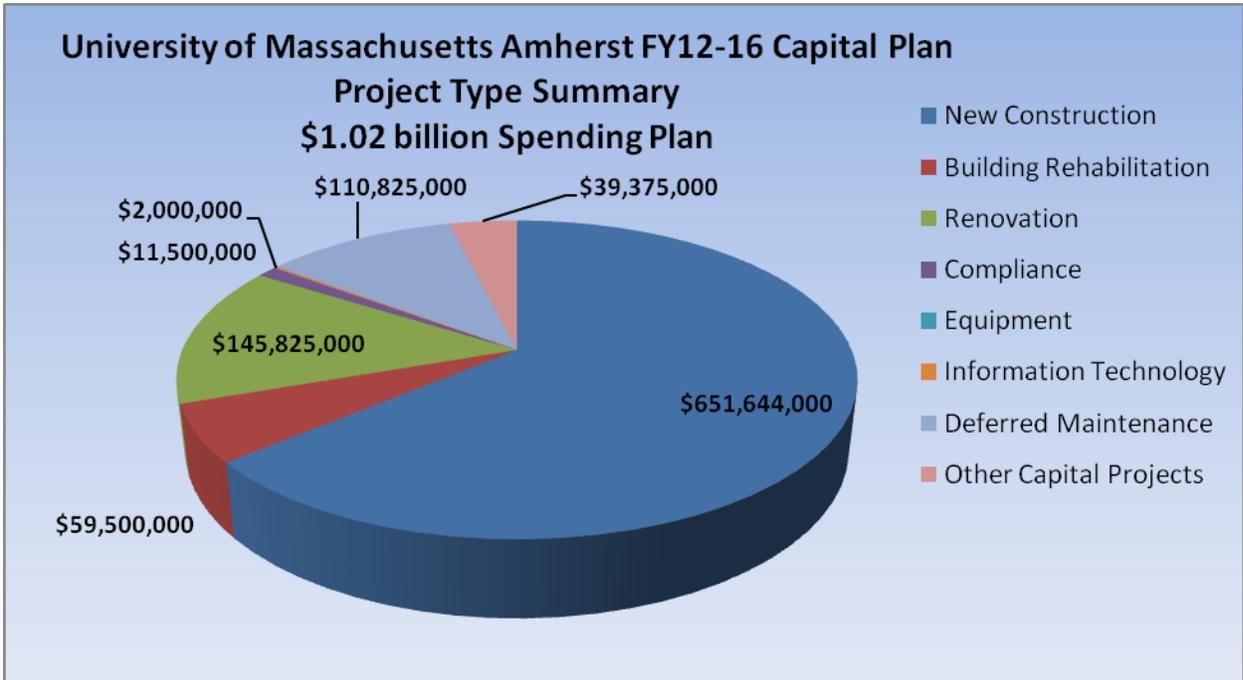
Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011	Five Year Spending
					Anticipated FY12-16 Cash Flow
<b>Programmed Projects</b>					
1	Housing Expansion	NC	SL	\$178,500,000	\$174,000,000
2	ADA Accessibility	CO	BI	\$2,000,000	\$2,000,000
3	Academic Renovations Pool	RV	TL	\$2,500,000	\$2,500,000
4	Campus Space Reallocation	RV	BI	\$5,000,000	\$5,000,000
5	Information Technology Project (Peoplesoft)	I	BI	\$1,000,000	\$1,000,000
6	OIT/Telecom Projects	I	BI	\$1,000,000	\$1,000,000
7	Housing Repair & Renovation	RV	SL	\$25,000,000	\$25,000,000
8	Parking Repair and Renovation	DM	BI	\$3,000,000	\$3,000,000
9	Classroom Renovations	RV	TL	\$2,000,000	\$2,000,000
10	Fine Arts Center Piping Replacement	DM	BI	\$7,100,000	\$1,000,000
11	DuBois Library Elevator Replacement	DM	BI	\$5,000,000	\$2,000,000
12	DuBois Library Electrical and Plumbing Replacement	DM	BI	\$8,500,000	\$8,000,000
13	Campus Center Electrical Repairs	PR	BI	\$6,000,000	\$1,300,000
14	GRC basic systems upgrades	DM	BI	\$10,305,000	\$4,100,000
15	French Greenhouse replacement Phase I (Bowditch)	PR	TL	\$10,800,000	\$4,400,000
16	Housing Sprinkler Systems	CO	BI	\$32,000,000	\$7,000,000
17	Morrill complex repairs and renovations	DM	BI	\$9,081,000	\$5,800,000
18	New Laboratory Science Building	NC	R	\$156,500,000	\$114,600,000
19	Academic Classroom Building	NC	TL	\$85,000,000	\$80,800,000
20	Machmer Repairs	DM	TL	\$12,600,000	\$1,000,000
21	Lederle GRC Repairs and Renovations	BR	R	\$41,250,000	\$19,000,000
22	Morrill Science Center Renovations	RV	R	\$51,300,000	\$23,300,000
23	Goessmann Renovations	RV	R	\$15,000,000	\$13,300,000
24	Southwest Concourse and Infrastructure Replacement	DM	BI	\$15,500,000	\$1,200,000
25	Hampden Dining/Student Union Study	RV	SL	\$400,000	\$400,000
26	Life Sciences Facility	NC	R	\$95,000,000	\$73,500,000
27	Morrill II & III new faculty renovations	RV	TL	\$2,686,500	\$600,000
28	New Faculty Hire Renovations	RV	R	\$3,000,000	\$1,000,000
29	Electrical/other infrastructure	RV	BI	\$5,000,000	\$5,000,000
30	Campus Master Plan Update	O	BI	\$2,000,000	\$675,000
31	Fine Arts Center MEP and renovations	DM	BI	\$4,550,000	\$500,000
32	Roof Repairs	DM	BI	\$2,000,000	\$2,000,000
33	Totman Physical Education Building MEP	DM	BI	\$875,000	\$785,000
34	Paige Lab Renovations	RV	BI	\$6,000,000	\$5,900,000
35	Fine Arts Center fire protection and emergency generator	DM	BI	\$3,250,000	\$3,090,000
36	Hasbrouck Laboratory Renovations and Repairs	DM	BI	\$2,000,000	\$1,200,000
37	Morrill I Vivarium & relocation of Western MA public health	RV	R	\$10,500,000	\$3,300,000
38	LGRC Faculty Renovations (NIH)	BR	R	\$12,700,000	\$10,500,000
39	ISOM architectural and MEP	DM	BI	\$2,000,000	\$1,950,000
40	Hills relocations	RV	TL	\$4,000,000	\$4,000,000
41	Team Learning Classrooms	RV	TL	\$1,750,000	\$1,625,000
42	Facility Demolitions	O	BI	\$12,800,000	\$10,700,000
43	Champion Center	NC	BI	\$25,000,000	\$25,000,000
44	Bartlett Deferred Maintenance & Façade	DM	TL	\$2,000,000	\$1,850,000
45	Central Campus Infrastructure	O	BI	\$25,000,000	\$25,000,000
46	DuBois deferred maintenance/mechanical/electrical/plumbing	DM	TL	\$15,000,000	\$15,000,000
47	Fine Arts Center Concert Hall and Theatre renovations	DM	SL	\$1,600,000	\$950,000
48	Furcolo renovations & elevator	DM	TL	\$3,000,000	\$3,000,000
49	Goodell deferred maintenance & renovations	RV	SL	\$5,000,000	\$5,000,000
50	Machmer renovations	RV	TL	\$1,200,000	\$1,200,000

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011	Five Year Spending Anticipated FY12-16 Cash Flow
<b>Programmed Projects</b>					
51	Webster, Grayson, Field window/masonry	DM	SL	\$13,500,000	\$12,200,000
52	MacNamara & Brown roof, parapet and masonry	DM	SL	\$5,000,000	\$4,500,000
53	Kennedy & Washington laundry venting	DM	SL	\$1,700,000	\$1,550,000
54	Tobin Renovations	RV	R	\$1,000,000	\$1,000,000
55	Dickinson House, Field & Webster elevator	DM	SL	\$1,500,000	\$1,450,000
56	New Laboratory Science Building , OIT data center fitout	NC	BI	\$6,000,000	\$6,000,000
57	Lincoln Apartments Utilities	DM	BI	\$1,500,000	\$1,100,000
58	Fine Arts Center fire protection	CO	BI	\$2,500,000	\$2,500,000
59	Morrill IV Bridge replacement	DM	BI	\$500,000	\$500,000
60	Furcolo ceiling replacement	DM	BI	\$900,000	\$900,000
61	Research Admin, MEP & fire alarm	DM	BI	\$1,500,000	\$1,500,000
62	McGuirk Stadium Improvements	BR	SL	\$30,000,000	\$30,000,000
63	Physical Sciences Building	NC	R	\$80,000,000	\$80,000,000
64	Integrated Sciences Building fitout	NC	TL	\$2,000,000	\$1,944,000
65	Biomass Facility	NC	BI	\$20,000,000	\$20,000,000
66	Marks Meadow/Furcolo Renovations	DM	TL	\$17,500,000	\$17,500,000
67	Fine Arts Center renovations	RV	TL	\$9,000,000	\$9,000,000
68	New Africa House renovations	RV	BI	\$1,700,000	\$1,700,000
69	Hills replacement/Land Arch	NC	TL	\$25,800,000	\$25,800,000
70	New Faculty Hire Renovations	RV	R	\$9,000,000	\$9,000,000
71	Physical Plant deferred maintenance & renovations	DM	BI	\$7,500,000	\$7,500,000
72	Bartlett Replacement Building	NC	TL	\$50,000,000	\$50,000,000
73	Hampshire DC renovations	RV	SL	\$15,000,000	\$15,000,000
74	Lincoln Campus Center Concourse Improvements	RV	SL	\$11,000,000	\$11,000,000
75	Chilled Water Loop	O	BI	\$3,000,000	\$3,000,000
<b>Total Programmed Projects</b>				<b>\$1,251,347,500</b>	<b>\$1,020,669,000</b>

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011
<b>Capital Investments requiring Future Year Funding</b>				
76	Classroom Renovations	RV	TL	\$5,000,000
77	Elevator Repairs	DM	BI	\$2,000,000
78	Machmer renovations	DM	BI	\$4,000,000
79	Research Affairs relocation	RV	R	\$5,000,000
80	Isenberg School of Management renovations and addition	NC	TL	\$40,000,000
81	Totman/Kinesiology renovations/addition/new	NC	R	\$24,500,000
82	New Laboratory Science Building Fit out	NC	R	\$50,000,000
83	Auditorium Renovations	RV	TL	\$7,500,000
84	New Faculty Hire Renovations	RV	R	\$12,000,000
85	Instructional Lab Renovations	RV	TL	\$7,500,000
86	Hasbrouck Renovations	BR	R	\$7,500,000
87	LGRC repairs and modernization	RV	BI	\$10,000,000
88	Morrill Complex repairs and modernizations	RV	BI	\$10,000,000
89	Boyden Gym Renovations	RV	SL	\$7,000,000
90	Fine Arts Center Repairs, Renovations & Modernizations	DM	BI	\$10,000,000
91	Chenoweth Repairs and Renovations	DM	R	\$5,000,000
92	Thompson Repairs and Renovations	BR	TL	\$5,000,000
93	Goodell Renovations	RV	BI	\$16,000,000
94	Roadway Repairs and Improvements	DM	BI	\$5,000,000
95	Environmental/Hazardous Materials Remediations	RV	BI	\$10,000,000
96	Life Safety/Code Compliance	CO	BI	\$5,000,000
97	Campus Security Improvements	O	BI	\$5,000,000
98	Dining Commons Renovations	RV	SL	\$15,000,000
99	Franklin Dining Commons Structural and MEP	RV	BI	\$5,000,000
100	Marston Repairs and Renovations	DM	TL	\$5,000,000
101	University Health Services code and MEP	DM	BI	\$2,100,000
102	Marcus Repairs	DM	R	\$5,000,000
103	CLIP Landscape Improvements Phase I & Phase II	DM	BI	\$7,000,000
104	Arnold Backfill Renovations	RV	TL	\$3,650,000
105	Parking Trailers Replacement	PR	BI	\$3,000,000
106	Student Union Repairs, Code, Renovations, Addition or New	NC	SL	\$80,000,000
107	Stockbridge Renovations for PSIS non lab functions	RV	TL	\$3,200,000
108	Pedestrian Safety Improvements	DM	BI	\$5,000,000
109	Herter Renovations	RV	TL	\$2,000,000
110	Tobin Repairs & Renovations	RV	R	\$5,000,000
111	E-Lab II renovations	RV	TL	\$4,000,000
112	Old Chapel Renovation	RV	BI	\$15,000,000
113	French, Fernald and Clark renovations	RV	TL	\$3,000,000
114	Stockbridge Hall MEP & Renovations	CO	TL	\$12,500,000
115	Conte Polymer windows	DM	BI	\$5,000,000
116	Isenberg School of Management deferred maintenance	DM	BI	\$7,000,000
117	Chilled Water Loop	NC	BI	\$5,000,000
118	Goessmann backfill renovations	RV	R	\$13,000,000
119	New Laboratory Science Building backfill renovations	RV	R	\$18,000,000
120	Campus Infrastructure	O	BI	\$20,000,000
121	Electrical Upgrades and Substation (formerly separate projects)	O	BI	\$16,000,000
122	Dubois Repairs and Renovations	DM	BI	\$20,000,000
123	New Baseball Field	NC	BI	\$1,800,000
124	Softball Facility Lighting	NC	BI	\$1,100,000
125	Gladchuck practice field artificial turf	NC	BI	\$3,000,000

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011
<b>Capital Investments requiring Future Year Funding</b>				
126	Athletics Facilities Upgrade	RV	SL	\$3,000,000
127	Softball Pitching Facility	NC	BI	\$1,800,000
128	Facility Demolitions	O	BI	\$5,000,000
129	Farm and outlying stations renovations	RV	BI	\$4,500,000
130	Deferred Maintenance & Modernization Projects	DM	BI	\$15,000,000
131	ADA Compliance Renovations	RV	BI	\$2,000,000
132	New Parking Structures	NC	BI	\$16,000,000
133	Mather Career Center HVAC, drainage and doors	DM	BI	\$1,500,000
134	Renovate Curry Hicks	RV	SL	\$4,000,000
135	Campus Moves	RV	BI	\$5,000,000
136	Mechanical Engineering Elab I	RV	R	\$1,500,000
137	Renovate Hampden Dining Commons	RV	SL	\$11,600,000
138	Whitmore Renovations	RV	BI	\$10,000,000
139	North Pleasant Street Road Improvements	O	BI	\$9,000,000
140	Rand Theater Renovations	RV	SL	\$5,000,000
141	Renaissance Center Great Hall	RV	SL	\$2,600,000
142	Wayfinding and Signage	O	BI	\$1,000,000
143	West Experiment Station repairs	O	R	\$1,000,000
144	Stockbridge Pedestrian Road	NC	BI	\$4,500,000
145	Holdsworth Renovations	RV	BI	\$2,000,000
146	Property Acquisitions	O	BI	\$1,500,000
147	Coal Yard Decommission	CO	BI	\$2,000,000
148	Solar Panels	O	BI	\$2,350,000
149	Waltham & Gloucester renovations	RV	BI	\$5,000,000
150	University Health Services Renovations/Replacement	RV	SL	\$35,000,000
151	Housing Renovations and Repairs	RV	SL	\$25,000,000
<b>Total Investments Undesignated</b>				<b>\$715,200,000</b>





**CAPITAL PLAN UPDATE  
FY2012-2016  
UNIVERSITY OF MASSACHUSETTS - Boston**

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**Building Momentum**

**Momentum is the quantity of motion of a moving object.  
A force is an action on an object that changes its motion.**

*--- From Newton's Laws of Motion*

**Introduction**

UMass Boston is the steward of a facilities portfolio that includes eleven buildings on more than 122 acres on the harbor at Columbia Point Peninsula in Boston, MA and four buildings on Nantucket. There are more than 2 million square feet of building space on Columbia Point. Utilities are distributed from a centralized Utility Plant and internal circulation occurs through a continuous, enclosed, bridge called the "catwalk" that is almost 1/4 mile in length and which provides a weather-protected network between buildings.

The university owns three additional properties on Columbia Point, which are currently under the care and control of the Boston Water and Sewer Commission. These are the buildings associated with the historic Calf Pasture Pumping Station.

Since 2007 when Chancellor Motley was appointed to lead UMass Boston, enrollment at UMass Boston has increased nearly 20% from 13,433 in the fall of 2007 to an estimated 16,111 students for the fall of 2011, placing enormous strain on the current physical plant. Our next five year strategic plan will provide the blueprint to grow to 18,000. This growth will be achieved as the campus implements the first phase of its Master Plan as we construct the first new academic buildings in nearly 40 years, the Integrated Science Center and the General Academic Building No.1. Additionally we are upgrading our Utility Plant and relocating utilities and roads to accommodate our increased enrollment while preparing for continued student growth and other educational changes anticipated with the implementation of UMass Boston's new strategic plan.

Any discussion of capital strategy at UMass Boston needs first to acknowledge several important historic and geographical characteristics of the campus:

1. Prior to its being designated as the site for the UMass Boston campus, a portion of the land had served as a garbage dump for the city of Boston, the Mile Road Landfill; a portion of it had been used as the main site of the Boston Consolidated Gas Company, and a portion of it was used as the site of the city's first facility to collect and discharge raw sewage out to Boston Harbor. These conditions have necessitated sub-slab methane venting systems. Humble beginnings, surely.
2. Except for the Clark Athletic Center (1977) and the Campus Center (2004), the UMass Boston campus was built all at the same time, opening to students in 1974. While the Commonwealth provided funding for the construction of the "Harbor campus", it did not provide funding to correct significant construction deficiencies identified shortly after the opening of the campus. Like nearly all academic institutions, the university's budget

for operations, maintenance, and planned renewal is not sufficient to prevent the accumulation of deferred maintenance. While buildings of this age and at this level of deterioration are not unique on college campuses, it is more problematic when an entire campus of buildings reaches this juncture simultaneously.

3. The campus was originally built as separate buildings. These were interconnected by a plaza level two stories above grade and below the plaza there are two substructure levels. The substructure levels were used for parking until 2006, when safety concerns resulted in the garage's closure.
4. After its construction, the UMass Boston campus and other public construction projects of the same era, experienced unexpected problems and a *Special Commission Concerning State and County Buildings in Massachusetts* was appointed. That Commission, called the Ward Commission after its Chairman, John Ward, found that two state senators had accepted payoffs from a construction firm involved with the construction of the campus. As a result, concerns about inferior workmanship have followed the buildings from this era; there may, however, be more problems related to lack of regular maintenance over the past forty years than from its construction.
5. UMass Boston is located on a flight path for flights into Logan International Airport and careful attention is paid on building glazing to ensure that flight noise is attenuated.
6. Years of exposure to salt-laden water caused severe and widespread corrosion damage to the Substructure levels of the campus as well as to the Plaza in between the buildings. The cost to repair these conditions was great (estimated at \$160m in 2005) and the campus faced other facilities issues as well, including the very fortunate fact of rapid growth in its enrollment. Consequently, a decision was made to undertake a Master Plan to take a more comprehensive planning approach to these issues.

The Master Plan that resulted, which Chancellor Motley presented to the Board of Trustees in December 2007, is guiding the physical transformation of UMass Boston.

### **Transformation as a Force**

The force of transformation has been upon UMass Boston over several years and the titles of its recent Capital Plan narratives say much about the course this force has taken:

- The FY09 capital plan, *Beyond the Headlines*, documented how UMass Boston would address the cloud that its' deteriorated Substructure cast over its capital strategy. The plan detailed, among other capital projects, a series of projects to stabilize and make the Substructure useable for ongoing operations.
- The FY10 capital plan, *Planning for the Future of UMass Boston*, highlighted the conceptual design approach selected for its then recently completed Master Plan. That approach, called 'Improving Connections', would guide the transformation of the campus' physical environment by focusing on projects that underscored the Master Plan's principles.
- The FY11 capital plan, *From Plan to Performance*, emphasized the capital projects that would be undertaken as a result of thorough and detailed study of the key elements of its programmatic goals.

With the submission of this FY12-FY21 Capital Plan entitled, *Building Momentum*, UMass Boston signals the continued forward motion of its pursuit of a campus being transformed to meet the strategic vision

Chancellor J. Keith Motley outlined in his inaugural address: "Some universities are known for their great research; others, for great teaching. We shall be known for both, with our expertise in both areas contributing in an interdisciplinary way to serve our local, national, and global constituencies. We are and will be - the research university with a teaching soul."

### **Funding by Program**

The UMass Boston FY12-FY21 Capital Plan outlines \$1.135.7 billion in capital spending over the next ten fiscal years in four major areas:

<b>Program Type</b>	<b>Amount Allocated (in Millions)</b>	<b>% of Total Funds</b>
• Basic Infrastructure/Deferred Maintenance/ Compliance Projects	\$63.6	5.7%
• Master Plan-related Projects	\$1,019.4	89.6%
• Substructure-related Projects	\$8.3	0.7%
• Teaching/Learning/Research	\$44.4	4.0%

### **Substructure and Related Repairs Projects**

This five-year, \$40m, project has consumed some 7% of capital dollars and yet, now nearing completion, it will appropriate less than 1 % in this capital plan going forward. The two level Substructure was closed, except in limited areas where walkways and/or structurally reinforced overhead protection was installed to accommodate operations personnel and/or safe pedestrian access to and from surface parking lots. Steel vertical supports and lateral braces were installed to support the buildings' substructure on an interim basis for 7 to 10 years. Localized concrete repairs have been made where needed. Fire protection has been upgraded and acid neutralization systems in the deteriorated slab have been removed and rebuilt above ground. The obsolete campus electrical switchgear has been replaced by state of the art equipment housed in a newly constructed facility. That move allows construction crews to now repair the deteriorated Utility Plant roof and roof deck. The deteriorated exterior stairway from the Quinn roadway to the Plaza has been permanently removed.

With the campus foundation stabilized and our attention and funding re-directed forward, our future thoughts as they relate to the Plaza between the buildings and the substructure levels located below these plaza areas, are of its demolition. What was once the domain of the automobile and then a striking scene of deteriorated, dark and vacant space will become a landscaped crossroads for an engaged community of students, faculty and staff enjoying a memorable place of learning and collaboration.

### **Basic Infrastructure/Deferred Maintenance/Compliance Projects**

Beyond UMass Boston's well documented Plaza and Substructure issues, there has been a targeted and consistent effort to identify its most critical deferred maintenance so that its correction remains a high priority, along with other capital priorities. Deferred maintenance is the accumulation of maintenance, renewal and replacement projects on building systems and components postponed or unperformed when funding is unavailable or when the operating budget is squeezed by unexpected external forces (e.g. a sharp increase in energy costs that make oil prices soar) or operating issues such as unexpected excessive snowfall.

Although any building systems may be subject to maintenance deferrals, the deferral of certain buildings' maintenance results in more critical consequences. In 2005, UMass Boston contracted with the Gilbane Building Company to review critical facilities infrastructure, life-safety and deferred maintenance issues.

Their findings provided a list of projects to be undertaken prioritized to account for 1) immediate life safety needs; 2) business continuity relative to delivery of educational mission; and 3) preservation of physical assets. Not surprisingly, the Gilbane Report noted the increased costs for maintenance and construction to which our campus is subject, given the particular environmental conditions encountered by our location on a former landfill and at the ocean's edge.

The Gilbane Report was buttressed by other focused studies of specific building and infrastructure systems, such as the ones completed below:

- *Survey and Report of Campus Elevators;*
- *Roof Repair and Replacement Study;*
- *Study to Evaluate Existing Conditions and Use of Water Distribution Systems at UMass Boston;*
- *Medium Voltage Distribution Study;*
- *Healey Library Fire Sprinkler Study;*
- *Repair Study of Healey Library Landing and Quinn Plaza Stair;*
- *Code Strategy Report: UMass Boston McCormack Hall and Wheatley Hall*
- *Bayside Expo Facility Condition and Physical Conditions Report;*

UMass Boston's strategy for correction of its Basic Infrastructure, deferred maintenance and life-safety issues is continuously modified to reflect whatever knowledge we have gained through study or experience so that the financing and correction of these issues is always directed towards safety first, and secondly, on preserving the highest and best use of each of its facilities. In some cases, this "triage" protocol has resulted in our providing only critical repairs to unoccupied properties, such as the Nantucket Field Station's Little Beach House and the Bayside Expo Center buildings.

UMass Boston has used these studies to analyze how to invest most cost effectively in its physical space - whether to rehabilitate the old or build new. Over recent years, on average, the annual capital plan has documented a 6% expenditure on Basic Infrastructure, Deferred Maintenance, and Life Safety. While that number seems low, it should be considered along with the average expenditure of 4% on the Substructure and Related Repairs Projects, which are all large-scale deferred maintenance projects. More importantly, UMass Boston has corrected a critical array of maintenance and infrastructure issues contained in the 2005 list and the FY12-21 Capital Plan outlines a significant number of additional issues which will be addressed either under this category or, as a result of new construction or demolition.

Those costliest and most deteriorated conditions will be addressed by building new buildings and demolishing the old. For example, the Gilbane reported as follows: "... the campus science facilities are not capable of supporting a state of the art science curriculum. All of the facilities system designs and technologies are circa 1965-1970 which, due to the substantial evolution of these disciplines, no longer conform to current industry, code, or higher education facility best practice standards". The decision to replace the Science Center with the new Integrated Sciences Complex and to demolish the Science Center after the ISC is constructed will free UMass Boston from the burden of millions of dollars of deferred maintenance in outmoded research and teaching facilities and, more importantly, UMass Boston's research aspirations will be allowed to flourish in modern research laboratories.

Among several Basic Infrastructure projects, UMass Boston will spend \$7m on modifications to its Utility Plant, which provides centralized utilities distribution to all of its main campus facilities. Several crucial Life-safety Compliance projects are planned, including the installation of sprinklers in several buildings on campus, including the Service and Supply Building, to which the campus' Data Center is expected to be relocated.

Two important areas for correction of Deferred Maintenance are UMass Boston's elevators and roofs/facades. UMass Boston's Elevator Modernization efforts will continue with the installation of new and upgraded elevators in four buildings: McCormack Hall, Wheatley Hall, Clark Athletic Center, and Quinn Administration building. The Selective Roof Repairs and Replacement Project continues with work on the following buildings: 1) Replacement of McCormack Hall 3rd floor membrane roof; 2) Replacement of the Wheatley Hall 6th floor roof; 3) Replacement of a portion of the Science Center 3rd floor roof; 4) Replacement of the Service and Supply Building membrane roof; 5) Repair of the Clark Athletic Center plaza waterproofing; 6) Repair of the Clark Gymnasium roof; and 7) Miscellaneous repairs to roof membranes, roof drains and skylights at Campus Center, Healey Library, the Science Center, and Wheatley Hall.

UMass Boston is committed and will continue to work in a sustained manner on correction of its deferred maintenance backlog over this five-year planning period such that, through a combination of funded repair and replacement projects and significant demolition projects, UMass Boston will have achieved a 10% reduction in this backlog.

UMass Boston has a clear plan in place to address both its deferred maintenance and its priorities for transforming the physical plant.

### **Master Plan-related Projects**

Our forward motion is assured as our highest capital priority, the transformative redevelopment of our physical plant, continues. At 89% of the proposed Capital Plan expenditures, Master Plan-related projects are the cornerstone of our *Building Momentum*. The following guiding principles of the Master Plan are serving as a framework to build upon as we design and construct these projects:

- Address Substructure deterioration
- Enhance student life experience
- Commit to sustainability
- Embrace natural surroundings
- Integrate with surrounding community
- Provide multi-modal transportation solutions
- Allow for future growth and development

The first of several new academic buildings, indeed the first new academic building on this campus since it opened to students in 1974, the Integrated Sciences Complex, is now under construction. A joyful Groundbreaking ceremony was held in June and this summer, more than 320 piles have been driven. Construction crews are laying a foundation; the steel erection contract has been awarded and will begin in December. The first classes in the new Biology teaching laboratories are planned for September 2013.

Design and Construction Manager contracts were awarded earlier this year to the teams which will design and construct a second new academic building on our campus. The Programming Phase is near completion on the General Academic Building No.1, which will house Chemistry teaching laboratories, a theater, and more than twenty-five (25) new classrooms, with instructional technology within that will surpass any currently available on campus.

The Utility and Roadway Relocation Project has been underway since September 2010 and at the end of August 2011, the design team will complete Planning and Preliminary Design services for the new campus utility infrastructure and roadway and surface improvements necessary to support the build-out of the 25-year Campus Master Plan.



The relocation of the campus' utilities out from the Substructure to a new utility corridor will allow for the demolition of the substructure and the creation of a Central Quadrangle, a core element of the campus Master Plan's design. The utility corridor and roadway is being designed to provide capacity for both existing buildings and to serve for buildings under construction or to be designed in the future, as identified in the Master Plan. This project in all its varied facets (e.g. utility corridor, roadway relocations, landscaping, new utility building connections, stormwater management) will cost some \$135m. This project will ensure that the physically transformative elements that will be the underpinning of all that takes place on this site for the next century are built upon sound, robust, flexible, creatively designed and carefully engineered infrastructure.

### **Teaching/Learning/Research Projects**

Admittedly, most of the Master Plan-related Projects included in this Capital Plan could instead be referred to as Teaching/Learning/Research Projects in that the biggest positive impact of the Master-Plan related Projects will be on these areas; and that is as it should be. The Master Plan designation, however, has been reserved for those projects

resulting from the master planning process. The projects highlighted under this Teaching/Learning/Research designation will, however, have no less of an impact on the educational experience of our students.

Programming and design work will begin on the Healey Library Classroom 2.0 Project, a project to create additional classroom space in Healey Library in order to provide both necessary classroom swing space as renovations to McCormack Hall and Wheatley Hall approach and an opportunity for professors to provide instruction in a style of classroom not currently available at UMass Boston but that will be included in the General Academic Building No. 1. Because the GAB No.1 will include both a technology intensive "studio" classroom and case method classrooms, having an opportunity for instructional staff to work in these classroom environments now and will aid the implementation of new pedagogies at UMass Boston as new academic buildings are added and existing classrooms are renovated.

The Information Technology Enterprise Architecture Project is helping the Information Technology Services Division establish a University-wide roadmap to achieve the University's mission by helping the university's information technology systems to evolve, to develop new systems, and to take advantage of emerging technologies that optimize mission value. This project and those who are managing it recognize the wisdom of the observation that "Success in the new economy will go to those who can execute click and mortar strategies that bridge the physical and the virtual worlds" (Harvard Business Review).

### **Conclusion**

UMass Boston's Capital Plan FY12-FY21 underscores campus efforts at Building *Momentum* and will result in a voyage towards renewal and transformation.

*"The origin of existence is movement. Immobility can have no part in it, for if existence were immobile, it would return to its source, which is the Void. That is why the voyaging never stops ... "*

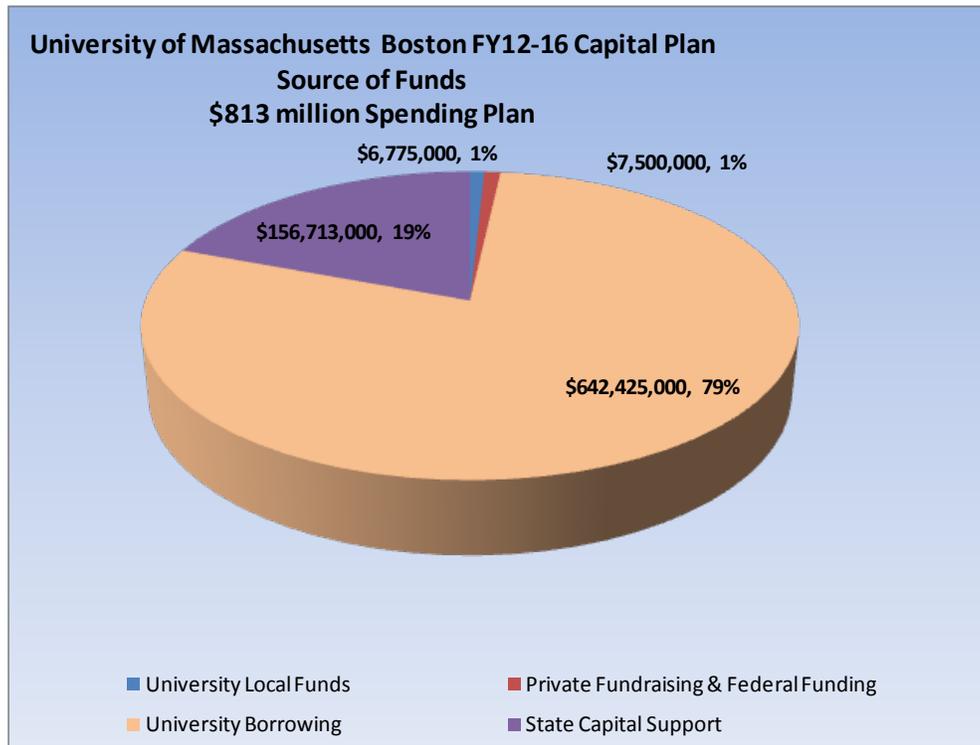
*Abu Bakr ibn al-'Arabi, 12th century Spanish philosopher*

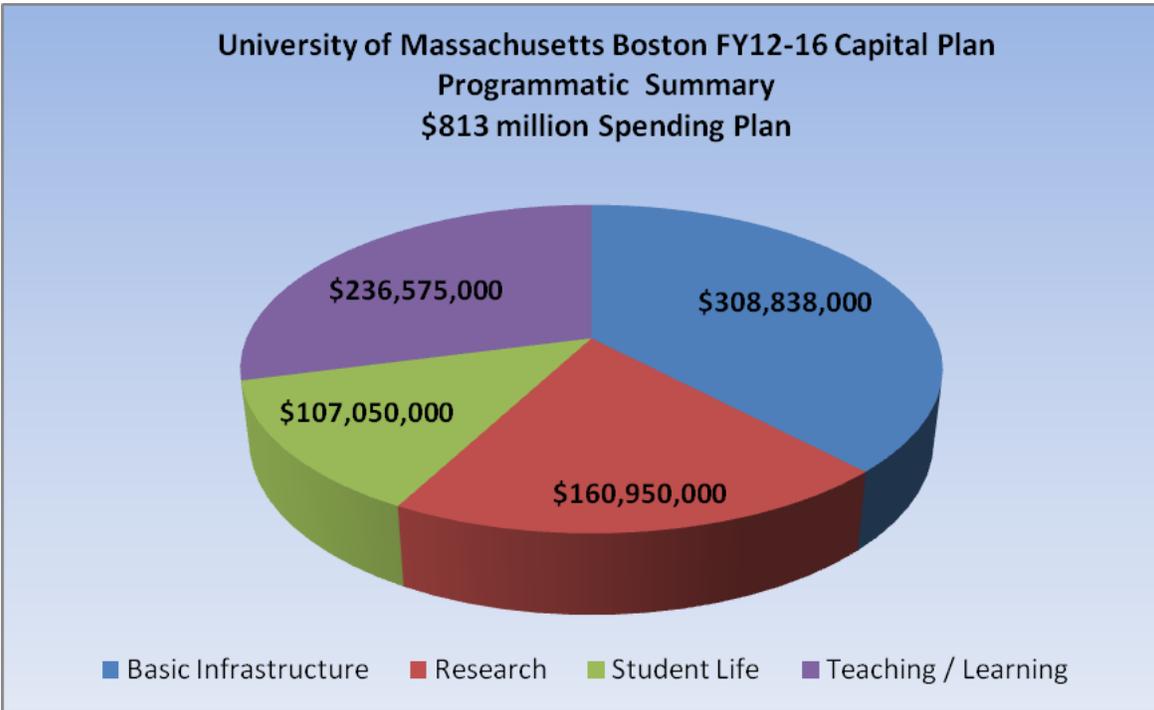
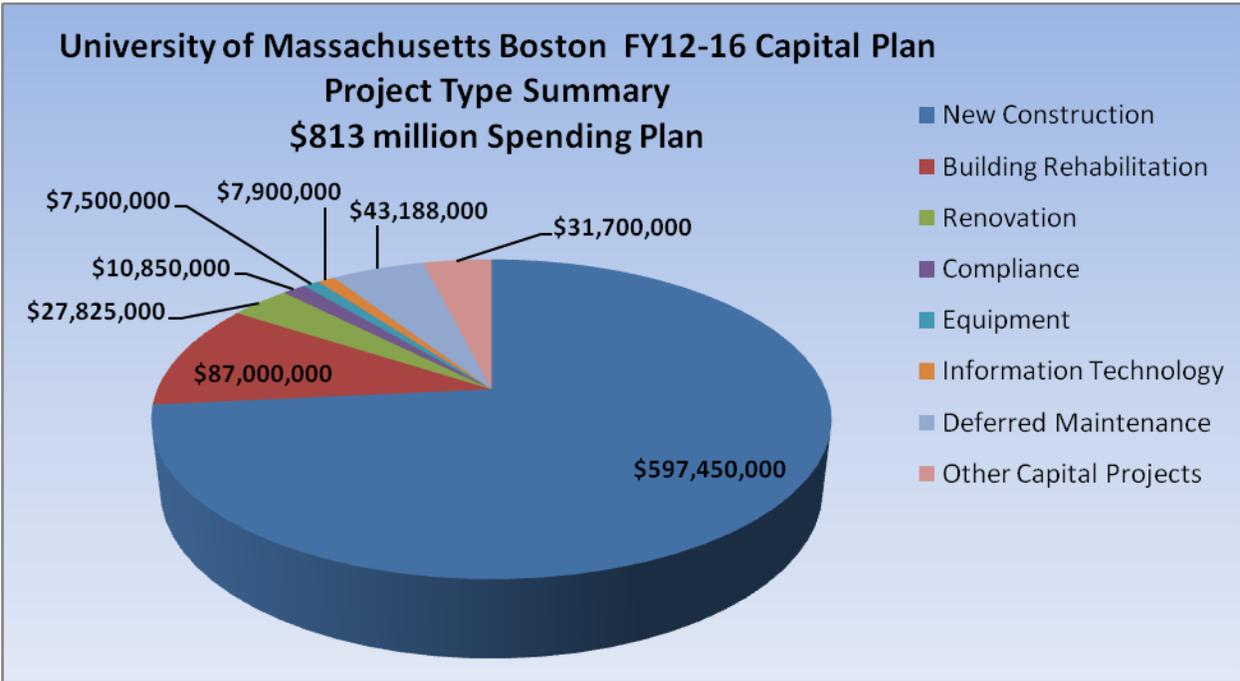
**University of Massachusetts FY12 Capital Plan Update  
Boston Campus Projects**

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011	Five Year Spending
					Anticipated FY12-16 Cash Flow
<b>Designated Projects</b>					
<b>Basic Infrastructure (Life Safety/Deferred Maintenance)</b>					
BI.01	Replace Primary Electrical Switchgear in the Utility Plant (1)	DM	BI	\$2,500,000	\$2,500,000
BI.01.1	Construct New Structure for Primary Electrical Switchgear (1)	NC	BI	\$3,000,000	\$3,000,000
BI.02	McCormack Hall and Wheatley Hall: Roof Replacements and Repairs	DM	BI	\$4,600,000	\$4,300,000
BI.03	Healey Library: Emergency Generator Replacement	DM	BI	\$800,000	\$25,000
BI.04	Healey Library: Fire Protection Improvements (Install Fire Sprinklers, Replace Fire Alarm System and Fire Pumps)	CO	BI	\$7,000,000	\$7,000,000
BI.05	Grounds: Sea Wall and Harborwalk Construction on North-Facing Shore	NC	BI	\$3,800,000	\$3,800,000
BI.06	Clark/McCormack Hall/Quinn Admin/Service/Wheatley Hall: Elevator Renovations -- Code/Restoration	DM	BI	\$2,875,000	\$2,875,000
BI.07	Saltwater Pump House: Mechanical System Upgrades and Savin Hill Cove Dredging	DM	BI	\$2,000,000	\$2,000,000
BI.08	Clark Athletic Center: Replace/Repair East Curtain Wall	DM	BI	\$2,000,000	\$2,000,000
BI.09	Healey Library: Roof and Building Envelope Repairs	DM	BI	\$2,000,000	\$2,000,000
BI.10	Service and Supply Building: Roof and Building Envelope Repairs	DM	BI	\$1,750,000	\$1,750,000
BI.11	Nantucket Field Station: Repairs to Field Station Buildings	DM	BI	\$1,400,000	\$1,400,000
BI.12	Campus-Wide: Create ADA-conforming Restrooms and Accessible Pathways in Healey Library, McCormack Hall, the Science Center and Wheatley Hall	CO	BI	\$1,300,000	\$150,000
BI.13	Campus-wide: Central IT Upgrades/Replacements	IT	BI	\$5,000,000	\$5,000,000
BI.14	Campus-wide: Telephone System Upgrades	IT	BI	\$1,300,000	\$1,300,000
BI.15	Campus-wide: Off-site Data Center Backup	IT	BI	\$600,000	\$600,000
BI.16	Campus-wide: ADA Compliance	CO	BI	\$1,000,000	\$1,000,000
BI.17	Quinn Administration Building: Install Fire Suppression System and Upgrade Fire Alarm System	CO	BI	\$1,200,000	\$1,200,000
BI.18	Fox Point Docks: Upgrades and ADA Accessability	CO	TL	\$1,500,000	\$1,500,000
BI.19	Campus Wide: One Card System	IT	BI	\$1,000,000	\$1,000,000
BI.20	Campus-wide: Replace Exterior Doors to Ensure Climate Control (including vestibules) and Code Compliance	DM	BI	\$3,200,000	\$3,200,000
BI.21	Calf Pasture Pumping Station: Security and Button-up Envelope at ownership transistion.	DM	BI	\$500,000	\$500,000
BI.22	Quinn Administration Building: Renovations to improve Building Efficiency	RV	BI	\$10,000,000	\$4,000,000
BI.23	Projects Less Than \$500,000 (Aggregate)	DM	BI	\$5,785,764	\$5,518,000
<b>Master Plan Projects</b>					
MP.01	Master Plan Phase I: Construct New Integrated Sciences Complex	NC	R	\$152,000,000	\$144,450,000
MP.01.01	Master Plan Phase I: Utility Plant System Expansion and Upgrades to Accommodate ISC and GAB including new chiller and boiler	NC	BI	\$3,000,000	\$3,000,000
MP.01.02	Life Sciences: Center for Personalized Cancer Therapy (To be located within Integrated Sciences Complex)	RV	R	\$10,000,000	\$10,000,000
MP.01.03	Relocate Department of Pubic Safety due to construction of bridge between the ISC and Quinn	NC	BI	\$4,000,000	\$4,000,000
MP.02	Master Plan Phase I: Utility Corridor and Roadway Relocation Project (Phase I)	NC	BI	\$82,125,000	\$81,075,000
MP.02.01	Master Plan Phase I: Utility Corridor and Roadway Relocation Project (Phase II)	NC	BI	\$52,875,000	\$52,875,000
MP02.02	Master Plan Phase I: Construct new Trigereneration Facility to accommodate increased campus chilled water, hot water and electrical service needs.	NC	BI	\$25,000,000	\$25,000,000

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011	Five Year Spending Anticipated FY12-16 Cash Flow
<b>Designated Projects</b>					
MP.03	Master Plan Phase I: Utility Plant Upgrades related to pumps, controls, heat exchangers and Utility Corridor Reconfiguration	BR	BI	\$7,000,000	\$7,000,000
MP.04	Master Plan Phase I: Construct New Academic Building 1	NC	TL	\$100,000,000	\$100,000,000
MP.04.01	Master Plan Phase I: Relocate Track/Athletic Field	NC	BI	\$2,500,000	\$2,500,000
MP.05	Master Plan Phase I: Renovations to Existing Campus Buildings	BR	TL	\$75,000,000	\$75,000,000
MP.06	Master Plan Phase I: <u>Study</u> Substructure and Science Center Demolition	O	BI	\$2,500,000	\$2,500,000
MP.06.01	Master Plan Phase I: Relocate University Data Center due to the demolition of the Science Center	BR	R	\$3,000,000	\$3,000,000
MP.06.02	Master Plan Phase I: Construct new campus Greenhouse for research and teaching needs	NC	R	\$2,500,000	\$2,500,000
MP.06.03	Master Plan Phase I: Construct new campus Greenhouse for community service	NC	SL	\$2,500,000	\$2,500,000
MP.06.04	Master Plan Phase 1: Relocate College of Science and Mathematics Machine Shop due to the demolition of the Science Center	BR	R	\$1,000,000	\$1,000,000
MP.06.05	Master Plan Phase I: <u>Study</u> Replacement of Catwalk/Enclosed Campus Walkway System and Connections to GAB 1	BR	BI	\$1,000,000	\$1,000,000
MP.06.06	Master Plan Phase I: <u>Study</u> new LL/UL Facades at Campus Center, Healey Library, McCormack Hall, Quinn Administration Building and Wheadley Hall and Access to Buildings from Grade	NC	BI	\$2,000,000	\$2,000,000
MP.06.07	Master Plan Phase I: Substructure and Science Center Demolition	O	BI	\$15,000,000	\$15,000,000
MP.06.08	Master Plan Phase I: Central Quad Landscaping	NC	BI	\$7,500,000	\$7,500,000
MP.07	Master Plan Phase I: Construct New Academic Building 2	NC	TL	\$135,000,000	\$25,250,000
MP.08	Master Plan Phase I: Acquisition of Real Estate	O	TL/SL	\$10,000,000	\$10,000,000
MP.09	Master Plan Phase I: Construct 1,000 Bed Residence Hall	NC	SL	\$88,000,000	\$88,000,000
MP.10	Master Plan Phase I: Construct +/- 1,200 Vehicle Parking Garage West	NC	BI	\$35,000,000	\$35,000,000
MP.11	Master Plan Phase I: Build Out Shell Space in Campus Center UL (currently parking)	RV	BI	\$5,000,000	\$5,000,000
MP.12	Master Plan Phase I: Construct new pool facility	NC	SL	\$10,000,000	\$10,000,000
MP.13	Master Plan Phase I: Construct +/- 1,200 Vehicle Parking Garage East	NC	BI	\$35,000,000	\$1,000,000
MP.14	Master Plan Phase I: Secure or Demolish Bayside Expo Center building and initial property improvements	DM	TL	\$6,000,000	\$6,000,000
MP.15	Master Plan Phase I: Purchase or Lease Additional Swing Space to accommodate growth and M/W Renovations	O	TL	\$2,500,000	\$2,500,000
MP.16	Master Plan Phase I: New public art for Campus Green	O	SL	\$1,000,000	\$1,000,000
MP.17	Master Plan Phase I: Capital Lease for Use of new Baseball Facility to be constructed at BCHS	O	SL	TBD	\$0
<b>Substructure Projects</b>					
SU.01	Substructure: Interim Structural Stabilization, Access/Egress and Acid Neutralization Tanks	DM	BI	\$28,505,000	\$6,000,000
SU.02	Substructure: Utility Plant Roof Replacement	DM	BI	\$4,570,000	\$2,270,000
<b>Teaching/Learning/ Research</b>					
TR.01	McCormack Hall: Renovation of Cafeteria, Servery and Kitchen Space for Academic Use (College of Nursing and Health Sciences)	RV	TL	\$775,000	\$775,000
TR.01.01	Relocation of College of Nursing and Health Sciences Center for Clinical Education and Research	RV	TL	\$1,500,000	\$1,500,000
TR.02	Campus -wide: Renovations to Support Teaching and Research (2)	RV	TL	\$550,000	\$550,000
TR.03	Healey Library: Construct 3 new classrooms on the 4th Floor	RV	TL	\$1,000,000	\$1,000,000
TR.04	Instructional Equipment Upgrades and Replacements	E	TL	\$15,000,000	\$7,500,000
TR.05	Healey Library: Renovations to create Learning Commons and Improve IT and Study Spaces	RV	TL	\$20,000,000	\$5,000,000
TR.06	Clark Athletic Center: Replacement of Gymnasium Floor and Bleacher Repairs	DM	SL	\$850,000	\$850,000
TR.07	WUBM: Purchase of Additional Stations for Network	O	SL	\$700,000	\$700,000
TR.07.01	WUBM: Relocation WUBM Radio to new facility	NC	SL	\$4,000,000	\$4,000,000
<b>SubTotal Designated Projects</b>				<b>\$1,021,560,764</b>	<b>\$813,413,000</b>

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011
<b>Capital Investments requiring Future Year Funding</b>				
U-1	Clark Athletic Center: Mechanical and Structural Repairs and Upgrades to Pool Facility	DM	BI	\$5,000,000
U-2	Clark Athletic Center: Building Envelope Repairs	DM	BI	\$11,000,000
U-3	Healey Library: Building Envelope Repairs	DM	BI	\$18,000,000
U-4	McCormack Hall: Building Envelope Repairs	DM	BI	\$18,000,000
U-5	Quinn Administration Building: Building Envelope Repairs	DM	BI	\$8,000,000
U-6	Service & Supply: Building Envelope Repairs	DM	BI	\$5,000,000
U-7	Wheatley Hall Building Envelope Repairs	DM	BI	\$18,000,000
U-8	Science Center: Emergency Building Repairs	DM	BI	\$1,000,000
U-9	Clark Athletic Center: Airhandler Replacements	DM	BI	\$2,500,000
U-10	Healey Library: Airhandler Replacements	DM	BI	\$5,000,000
U-11	McCormack Hall: Airhandler Replacements	DM	BI	\$5,000,000
U-12	Quinn Administration Building: Airhandler Replacements	DM	BI	\$2,500,000
U-13	Service & Supply: Airhandler Replacements	DM	BI	\$2,000,000
U-14	Utility Plant: Airhandler Replacements	DM	BI	\$750,000
U-15	Wheatley Hall: Airhandler Replacements	DM	BI	\$5,000,000
U-16	Study for Repair/Upgrade of Arthur Martin Observatory	E	TI	\$100,000
U-17	Quinn Administration Building: Roof Replacement	DM	BI	\$1,500,000
U-18	Campus-Wide: Fire Alarm Upgrades in Quinn, Clark, Service and Supply, Utility Plant, Saltwater Pumphouse	CO	BI	\$2,500,000
U-19	Campus-Wide: Fire Sprinkler Installation: Quinn, Clark, Service and Supply, Utility Plant	CO	BI	\$3,500,000
U-20	Campus-Wide: Window Replacements	DM	BI	\$25,000,000
U-21	Master Plan Phase II: General Academic Building III	NC	TL	\$150,000,000
<b>Total Investments Undesignated</b>				<b>\$289,350,000</b>





**CAPITAL PLAN UPDATE**  
**FY2012-2016**  
**University of Massachusetts - Dartmouth**

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**Overview**

The FY2012 – FY2016 Dartmouth Campus Capital Plan Update reflects the continued capital support for the recommendations of the 2005 Master Plan, the goals of the Strategic Plan, *Engaged, Embedded, and Evolving*, established in 2000 and updated in 2007, and the visions identified in the NEASC accreditation self-assessment.

Our updated plan is consistent with previous submissions with our top six priorities unchanged from last year's capital plan. Our highest priority continues to be the completion of the renovations to the Claire T. Carney Library. These renovations will transform the campus creating state of the art facilities including a scholarly commons area, a learning commons area, improved building mechanical systems, and more student study space at the perimeter of the building. The shift of student study space to the perimeter of the building takes advantage of both natural day lighting and the beautiful views of the campus.



Another top priority is the “Energy/Water Savings Project”. The components of this project are now being implemented across campus and are scheduled for completion in 2013. The energy services contract, photovoltaic arrays, and wind turbine projects will increase energy efficiency, reduce energy consumption, and increase energy generation across the University. Over the next couple of years, as these projects are built out, the University will see the addition of new energy efficient equipment, a gas fired cogeneration turbine, a wind turbine, and several photovoltaic arrays. The overall effort is expected to reduce expenditures on campus utilities by over \$3,000,000 annually and reduce the deferred maintenance backlog by \$7,000,000.

The next four priorities have all received additional funding since reported last year. The University has received additional funds through the issuance of bonds by the UMBA. These funds have been identified for the "Biomanufacturing Building" project, the "SMAST/DMF Expansion", "Laboratory Upgrades", and the "ATMC Acquisition".

The BioManufacturing Building has been progressing through the design phase and the project team is in the middle of the contractor selection process.

The "SMAST/DMF Expansion" project is ready for the designer selection process. The University's Facilities, Planning, Design, & Construction Department has been working with the Dean, faculty and staff at SMAST to review current space usage and develop a detailed ten year growth plan. The planning effort incorporates the anticipated growth in both graduate programs and research. This growth is consistent with the University's strategic vision and identifies a doubling of the current net square footage of the program. The University intends to complete a study to certify the program and has made this important project the fourth priority of the Capital Plan.

Some laboratory upgrades are under construction in the Textile building this summer and still others are being planned for construction this semester and next summer. Negotiations are also underway for the ATMC acquisition.

Priorities number 7 through 11 represent additional uses of the bond funding. Our four oldest residence halls will all receive new roofs and plans to renovate the bathrooms are currently being developed. Our athletic facilities will also be upgraded with plans to expand the fitness center, install a new performance field, and upgrade the training and locker rooms. The projects are currently in the design selection phase.

A significant change from last year's submission is the addition of a project to update the campus master plan. As the plan is now 5 years old, it is the right time to revisit our early planning assumptions and reassess and revise as needed.

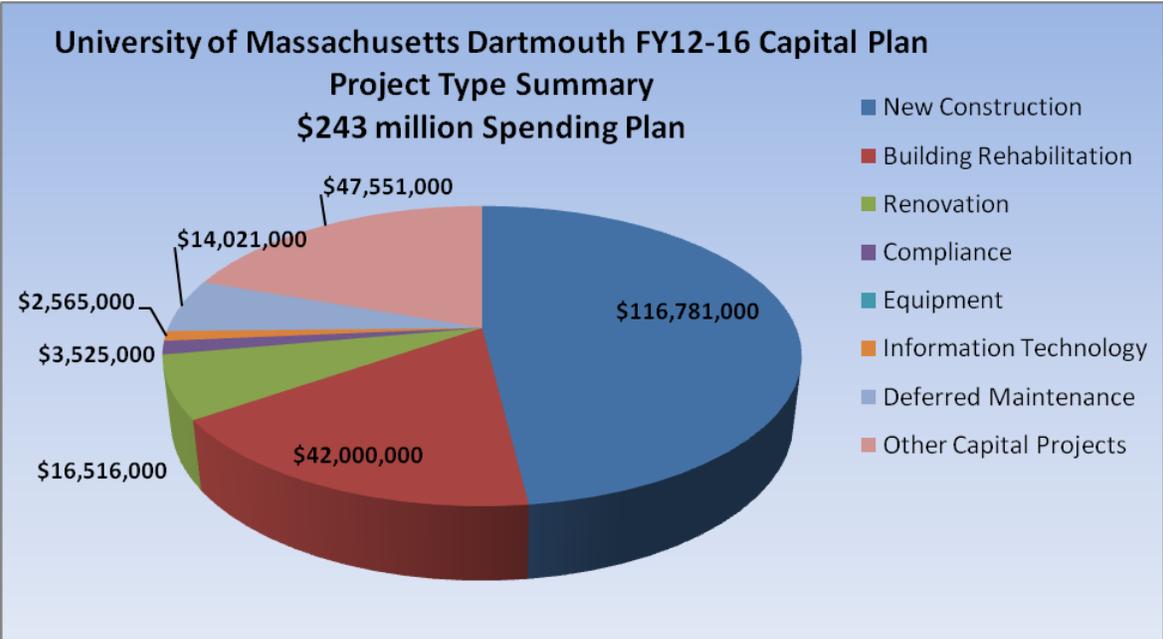
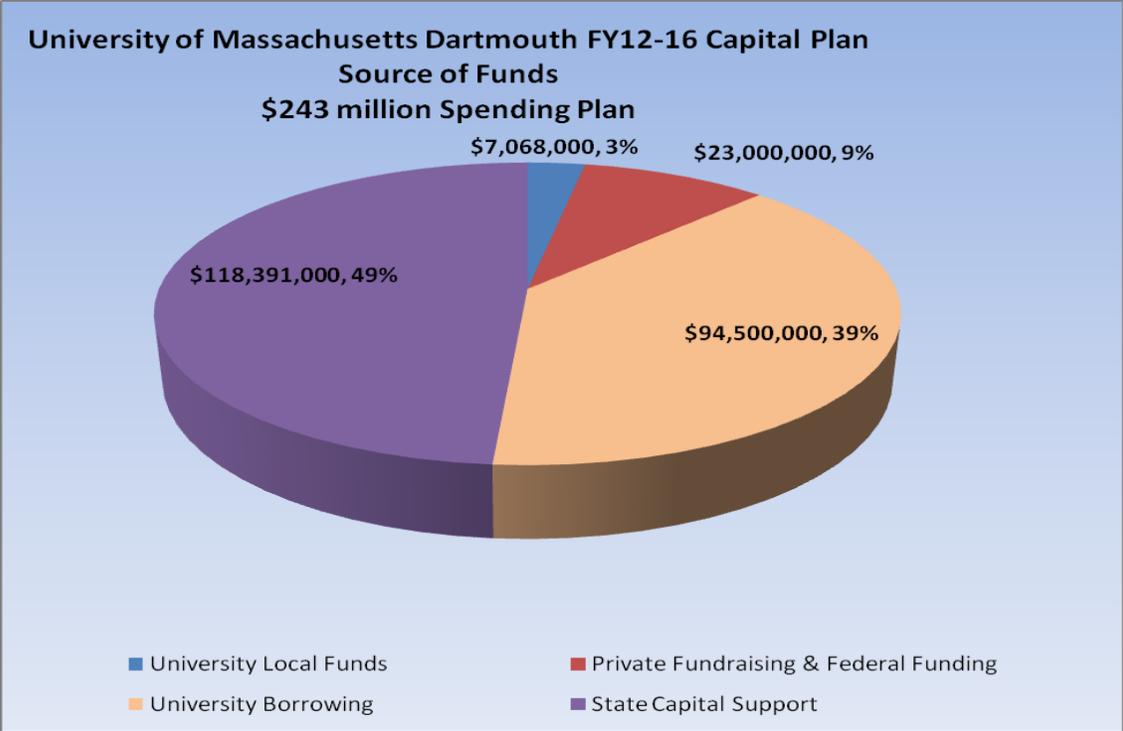
The final significant change from last year's plan is the elevation of a project titled "New Academic Building". The establishment of new programs continues to be hampered by space limitations. The rise in the need to lease space to meet programmatic need seems to confirm the need for a new building, but the University is intending to engage in a study to certify the programmatic need for a new academic building.

The Dartmouth Campus Capital Plan Update for FY2012 – FY2016 represents an assessment of the capital needs of the campus based on currently available information. We are acutely aware that emergencies can and do disrupt the best of plans. We also know that both the availability and the manner in which funds are made available may affect our plans and our priorities. Nevertheless, we believe the attached update is an accurate assessment, broad enough in scope to accommodate the vagaries of funding as well as emergencies.

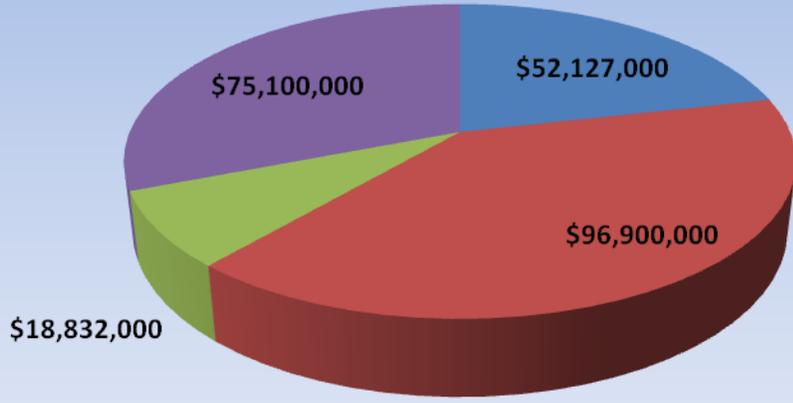
**University of Massachusetts FY12 Capital Plan Update  
Dartmouth Campus Projects**

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011	Five Year Spending
					Anticipated FY12-16 Cash Flow
<b>Designated Projects</b>					
1	Library Renovations	BR	TL	\$46,000,000	\$34,000,000
2	Energy/Water Savings Project	O	BI	\$34,000,000	\$34,000,000
3	Biomufacturing Building	NC	R	\$26,000,000	\$26,000,000
4	SMAST/DMF Expansion	NC	R	\$48,000,000	\$48,000,000
5	Classroom and Laboratories Upgrades and Learning Space Improvements	RV	TL	\$11,440,000	\$1,000,000
6	ATMC Acquisition	O	R	\$11,400,000	\$11,400,000
7	New Academic Building	NC	TL	\$55,000,000	\$24,600,000
8	Reroof Four Oldest Residence Halls	DM	SL	\$1,900,000	\$1,900,000
9	Repair Four Oldest Residence Halls	DM	SL	\$75,000,000	\$3,100,000
10	Fitness Center Expansion	NC	SL	\$5,000,000	\$3,181,000
11	Athletic Field Replacement	O	SL	\$819,000	\$819,000
12	Locker & Training Room Renovations	RV	SL	\$3,120,000	\$1,000,000
13	Research Laboratory Improvements	RV	R	\$11,500,000	\$11,500,000
14	Update Campus Master Plan	O	All	\$1,500,000	\$500,000
15	Charlton College of Business, Phase II	NC	TL	\$15,000,000	\$15,000,000
16	Replace Failed HVAC Systems	DM	BI	\$3,500,000	\$3,500,000
17	Campus Entrance Building	NC	SL	\$45,000,000	\$0
18	ADA Renovations Immediate Needs	CO	BI	\$2,184,000	\$750,000
19	Basic Infrastructure Repairs	DM	BI	\$61,702,000	\$2,000,000
20	LARTS Air Conditioning Installation	RV	BI	\$3,016,000	\$3,016,000
21	Landscape/Lighting Improvements	O	SL	\$1,832,000	\$832,000
22	Ring Road Replacement Study	DM	BI	\$500,000	\$500,000
23	Roadway Repairs	DM	BI	\$5,720,000	\$500,000
24	Power Plant Upgrades/MEP	DM	BI	\$4,371,000	\$1,521,000
25	PCB Transformer Replacements	CO	BI	\$1,023,000	\$1,023,000
26	Elevator Upgrades	CO	BI	\$1,352,000	\$1,352,000
27	Asbestos Removal	CO	BI	\$400,000	\$400,000
28	Network & Telecom Infrastructure	IT	BI	\$2,565,000	\$2,565,000
29	Central Administrative Services Building	NC	BI	\$12,690,000	\$0
30	Non-critical HVAC, Infrastructure and Envelope Repairs	DM	BI	\$3,640,000	\$1,000,000
31	Campus Center Addition	BR	SL	\$16,400,000	\$3,000,000
32	Multi Purpose Field House	BR	SL	\$20,800,000	\$5,000,000
33	New Bedford Incubator	O	R	\$5,000,000	\$0
34	Taunton Life Sciences Center	O	R	\$5,000,000	\$0
<b>Total Designated Projects</b>				<b>\$542,374,000</b>	<b>\$242,959,000</b>

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost
				Est. August 2011
<b>Capital Investments requiring Future Year Funding</b>				
35	Retrofit of Vacated Spaces from New 'Bldg Projects	NC	BI	\$15,580,000
36	New Campus Center Plaza	O	BI	\$2,457,000
37	Renovation Campus Auditorium	RV	TL	\$11,170,000
38	Resident Dining Hall Expansion	BR	SL	\$5,670,000
39	Science and Engineering/Dion Engineering Phase I	NC	TL	\$22,600,000
40	Science and Engineering/Dion Engineering Phase II	NC	TL	\$19,000,000
41	Centennial Drive Quadrangle	O	BI	\$4,780,000
42	DCE Forensics Laboratory	BR	TL	\$819,000
<b>Total Investments Undesignated</b>				<b>\$82,076,000</b>



University of Massachusetts Dartmouth FY12-16 Capital Plan  
Programmatic Summary  
\$243 million Spending Plan



■ Basic Infrastructure ■ Research ■ Student Life ■ Teaching / Learning

**CAPITAL PLAN UPDATE  
FY2012-2016  
UNIVERSITY OF MASSACHUSETTS - LOWELL**

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The Lowell campus consists of 3 major locations: North, South and East. The North and South campuses are primarily academic buildings with some residence halls and tightly constrained playing fields; the East campus is the location of the majority of our residence halls and a very popular Recreation Center. East also houses the Wannalancit facility, Lelacheur Baseball Park and is a short walk from the Tsongas Center. Each of the campuses are densely developed and bounded by fully developed residential and business properties.

This Capital Plan Update for FY 2012 reflects the priorities outlined in the UMass Lowell 2020 Strategic Planning Initiative. UMass Lowell 2020 serves as the University's next-generation strategic plan, providing a blueprint for how the campus will achieve national and international recognition as a world-class institution over the next decade. The campus continues to partner with the University of Massachusetts Building Authority and DCAM to plan, finance and implement our ambitious capital program.

Many of our anticipated capital expenditures impact on a number and variety of our academic, research, athletic, recreational and outreach programs and partnerships. If we are to achieve our goals and aspirations, we must provide new, modern academic and research spaces, increase our residential capacity, renew our existing buildings, create new recreational opportunities, add to our capacity to host a broad range of meetings and events – academic, entertainment and civic. Our capital plan has identified approximately \$874 million worth of projects that could be started within the next ten years. If we are aggressive in our planning, financing and execution we believe that we can spend approximately \$540 million of this plan in the first five years (FY2012 to FY2016).

**Master Planning:**

*Science & Engineering Master Plan*

Last years' capital plan included a \$90,000,000 item for replacement or renewal of these facilities. In cooperation with DCAM, the master plan for North Campus Science & Engineering facilities has been completed. The recommendations focus on four initiatives, which are now included in this year's capital plan in lieu of the former line item. The projects include renewal of Engineering, Olsen, Olney buildings, and related smaller renewals in the North Campus Quad. The impact of the new College of Management building is coordinated as part of this process. Additional renewals for Pinanski, Ball, and replacement of Ames buildings are needed but not currently anticipated for funding in the near term. However, the total funding need for deferred maintenance is accounted for in the large deferred maintenance line item (**see below**).

*University Crossing*

The long planned purchase of the St. Joseph's property has been completed, and the site is under study now for redesign as University Crossing. The Campus bookstore and some dining will be located here, and the expectation is that additional program elements will include housing and student activities & services, as well as 'front door' activities like admissions, registrar, and financial aid. The program and cost will be developed during this academic year, initial projects or phases can be undertaken, and the final overall picture identified with greater clarity during that time.

## South Campus Master Plan & Space Revisions

The scheduled completion of much needed projects provides both the opportunity and the necessity of replanning space use on south campus in a thoughtful way. The South Academic Building (now named the Health and Social Sciences building), opening 2013, University Crossing, scheduled to begin construction in FY2013, and new deferred maintenance information are among the active projects driving this plan.

These projects will result in substantially vacant buildings ready for rehabilitation and reassignment in Fall 2013, Fall 2014 and Fall 2015. These newly available spaces provide the means to address pressing space needs for the School of Health and Environment and the School of Humanities, Fine Arts & Social Sciences.

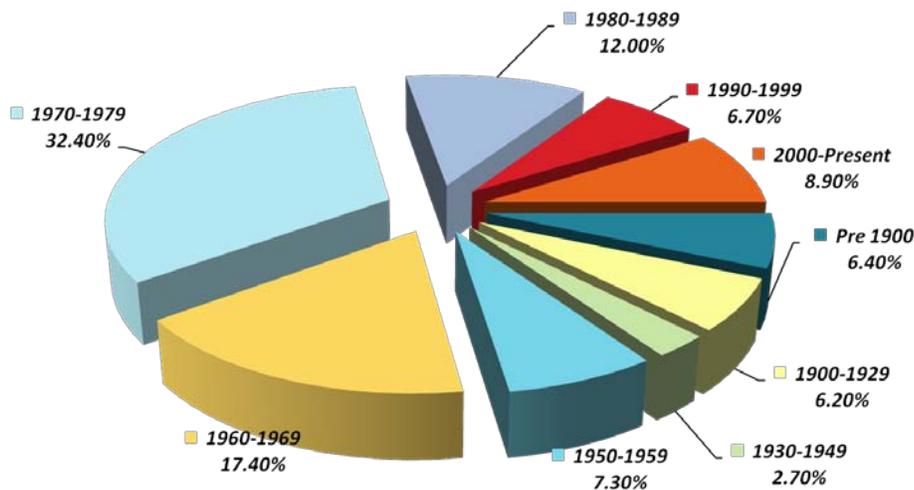
This Master plan project seeks to begin work in Fall 2011 to prepare a space renewal and reassignment plan, with accompanying individual capital projects for implementation as the buildings empty out. These include McGauvran, Mahoney, South Dining, Dugan, and parts of O'Leary and Weed. This planning effort is a follow-on to the previous DCAM-funded overall plan, and recently completed Science & Engineering plan for North Campus. Starting this planning effort now will allow the campus to maximize and extend the value of investments in previous projects, and address the needs of these growing schools. Both schools actively support the university's growing research and economic development agenda, both through direct research and through their vital role in the overall curriculum.

### Deferred Maintenance Status Report:

Facility Condition Analysis



## Facility Portfolio by Age



Average Year Constructed is weighted by size of building versus age of building.

During the last academic year, the campus had a comprehensive facility condition assessment done. The assessment reviewed each of our buildings and provided overall project costs for systems and prioritized needs for all facilities. The ISES report indicates that the current campus deferred maintenance (DM) requirement is for approximately \$450,000,000 with a five year reduction target of \$45M.

The Lowell campus, perhaps due to a history of lower than usual long-term reinvestment and the relative age of our facilities, is in worse condition than peer campuses.

### Projected Backlog Funding Needs By Project Classification

Adaptation Projects	\$ 86,077,402
Deferred Maintenance	183,825,090
<u>Renewal Projects</u>	<u>\$ 182,670,100</u>
<b>FCA TOTAL</b>	<b>\$ 452,572,592</b>
<hr/>	
Facility Replacement Cost (FRC)	\$ 1,269,719,000
<hr/>	
Facility Condition Needs Index (FCNI)	0.36

Gross Square Feet (GSF)
3,066,964

Total FCA Cost / GSF
\$ 147.56

### FCNI Comparison – ISES Peer Database

Client Name	Inspection Year	Facility Condition Needs Index	Gross Square Feet	Asset Count	Average Year Built
University of Notre Dame	2009-10	0.11	9,079,021	136	1963
Emory University	2006	0.13	4,697,916	73	1972
Georgia Institute of Technology	2005	0.14	7,780,731	113	1974
Vanderbilt University	2010	0.16	8,564,168	115	1955
Pepperdine University	2008	0.17	1,483,295	54	1986
University of Southern California	2010	0.19	14,073,634	214	1967
Washington University	2008	0.2	7,346,326	129	1971
Florida State University	2008	0.2	6,264,871	97	1973
Stanford University	2007	0.22	2,512,843	47	1947
California Institute of Technology	2007	0.23	4,120,495	146	1954
University of Chicago	2010	0.28	9,199,521	134	1955
University of Rochester	2007	0.28	5,387,635	23	1965
Rice University	2009	0.3	1,058,521	20	1954
Pennsylvania State University, University Park Campus	2009	0.31	12,505,007	219	1961
University of Minnesota	2007	0.38	26,573,070	318	1956

Summary of FCA Findings						
SYSTEM	PRIORITIES					
DESCRIPTION	1	2	3	4	5	TOTALS
ACCESSIBILITY	325,182	1,509,876	8,797	0	19,762,533	21,606,387
ELECTRICAL	0	2,408,166	56,610,575	6,720,964	0	65,739,705
EXTERIOR	0	6,548,219	26,892,273	18,008,042	0	51,448,533
FIRE/LIFE SAFETY	4,055,187	18,733,721	3,069,639	2,888,361	0	28,746,908
HEALTH	0	135,600	417,586	1,348,067	0	1,901,253
HVAC	0	2,557,407	136,933,676	24,825,022	0	164,316,105
INTERIOR FINISHES/ SYSTEMS	0	3,538,693	28,968,197	21,954,310	0	54,461,200
PLUMBING	29,942	340,322	33,712,242	24,376,300	0	58,458,806
SITE	0	0	512,141	0	0	512,141
VERTICAL TRANSPORTATION	0	0	5,381,553	0	0	5,381,553
TOTALS	\$4,410,311	\$35,772,004	\$292,506,678	\$100,121,065	\$19,762,533	\$452,572,591

The campus has incorporated this information into the capital plan, and is addressing the needs through a variety of means. Progress on the capital plan as currently proposed can result in DM reductions in excess of the 10% target. This is in part due to capital projects already planned, demolition, and planned comprehensive renewals which incorporate the DM items.

Of the \$450 million, the campus proposes to make progress toward resolution in the following ways during this 5 year plan:

- \$ 19,500,000 will be met through the demolition and disposition of buildings such as the IPI facility which will make way for the new Aiken Street Residence Hall, Eames Hall which is currently the projected site for the new College of Management building, and South campus dining hall which will be demolished as part of the South Campus Master Plan implementation.
- \$ 148,000,000 of the DM need will be addressed as part of larger whole-building projects that are in planning such as the Science & Engineering renovations to Engineering, Olsen and Olney, Coburn Hall and the comprehensive upgrades to the Leitch and Bourgeois residence halls.
- \$ 40,000,000 of the DM need will be addressed as part of a comprehensive planned building renewal program, through the residential hall renewal program, the renovation of the O’Leary library, capital renewal/deferred maintenance projects, and in part through energy projects/ power plant renovations and some elements of academic modernization.

This balanced total program leads to a reduction of \$209 million in deferred maintenance need in years 1 – 5 of the capital plan.

## **Energy Efficiency Program:**

As part of the university's overall **energy improvement program**, capital improvements will be needed to increase and ensure the realization of plans for savings. The campus borrowed \$15 million to begin these projects. These funds will be used to implement the energy infrastructure improvements that cannot be funded through the various grants, rebates and other energy programs now being implemented and sought.

Improvements will include a \$6 million renovation to the North campus power plant to maximize the new boiler systems funded by the state. The plan also includes system upgrades at stand-alone buildings, controls and energy management systems, improvements to the energy performance of distribution systems (e.g. steam and chilled water lines), and lighting and window replacements. These projects are being prioritized to those that have an average payback of between three and five years.

Over the next ten years the campus believes that an additional \$15 million in energy system improvements will be needed in addition to the HVAC, electrical and other system upgrades that will be part of the larger building renovation and renewal projects identified in the ISES report and the master planning reviews.

## **Financial Planning:**

This capital plan depends on funding from the state, private donors, granting agencies and debt supported by user fees, student charges and campus operating funds. The overall five-year plan is more aggressive than the plan presented to the Board of Trustees last year due to the investment needs and program emerging from the DCAM Science & Engineering master plan, the deferred maintenance needs identified by the ISES report, and the current understanding of what it might require to develop the University Crossing facility.

### ***State Funds***

The state is a critical partner in the success of our capital plan and by extension the realization of our strategic goal to achieve national and international recognition as a world-class institution over the next decade. The commitment of state funds to support the Emerging Technologies and Innovation Center (ETIC), the Health & Social Sciences Building (HSSB), master plans and emergency deferred maintenance repairs are all outcomes of our partnership with DCAM and the Administration in implementing the Higher Education Bond Bill of 2008 and the Economic Stimulus and Life Science programs of 2006.



In addition to the funded ETIC and HSSB facilities, the University is targeting state support for the following projects over the next ten years: new College of Management building (\$25M); the Science & Engineering renewal and renovation program for Engineering (\$25M), Olsen (\$45M), North Campus Quad (\$31.3M) and Olney Hall (\$55M); Coburn Hall (\$19M); South campus master plan improvements (\$10M) and a consistent level of support for deferred maintenance and compliance projects (\$28.5M) . The total state supported program proposed for FY12 to FY16 is \$215.8M.

### ***Campus Debt***

The largest source of funds to support the capital plan is UMBA borrowing. The campus has identified nearly \$320M of projects that can be funded with debt. Currently the campus has approximately \$150M in funds already borrowed through UMBA and targeted toward projects on the capital plan (e.g. ETIC, Wannalancit, Aiken St. Residence Hall). This leaves approximately \$170M of future borrowing over the next five to ten years required to keep the capital plan moving forward.

The campus currently has a relatively low debt to operations ratio of 5.1% projected for FY12. If we were to borrow funds sufficient to support priority projects and additional funding for modernization and renewal in Fall 2012 and 2014 our debt ratio projections would stay below the 8% policy threshold. However, such a borrowing program would double our annual operating budget commitment to debt from a projected \$15.1M in FY12 to \$31.3M in FY16. This is a significant reallocation of campus resources and will require continued progress on our strategic growth plan as well as additional support from the state and continued support from the Board of Trustees.

### **Major Building Project Highlights:**

The new **Emerging Technologies and Innovation Center (ETIC)** at the University of Massachusetts Lowell will focus on the development of manufacturing techniques in advanced technologies. The facility includes clean room space, high bay research space, and vibration -stabilized space, as well as support for other advanced research activities. The focus of the Center is to grow an already vibrant program of industry partnership, to develop manufacturing technologies that promote jobs in the Commonwealth, and to produce a highly educated workforce to attract new businesses to the state.

The ETIC facility is funded through a combination of state economic stimulus funds, campus borrowing, federal grants and fundraising.

In addition to the base construction budget, the University has developed a **second phase budget for \$12.2 M** to construct the research and development spaces on the third and fourth floors and to fit-out. These options were some of the additional alternatives considered during initial design. Adding this to the scope of the initial construction phase at this time is the most cost effective approach. The University has requested that UMBA add these additional alternative costs to the project. This addition brings the TPC to \$84.2M. The Massachusetts Life Sciences Center (MLSC) Bond program includes a \$10M earmark for the ETIC facility which combined with fundraising, is expected to fund the increase in the project budget.

The Chancellor has established a goal of eventually housing 50% of our undergraduate students on-campus. This target, in combination with an expected increase in undergraduate enrollment, will require an additional 1,500 beds for the Lowell campus. The campus and UMBA have begun the **500 suite style bed, \$50M Aiken Street Residence Hall** project which will be opened for the Fall 2013. The early conceptual framework for the **University Crossing** facility includes possibly 250 beds of housing. Also, the campus has a **10-year lease** agreement for 500 new

apartment beds near **South campus** that should be available by the Fall of 2012. This development is not on the capital plan but will be a significant addition to our residential and student life program.

The Lowell campus has not enjoyed the opening of a new academic building in over 32 years. Many existing buildings are difficult to fully adapt to current accessibility and technology needs. The growing interest in and emphasis on interdisciplinary research and teaching makes the traditional academic floor plan increasingly less effective. In April of this year, UMass Lowell broke ground on a new \$40 million, 69,000-square-foot academic building that will be home to three of the university's most popular majors in health and social sciences. **The Health and Social Sciences Building (HSSB)** will be home to the criminal justice and criminology, nursing and psychology programs. HSSB is expected to open in Spring of 2013. This project is being managed by DCAM.

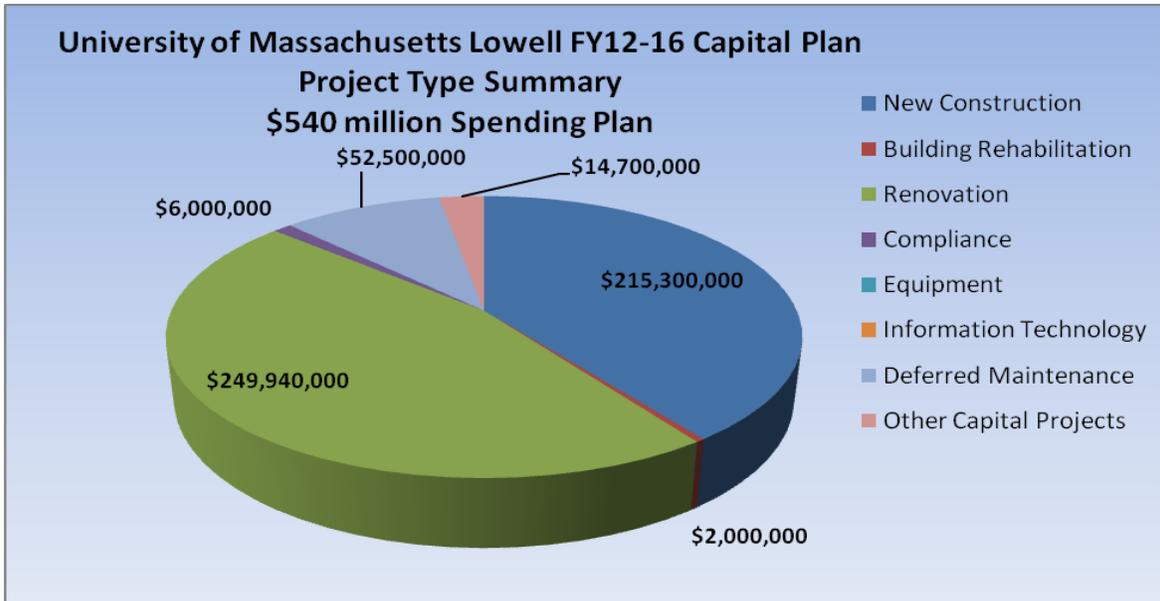
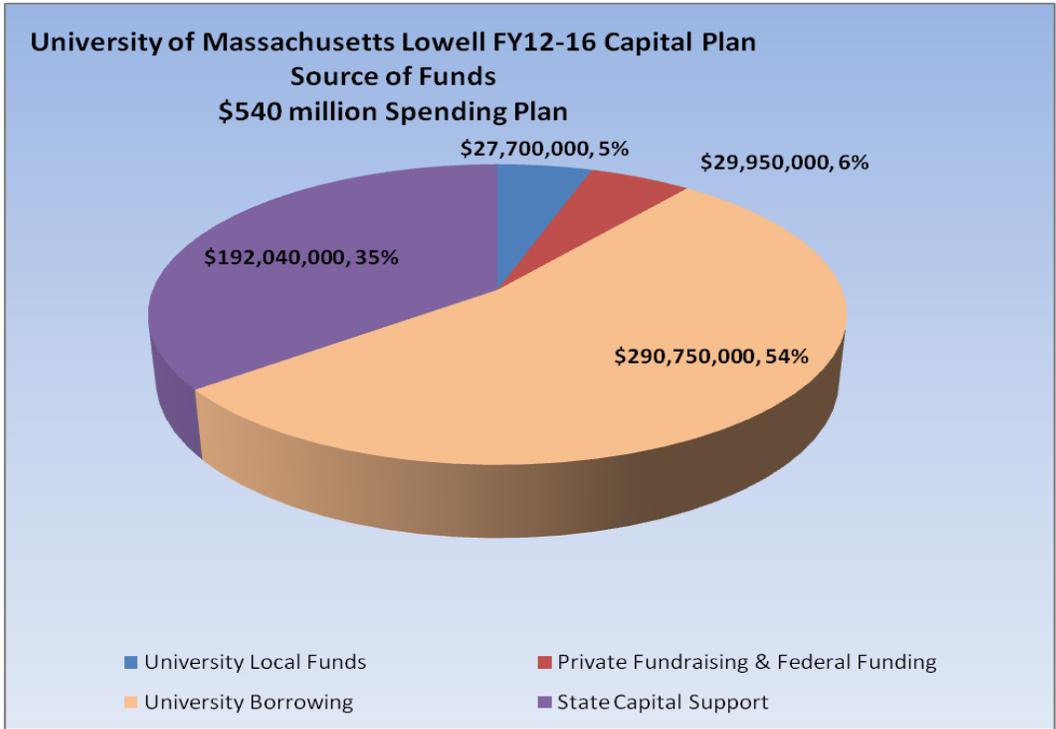
The campus has long since outgrown its very limited common space, and with the increasing emphasis on a unified campus of multiple locations, the higher performance level of students and faculty, and the increased overall campus population, there is a pressing need for a contemporary and effective **campus center**. As the quality and size of the university increases, people are at campus for more of the day; they expect and need more places for interaction, and for common identity and meeting. The original centers at each campus - Alumni Hall and MacGauvran - have long since been filled in with other uses or transformed such that they cannot fill either current or evolving needs. Neither contributes to the unity of the campus as a whole. Study, design and construction or renovation of a central service and gathering space for the combined campuses is needed and the **University Crossing** is the targeted facility. A center would have a concentration of student affairs and student services functions, clubs, dining, meeting and lounge spaces. Ideally such a facility could also accommodate other activities such as health services, university police, a commuter center, and bookstore retail space. University Crossing is in a location easily reached from or central to the existing campus locations with sufficient transportation, shuttle, and parking to support its function as an active central meeting place. The campus is currently in the very early stages of programming for this facility and will not have a full understanding of the costs and scope of the project until later in the Fall of 2011.

Additional project descriptions for all projects listed on Tables 1a and 1b are available.

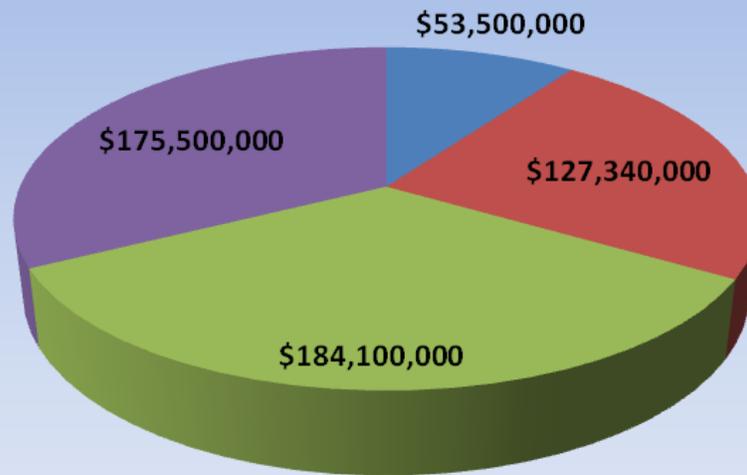
**University of Massachusetts FY12 Capital Plan Update  
Lowell Campus Projects**

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011	Five Year Spending Anticipated FY12-16 Cash Flow
<b>Designated Projects</b>					
1	Emerging Technologies & Innovations Center (ETIC)	NC	R	\$72,200,000	\$43,100,000
2	ETIC - Phase 2 - Floors 3 &4	NC	R	\$12,200,000	\$12,200,000
3	Health and Social Sciences Building	NC	TL	\$40,000,000	\$40,000,000
4	Wannalancit (includes M2D2)	RV	R	\$15,500,000	\$15,500,000
5	Civic & Athletic Facilities (incl. Tsongas Ctr. )	O	SL	\$10,000,000	\$4,700,000
6	Property Acquisitions	O	TL	\$10,000,000	\$10,000,000
7	Aiken Street Residence Hall	NC	SL	\$50,000,000	\$50,000,000
8	Univ. Crossing Student Life, Student Services & Admin Serv.	RV	SL	\$50,000,000	\$50,000,000
9	Univ. Crossing 250 beds	RV	SL	\$31,000,000	\$31,000,000
10	Univ. Crossing bookstore & cafe	RV	SL	\$10,400,000	\$10,400,000
11	Fox Hall Dining Renovations	RV	SL	\$9,000,000	\$9,000,000
12	North Campus Garage	NC	SL	\$20,000,000	\$20,000,000
13	South Campus Garage	NC	BI	\$20,000,000	\$20,000,000
14	Science & Engineering Master Plan-Engineering Bld. Renewal	RV	R	\$25,000,000	\$25,000,000
15	Science & Engineering Master Plan-Olsen Renovations	RV	R	\$45,000,000	\$20,000,000
16	College of Management Bldg	NC	TL	\$30,000,000	\$30,000,000
17	Leitch & Bourgeois Res Hall Renovations	RV	SL	\$20,000,000	\$20,000,000
18	Residential Hall Comprehensive Renewal Program	RV	SL	\$52,000,000	\$20,000,000
19	South Campus Master Plan & Initial Space Revisions	RV	TL	\$20,000,000	\$20,000,000
20	Capital renewal/deferred maintenance	DM	TL	\$115,000,000	\$32,500,000
21	Compliance	CO	BI	\$12,000,000	\$6,000,000
22	Academic & ongoing modernization	RV	TL	\$54,000,000	\$10,000,000
23	Technology Infrastructure	RV	BI	\$15,000,000	\$7,500,000
24	Energy & Power Plant Improvements	DM	BI	\$30,000,000	\$20,000,000
25	Coburn Hall Renewal (66 kgsf)	BR	TL	\$19,000,000	\$2,000,000
26	Science & Engineering Master Plan-North Campus Quad Renew	RV	R	\$31,300,000	\$9,540,000
27	Science & Engineering Master Plan-Olney Renovations	RV	R	\$55,000,000	\$2,000,000
<b>Total Designated Projects</b>				<b>\$873,600,000</b>	<b>\$540,440,000</b>

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011
<b>Capital Investments requiring Future Year Funding</b>				
28	Cumnock Hall Renovations	DM	BI	\$4,000,000
29	South Dining Replacement	RV	SL	\$15,000,000
30	Alumni Hall Renovations	DM	BI	\$5,000,000
31	Ames Building Replacement	NC	R	\$40,000,000
32	Costello Gym Renovations	PR	SL	\$15,000,000
33	Lydon Library Renovations	PR	TL	\$23,500,000
34	Dugan Hall Renovations	DM	BI	\$5,500,000
35	Durgin Hall Renovations	DM	TL	\$12,500,000
36	Pinanski Hall Renovations	DM	BI	\$30,000,000
<b>Total Investments Undesignated</b>				<b>\$150,500,000</b>



**University of Massachusetts Lowell FY12-16 Capital Plan  
Programmatic Summary  
\$540 million Spending Plan**



■ Basic Infrastructure   ■ Research   ■ Student Life   ■ Teaching / Learning

**Capital Plan Update  
FY2012 to 2016  
University of Massachusetts Medical School**

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The UMass Medical School 2012 Capital Plan update is focused on the completion of the Albert Sherman Center, a new parking garage and an addition to the co-generation power plant. With a total project cost of \$440M, these projects make up most of the planned capital expenditures over the next five years. These funded projects position the Medical School to address an ongoing need for additional biomedical and translational research space, increased enrollment and the anticipated technology improvements in medical education. The balance of the planned projects addresses deferred maintenance and research space renewals.

The medical school campus consists of over 3 million square feet of medical education, biomedical research and healthcare programs. The original construction is dated in the mid 1970s and most of the space programs are utilized in their originally constructed conditions. Over the past ten years, the campus has experienced over 1 million square feet in new construction. In 2002, the 380,000 sf Lazare Research Building was opened and provided space for over 144 principal investigators. The UMass Memorial Healthcare Corporation followed shortly after with the 270,000sf Lakeside Addition which provided additional space for the Emergency Department, Surgery, and intensive care units. And then, last year the opening of the 250,000sf Ambulatory Care Center provided new space for the clinical practice and research Centers of Excellence in Diabetes, Cardio Vascular, Orthopedics and Oncology. This rate of expansion follows the increase in research funding and healthcare programs from both the clinical systems as well as the medical school.

The UMass Medical School 2012 Capital Plan positions the University to accommodate anticipated future growth while continuing to plan and fund deferred maintenance and renewal projects. The principal goal of the plan is to assure the development and sustainment of a campus that can attract and retain top students, faculty and staff. In total, this year's Capital Plan update includes approximately \$580 million in funded projects and over \$870 million in unfunded projects.

In addition to supporting the Commonwealth's Life Sciences Initiative, the Worcester campus executes to a Board-approved strategic plan, developed in partnership with UMass Memorial Health Care – the **Academic Health Sciences Center Strategic Plan**. The plan describes an ambitious vision to improve the health and health care of the community and of the larger society in which we reside. These goals support the prioritization and execution of the capital plan, including the completion of the Albert Sherman Center.

The **Albert Sherman Center** will be a state-of-the-art biomedical research and academic center. This significant project reflects the momentum generated by the basic and translational sciences research effort at UMMS over the past decade and the Medical School's role as the anchor of the region's life sciences industry. Through the construction of this 515,000-square-foot building, UMMS will be positioned to continue the substantial growth of its research enterprise, which has experienced a 134 percent increase in total research awards from fiscal year 1998 to fiscal year 2009 and now receive more than \$250 million in annual research funding. Moreover, through the development of the Advanced Therapeutics Cluster (ATC), a key component of the Sherman Center, UMMS will have the resources and space to translate the pioneering basic science discoveries of its faculty, including Nobel Laureate Craig Mello, into innovative and effective human therapies.

Although the development of the ATC, consisting of an RNA Institute, a Center for Stem Cell Biology and Regenerative Medicine and a Gene Therapy Center, continues to serve as the catalyst for the Albert Sherman Center, other critical

campus needs are being addressed through this expansion. Modern educational spaces to accommodate curriculum changes, student-life spaces, and auditorium and conference spaces, as well as parking, power plant and related utility improvements are included in the scope of the Sherman Center.



Based on the \$90 million appropriation from the commonwealth to accelerate this project, UMMS has developed a long-range financial plan to ensure completion of the Sherman Center, guarantee support for its operating costs and support for other mission based activities. The estimated \$400 million total shared investment will enhance the ability of the commonwealth’s public medical school to fuel Worcester County’s life sciences industry into an era of growth and accomplishment by contributing more than \$1 billion in economic impact across the state.

The UMMS capital plan is validated by three key studies: the Campus Master Plan developed by Tsoi Kobus in 2005; a VFA Facility Condition Assessment and the van Zelm Engineering Power Plant Master Plan, both completed in 2006.

The **Campus Master Plan** was completed by Tsoi Kobus under a DCAM contract in 2005. The plan provides a phased construction process to meet the needs of the school, hospital and Commonwealth Medicine as these organizations grow. The plan addresses infrastructure demands, enhances the collaborative community and over time, transforms the site to a cross-disciplinary full-service academic campus, while assuring sustainable design principles, accessibility and off-campus synergies. In addition, the plan foresees adaptation to changes in medical education and the medical school’s new curriculum, emphasizes translational and clinical research, and provides the ability to react to emerging technologies. Land acquisition has been added to this year’s Capital Plan to align with the Campus Master Plan.

VFA completed a **Facility Condition Assessment** in May 2006 and identified more than \$70 million in required facility improvements for the Medical School. In addition, the list of requirements for the University Campus of UMass Memorial Medical Center totaled \$42 million. The condition assessment team inspected installed equipment, surveyed the facility and identified deferred maintenance requirements. Each requirement was documented with detailed cost estimates, photos and narratives and then ranked. The plan identified more than \$19 million in currently critical or potentially critical requirements, most of which have already been addressed. The largest and most urgently required deferred maintenance project is the replacement of 30 air handling units throughout the medical school. Replacing these units will improve reliability and energy efficiency and provide enhanced environmental control of research laboratories, teaching spaces and offices.

UMMS completed a **Power Plant Master Plan** in 2006. The UMMS Power Plant is an integral component of the campus and provides all steam, chilled water, normal power and emergency power to the school and the 400-bed

acute care hospital and trauma center. Van Zelm, Heywood and Shadford, Inc. performed the study. The recommendations addressed near term reliability and plant redundancy issues, as well as longer-range capacity requirements consistent with the Campus Master Plan. The importance of effective operation and reliability of the Power Plant cannot be overstated: it is critical to the health care, research and education activity on the campus. The van Zelm study supported the current power plant expansion project as it addressed both the near-term and long-term recommendations. The project will add required chiller capacity and redundancy, cooling tower capacity, and additional emergency power generation. The project is aligned with Governor Patrick's 2007 Energy Policy, including the promotion of distributed generation, which improves energy efficiency and reduces greenhouse gas emissions. The Power Plant expansion is underway with a completion date of early next year.

UMMS' ambitious **sustainability objectives** are reflected throughout the Campus Master Plan, focusing on operational efficiency and new project identification, development and execution. The \$30 million air handling unit project will replace more than 30 antiquated units with new high efficiency units, improving energy utilization and reducing the campus carbon footprint. The co-generation system in the Power Plant dramatically reduces energy use and the associated carbon footprint, and by providing more than 50 per cent of the electrical power to the campus as a distributed generation site, the Power Plant saves more than 30 per cent of the typical electrical loss that happens as electricity is transmitted through power lines -- significantly offsetting greenhouse gas emissions. The Power Plant Expansion project's increased energy efficiency may top 70 per cent, further reducing the campus carbon footprint and providing a cost effective solution to increased energy demands.

### ***Jamaica Plain Campus***

The University of Massachusetts Medical School's Jamaica Plain Campus consists of three buildings on approximately ten acres of land. The buildings are multi-tenanted, with the UMass Massachusetts Biologic Laboratories and the Department of Public Health's State Laboratory Institute comprising the major occupants. The buildings range in age from 33 to over 100 years old.

The UMass Massachusetts Biologic Laboratories is an FDA-licensed facility engaged in the manufacture of vaccines and biologic products. Continued FDA licensing is contingent upon compliance with "current Good Manufacturing Practices," a set of industry standards for the operation and maintenance of biologics manufacturing facilities.

The State Laboratory Institute, a Massachusetts Department of Public Health operation housed at the Jamaica Plain campus, is the only laboratory of its kind in the commonwealth. The State Lab is responsible for the early detection and testing associated with outbreaks of infectious disease, such as rabies, HIV, food borne illnesses, H1N1 flu, West Nile Virus and Eastern Equine Encephalitis. Because of its importance to public health, the State Lab is a key center for activity in the commonwealth in the case of flu pandemic.

Over the past several years, DCAM has funded and executed two major deferred maintenance projects to address serious mechanical and electrical deficiencies on this campus. The first project was a \$10M electrical distribution improvement project which provided increased redundancy with a new main feeder installation, new transformers and switchgear. In addition, the entire site is now electrically supported with backup generation through six fast start diesel generators. As much as the main electrical distribution systems have been improved, the secondary building distribution systems continued to be plagued with no additional capacity for further electrical loads in the laboratories and therefore a new project has been added to this year's plan, Electrical Service Upgrade, Phase 2. The second project executed under a \$7M fast track design and contracting methodology by DCAM improved the air conditioning and air supply and exhaust systems. Three 40 year old chillers were replaced with three new electrical chillers, pumps and a new cooling tower in addition to the construction of a new main air handling unit and two large plenum type exhaust fans serving critical BL3 laboratories. It should be noted that only 40% of the required improvements were funded,

therefore another project has been added to our requirements list to fund the remaining 280 terminal boxes, air handling units and exhaust fans.

### **Shriver Center**

The University of Massachusetts Medical School's Shriver Center in Waltham consists of two buildings on the grounds of the Fernald School. The Shriver Center conducts research in developmental disabilities in children and adults. The buildings at the Shriver Center are more than 35 years old, and very few capital improvements have been made. Over the past year, the \$8.5M funding line for the Shriver Renovation Project was deleted on the EOAF cash flow plan. UMMS has requested the reinstatement of this project through the President's Office, DCAM and EOAF. DCAM has completed the required project studies to validate the demolition of the tower building, deferred maintenance projects in the CERC and the construction of patient care and research space.

### **WCCC Properties**

Worcester City Campus Corporation has properties on the Medical School campus and in Shrewsbury, Mattapan and Auburn. These assets include office buildings, laboratory facilities and parking garages. In 2007, the South Street property in Shrewsbury was purchased and increased the space inventory by more than 670,000 square feet. The UMass President's Office, Commonwealth Medicine, and medical school offices for human resources, information services and fundraising are all occupants of this facility. Several projects added to the capital plan reflect renovation for office use and deferred maintenance at the South Street facility. A majority of the capital funds identified in the WCCC plan are intended for Mattapan, where the Massachusetts Biologics Laboratory conducts operations. At the Mattapan site, the R&D and Office Building has just completed construction, and a new Vaccine Production and Warehouse facility is in the early planning stages.

### **The Deferred Maintenance Buy-Down Plan**

The Medical School, not unlike many universities and colleges, has a large backlog of deferred maintenance. A majority of the facilities on this campus were constructed in the 1970s and due to the life cycle of the building systems, the stress of heavy utilization, changes in space program, and reduced maintenance, there are many components that require replacement. These deferrals create an operational, energy efficiency, safety and environmental risk. The extrapolated extent of the maintenance backlog for the 900,000 sf main school building is over \$100M. The largest item and highest priority item is the \$35M project to replace over 30 air handling units that have exceeded their useful life expectancy. Most of the high priority and life safety deficiencies are funded immediately upon recognition or accelerated deterioration to stay current with all state building codes and other regulatory requirements such as AAALAC, LCME, and CDC.

The Medical School continuously monitors the list of deferred maintenance items and provides interim repairs as required to maintain operational requirements. The list is reviewed and prioritized as funding becomes available or a new project is initiated. The list is further reduced through the completion of new capital projects, utilization of operational funds, internally funded projects, parking trust fund revenues, review and disposal of unneeded systems and through continued coordination of energy conservation funds from our electrical supplier, NGrid.

Deferred maintenance is defined as postponing activities such as building systems repairs and replacements. Building component life cycles, except for the major structural components, typically average 20-30 years depending on the initial quality and utilization of the asset in addition to the amount of periodic maintenance performed. Typical building components include the mechanical, electrical, plumbing, fire alarms, sprinklers and building energy management systems. As these components wear, the risk of an operational interruption grows. A primary example is

the replacement of 35-year old elevators. Contracted elevator mechanics continue to maintain the units and assure their functionality, but as time passes, parts wear and required replacement parts are no longer readily available making some of the smaller repairs cost prohibitive. Eventually, the units require replacement or the owner is at risk of a prolonged outage. With the proper replacement funding of these components prior to the end of the life expectancy, the campus can reduce the operational risk, increase safe operation and improve upon energy efficiency.

The Medical School's complex building infrastructure requires a different level of attention than a typical campus. The hospital and biomedical research programs require a substantial investment in numerous redundant building systems and therefore have a higher amount of deferred maintenance. These sophisticated systems include elevated systems to support the laboratories and specialty areas such as imaging, higher level bio containment and the vivarium. These systems include enhanced lab plumbing systems such as purified water, CO<sub>2</sub>, air vacuum, natural gas, and acid waste. In addition, the requirement for air distribution is driven to assure a 100% outside air system is provided and controlled along with specialty space pressurization, humidity control and high ventilation rates.

Over the past 5 years, the Medical School has consistently invested in buying down deferred maintenance with projects such as the following:

- Between 2007 and 2009 the Medical School replaced all the elevators in the main school building. The old 1970 control systems, cabling, cabs and motors were all replaced. This led to increased operational reliability and also increased the number of occupants and speed of the elevators.
- In 2009, the fire alarm system was also replaced throughout the school building. This was a critical life safety system that required system improvements and coverage to meet current code.
- Another deferred maintenance project jointly funded by the school and hospital was the repair and replacement of the entire exterior wall systems and roofs executed several years ago. The Granite Replacement Project repaired a failing granite façade due to the original design and construction of the building and the poor quality materials and construction techniques. This \$65M project replaced the entire façade including the windows, doors and granite siding and eliminated a major safety concern while increasing energy efficiency with enhanced wall insulation and high efficiency windows.
- Through periodic DCAM deferred maintenance funding, we are typically able to purchase between \$500K to \$1M per year in backlog reduction. Past projects include the replacement of domestic hot water heaters, roof replacements, 480V breaker renovations, new fire pump controls, and new AHUs for the animal quarters.

The highest priority deferred maintenance project is the replacement of the 30 AHUs in the medical school. These units are original to the building; lack proper controls, have rusted condensate pans, and require intense maintenance to keep operational. This is a very difficult and expensive project for the campus. New units must be constructed first and tied into the air distribution and exhaust systems so that the original units can be replaced without impact to the medical education and research programs. The laboratory research program cannot be curtailed and any deterioration in the air flow could easily make the laboratory unsafe. The new units will be fitted with new energy saving features including modulation controls and energy recovery units now the standard for laboratories. This project will also enable us to address the change of program in many spaces due to the reduction in wet lab research and the

conversion of these labs to office spaces. The large air exchanges and pressure differentiation requirements can be eliminated and a recirculation system installed to minimize the cost of ventilation and conditioning these spaces.

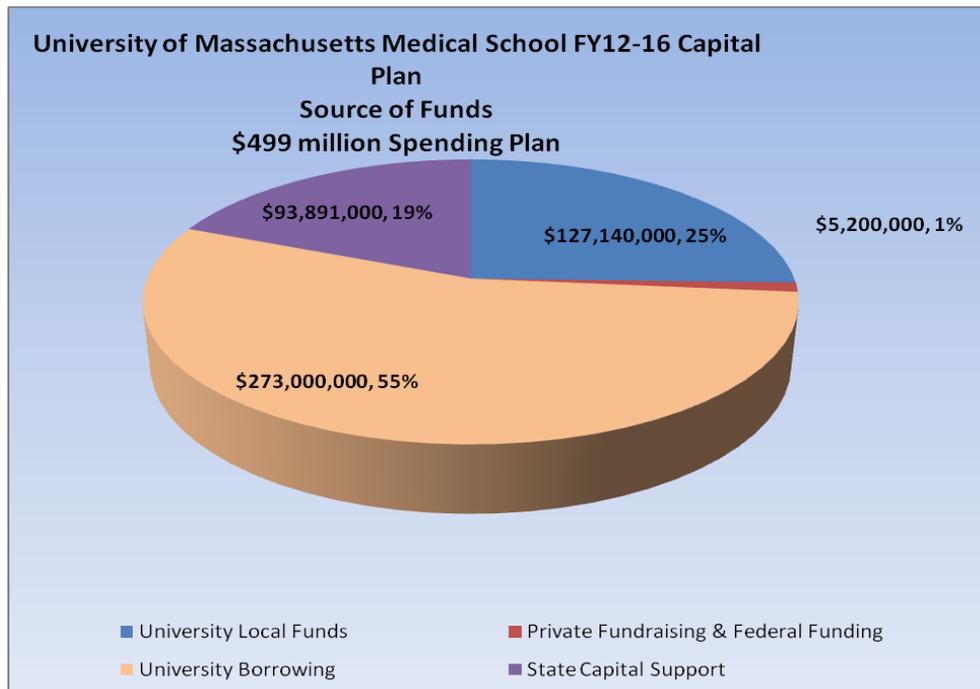
The UMMS backlog is based on a VFA **Facility Condition Assessment** completed in May 2006 which identified more than \$100 million in required facility improvements for the Medical School. In addition, the list of requirements for the University Campus of UMass Memorial Medical Center totaled \$68 million. The condition assessment team inspected installed equipment, surveyed the facility and identified deferred maintenance requirements. Each requirement was documented with detailed cost estimates, photos and narratives and then ranked. The plan identified more than \$19 million in currently critical or potentially critical requirements, all of which have been completed. The Medical School will continue to reduce the deferred maintenance backlog with the following strategies:

1. Funding through the Higher Education Bond Bill – the Medical School currently has an earmarked \$30M project on this cash flow list that will replace the air handling units identified as our top priority. These units are original to the building, were installed in the early 1970s and provide critical lab air circulation. The loss of one of these units drastically impacts our ability to perform biomedical research and in some areas is the cause of some serious indoor air quality issues.
2. DCAM Deferred Maintenance Program – UMMS has in the past several years been successful in receiving limited funding from the DCAM Facility Maintenance and Management Department. We will continue to coordinate closely with this staff, respond to all calls for funding and keep the CAMIS system updated.
3. Eliminating redundant or obsolete systems – The facilities staff continues to analyze the requirements for various building and research specific systems to determine the viability of various systems and the utilization. Should the utilization decrease due to technology changes or the elimination of a program, the system will be surveyed and if not required, removed. For example, the 125 psi steam system throughout the campus is down to only several users, and within a year we will decommission the system and eventually remove the piping.
4. Trust Funded Operations – UMMS charges all employees, patients and visitors who park on the campus. The rates were established to cover the cost of operating two elevated parking garages and surface parking lots. The revenues cover the cost of the construction bonds, operations staff and future repair and renewal operations. New this year is a Utility Trust Fund that will operate similar to a small utility company. The rates were priced to cover not only construction bonds for several key projects, but also to buy down deferred maintenance and develop a fund to cover future renewal and replacements.
5. Energy project rebates – The Medical School has worked closely with NGrid, our electrical distribution company in the Worcester area to initiate, develop, and construct several key energy saving projects that have led to rebates of up to 50% of the capital outlay. We have replaced boilers, electrical drive chillers, lighting systems, etc. with this program.
6. NIH Funded projects – We have been successful in the past with several grant awards by the National Institute of Health. The completion last year of the new ABL-3, an animal biosafety level laboratory, not only provided new research space, but also reduced the deferred maintenance backlog with the replacement and installation of new building systems. This year we are in design of the 7<sup>th</sup> Floor BL-3 Renovation project that will not only increase the size of the laboratory but replace old troublesome air handling units.

**University of Massachusetts FY12 Capital Plan Update  
Medical School Projects**

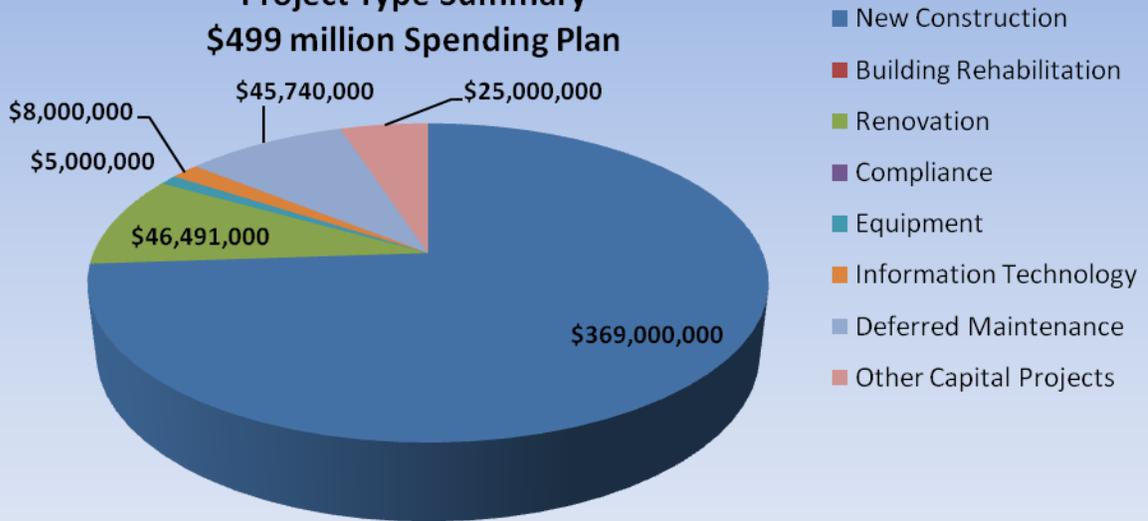
<b>Campus Priority</b>	<b>Campus Project Names</b>	<b>Project Type</b>	<b>Program Type</b>	<b>Total Project Cost Est. August 2011</b>	<b>Five Year Spending Anticipated FY12-16 Cash Flow</b>
<b>Designated Projects</b>					
<b>Worcester Campus Projects</b>					
1	Power Plant Expansion	NC	BI	\$50,000,000	\$32,000,000
2	Albert Sherman Center	NC	TL	\$350,000,000	\$270,000,000
3	Chilled Water/ Steam Loop on Campus	NC	BI	\$13,000,000	\$1,000,000
4	New NW Parking Garage	NC	BI	\$40,000,000	\$40,000,000
5	South Street Refinance	O	BI	\$25,000,000	\$25,000,000
6	School 4th fl Lab Renovations - Phase 1	RV	R	\$10,000,000	\$10,000,000
7	Enhance chilled water loop pump/controls	RV	BI	\$3,000,000	\$3,000,000
8	School HVAC Upgrades/Replacements	DM	BI	\$30,100,000	\$30,100,000
9	Expansion of Child Care Center	RV	BI	\$1,500,000	\$1,500,000
10	Renovate and Expand BL3 Suite - 7th Fl	RV	R	\$5,500,000	\$5,500,000
11	South St. Data Center - Phase 2	IT	BI	\$4,000,000	\$3,000,000
12	Advanced Education and Clinical Practice Center (ACC)	NC	TL	\$120,000,000	\$20,000,000
13	Replace the Acid Neutralization Tanks	DM	BI	\$525,000	\$0
14	Parking Lot Maintenance - Main Campus	DM	BI	\$840,000	\$840,000
15	West Parking Garage Repairs	DM	BI	\$10,000,000	\$10,000,000
16	Chair recruits	RV	TL	\$6,000,000	\$4,000,000
17	Network Infrastructure	IT	BI	\$10,000,000	\$5,000,000
18	Faculty Recruits	RV	R	\$10,200,000	\$7,200,000
19	Departmental equipment purchases	E	R	\$10,000,000	\$5,000,000
20	BNRI Upgrades	DM	R	\$1,500,000	\$800,000
<b>Shriver Campus Projects</b>					
SH -1	Renovations	R	BI	\$6,791,000	\$6,791,000
SH - 2	Demolition of Tower	DM	BI	\$1,000,000	\$1,000,000
SH - 3	Modular Research Buildings	NC	BI	\$6,000,000	\$6,000,000
<b>Worcester City Campus Corporation Properties</b>					
WC -1	South Street Renovations	RV	BI	\$7,000,000	\$7,000,000
WC-2	South St Deferred Maintenance	DM	BI	\$7,875,000	\$3,000,000
WC-3	Misc Renovations WCCC	RV	BI	\$3,000,000	\$1,500,000
<b>Total Designated Projects</b>				<b>\$732,831,000</b>	<b>\$499,231,000</b>

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2011
<b>Capital Investments requiring Future Year Funding</b>				
U-1	AQA Terminal Box Improvements	DM	R	\$3,150,000
U-2	School Stairwell Fire and Safety Improvements	C	BI	\$2,400,000
U-3	Construct New Storage Warehouse	NC	BI	\$5,000,000
U-4	Balance of Plant Controls (BOP) Upgrade	RV	BI	\$2,257,500
U-5	Renovate Labs to Offices - Backfill Project	RV	TL	\$4,200,000
U-6	Land Acquisition per Master Plan	O	BI	\$75,000,000
U-7	South Road and Lake Ave Interchange Modifications	DM	BI	\$735,000
U-8	Replace School Electric Substations	DM	BI	\$9,900,000
U-9	ATC Clinical Development Center (cGMP)	NC	BI	\$10,000,000
U-10	North Road Pavement, Sidewalks and Lighting	DM	BI	\$600,000
U-11	LP Boiler Re-tubing	DM	BI	\$4,000,000
U-12	Power Plant Governor PLC	RV	BI	\$1,200,000
U-13	Deferred Maintenance List - Priority 2	DM	BI	\$4,500,000
U-14	School Interior Renovations	RV	TL	\$4,000,000
U-15	School Building Retro Commissioning, LEED EB	RV	TL	\$3,000,000
U-16	Steam Chiller 2 Retrofits	DM	BI	\$500,000
U-17	Campus Landscape Improvements	NC	BI	\$1,500,000
U-18	Construct New Freezer Farm	RV	R	\$2,000,000
U-19	Miscellaneous Roadway Projects	DM	BI	\$1,000,000
U-20	Deferred Maintenance List - Priority 3	DM	BI	\$30,000,000
U-21	Master Plan - School Phases I and II	NC	R	\$153,000,000
U-22	Deferred Maintenance List - Priority 4, 5	DM	BI	\$4,000,000
U -JP1	Electrical service upgrade - Phase II	CO	BI	\$8,000,000
U -JP2	Biolab roof replacement	DM	BI	\$1,811,250
U -JP3	Building & Energy Management Systems	CO	BI	\$1,138,672
U -JP4	Architectural, Roofing and Site Upgrades	DM	BI	\$2,415,000
U -JP5	JP Campus Master Plan Study	DM	BI	\$603,750
U -JP6	Miscellaneous Projects - Jamaica Plain	RV	BI	\$2,415,000
U -JP7	Install new Low-Pressure Boilers	DM	BI	\$5,000,000
U -JP8	HVAC Terminal Box and Exhaust Fan replacements	DM	BI	\$8,000,000
U-WC1	South St. Bldg 2 Demo/ Renovation	RV	BI	\$5,000,000
<b>Total Investments Undesignated</b>				<b>\$356,326,172</b>



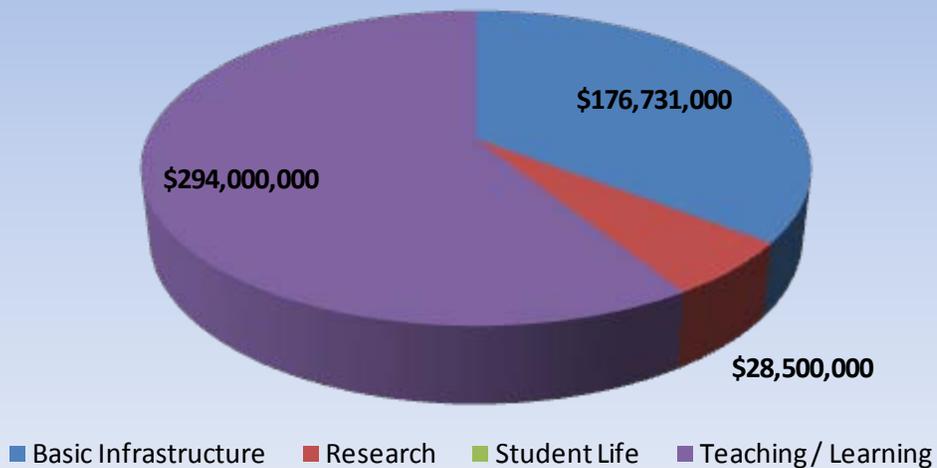
**University of Massachusetts Medical FY12-16 Capital Plan**

**Project Type Summary  
\$499 million Spending Plan**



**University of Massachusetts Medical School FY12-16 Capital Plan**

**Programmatic Summary  
\$499 million Spending Plan**





**Appendix A**  
**List of New Projects Requested for Board of Trustee Approval**  
**FY2012 to 2016 University Capital Plan**

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Trustee Policy T92-122 requires that all new construction or renovation projects with a total project cost exceeding \$1,000,000 dollars shall be approved by the Board of Trustees. The following list includes all new projects proposed for approval by the Board as part of the FY2012-2016 update to the University's Capital Plan.

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<u>Table 1</u>		<u>Project</u>	<u>Program</u>	<u>Cost Estimate</u>
<u>Priority #</u>	<u>Project Name</u>	<u>Type</u>	<u>Type</u>	<u>August 2011</u>

**Amherst Campus**

62	McGuirk Stadium Improvements	BR	SL	\$30,000,000
63	Physical Sciences Building	NC	R	\$80,000,000
64	Integrated Sciences Building fitout	NC	TL	\$2,000,000
65	Biomass Facility	NC	BI	\$20,000,000
66	Marks Meadow/Furcolo Renovations	DM	TL	\$17,500,000
67	Fine Arts Center renovations	RV	TL	\$9,000,000
68	New Africa House renovations	RV	BI	\$1,700,000
69	Hills replacement/Land Arch	NC	TL	\$25,800,000
70	New Faculty Hire Renovations	RV	R	\$9,000,000
71	Physical Plant deferred maintenance & renovations	DM	BI	\$7,500,000
72	Bartlett Replacement Building	NC	TL	\$50,000,000
73	Hampshire DC renovations	RV	SL	\$15,000,000
74	Lincoln Campus Center Concourse Improvements	RV	SL	\$11,000,000
75	Chilled Water Loop	O	BI	\$3,000,000
79	Research Affairs relocation	RV	R	\$5,000,000
83	Auditorium Renovations	RV	TL	\$7,500,000
84	New Faculty Hire Renovations	RV	R	\$12,000,000
85	Instructional Lab Renovations	RV	TL	\$7,500,000
117	Chilled Water Loop	NC	BI	\$5,000,000
118	Goessmann backfill renovations	RV	R	\$13,000,000
119	New Laboratory Science Building backfill renovations	RV	R	\$18,000,000
120	Campus Infrastructure	O	BI	\$20,000,000
150	University Health Services Renovations	RV	SL	\$35,000,000
151	Housing Renovations and Repairs	RV	SL	\$25,000,000
<b>Amherst total</b>				<b>\$429,500,000</b>

**Boston Campus**

BI.08	Clark Athletic Center: Replace/Repair East Curtain Wall	DM	BI	\$2,000,000
BI.09	Healey Library: Roof and Building Envelope Repairs	DM	BI	\$2,000,000
BI.10	Service and Supply Building: Roof and Buiding Envelope Repairs	DM	BI	\$1,750,000
BI.11	Nantucket Field Station: Repairs to Field Station Buildings	DM	BI	\$1,400,000
BI.14	Campus-wide: Telephone System Upgrades	IT	BI	\$1,300,000
BI.18	Fox Point Docks: Upgrades and ADA Accessibility	CO	TL	\$1,500,000
BI.19	Campus Wide: One Card System	IT	BI	\$1,000,000
BI.22	Quinn Administration Building: Renovations to improve Building Efficiency	RV	BI	\$10,000,000
MP01.03	Relocate Department of Pubic Safety due to construction of bridge between the ISC and Quinn	NC	BI	\$4,000,000
MP.03	Master Plan Phase I: Utility Plant Upgrades related to pumps, controls, heat exchangers and Utility Corridor Reconfiguration	BR	BI	\$7,000,000
MP06.04	Master Plan Phase 1: Relocate College of Science and Mathematics Machine Shop due to the demolition of the Science Center	BR	R	\$1,000,000
MP06.05	Master Plan Phase I: Study Replacement of Catwalk/Enclosed Campus Walkway System and Connections to GAB I	BR	BI	\$1,000,000
MP06.06	Master Plan Phase I: Study new LL/UL Facades at Campus Center, Healey Library, McCormack Hall, Quinn Administration Building and Wheatley Hall and Access to Buildings from Grade	NC	BI	\$2,000,000
MP.06.08	Master Plan Phase I: Central Quad Landscaping	NC	BI	\$7,500,000
MP.08	Master Plan Phase I: Acquisition of Real Estate	O	TL/SL	\$10,000,000
MP.11	Master Plan Phase I: Build Out Shell Space in Campus Center UL (currently parking)	RV	BI	\$5,000,000
MP.13	Master Plan Phase I: Construct +/- 1,200 Vehicle Parking Garage East	NC	BI	\$35,000,000
TR.05	Healey Library: Renovations to create Learning Commons and Improve IT and Study Spaces	RV	TL	\$20,000,000
U-21	Master Plan Phase II: General Academic Building III	NC	TL	\$150,000,000
<b>Boston total</b>				<b>\$263,450,000</b>



<u>Table 1</u> <u>Priority #</u>	<u>Project Name</u>	<u>Project</u> <u>Type</u>	<u>Program</u> <u>Type</u>	<u>Cost Estimate</u> <u>August 2011</u>
<b>Dartmouth Campus</b>				
13	Research Laboratory Improvements	O	R	\$11,500,000
14	Update Campus Master Plan	O	TL	\$1,500,000
<b>Dartmouth total</b>				<b>\$13,000,000</b>
<b>Lowell Campus</b>				
2	ETIC - Phase 2 - Floors 3 & 4	NC	R	\$12,200,000
8	Univ. Crossing Student Life, Student Services & Admin Serv.	RV	SL	\$50,000,000
9	Univ. Crossing 250 beds	RV	SL	\$31,000,000
10	Univ. Crossing bookstore & cafe	RV	SL	\$10,400,000
14	Science & Engineering Master Plan-Engineering Bld. Renewal	RV	R	\$25,000,000
15	Science & Engineering Master Plan-Olsen Renovations	RV	R	\$45,000,000
17	Leitch & Bourgeois Res Hall Renovations	RV	SL	\$20,000,000
19	South Campus Master Plan & Initial Space Revisions	RV	TL	\$20,000,000
26	Science & Engineering Master Plan-North Campus Quad Renew	RV	R	\$31,300,000
27	Science & Engineering Master Plan-Olney Renovations	RV	R	\$55,000,000
<b>Lowell total</b>				<b>\$299,900,000</b>
<b>Medical School</b>				
5	South Street Refinance	O	BI	\$25,000,000
7	Enhance Chilled Water Loop Pump / Controls	RV	BI	\$3,000,000
9	Expansion of Childcare Center	RV	BI	\$1,500,000
U-JP7	Install new Low Pressure Boilers	DM	BI	\$5,000,000
U-JP8	HVAC Terminal Box and Exhaust Fan Replacement	DM	BI	\$8,000,000
<b>Worcester total</b>				<b>\$42,500,000</b>
<b>Total New Projects</b>				<b>\$1,048,350,000</b>



## Appendix B

### Change in Estimates of Total Project Cost Greater than 20% For Projects Previously Approved by the Board of Trustees

As detailed in the attached table, the total cost of University capital projects can change for various reasons, including scope expansion, planning adjustments, price escalation, revised guidance provided by oversight agencies, or more informed estimates provided by design contractors..

Campus Priority #	Project Name	Initial TPC	Revised TPC	% Increase	Explanation for Change in Cost
<b>Lowell Campus</b>					
6	Property Acquisitions	\$20,000,000	\$10,000,000	-50%	Acquisitions have already occurred (ICC & Univ. Crossing, 820 Broadway). A strategic acquisitions plan is under review to identify priorities.
16	College of Management Building	\$45,000,000	\$30,000,000	-33%	Greater understanding of scope, location and funding for facility has resulted in lower expected costs.
20	Capital renewal/deferred maintenance	\$39.3M - \$86M	\$115,000,000	34%	UML completed a detailed Facilities Conditions Assessment this year resulting in the identification of a \$452M deferred maintenance need for the campus. The current capital plan has identified specific projects that will address the backlog as part of specific building renewal projects (such as Engineering Bldg. renewal). The \$115M represents the unprogrammed remaining portion of the total.

