



# UNIVERSITY OF MASSACHUSETTS

*Amherst • Boston • Dartmouth • Lowell • Worcester*

---

## Fiscal Year 2013 to 2017

### Five-Year Capital Plan Update

*September 2012*

---





## University of Massachusetts FY2013 to 2017 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. To address this issue, a major capital evaluation and investment program was implemented that resulted in more than \$2.4 billion invested in capital projects over the ten year period concluding in FY11. Approximately 85% of this activity was self-funded from campus operating funds and University borrowing. The remaining 15% was supported by the state. Preliminary estimates on FY12 capital activity illustrate a positive shift in this ratio of funding sources, with the Commonwealth providing approximately 30% of more than \$400 million spent on University projects.

Despite the major investments since 2001, 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, economic stimulus funds and supplemental legislative appropriations, financing through the University of Massachusetts Building Authority (UMBA), the Massachusetts Development Finance Authority (MDFFA), 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 planning and 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.

### **Capital Planning Process**

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. The campuses have developed ten-year capital master plans following guidelines issued from the President's Office. These ten year plans are updated annually with particular attention given to the next five years of the plan. It is the rolling five-year plans that make up the University capital program and are summarized in this report, which is presented and reviewed by the Board each year. In addition to the annual review of the capital program, Board approval is required for projects in excess of \$1 million that are expected to get underway over the next 24 months.

The University's Five Year Capital Plan Update for FY2013 – FY2017 represents an assessment of the capital priorities for our campuses based on the best 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.

In order to improve project planning and implementation across the University, the President's Office and the UMass Building Authority have collaborated with campus leadership to design an integrated project assessment and tracking process. This new approach will allow for a transparent development of project scope and for a strategic financial strategy.

### **Strategic Priorities Reflected in the University's Capital Plan**

**Deferred Maintenance** - Maintenance and repair projects represent 33% or more than \$1.02 billion 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.

**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. Within budgetary limitations and program requirements, the University aims 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 has recently had their newly constructed Police Station and Marching Band buildings achieve LEED Gold certification.
- 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 heavily into a \$40 million dollar energy and water savings performance contract and they have also erected a 600 kw wind turbine.
- In collaboration with the Commonwealth, solar installations have been 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.

**FY2013 to FY2017 University Capital Needs**

The University's FY2013 capital planning process has resulted in a project plan that anticipates \$3.11 billion of spending over the next five years. The five-year capital plan is summarized by project type below:

<b>FY2013-2017 Capital Plan Spending by Project Type</b>	<b>Total Planned Spending</b>	
Deferred Maintenance, Compliance, & Safety	\$492,559,000	16%
Renovation & Renewal	\$528,988,439	17%
<b>Subtotal Maintenance &amp; Repair</b>	<b>\$1,021,547,439</b>	<b>33%</b>
New Construction	\$1,796,293,000	58%
Information Technology & Equipment	\$42,150,000	1%
Other Capital Spending	\$251,756,454	8%
<b>Total Planned Spending</b>	<b>\$3,111,746,893</b>	<b>100%</b>

As you review the campus detail provided later in this report, you will see that projects are also organized by program type in order to demonstrate the manner in which requested projects in the FY2013-FY2017 capital plan support the University's mission:

<b>FY2013 to 2017 Capital Plan Spending by Program Type</b>	<b>Total Planned Spending</b>	
Basic Infrastructure	\$892,148,000	29%
Research	\$725,562,328	23%
Student Life & Residential	\$581,377,564	19%
Teaching & Learning	\$912,659,000	29%
<b>Total</b>	<b>\$3,111,746,893</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.
- **Research** projects include 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.
- **Teaching & Learning** projects include improvements to or new construction of classroom facilities, auditoria, studios, library facilities and instructional equipment.



The FY2013 to FY2017 five-year spending plan is also summarized by source of funding in Table 1 below. Additional analysis is attached as are summaries of the reports submitted by each campus.

<b>Source of Funds</b>												
<b>University of Massachusetts</b>												
<b>Five Year Capital Plan</b>												
<b>FY2013- FY2017</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 FY2013-FY2017</b>												
University Local Funds	\$154,399,000	13%	\$25,940,000	3%	\$4,722,000	2%	\$37,450,000	7%	\$89,040,000	35%	\$311,551,000	10%
Private Fundraising & Federal Funding	\$107,294,000	9%	\$6,500,000	1%	\$26,109,830	9%	\$38,800,000	8%	\$5,200,000	2%	\$183,903,830	6%
University Borrowing	\$548,900,000	47%	\$661,100,000	74%	\$116,364,063	41%	\$292,930,000	57%	\$115,000,000	45%	\$1,734,294,063	56%
State Capital Support	\$346,980,000	30%	\$203,550,000	23%	\$138,868,000	49%	\$144,100,000	28%	\$48,500,000	19%	\$881,998,000	28%
<b>FY13-17 Programmed Spending</b>	<b>\$1,157,573,000</b>		<b>\$897,090,000</b>		<b>\$286,063,893</b>		<b>\$513,280,000</b>		<b>\$257,740,000</b>		<b>\$3,111,746,893</b>	

As indicated above, the University has supported 85% of its total capital spending in the ten years prior to FY12. As construction continues 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 with approximately \$1 billion dedicated to University projects from FY09-18. For the next five years, our capital plan anticipates that the state will support approximately 28% of the projected capital activity at the University.

**Statutory Authorization**

The five-year plan reflects the University's continued efforts to balance required capital investments with prudent financial management. 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 transferred to the University to support the construction of the Emerging Technology and Innovation Center at the Lowell Campus, and \$15 million has been dedicated for a



Biomufacturing 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.

**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.

<b>Chapter 130 of 2008 The Life Science Industry Investment Act</b>	
<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 FY2013 - 2017**

The University has been working closely with EOAF as it develops the state's FY13-17 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.

## **University Borrowing**

The capital plan proposes using \$1.73 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 \$770 million of funds currently borrowed for the projects identified on the capital plan leaving approximately \$1 billion 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 occur in 2013.

## **Board Approval**

The trustees are being asked to review the University's capital plan detailing projected spending for the five-year period FY2013 to 2017 and to vote on a specific subset of projects that are expected to get underway over the next 24 months. 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  
FY2013-2017  
UNIVERSITY OF MASSACHUSETTS - AMHERST**

---

The Amherst campus capital plan is focused on a five-year planning timeframe from FY13 through FY17 and is organized to identify funded projects by designated funding sources. The funded project list includes projects that are currently underway or that are planned to begin in the next year.

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 implementation of the Master Plan and capital priorities. This 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. 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 the 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 approximately \$95 million of campus operating funds to service debt and support the implementation of the capital plan. The capital 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 priorities, the Life Science Laboratories, which is a key component in supporting the campus goal of increasing research and recruiting top faculty, and \$65M to the construction of the New Academic Classroom Building.

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. Recently, private donations partially supported construction of the Integrated Sciences Building and the George N. Parks Minuteman Marching Band Building. Currently, the Isenberg School of Management has targeted raising \$24M to support an addition to their building, and the Champions Center project for Men's and Women's Basketball includes fundraising of over \$14M. The campus continues to pursue private donations for new construction.

---

The campus was also successful in obtaining over \$7M in Federal grants to partially support the construction of the new Integrated Sciences Building. The campus also obtained a \$7M grant from the National Institutes of Health for renovations to the Lederle Graduate Research Center to support research. Additionally, the College of Natural Sciences raised nearly \$2M for laboratory renovations for the Health and Wellness Center in the Food Science Department. The campus is also seeking external funds through grants and private donations for fit-out of the shell space in the Life Science Laboratories. Successful fundraising to support our capital needs remains a high priority.

**FY13 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 FY12, capital expenditures in the past three years at the Amherst campus was approximately \$450M with over \$200M expended in FY12. 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 of DM through modernization of outdated facilities and reduction of DM 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 on-going in the planning, design or construction 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 DM liability, and indicates that significant progress has been made 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:** Construction of the new Life Science Laboratories (Figure 1) has progressed in the past year. The new building is on schedule for completion in the spring of 2013 with a target for LEED Gold certification.



Figure 1 - Life Sciences Laboratories (I and II)

Construction of the new Commonwealth Honors Residential College Complex (Figure 2) continues on schedule for completion by summer 2013 and will include about 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.



Figure 2 - Commonwealth Honors College Residential Complex

Construction of the New Academic Classroom Building (Figure 3) began in March of 2012 and is scheduled for completion in the spring of 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.



Figure 3 - New Academic Classroom Building

Design is progressing on other priority projects including improvements to McGuirk Alumni Stadium, a Champions Center for men's and women's basketball (supported by a lead donation of \$10M), and the Physical Sciences Building.

3. **Renovations/Modernization:** In the past year, the campus completed renovation/modernization projects to support new faculty hires in several laboratory buildings. With funding from NIH, construction continues in the Lederle Graduate Research Tower and construction has progressed on a major building systems upgrade project in Goessmann Lab. A building-wide renovation project at Paige Laboratory is in design. The campus completed 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 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. The campus recently completed a major infrastructure improvement project replacing deteriorated steam, water and electric utilities servicing the north campus. Design has progressed 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 College Residential Complex. Planning is also starting on a similar University Drive infrastructure project that will service the southern portion of campus. The campus has 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 (with the UMass Police Station and the George N. Parks Minuteman Marching Band Building being the first two certified LEED Gold buildings on campus) and sponsored 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. The campus is also planning a new electric substation that would result in annual utility savings of approximately \$1,000,000, and a temporary Liquefied Natural Gas installation that will provide an additional \$2,000,000 of fuel cost savings yearly. If feasible, these projects could 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:** A new Campus Master Plan was completed in April of 2012. It was developed through a participatory process with input gathered from a diverse constituency of campus and community groups in over 100 meetings held throughout the previous year. 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 FY13-17 capital plan reflect the strategic goals and priorities of the campus master plan. They also 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 similar classrooms planned for the New Academic Classroom Building. 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 buildings to replace Hills and Bartlett and renovations to Furcolo are 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 research support facilities and quality research space in the Life Science Laboratories currently under 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 Life Science Laboratories and a planned new Physical Science Building.

**Campus Life:** The new Commonwealth Honors College 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. In addition, planned renovations in the existing residence halls will improve the student housing experience. The recently completed southwest exterior concourse project has provided improved accessibility, rain gardens with integrated seating areas and improved site lighting for the students residing in the Southwest Halls. At the end of the summer of 2012, all undergraduate housing will be sprinkled. A two-phased, \$12M renovation of the Lincoln Campus Center Concourse is scheduled to be completed to coincide with the opening of the adjacent New Academic Classroom Building in the spring of 2014. A \$15M renovation of the Hampshire Dining Common will be completed to coincide with the opening of the Commonwealth Honors College Residential Complex.

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 FY13-17 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 2012**

The reduction of deferred maintenance (DM) 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 this deferred maintenance. 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 the 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.

### **Facilities Portfolio**

The Amherst campus has over 10 million 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. Approximately 80% of our campus buildings are over 25 years old and approximately 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 approximately \$1.6 billion.

### **Deferred Maintenance Projects**

The campus has a significant volume of projects focused on DM that are at various stages of completion. The total value of the investment in these projects is over \$100M. 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, Goessmann, numerous residence halls and others. Major infrastructure projects include the Central Campus and University Drive Infrastructure projects. In addition, we have many renovation/modernization projects that will also correct DM deficiencies. These include renovations in Marks Meadow, Paige, Hampshire Dining Commons, Lincoln Campus Center Concourse, Goodell and various residence halls.

### **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 provide adequate project budgets to address DM while contractors are working in a building. DM reduction is also targeted through new construction. With the completion of the Bowditch Greenhouse project, the French Greenhouses that are deteriorated beyond repair will be demolished. Our plan includes the replacement and demolition of Hills and Bartlett buildings. As we build and occupy 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 and FY13-17 capital plans target a 24% reduction of DM by FY16. The following chart illustrates how we plan to achieve the reduction.

**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>1,588</b>	<b>1,518</b>	<b>1,435</b>	<b>1,385</b>	
Spending on Deferred Maintenance projects (1)		(41)	(48)	(39)	(48)	(176)
Spending on Deferred Maintenance in renovation projects (2)		(34)	(40)	(25)	(8)	(107)
Deferred Maintenance escalator (1%)		16	15	14	14	59
Decrease in Deferred Maintenance from demolition (3)		(11)	(10)	0	(68)	(89)
<b>Total Ending Deferred Maintenance</b>	<b>1,588</b>	<b>1,518</b>	<b>1,435</b>	<b>1,385</b>	<b>1,275</b>	
Percent Reduction from 7/1/11	(5.8%)	(10.0%)	(14.9%)	(17.9%)	(24.4%)	

**Notes:**

- (1) 100% of spending on projects coded as DM for FY13-16
- (2) 50% of spending on projects coded as RV for FY13-16
- (3) Reduction to existing Deferred Maintenance balances due to demolition of Bartlett, French Greenhouse, Power Plant, Hills and Munson Annex.



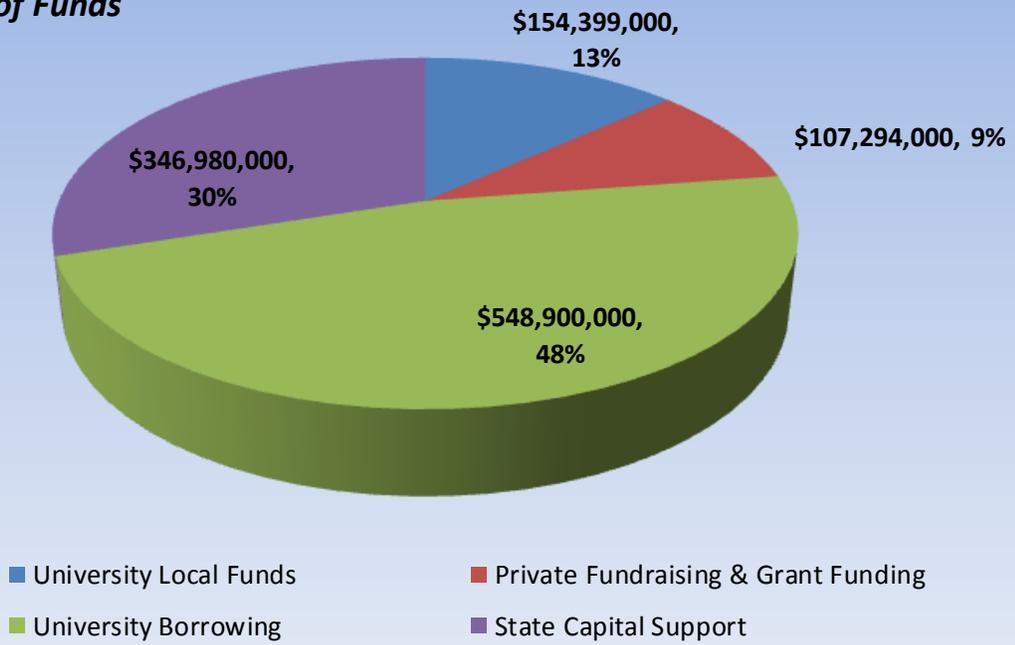
University of Massachusetts FY13 Capital Plan Update  
Amherst Campus Projects

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2012	Five Year Spending Anticipated FY13-17 Cash Flow
<b>Programmed Projects</b>					
1	Housing Expansion	NC	SL	\$188,000,000	\$129,000,000
2	Life Science Laboratories	NC	R	\$160,000,000	\$44,444,000
3	Academic Classroom Building	NC	TL	\$91,000,000	\$75,700,000
4	Life Science Laboratories, OIT data center fitout	NC	BI	\$7,000,000	\$7,000,000
5	Physical Sciences Building	NC	R	\$85,000,000	\$80,800,000
6	Integrated Sciences Building fitout	NC	TL	\$2,000,000	\$1,944,000
7	Hills Replacement Building	NC	TL	\$25,800,000	\$25,800,000
8	Bartlett Replacement Building	NC	TL	\$50,000,000	\$50,000,000
9	Liquified Natural Gas infrastructure	NC	BI	\$900,000	\$900,000
10	McGuirk Stadium Improvements	NC	SL	\$34,500,000	\$34,000,000
11	Champions Center	NC	BI	\$25,000,000	\$25,000,000
12	Life Sciences Facility	NC	R	\$95,000,000	\$73,500,000
13	New Substation and Electrical Upgrades	NC	BI	\$40,000,000	\$40,000,000
14	Isenberg School of Management renovations and addition	NC	TL	\$40,000,000	\$40,000,000
15	School of Public Health facilities study	NC	R	\$500,000	\$500,000
16	Life Science Laboratories Fit out	NC	R	\$50,000,000	\$50,000,000
17	Relocate Chemical Storage Facility Study	NC	BI	\$500,000	\$500,000
18	Parking garage/multi-modal center study	NC	BI	\$500,000	\$500,000
19	Lederle Graduate Research basic systems upgrades	DM	BI	\$10,305,000	\$1,800,000
20	Morrill complex repairs and renovations	DM	BI	\$9,081,000	\$4,000,000
21	McNamara & Brown roof, parapet and masonry	DM	SL	\$3,300,000	\$1,600,000
22	Kennedy & Washington laundry venting	DM	SL	\$1,700,000	\$900,000
23	Dickinson House, Field & Webster elevator	DM	SL	\$1,500,000	\$1,200,000
24	DuBois Library Elevator Replacement	DM	BI	\$5,000,000	\$1,500,000
25	DuBois Library Electrical, Plumbing, Fire Suppression, Deferred Maintenance	DM	BI	\$25,000,000	\$22,450,000
26	Machmer Repairs	DM	TL	\$12,600,000	\$6,000,000
27	Totman Physical Education Building MEP	DM	BI	\$1,000,000	\$900,000
28	Fine Arts Center fire protection and emergency generator	DM	BI	\$3,250,000	\$3,000,000
29	ISOM architectural and MEP	DM	BI	\$2,000,000	\$1,850,000
30	Bartlett Deferred Maintenance & Façade	DM	TL	\$2,000,000	\$1,300,000
31	Webster, Grayson, Field window/masonry	DM	SL	\$13,500,000	\$8,700,000
32	Lincoln Apartments Utilities	DM	BI	\$1,500,000	\$80,000
33	Morrill IV Bridge replacement	DM	BI	\$500,000	\$475,000
34	Research Admin, MEP & fire alarm	DM	BI	\$1,500,000	\$1,490,000
35	Physical Plant deferred maintenance & renovations	DM	BI	\$7,500,000	\$7,200,000
36	Water tank repairs	DM	BI	\$1,000,000	\$1,000,000
37	Lederle Graduate Research Center Window encapsulation/replacement	DM	BI	\$4,500,000	\$4,500,000
38	Lederle Research Center Repairs and Renovations	DM	R	\$41,250,000	\$39,500,000
39	Morrill Science Center Renovations	DM	R	\$51,300,000	\$47,300,000
40	Farm and outlying stations renovations	DM	BI	\$4,500,000	\$4,500,000
41	Whitmore deferred maintenance	DM	BI	\$14,000,000	\$14,000,000
42	Hadley Farm Manor House repairs	DM	TL	\$600,000	\$600,000
43	Marston Repairs and Renovations	DM	TL	\$6,000,000	\$6,000,000
44	Roadway/Sidewalks/Parking lot Repairs and Improvements	DM	BI	\$5,000,000	\$5,000,000
45	Landscape Improvements	DM	BI	\$1,500,000	\$1,500,000



Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2012	Five Year Spending Anticipated FY13-17 Cash Flow
<b>Programmed Projects</b>					
46	Deferred Maintenance & Modernization Projects	DM	BI	\$15,000,000	\$15,000,000
47	Replace Oil Filled Transformers	DM	BI	\$2,000,000	\$2,000,000
48	Intermediate Processing Facility DM/Sitework	DM	BI	\$500,000	\$500,000
49	Housing Sprinkler Systems	HS	BI	\$23,000,000	\$4,600,000
50	Fine Arts Center fire protection	HS	BI	\$2,500,000	\$2,500,000
51	Facility Demolitions	O	BI	\$12,800,000	\$12,100,000
52	Central Campus Infrastructure	O	BI	\$25,000,000	\$24,700,000
53	Chilled Water Loop	O	BI	\$3,000,000	\$2,000,000
54	University Drive Infrastructure	O	BI	\$8,000,000	\$8,000,000
55	Solar Panels	O	BI	\$2,350,000	\$2,350,000
56	Lot 12 environmental	O	BI	\$1,500,000	\$1,500,000
57	Coal Yard Decommission	O	BI	\$1,000,000	\$1,000,000
58	Life Safety/Code Compliance	O	BI	\$5,000,000	\$5,000,000
59	Campus Security Improvements	O	BI	\$5,000,000	\$5,000,000
60	Campus Infrastructure	O	BI	\$13,000,000	\$13,000,000
61	North Pleasant Street Road Improvements	O	BI	\$9,000,000	\$9,000,000
62	Wayfinding and Signage	O	BI	\$1,000,000	\$1,000,000
63	Property Acquisitions	O	BI	\$1,500,000	\$1,500,000
64	Marks Meadow/Furcolo Renovations	RV	TL	\$21,400,000	\$21,400,000
65	ADA Accessibility	RV	BI	\$6,000,000	\$6,000,000
66	Lederle Research Center Faculty Renovations (NIH)	RV	R	\$12,700,000	\$5,950,000
67	Paige Lab Renovations	RV	BI	\$9,900,000	\$9,600,000
68	Hampshire DC renovations	RV	SL	\$15,000,000	\$14,950,000
69	Lincoln Campus Center Concourse Improvements	RV	SL	\$12,000,000	\$11,900,000
70	Academic Renovations Pool	RV	TL	\$2,500,000	\$2,500,000
71	Campus Space Reallocation	RV	BI	\$5,000,000	\$5,000,000
72	Housing Repair & Renovation	RV	SL	\$25,000,000	\$25,000,000
73	Classroom Renovations	RV	TL	\$2,000,000	\$2,000,000
74	Goessmann Renovations	RV	R	\$15,000,000	\$6,800,000
75	Hampden Dining/Student Union Study	RV	SL	\$400,000	\$400,000
76	New Faculty Hire Renovations	RV	R	\$14,000,000	\$13,000,000
77	Electrical/other infrastructure	RV	BI	\$5,000,000	\$5,000,000
78	Hills relocations	RV	TL	\$4,000,000	\$4,000,000
79	Goodell deferred maintenance & renovations	RV	SL	\$3,500,000	\$3,490,000
80	Machmer renovations	RV	TL	\$1,200,000	\$1,200,000
81	Tobin Renovations	RV	R	\$1,000,000	\$1,000,000
82	Fine Arts Center renovations	RV	TL	\$9,000,000	\$9,000,000
83	New Africa House renovations	RV	BI	\$1,700,000	\$1,700,000
84	Office Renovations	RV	BI	\$10,000,000	\$9,000,000
85	Life Science Laboratories backfill renovations	RV	R	\$18,000,000	\$18,000,000
86	Dining Commons Renovations/Study	RV	SL	\$1,000,000	\$1,000,000
87	Old Chapel Renovation/study	RV	BI	\$1,000,000	\$1,000,000
<b>Total Projects</b>				<b>\$1,454,036,000</b>	<b>\$1,157,573,000</b>

**Amherst Campus FY13-17 Capital Plan  
Source of Funds**



CAPITAL PLAN UPDATE  
FY2013-2017  
**UNIVERSITY OF MASSACHUSETTS - Boston**

---

## Laying the New Foundation



“The beautiful rests on the foundations of the necessary.” (Ralph Waldo Emerson)

### **Introduction**

In the late 1700s, America’s first President, George Washington, was set to retire to his beloved Mount Vernon, having overseen the historic period that cemented the United States’ independence. His greatest “unfinished” work was bringing about the “internal improvements” that would foster communication and transportation routes between the new states and bring closer together the remote parts of the new continent. These improvements were championed not by Washington’s successor Presidents, Adams or Jefferson; rather, it was Jefferson’s Treasury Secretary, Albert Gallatin, who prepared the first detailed plan for the construction of canals and roads. In recognizing and planning for “the foundations of the necessary,” Gallatin authored a road map of internal improvements that would prove crucial to future national interests and the common good of the evolving nation.

UMass Boston's Master Plan is no less a crucial road map for the future of Boston's only public university. It is based upon the strategic needs of the university, as determined by its overseers – its academic and administrative leaders.

The theme of UMass Boston's FY2013 Capital Plan, *Laying the New Foundation*, aptly reflects the strategic capital initiatives contained in the university's Master Plan, which are being undertaken to secure this great university's future.

### **UMass Boston's Facilities Portfolio**

UMass Boston is the steward of a facilities portfolio that includes 17 buildings on more than 122 acres adjacent to the harbor on Columbia Point peninsula in Boston and five buildings on the island of Nantucket, as follows:

1. Bayside
2. Calf Pasture Pumping Station
3. Campus Center
4. Clark Gymnasium
5. Clark Pool
6. Clark Rink
7. Gatehouse
8. Healey Building
9. McCormack Hall
10. Quinn Administration Building
11. Salt Water Pump House
12. Science Center
13. Service and Supply Building
14. Switchgear Building
15. Utility Plant
16. West Shaft Entrance Building
17. Wheatley Hall
18. Nantucket Field Station: Director's Residence/Workshop
19. Nantucket Field Station: Dormitory/Main House
20. Nantucket Field Station: Gouin Village
21. Nantucket Field Station: Laboratory
22. Nantucket Field Station: Little Beach House

There are more than two million square feet of built space at UMass Boston on Columbia Point. Utilities are distributed from a centralized Utility Plant and pedestrian circulation occurs through a continuous enclosed bridge called the "catwalk" that is almost ¼ mile in length and provides a weather-protected network between buildings.

Since 2007 when Chancellor Motley was appointed to lead UMass Boston, enrollment at UMass Boston has increased over 19%, from 13,433 in the fall of 2007 to an estimated 16,000 students for the fall of 2012, placing enormous strain on the current physical plant. Our five-year strategic plan provides the blueprint to grow to 18,000. This growth will be achieved as the campus implements the first phase of its Master Plan, constructing the first new academic buildings in nearly 40 years, the Integrated Sciences Complex 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 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 and buildings were built all at the same time, opening to students in 1974. While the Commonwealth provided funding for the original 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 has not been 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 constructed as a series of separate buildings interconnected by a plaza two stories above grade, with two substructure levels located below the plaza. 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 as many problems related to lack of regular maintenance over the past 40 years as to original construction.
5. UMass Boston is located on a flight path into Logan International Airport and careful attention is paid to 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 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 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.

### Laying the New Foundation

UMass Boston’s physical transformation has been underway over several years and the titles of its recent Capital Plan narratives say much about the course that transformation 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.
- The FY12 capital plan, *Building Momentum*, signaled the continued forward motion of its pursuit of a campus being transformed to meet its strategic vision, with the commencement of construction of the Integrated Sciences Complex.

With the submission of this FY13 Capital Plan entitled *Laying the New Foundation*, UMass Boston prioritizes those capital initiatives necessary to realize its strategic goals. In particular, the enabling projects highlighted in this plan which will result in the development of new campus infrastructure will allow for the achievement of all capital initiatives and thus support the achievement of all of the strategic academic goals as well.

### Funding by Program

The UMass Boston FY13-FY22 Capital Plan outlines \$1,271.1m in capital spending over the next 10 fiscal years in four major areas:

<b>Program Type</b>	<b>Amount (in Millions)</b>	<b>% of Total Funds Allocated</b>
Basic Infrastructure/Deferred Maintenance/Compliance Projects	\$72.2	5.7%
Master Plan-related Projects	\$1,148.2	90.3%
Substructure-related Projects	\$1.6	0.1%
Teaching/Learning/Research Projects	\$49.2	3.9%
<b>Total Cost of Capital Plan</b>	<b>\$1,271.1</b>	

### **Substructure Repair/Science Center and Plaza Demolition**

The six-year, \$40m, Substructure and Related Repairs 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, the Switchgear Building. At the time this Capital Plan is being written, the cutover of UMass Boston's four high voltage lines to this new building is underway. 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 the demolition of these spaces and the Science Center, after the new Integrated Sciences Complex and General Academic Building No. 1 are occupied. What was once the domain of the utilities distribution system and automobiles became a striking scene of deteriorated, dark and vacant space. The space created by these demolitions will become a central quadrangle – a landscaped crossroad for an engaged community of students, faculty and staff enjoying a memorable place of learning and collaboration. About “destructionists” who engage in building demolitions, the writer Walter Benjamin has said,

*Because there are ways everywhere, the destructionist always stands at a crossroads. No moment can know what the next will bring. What exists he reduces to rubble — not for the sake of the rubble, but for that of the way leading through it.*

*From Rubble: Unearthing the History of Demolition by Jeff Byles*

For UMass Boston's “way forward,” a bit of chaos must be endured. As Chancellor Motley said in his 2010 Convocation Address, “Be prepared to get your boots muddy...and be prepared to help us plan another chapter of the University of Massachusetts Boston's future.”

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

Beyond UMass Boston's well documented Plaza and Substructure issues, there has been a targeted and sustained effort to identify its most critical deferred maintenance problems so that their 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 capital 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; and*
- *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 towards 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 FY13-FY22 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.

The costliest and most deteriorated conditions will be addressed by building new buildings and demolishing the old. For example, the Gilbane study 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 and General Academic Building No. 1 are 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 \$11m 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 11-story Healey Library Building.

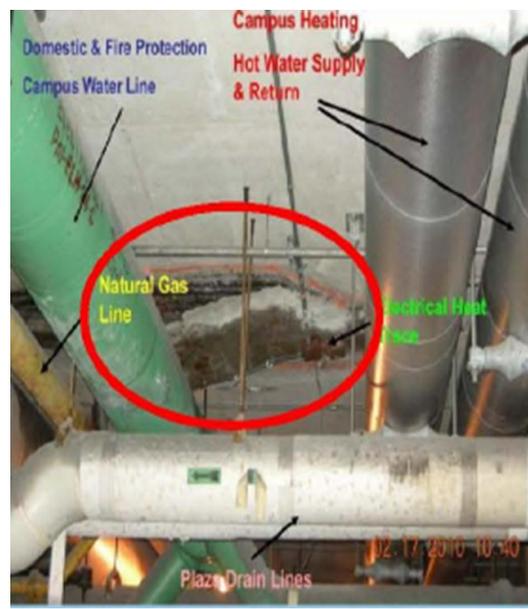
Two important areas for correction of Deferred Maintenance are UMass Boston’s elevators and roofs/facades. UMass Boston’s Elevator Modernization efforts will continue with the installation of new and upgraded elevators in four buildings: McCormack Hall, Wheatley Hall, Clark Athletic Center, and Quinn 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 a portion of the Science Center 3rd floor roof; 3) Replacement of the Service and Supply Building membrane roof; 4) Repair of the Clark Gymnasium curtain wall and roof; and 5) Repairs to roofs on the Healey Building.

UMass Boston is committed and will continue to work in a sustained manner on correction of its deferred maintenance backlog over the period FY12-FY16 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.

The authors of the seminal study, *A Foundation to Uphold: A Study of Facilities Conditions at U.S. Colleges and Universities*, found that strategic planning was key to successful deferred maintenance correction. They wrote:

“Colleges that undertook strategic facilities planning to prioritize needs, combined with an increase in facility funds, showed the greatest success in reducing accumulated deferred maintenance.”

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**

At 90.3% of the proposed FY13-FY22 expenditures, Master Plan-related projects are the cornerstone of the Capital Plan, *Laying the New Foundation*.

Capital Priorities, FY13-FY22	Estimated Cost (\$M)*	Basis of Estimate **
1 Integrated Sciences Complex (ISC)	182.0	7
2 Utility Corridor Roadway Relocation (UCRR) ***	154.0	5
3 General Academic Building No. 1 (GAB 1)	113.0	4
4 McCormack and Wheatley Halls Backfill Renovations	75.0	2
5 Science Center and Substructure Demolition / Quadrangle Development	22.5	1
6 Residence Hall No. 1 (RH 1)	100.0	1
7 Trigeneration Plant	27.5	2
8 Parking Garage No. 1 (PG 1)	45.0	1
9 General Academic Building No. 2 (GAB 2)	100.0	1
10 General Academic Building No. 3 (GAB 3)	150.0	1
11 Residence Hall No. 2 (RH 2)	110.0	1
12 Parking Garage No. 2 (PG 2)	42.0	1
Total	1,121.0	

\* Includes spending that occurred prior to FY13

\*\* Estimates are based upon information received at various project phases, the descriptions of which correspond to the numbers below:

1. Planning
2. Study
3. Programming
4. Schematic Design
5. Design Development (50%)
6. Contract Documents
7. Construction Bids

\*\*\* Includes UCRR Phases I and II and Central Utility Plant Upgrades Project

The first of several new academic buildings, indeed the first new academic building since the campus opened to students in 1974, the Integrated Sciences Complex, is now under construction. The foundation is in and the steel is erected. Installation of the curtain wall will begin in September.

Schematic design of the second new academic building on our campus, the General Academic Building No. 1, has been completed. This building will house chemistry teaching laboratories, a theater, a recital hall, art studios, and more than 25 new classrooms with instructional technology that will surpass any currently available on campus.

The “mother of all enabling projects,” the Utility and Roadway Relocation Project, has been underway since September 2010, and at the end of September 2012 the design team will complete 100% Design Development for this project. The new campus utility infrastructure, roadway, and surface improvements are critical to support the build-out of the 25-year Campus Master Plan.

The deterioration of the Substructure requires the relocation of the campus’ utilities to a new utility corridor, allowing 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 are being designed to provide capacity for both existing buildings and to serve 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, utility plant modifications, new utility building connections, stormwater management) will cost some \$155m.

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.

*Today, the creation of infrastructure can no longer simply be considered as the accumulation of a large object in isolation from its surroundings. Landscape and infrastructure merge and movement corridors are (re)worked as new vessels of collective life...Once married with architecture, mobility, and landscape, infrastructure can more meaningfully integrate territories, reduce marginalization and segregation, and stimulate new forms of interaction.*

*From The Landscape of Contemporary Infrastructure by Kelly Shannon and Marcel Smets*

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

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 applied 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 has begun on the Healey Building Classroom 2.0 Project, a project to create additional classroom space in the Healey Building 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 will aid the implementation of new pedagogies at UMass Boston as new academic buildings are added and existing classrooms are renovated.

## Conclusion

UMass Boston’s Capital Plan FY13-FY22 underscores campus efforts at *Laying the New Foundation*, initiatives that will result in a solid and robust foundation with a beautiful and enhanced public realm.

*Every problem is a challenge and many problems were met in the building of the Fair that were never before encountered. The engineers have given a hundred new and valid answers to a hundred major and perplexing questions. They have created things which many have said were fantastic, and others, impossible. And that is because nothing can defeat a combination of experience and courage.*

*From Official Guide Book, New York World's Fair, 1939*



**UMass Boston Facility Inventory Summary - August 2012**

<b>Building Name</b>	<b>Address</b>	<b>Square Footage</b>	<b>Owner</b>	<b>Building Function</b>	<b>Replacement Value (CAMIS) (\$)</b>	<b>Amount of Building/System Deferred Maintenance</b>
----------------------	----------------	-----------------------	--------------	--------------------------	---------------------------------------	---

**Main Campus**

Calf Pasture Pumping Station (CPPS)	435 Mt. Vernon Street Boston, MA		Commonwealth of Massachusetts	Vacant/Unoccupied		*
Campus Center	100 Morrissey Boulevard, Boston, MA	330,000	Commonwealth of Massachusetts	Office/Event	114,574,421	*
Clark Athletic Center: Gymnasium, Pool, Rink	100 Morrissey Boulevard, Boston, MA	126,427	Commonwealth of Massachusetts	Athletic Facilities	36,103,769	*
Gatehouse (CPPS)	435 Mt. Vernon Street Boston, MA		Commonwealth of Massachusetts	Vacant/Unoccupied		*
Healey Building	100 Morrissey Boulevard, Boston, MA	337,446	Commonwealth of Massachusetts	Library/Office/Classroom	100,557,924	*
McCormack Hall	100 Morrissey Boulevard, Boston, MA	266,060	Commonwealth of Massachusetts	Office/Classroom	90,242,258	*
Quinn Administration Building	100 Morrissey Boulevard, Boston, MA	96,897	Commonwealth of Massachusetts	Office	29,406,484	*
Salt Water Pump House	100 Morrissey Boulevard, Boston, MA	4,314	Commonwealth of Massachusetts	Central Utilities Distribution	676,446	*
Science Center	100 Morrissey Boulevard, Boston, MA	297,952	Commonwealth of Massachusetts	Laboratory/Classroom/Office	95,334,996	*
Service & Supply Building	100 Morrissey Boulevard, Boston, MA	74,295	Commonwealth of Massachusetts	Office/Service	22,376,039	*
Switchgear Building	100 Morrissey Boulevard, Boston, MA	2,775	Commonwealth of Massachusetts	Central Utilities Distribution		*
Utility Plant	100 Morrissey Boulevard, Boston, MA	27,886	Commonwealth of Massachusetts	Central Utilities Distribution	6,157,733	*
West Shaft Entrance Building (CPPS)	435 Mt. Vernon Street Boston, MA		Commonwealth of Massachusetts	Vacant/Unoccupied		*
Wheatley Hall	100 Morrissey Boulevard, Boston, MA	268,511	Commonwealth of Massachusetts	Office/Classroom	85,914,829	*

**Buildings Currently under Construction on Main Campus**

Integrated Sciences Complex	100 Morrissey Boulevard, Boston, MA	231,110	Commonwealth of Massachusetts	Laboratory/Classroom/Office		*
-----------------------------	-------------------------------------	---------	-------------------------------	-----------------------------	--	---

**UMass Bayside Site on Columbia Point**

UMass Bayside	200 Mt. Vernon Street, Boston, MA	275,000	University of Massachusetts Building Authority	Vacant/Unoccupied		*
---------------	-----------------------------------	---------	--	-------------------	--	---

**Nantucket Field Station**

Nantucket Field Station: Director's Residence/ Workshop	180 Polpis Road, Nantucket, MA	2,200	Commonwealth of Massachusetts	Housing/Boat & Vehicle Maintenance Shop		*
Nantucket Field Station: Dormitory/Main House	180 Polpis Road, Nantucket, MA	1,975	Commonwealth of Massachusetts	Dormitory	669,603	*
Nantucket Field Station: Gouin Village	20 Vesper Lane, Nantucket, MA	3,060	Commonwealth of Massachusetts	Housing	1,037,459	*
Nantucket Field Station: Laboratory	180 Polpis Road, Nantucket, MA	1,133	Commonwealth of Massachusetts	Laboratory	384,292	*
Nantucket Field Station: Little Beach House	180 Polpis Road, Nantucket, MA	520	Commonwealth of Massachusetts	Vacant/Unoccupied	157,811	*

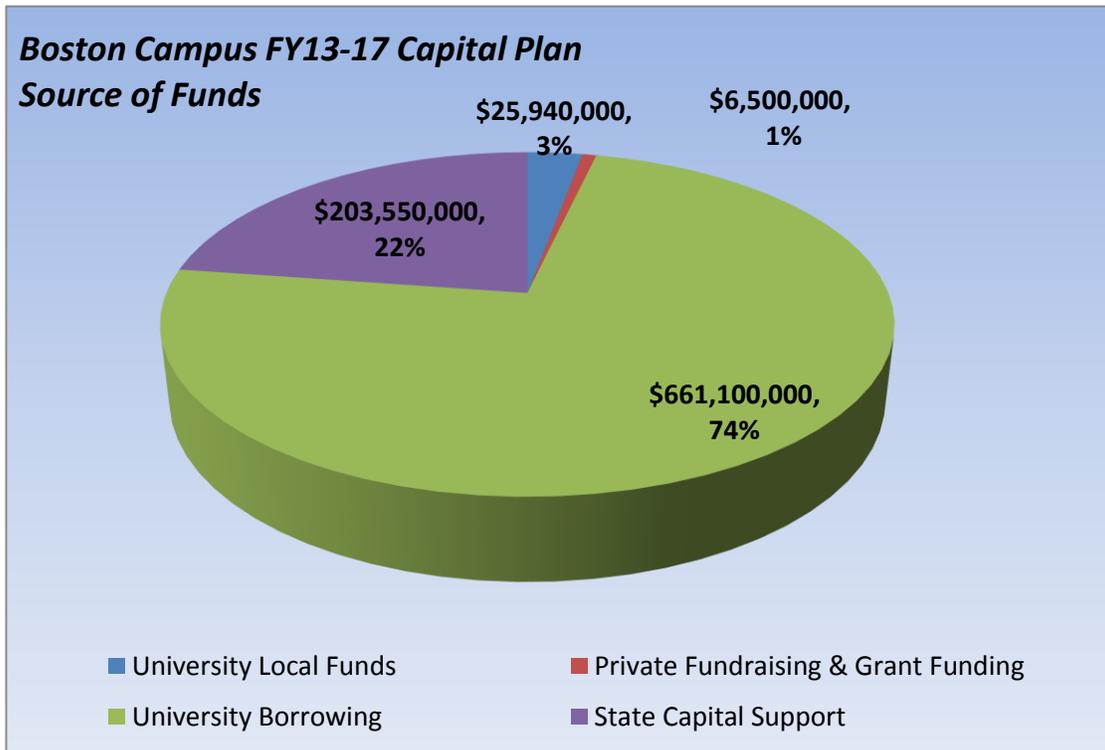


University of Massachusetts FY13 Capital Plan Update  
Boston Campus Projects

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2012	Five Year Spending Anticipated FY13-17 Cash Flow
<b>Basic Infrastructure (Life Safety/Deferred Maintenance)</b>					
BI.01	Replace and Construct new Structure for Primary Campus Electrical Switchgear	DM	BI	\$5,500,000	\$5,500,000
BI.02.01	Wheatley Hall Roof Replacements and Buidling Envelope Repairs	DM	BI	\$3,600,000	\$100,000
BI.02.02	Clark Athletic Center: Replace/Repair East Curtain Wall	DM	BI	\$2,000,000	\$2,000,000
BI.02.03	Healey Building: Roof Replacement and Building Envelope Repairs	DM	BI	\$1,800,000	\$1,800,000
BI.02.04	Service and Supply Building: Roof Replacement and Buiding Envelope Repairs	DM	BI	\$1,750,000	\$1,750,000
BI.02.05	McCormack Hall: Roof Replacement and Building Envelope Repairs	DM	BI	\$3,500,000	\$3,500,000
BI.03	Healey Building: Replace Plaza Level Waterproofing	DM	BI	\$4,000,000	\$4,000,000
BI.04	Campus Center: Install Interior Glazing on 2nd & 3rd Floors of Interior Atrium	O	BI	\$600,000	\$550,000
BI.05	Grounds: Sea Wall and Harborwalk Construction on North-Facing Shore	NC	BI	\$3,800,000	\$3,725,000
BI.06	Nantucket Field Station: Repairs to Field Station Buildings and Septic System and Gouin Village Apartment Repairs	DM	BI	\$2,000,000	\$1,500,000
BI.07	Clark Athletic Center Ice Rink: Replace Chiller Unit	DM	BI	\$1,000,000	\$1,000,000
BI.08	Clark Athletic Center: Repair South-facing Façade on Ice Rink facility	DM	BI	\$1,000,000	\$1,000,000
BI.09	Healey Building: Fire Protection Improvements (Install Fire Sprinklers, Replace Fire Alarm System and Fire Pumps)	CO	BI	\$8,200,000	\$8,200,000
BI.10	Clark Athletic Center/McCormack Hall/Quinn Administration/Wheatley Hall: Elevator Renovations -- Code/Restoration	DM	BI	\$3,300,000	\$3,200,000
BI.11.01	Saltwater Pump House: Mechanical System Upgrades	DM	BI	\$1,500,000	\$1,500,000
BI.11.02	Saltwater Pump House: Savin Hill Cove Dredging	DM	BI	\$500,000	\$500,000
BI.12	Campus-wide: Central IT Upgrades/Replacements	E	BI	\$5,000,000	\$5,000,000
BI.13	Campus-wide: Telephone System Upgrades	E	BI	\$1,300,000	\$1,300,000
BI.14.01	Quinn Administration Building: Install Fire Suppression System and Upgrade Fire Alarm System	CO	BI	\$1,200,000	\$1,200,000
BI.14.02	Service and Supply Building: Install Fire Suppression System and Upgrade Fire Alarm System	CO	BI	\$2,300,000	\$2,300,000
BI.15	Calf Pasture Pumping Station: Security and Button-up Envelope at ownership transition	DM	BI	\$500,000	\$440,000
BI.16	Campus Wide: One Card System	IT	BI	\$2,000,000	\$2,000,000
BI.17	Campus-wide: ADA Compliance	CO	BI	\$1,000,000	\$1,000,000
BI.18	Fox Point Docks: Upgrades and ADA Accessabiity	CO	TL	\$1,500,000	\$1,500,000
BI.19	Campus-wide: Replace Exterior Doors to Ensure Climate Control (including vestibules) and Code Compliance	DM	BI	\$3,200,000	\$3,150,000
BI.20	Campus-wide: Off-site Data Center Backup	E	BI	\$600,000	\$600,000
BI.21	Quinn Administration Building: Renovations to Improve Building Space Efficiency	RV	BI	\$12,500,000	\$0
BI.22	Projects Less Than \$500,000 (Aggregate)	DM	BI	\$4,700,000	\$4,350,000



<b>Master Plan Projects</b>					
MP.01.01	Master Plan Phase I: Construct New Integrated Sciences Complex	NC	R	\$182,000,000	\$161,000,000
MP.01.02	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.01.03	Life Sciences: Center for Personalized Cancer Therapy (To be located within Integrated Sciences Complex) (LSBB Earmark)	RV	R	\$10,000,000	\$10,000,000
MP.02.01	Master Plan Phase I: Utility Corridor and Roadway Relocation Project	NC	BI	\$143,000,000	\$140,900,000
MP.02.02	Master Plan Phase I: Utility Plant Upgrades related to pumps, controls, heat exchangers and Utility Corridor Reconfiguration	BR	BI	\$11,000,000	\$11,000,000
MP.02.03	Master Plan Phase I: Construct new Trigereneration Facility to accommodate increased campus chilled water, hot water and electrical service needs	NC	BI	\$27,500,000	\$27,500,000
MP.03	Master Plan Phase I: Construct New Academic Building 1	NC	TL	\$113,000,000	\$110,800,000
MP.04	Master Plan Phase I: Construct 1,000 Bed Residence Hall 1	NC	SL	\$100,000,000	\$100,000,000
MP.05.01	Master Plan Phase I: Renovations to Existing Campus Buildings	BR	TL	\$75,000,000	\$75,000,000
MP.05.02	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.06.01	Master Plan Phase I: Study Substructure and Science Center Demolition	O	BI	\$1,150,000	\$1,150,000
MP.06.02	Master Plan Phase I: Construct new campus Greenhouse for research, teaching and community service	NC	SL	\$5,000,000	\$5,000,000
MP.06.03	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.06.04	Master Plan Phase I: Study Replacement of Catwalk/Enclosed Campus Walkway System and Connections to GAB 1	BR	BI	\$1,000,000	\$1,000,000
MP.06.05	Master Plan Phase I: Study new LL/UL Facades at Campus Center, Healey Building, McCormack Hall, Quinn Administration Building and Wheatley Hall and Access to Buildings from Grade	NC	BI	\$1,000,000	\$1,000,000
MP.06.06	Master Plan Phase I: Substructure and Science Center Demolition	O	BI	\$15,000,000	\$15,000,000
MP.06.07	Master Plan Phase I: Central Quad Development	NC	BI	\$7,500,000	\$7,500,000
MP.06.08	Master Plan Phase I: Relocate Track/Athletic Field	NC	BI	\$2,800,000	\$2,800,000
MP.07	Master Plan Phase I: Construct New Academic Building 2	NC	TL	\$100,000,000	\$74,500,000
MP.08	Master Plan Phase I: Construct +/- 1,200 Vehicle Parking Garage West including Public Safety Space	NC	BI	\$45,000,000	\$45,000,000
MP.09	Master Plan Phase I: Build Out Campus Center UL Parking Garage Space as Assignable Space	RV	BI	\$5,000,000	\$5,000,000
MP.10	Master Plan Phase I: Secure or Demolish Bayside Expo Center building and initial property improvements	DM	TL	\$6,000,000	\$6,000,000
MP.11	Master Plan Phase II: New Academic Building 3	NC	TL	\$150,000,000	\$0
MP.12	Master Plan Phase I: Construct 1,000 Bed Residence Hall 2	NC	SL	\$110,000,000	\$0
MP.13	Master Plan Phase I: Construct +/- 1,200 Vehicle Parking Garage East (Planning escalated from FY09 to FY18)	NC	BI	\$42,000,000	\$0
MP.14	Master Plan Phase I: Construct New Pool Facility (Planning)	NC	SL	\$10,000,000	\$0
MP.15	Master Plan Phase I: New public art for Campus Green (Planning)	O	SL	\$1,000,000	\$0
MP.16	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	\$500,000
SU.02	Substructure: Utility Plant Roof Replacement	DM	BI	\$4,570,000	\$1,050,000
<b>Teaching/Learning/ Research</b>					
TR.01	McCormack Hall: Converstion of Vacant Cafeteria, Servery and Kitchen Space for College of Nursing and Health Sciences	RV	TL	\$2,275,000	\$2,275,000
TR.02	Campus -wide: Renovations to Support Teaching and Research	RV	TL	\$850,000	\$850,000
TR.03	Healey Building/Quinn Administration Building: Construct new classrooms on the 4th Floor of Healey Library and the UL of the Quinn Administration Building	RV	TL	\$1,000,000	\$1,000,000
TR.04	Clark Athletic Center: Replacement of Gymnasium Floor and Bleacher Repairs	DM	SL	\$2,450,000	\$1,850,000
TR.05.01	Healey Building: Renovations to Improve and Increase Student Learning Space Phase I	RV	TL	\$12,500,000	\$12,500,000
TR.05.02	Healey Building: Renovations to Improve and Increase Student Learning Space Phase II	RV	TL	\$12,500,000	\$0
TR.06	Instructional Equipment Upgrades and Replacements	E	TL	\$11,250,000	\$3,750,000
TR.07	WUMB: Relocation WUMB Radio to new facility	NC	SL	\$4,000,000	\$4,000,000
<b>Total Projects</b>				<b>\$1,330,200,000</b>	<b>\$897,090,000</b>



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

*“You must think of the campus as a clear backbone – or skeleton if you wish – which needs to be augmented by any number of activities not originally conceived of, including the idea of whether or not it is really a commuter campus predominantly, forever. It is not written in stone. It is only a point in time and space.” – Paul Rudolph 1966*

### **Introduction**

UMass Dartmouth is situated on a 710 acre parcel located equidistant between New Bedford and Fall River. The creation of the campus was driven by a master plan developed by Paul Rudolph, then Dean of the School of Architecture at Yale University starting in 1962.

*“Rudolph was given the opportunity to execute one of the most comprehensive explorations of his signature architectural style on what was for him an unprecedented scale. Rudolph ultimately produced a master plan from which emerged a powerful organizational framework and an architectural language that served, with some variation, as the source for the realization of campus buildings over the next 20 years.”<sup>1</sup>*

Almost 50 years later and with two subsequent updated master plans:

- 1971 - The landscape and planning firm of Shurcliff, Merrill and Footit presented an ambitious series of academic, residential and athletic expansion which lead to the construction of the College of Visual and Performing Arts, the Library, the Campus Center and the Residents' Dining Hall;
- 2005 - Chan Krieger & Associates built on the previous work and presented a series of recommendations that remain priorities indicated on our FY2013-17 Capital Plan Update. These unrealized priority projects include #18 Campus Entrance Building, #32 Central Administrative Services Building, #34 Campus Center Addition (Student Union) and #35 Athletic Complex - Multi Purpose Field House;

UMass Dartmouth is now in a position to transform and provide capital renewal to main campus and strategically invest in satellites in order to align with and support its' Mission Statement:

*“The University of Massachusetts Dartmouth distinguishes itself as a vibrant public university actively engaged in personalized teaching and innovative research, and acting as an intellectual catalyst for regional and global economic, social, and cultural development.”*

### **Transformation While Preserving**

The highest priority project is the continued renovation and expansion of the Claire T. Carney Library this project will renovate and preserve the original library structure and reprogram the interior to provide an improved student study experience. The perimeter of the building, which used to be majority administrative offices, has been returned to the students to take advantage of both natural day lighting and views of campus. The growth in the student population and the changes in the way libraries are used by the University community have driven the renovation to move

---

<sup>1</sup> Chan Krieger & Associates, [A Campus and Facilities Master Plan: University of Massachusetts, Dartmouth](#) (January 2005) 12.

forward from a traditional model to progressively function as a Learning Commons and Scholarly Commons, geared for more group study and computer processing of information.

The truly exterior transformative force de jure of this project is the 20,000 square foot expansion that will redefine yet reflect on the campus's signature architectural style. This will introduce a large glass curtain wall into a "brutalism expression" that provides a transparent view of the superstructure holding three large lecture halls. It also extends the interior feel of the space onto a large outdoor patio area situated directly into the central quadrangle. This single project demonstrates what can be accomplished in what many believe to be an inflexible architectural style adding a modern vernacular that will be explored across campus.



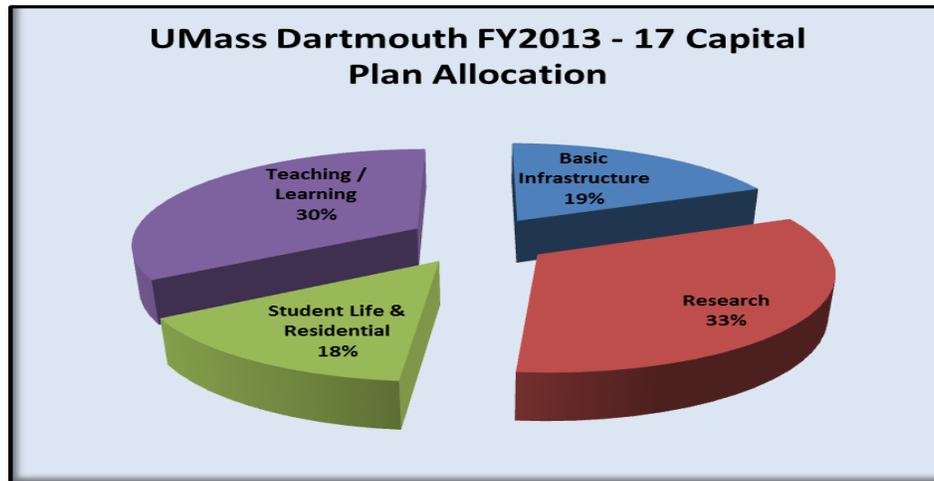
Figure 1 - Claire T. Carney Library & Curtain Wall Addition

### Current Facility Master Plan Activities

The UMass Dartmouth Capital Plan Update for FY2013 - 2017 presents a capital spending plan of \$286M for the next five fiscal years and ultimately a \$629M 10-year plan. The program can be broken down into four investment types:

Program Type	5 Yr. Allocation (in millions)	10 Yr. Allocation (in millions)	Total Project Costs (in millions)
Basic Infrastructure	\$53,848,000	\$129,164,000	\$150,763,000
Research	\$93,528,498	\$93,528,498	\$96,865,800
Student Life & Residential	\$42,387,564	\$124,587,564	\$177,432,000
Teaching / Learning	\$96,440,000	\$281,640,000	\$343,140,000

These allocations represent a mixture of facilities in construction, deferred maintenance needs, projects in planning and conceptual strategic priorities. The projected percentages for the next five years reflect the strategic focuses of UMass Dartmouth that will invest in basic infrastructure, refocus on improving the teaching and learning areas, increase investment in a research enterprise that creates knowledge focused on the economy and culture of the region and Commonwealth but having global impact, and finally respond to the needs and requirements of today's student through increasing options for their life on campus and upgrade the residential living experience. The overall goal is to create a holistic capital plan that truly integrates into the statement **"World Class. Within Reach."**



The current master plan prepared by Chan Krieger & Associates and published in January of 2005 has been utilized to identify and prioritize many issues. As we approach the eighth anniversary of this plan and to utilize it as a "living document" UMass Dartmouth is scheduled to start working on an update in FY2015.

### **Renew and Sustain - Basic Infrastructure**

As the main Dartmouth campus looks at 50 years, the impacts of Deferred Maintenance (DM) are very apparent. These include items that affect building performance, energy efficiency and how our buildings are utilized. Any discussion of capital planning must start with addressing the Basic Infrastructure needs and how we plan to address the approximately \$200M to \$300M projected DM backlog. The Capital Renewal strategy is evolving but will include the following elements to progress forward:

- Partner with Sightlines, a facilities asset advisory firm, on the next iteration of the Integrated Facilities Plan (IFP) with the goal to create a common integrated database of campus needs for the next ten years. The database is proposed to be comprehensive and include necessary repair / maintenance and modernization projects. It is through the completed IFP we will reevaluate and reprioritize the Basic Infrastructure items included on the Capital Plan;
- Utilizing the feedback from the current implementation of our Energy Performance Project (priority 2) that projects to address the most significant DM needs and reduce the current backlog by between \$7-8M. The building condition assessment performed by NORESO concluded that:

*"building systems at UMD are in a severe state of disrepair, with many systems having minimal, if any, preventive maintenance since the original campus construction, most of which dates to the 1960s and 1970s. The central campus's unique architecture that makes it very difficult to access building mechanical systems has been a major contributor to the lack of equipment maintenance. As a result, **most HVAC mechanical systems now require significant repair or outright replacement.**"<sup>2</sup>*

<sup>2</sup> NORESO, Investment Grade Audit Report: University of Massachusetts, Dartmouth (October 12, 2010) p4

- Strategically addressing immediate DM needs until a full Capital Renewal plan is prepared and prioritized. These projects include:

- \$1.8M in Roof Replacements at the Four Freshman Year Resident Halls that was completed in FY2012;
- \$1.9M in Bathroom Renovations at Maple Ridge Hall to be completed in FY2013 and planning for continued Bathroom Renovations to the three remaining freshman year resident halls;
- \$700K Roof Replacement at the Dion Science and Engineering Building completed at the beginning of FY2013 - which provided immediate benefits as researchers commented that the leaks had ceased in their labs;
- \$575K to Replace the Absorption Chiller at the Visual and Performing Arts Building (CVPA) in FY2013;
- \$450K to Replace a Deteriorated Steam Condensate Line in the proximity of the Campus Center in FY2013;
- \$100k to Perform an Envelope Study at the Science and Engineering Building in order to find a resolution to address water infiltration issues and prepare a project for the near term - this study will also provide us with information that could be applied to other original buildings on campus.

UMass Dartmouth is committed to working on addressing the DM backlog with a goal to meet or exceed the 10% reduction achievement by FY2016. The key to this will be to act on the IFP prepared by Sightlines to develop a prioritized strategy in order to commit funding to the areas of greatest need and best return on investment.

***Sustainability and Energy Performance continue to be strategic focuses.***



**Figure 2 - 600KW Wind Turbine Installation**

UMass Dartmouth is leading the way on the South Coast by pursuing a coordinated approach to becoming a clean energy campus. Two sustainable projects funded through the Dept of Energy Resources (DOER) and the Division of Capital Asset Management (DCAM) are the new 269 kilowatt solar photovoltaic system installed on the Tripp Athletic Center and the 600 kilowatt wind turbine acquired from Cape Cod Community College. The turbine will annually produce the same amount of energy as burning approximately 39 tons of coal. It will also eliminate the emission of 1,161 pounds of sulfur dioxide and 489 pounds of nitrous oxide while reducing the emission of 295 tons of carbon dioxide annually.

The \$40M Energy Performance Project being implemented by NORESKO and managed through DCAM continues on the FY2013 - 2017 Capital Plan as the second priority. The two phased infrastructure upgrade program is aimed at improving the performance and efficiency of mechanical, electrical and plumbing systems while reducing the University's operating expenses and carbon footprint. Phase I of the campus wide energy conservation initiatives include the retrofit of existing light fixtures with new energy efficient lamps and ballasts, HVAC systems upgrades and replacements, installation of new building management controls and major improvements to plumbing infrastructure. This phase is working toward completion in early FY13. The Phase II initiative involves a major upgrade of the existing central steam plant which will result in improved efficiency and increased capacity. A 1.67MW gas turbine combined heat and power system will replace the current steam boilers. The gas turbine will generate power for a majority of the campus and the resulting steam heat by-product will be recovered and converted to heat for the winter months and cooling for the summer. Implementation of this phase began in early FY13.

The university will continue to integrate energy reduction and renewables into its campus-wide sustainability efforts.

UMD's highest newly proposed priority project is a Security System Installation to the exterior of all main campus facilities and the interior of strategically identified areas. The purpose of this project is to meet the university's long and short range goals and to improve campus security therefore providing a safer environment for students, faculty, staff and university visitors.

### **Research - Discovery with Regional Focus, Global Impact**

Much of the focus of UMass Dartmouth's research planning continues to focus on:

#### **An innovation triangle**

*"UMass Dartmouth has forged an innovation triangle in southeastern Massachusetts, where research and creative ventures at the Dartmouth campus and in New Bedford and Fall River produce knowledge and ideas that are focused on the region but have global impact."<sup>3</sup>*

At the main Dartmouth campus we are actively constructing, designing planning and programming Research Laboratory Improvements (Priority 14). This approximately \$12M program is focused on renovating various existing research and teaching laboratories out of yesterday and into a modern today. The majority of these spaces have not undergone major upgrades in more than 30 years. Utilizing a multidisciplinary approach to laboratory design it is hoped this will lead to increased synergy and become a catalyst for discovery.

Propping up the Fall River leg of the triangle are two projects:

- The \$27M Massachusetts Accelerator for Bio-manufacturing (MAB) (Priority 3) will be the first in the nation of its kind: a building that allows start-up companies to conduct research, test and scale-up their products or partner with other startups. The facility is currently under construction as the anchor to the South Coast Life Science and Technology Park. The one-story facility will provide a venue in which companies can test their bio-manufacturing processes at scale while paying a monthly rent that is lower than traditional lab space. This arrangement will allow these start-ups to generate new therapeutic materials for pre-clinical testing, as well as train their current and future workforce.
- The \$11.4M acquisition of **A**dvanced **T**echnology and **M**anufacturing **C**enter (ATMC) whose goal is to provide advanced technology and manufacturing solutions, through industry and university partnerships, to meet current and future business needs.. The ATMC is currently located in a building under a long term lease with MDFA which requires yearly legislative allocations. The outright purchase would allow the campus greater flexibility in the use and financial support of the facility.

The last leg of the triangle is New Bedford where The School for Marine Science and Technology (SMAST) is located. Priority 4 on the capital plan identifies a project that will address a program that has quickly outgrown its facility in the last ten years. Planning has begun on renovating the current facility and constructing a new "SMAST 2" on an adjacent site. This project also looks to incorporate the state Division of Marine Fisheries in what would enhance synergies between the Commonwealth's marine regulatory authorities and our marine researchers while providing additional office and marine laboratory space for a dynamic and growing marine research organization.

---

<sup>3</sup> <http://www.umassd.edu/about/communityimpact/>

## **Student Life and Residential**

In order to increase the quality of student life, as campus continues to iterate from what was a commuter to residential model, several areas are being explored:

The Tripp Athletic Center is being renovated and expanded. This is a two phase project that includes an interior renovation of 15,000 square feet to locker, shower, rest rooms and sports medicine spaces. The second phase is a Fitness Center Addition that doubles its size. The Fitness Center has proven to be extremely popular with students and is heavily used by all members of the UMD community. The Dartmouth Campus also plans continued investment into residence halls with the completion of roof replacement on the four oldest freshman halls and a bathroom modernization program.

Capital plan priorities include items that were recommended in the January 2005 master plan that have yet to progress forward but our important:

- Campus Entrance Building - The current location of Admissions is somewhat difficult to find and does not have significant reserved parking for visitors. As Chancellor Meehan of UMass Lowell recently stated in *The Boston Globe Magazine* concerning a similar issue "People couldn't find the admissions office," he says. "If you can't find the admissions office, you're not going to come here."<sup>4</sup>
- Campus Center Addition (Student Union) - The campus master plan recommends the construction of additions to the Campus Center Building to accommodate the growing needs of our larger student population. Many work units serving students are scattered in classroom buildings or the Foster Administration Building. Some additional space recommended in the master plan would add to the building on the east side to accommodate student organizations that cannot currently be assigned dedicated space and to centralize class registration, student counseling, and other student-oriented functions in one building. Other additional space recommended in the master plan would add to the building on the west side to accommodate additional dining room space.
- Multi Purpose Field House - The largest indoor space on campus for major events like commencement or student concerts is the gym which is designed for a maximum occupancy of 1600 people. Lack of indoor areas for team practice space is also a problem during winters and poor weather conditions.

One item that is proposed for approval in the Centennial Way Retail Corridor, to construct a mixed-used project on campus that would provide a host of retail outlets for students, faculty and administration personnel. This may be a good opportunity for a public-private partnership. The Centennial Way Retail Corridor would begin to address the lack of opportunities that students, faculty and administrative personnel have for retail shopping. Currently with limited exceptions this exists off campus causing everyone to leave in order to make routine purchases. This is especially apparent off hours and weekends. This concept would incorporate smart growth, transportation and parking. This development would start to go a long way to put the "town" into the phrase "college town".

---

<sup>4</sup> Jon Marcus, "Inside Marty Meehan's campaign to remake UMass Lowell," *The Boston Globe Magazine* (19 August 2012).

**Teaching and Learning**

UMD continues to look at innovating and upgrading the learning spaces throughout by investing on priority 5 Classroom, Teaching Laboratory and Learning Space Improvements. This program will be reinvigorated in the coming year by the formation of a task force that will review all learning spaces and provide recommendations on technology and furnishings.

A "New Academic Building" has been identified for state investment to begin in FY2014. The increasing demand on classroom space as well as the growth of academic programs continues to strain the existing campus space inventory. The University is experiencing a continuous rise in its need for space and has been leasing square footage to compensate for the lack of space on campus. This project will add necessary square footage to the main campus.

The Charlton College of Business expansion will address deficiencies with the recently completed facility which houses only office spaces and some meeting space. To complete the project, we will need to integrate academic space -- in particular case study classrooms, a trading floor classroom, and auditoria. This will be accomplished by building a 22,000 square foot addition to the current Charlton College of Business.

**Two new projects have been submitted this year for review:**

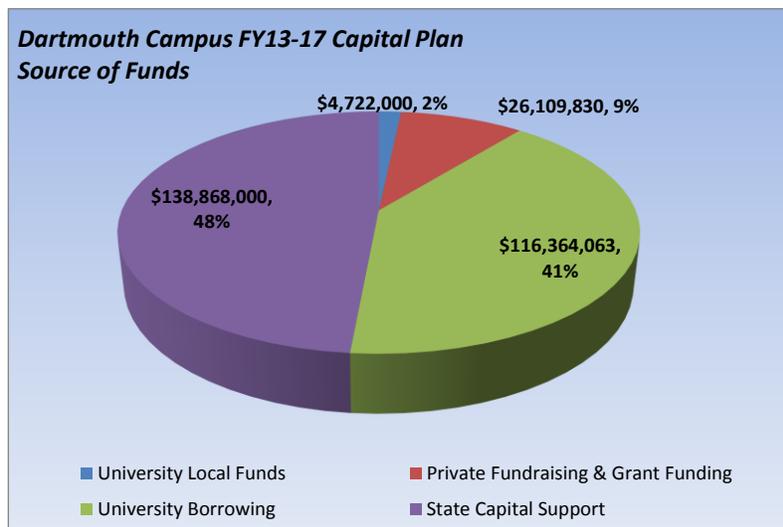
A Conference / Alumni Center would be developed and constructed as a state of the art conference and event space and to provide an anchor for alumni activities. This vibrant center will bring together faculty, students, the public and private sectors together for diverse activities and functions. Exploration should be considered if this location could sustain visitor lodging. This would include designing an area specifically for alumni - to provide arrival, networking and dining space before exploring the campus, attending an event or lecture, or going to an athletic event.

A new Health Sciences facility would be a center of excellence and innovation in the education and research for all related health sciences activity at UMass Dartmouth. The facility would include lecture halls, amphitheater, case rooms and seminar rooms, all with technology for interactive learning. This site would provide an interdisciplinary practice site where students from the health science related majors in the College of Arts and Sciences and the College of Nursing will learn in a synergetic and collaborative way. State of the art multi-discipline instructional, computational and clinical nursing simulation laboratories that will allow students to combine theoretical and practical knowledge and apply themselves in a dynamic learning environment.



University of Massachusetts FY13 Capital Plan Update  
Dartmouth Campus Projects

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2012	Five Year Spending
					Anticipated FY13-17 Cash Flow
1	Claire T. Carney Library - Expansion & Renovation	RV	TL	\$46,000,000	\$14,000,000
2	Energy / Water Savings Project	DM	BI	\$40,000,000	\$28,000,000
3	Massachusetts Accelerator for Biomanufacturing (MAB) (Fall River)	O	R	\$25,600,000	\$23,846,624
4	SMAST / DMF Expansion	O	R	\$48,000,000	\$47,359,830
5	Classroom, Teaching Laboratory, and Learning Space Improvements	RV	TL	\$11,440,000	\$10,440,000
6	ATMC Acquisition	O	R	\$11,400,000	\$11,400,000
7	Security Installation Project	O	BI	\$7,000,000	\$7,000,000
8	Feasibility/Planning New Academic Bldg	O	TL	\$500,000	\$500,000
9	New Academic Building	O	TL	\$75,000,000	\$46,500,000
10	Repair Four Oldest Residence Halls	DM	SL	\$75,000,000	\$22,750,000
11	Fitness Center Expansion	O	SL	\$5,100,000	\$5,100,000
12	Athletic Field Replacement & Track Renovation	O	SL	\$1,400,000	\$1,400,000
13	Tripp Athletic Center - Locker & Traning Room Renovations	RV	SL	\$1,900,000	\$1,305,564
14	Research Laboratory Improvements	RV	R	\$11,865,800	\$10,781,875
15	Update Campus Master Plan	O	BI	\$1,500,000	\$1,500,000
16	Charlton College of Business, Phase II	O	TL	\$15,000,000	\$15,000,000
17	Replace Failed HVAC Systems	DM	BI	\$3,500,000	\$3,500,000
18	Campus Entrance Building	O	SL	\$45,000,000	\$0
19	Conference / Alumni Center	O	TL	\$75,000,000	\$0
20	ADA Renovations Immediate Needs	O	BI	\$2,184,000	\$750,000
21	Health Sciences Building	O	TL	\$60,000,000	\$0
22	Basic Infrastructure Repairs	DM	BI	\$61,702,000	\$2,000,000
23	LARTS Air Conditioning Installation	RV	BI	\$3,016,000	\$3,016,000
24	Landscape/Lighting Improvements	DM	SL	\$1,832,000	\$832,000
25	Ring Road Replacement Study	DM	BI	\$500,000	\$500,000
26	Roadway Repairs	DM	BI	\$5,720,000	\$0
27	Power Plant Upgrades / MEP	DM	BI	\$4,371,000	\$0
28	PCB Transformer Replacements	DM	BI	\$1,023,000	\$0
29	Elevator Upgrades	DM	BI	\$1,352,000	\$1,352,000
30	Network & Telecom Infrastrucutre	E	BI	\$2,565,000	\$2,000,000
31	Central Administrative Services Building	O	BI	\$12,690,000	\$4,230,000
32	HVAC, Infrastructure and Envelope Repairs	DM	BI	\$3,640,000	\$0
33	Campus Center Addition (Student Union)	O	SL	\$16,400,000	\$3,000,000
34	Multi Purpose Field House	O	SL	\$20,800,000	\$5,000,000
35	New Bedford Incubator	O	TL	\$5,000,000	\$5,000,000
36	Taunton Life Sciences Center	O	TL	\$5,000,000	\$5,000,000
37	Centennial Way Retail Corridor	O	SL	\$10,000,000	\$3,000,000
38	Tech Venture Center	O	TL	\$10,200,000	\$0
<b>Total Projects</b>				<b>\$728,200,800</b>	<b>\$286,063,893</b>



**CAPITAL PLAN UPDATE  
FY2013-2017  
UNIVERSITY OF MASSACHUSETTS - LOWELL**

---

### **Strategic Capital Program**

This document provides an update to the most recent Capital Plan for UMass Lowell for approval by the Board of Trustees for FY2013-2017. It reflects the priorities outlined in the UMass Lowell 2020 Strategic Plan. UMass Lowell's success in executing its Capital Plan will determine how successful it will be in meeting the ambitious goal of achieving national and international recognition as a world-class institution over the next decade.

Many of our anticipated capital expenditures impact on a number and variety of our academic, research, student life, athletic, recreational and outreach programs and partnerships. If we are to achieve our goals and aspirations, we must concurrently reduce our backlog of critical maintenance and our energy consumption while we create additional modern academic and research spaces, increase residential capacity, renew our existing buildings, develop new recreational opportunities, and add to our capacity to host a broad range of meetings and events – academic, entertainment and civic.

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 hall, the primary dining facility and a very popular Recreation Center. East also houses the Wannalancit facility, Lelacheur Baseball Park and is a short walk to the Tsongas Center. Each of the campuses are densely developed and bounded by fully developed residential and business properties. University Crossings, which will include the majority of student focused services is centrally located among all three campuses and is currently under construction.

The campus continues to partner with the University of Massachusetts Building Authority and DCAM to plan, finance and implement our ambitious capital program. The partnership with DCAM has resulted in a series of “rolling” capital plans for North and South campuses. These plans recognize our significant enrollment and research growth trends as well as projected future growth in academic programs, sponsored activity and enrollments. Enrollments grew nearly 38% between 2007 and 2011 and are projected to grow more than 16% more by 2015 to reach our goal of 18,000 students. Sponsored research funding has increased 66% and is targeted to grow another 19% by 2015. The master plans need to address the pressures of current and future growth including demand for new academic programs and the continued need to address the backlog of deferred maintenance.

### **Master Planning:**

#### **Science & Engineering Master Plan**

In cooperation with DCAM, the master plan for North Campus Science & Engineering facilities has been completed. The recommendations focus on four initiatives, which are included in our capital plan. The projects include major renewal of Engineering, Olsen, Olney buildings, and similar smaller renewals in the North Campus Quad. The recent major fire in the Perry Engineering building has heightened the need for prompt rehabilitation of that key facility. The positive space and programmatic impacts of the pending new School of Business building is coordinated as part of the North campus planning process. Additional renewals for Pinanski, Ball, and replacement of Ames buildings are needed but not currently anticipated for funding in the near term.

### University Crossing

The long planned purchase of the St. Joseph's property is behind us and the site has been redesigned as University Crossing. The Campus bookstore and some dining will be located here, and additional program elements including student activities & services, residential life as well as 'front door' activities like admissions, registrar, and financial aid. The transformation of the facility includes a complete interior renovation of the newer buildings at the rear of the site, the demolition of the older buildings at the front of the site and the construction of a new four-story campus center overlooking the river. The demolition phase is in progress and will be completed by the fall. Construction of the new building will be completed in 2014. The total cost of the renovations and new construction is currently estimated at \$91.5M. This project will benefit both North and South campuses by consolidating student services, student organizations and back-office operations from the main academic campuses thus allowing for the creation of additional classroom and departmental space.

### South Campus Master Plan & Space Revisions

The approaching completion of much needed projects underway provides both the opportunity and the necessity of replanning space on our south campus in a thoughtful way. The cornerstone of these is the South Academic Building (now named the Health and Social Sciences building) which will be opening in the early spring of 2013.

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

The South Master plan, which is nearly complete, prepares 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. The plan academically organizes the campus and addresses both additional programmatic space needs and critical maintenance priorities. Expanding and renovating Coburn Hall and a new academic building are part of this plan as well. This planning effort is a follow-on to the previous DCAM-funded overall plan, and recently completed Science & Engineering plan for North Campus. Implementation of this plan 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, through both direct research and through their vital role in the overall curriculum.

Two significant projects – the North and South Campus Parking Garages – are underway to address the pressures for parking created by our growth. UMBA is overseeing these projects that have very tight timeline requirements.

### **Deferred Maintenance Status Report:**

During 2010 and 2011, the campus completed a comprehensive facility condition assessment. 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 million. A recent review by Sightlines, LLC. has estimated the total backlog at closer to \$600 million when taking into consideration both the hard and soft costs of renovation and construction projects.

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 physical condition than peer campuses.

The campus has incorporated these needs into the capital plan, and is addressing them through a variety of means and funding sources. Progress on the capital plan as currently proposed and planned can result in DM reductions in excess of the 10% target set by the President's Office. This is in part due to capital projects already planned, demolition, energy conservation projects and planned comprehensive renewals which incorporate the DM items.

Priority #9, On-going Academic Modernization including Relocations (Phase 1: FY13-22) targets \$30M over 10 years to address immediate needs of academic areas including renewal associated with the reallocation of space due to the new facilities coming on-line and planned for North and South campuses.

Priority #15 is a consolidation of two lines from last year, Capital renewal/Deferred maintenance/Compliance (Phase 1: FY13-22). This program targets \$80M over the 10 year plan to various projects designed to cut into the backlog identified in the facility conditions assessment.

Priority #21 targets \$30M toward a Residential Hall Comprehensive Renewal Program (Phase 1: FY13-22). These funds will complement the renewal of Leitch & Bourgeois (#13) project and the planned demolition of Eames and Concordia halls. Combined these projects will reduce the deferred maintenance backlog in the residential housing area.

#### **Energy Efficiency Program:**

As part of the university's overall **energy improvement program**, capital investments will be needed to increase and ensure the realization of planned for savings. The campus borrowed \$15 million to begin these projects. These funds are being 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. In most cases they concurrently also reduce our backlog of DM.

Improvements include an \$8 million renovation to the North campus power plant which includes replacing the fuel oil boilers with efficient natural gas boilers. The conversion and renovation project is now under construction. The energy conservation 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 equipment modernization. These projects are being prioritized to those that have the best paybacks and impact deferred maintenance.

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. The campus is participating in DCAM's Accelerated Energy Program (AEP) which provides an innovative funding model to further our energy efficiency efforts.

#### **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 aggressive due to the investment needs and program emerging from the DCAM Science & Engineering and South Campus master plans and the deferred maintenance needs identified by the ISES and Sightlines reports.

State Funds

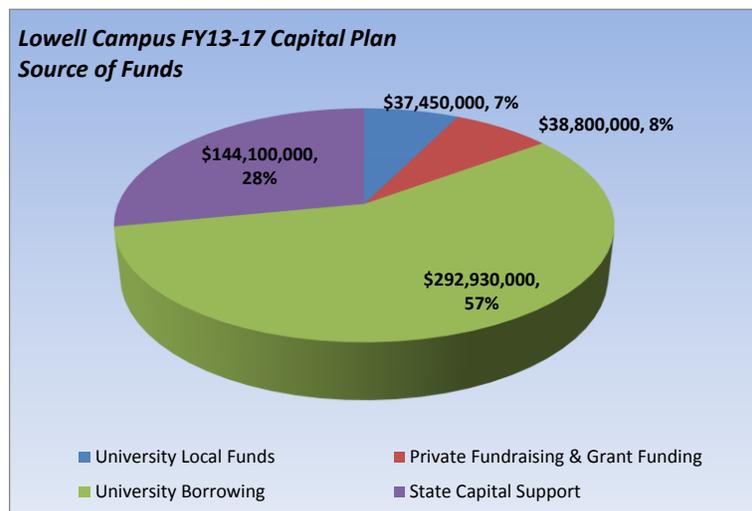
The state is a critical partner in the success of our capital plan and by extension the realization of our strategic goal to achieve national and international recognition as a world-class institution over the next decade.

The commitment of state funds to support the ETIC facility, 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, the Economic Stimulus Bill of 2006, and the Life Science initiative of the Commonwealth. 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 Pulichino/Tong School of Business building (\$25M); the Science & Engineering renewal and renovation program for Engineering (Perry Hall) (\$25M), Olsen (\$45M), North Campus Quad (\$31.5M) and Olney Hall (\$55M); Coburn Hall renewal and an Addition (\$19M and \$20M); South campus master plan improvements (\$5M) and a consistent level of support for deferred maintenance and compliance projects. A new project that is emerging from the South Campus master plan is the need for a new Academic Building to support the health sciences and its laboratory requirements currently projected at \$80M. We anticipate that as the master plan is finalized additional program and infrastructure improvements will be added to future Capital Plan updates.

Campus Debt

The campus has identified nearly \$320M of projects that can be funded with debt. Currently the campus has approximately \$190M 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 \$160M of future borrowing over the next five years required to keep the capital plan moving forward.

The campus currently has a relatively low debt to operations ratio of 5.0% projected for FY12. If we were to borrow funds sufficient to support priority projects and additional funding for modernization and renewal in spring 2013 our debt ratio projections would stay close to 6%; below the 8% policy threshold. However, such a program would double our annual operating budget commitment to debt from \$11.5M in FY11 to \$24.9M in FY17. 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 support from the Board of Trustees for a comprehensive financing strategy.





University of Massachusetts FY13 Capital Plan Update  
Lowell Campus Projects

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2012	Five Year Spending Anticipated FY13-17 Cash Flow
1	ETIC Bldg. (incl. 3rd & 4th floors)	NC	R	\$81,500,000	\$25,750,000
2	Health & Social Sciences Bldg (HSSB)	NC	TL	\$41,000,000	\$21,000,000
3	University Suites (Aiken St.)Residence Hall	NC	SL	\$56,000,000	\$56,000,000
4	University Crossing - Student Life, Student Services & Admin Serv.	NC	SL	\$91,500,000	\$91,500,000
5	Fox Hall Dining Renovations	RV	SL	\$10,500,000	\$6,000,000
6	North Campus Garage	NC	BI	\$20,000,000	\$10,000,000
7	South Campus Garage	NC	BI	\$20,000,000	\$20,000,000
8	Pulichino/Tong School of Business Building	NC	TL	\$35,000,000	\$35,000,000
9	On-Going Academic Modernization incl. Relocations (Phase 1: FY13-22)	DM	TL	\$30,000,000	\$15,000,000
10	Energy & Power Plant Improvements (incl. Performance Contract)	DM	BI	\$30,000,000	\$24,000,000
11	Science & Engineering Master Plan-Perry Hall (Engineering) Renewal	RV	R	\$25,000,000	\$25,000,000
12	Science & Engineering Master Plan-Olsen Renovations	RV	TL	\$45,000,000	\$26,100,000
13	Leitch & Bourgeois Residence Hall Renovations	RV	SL	\$25,000,000	\$25,000,000
14	South Campus Master Plan & Initial Space Revisions	RV	TL	\$20,000,000	\$20,000,000
15	Capital Renewal/Deferred Maintenance/Compliance (Phase 1: FY13-22)	DM	TL	\$80,000,000	\$40,000,000
16	Property Acquisitions	RV	BI	\$10,000,000	\$10,000,000
17	Technology Infrastructure	E	BI	\$15,000,000	\$7,500,000
18	Alumni Hall Renovations	RV	BI	\$5,000,000	\$5,000,000
19	Science & Engineering Master Plan-North Campus Quad Renewal	RV	R	\$31,500,000	\$8,230,000
20	Transportation & Parking Improvements	RV	BI	\$4,000,000	\$4,000,000
21	Residential Hall Comprehensive Renewal Program (Phase 1: FY13-22)	RV	SL	\$30,000,000	\$15,000,000
22	Wannalancit	RV	BI	\$7,100,000	\$5,700,000
23	Civic & Athletic Facilities	RV	SL	\$3,300,000	\$2,500,000
24	Coburn Hall Renewal	RV	TL	\$19,000,000	\$9,000,000
25	Coburn Hall Addition (South Campus Master Plan)	RV	TL	\$20,000,000	\$4,000,000
26	Science & Engineering Master Plan-Olney Renovations	RV	R	\$55,000,000	\$2,000,000
27	New South Campus Academic Building (South Campus Master Plan)	NC	TL	\$80,000,000	\$0
<b>Total Projects</b>				<b>\$890,400,000</b>	<b>\$513,280,000</b>

**Capital Plan Update**  
**FY2013 to 2017**  
**University of Massachusetts Medical School**

---

The University of Massachusetts Medical School's 2013 Capital Plan update covers the completion and commissioning of the Albert Sherman Center, the new parking garage and the addition to the co-generation power plant. With total project costs of \$442 million, these investments comprise most of the planned capital expenditures over the next five years. Funding has been secured for these investments, which will enable the UMass Medical School (UMMS) to address its ongoing need for additional biomedical and translational research space, educational space to support increased enrollment and anticipated technology improvements in medical education. The balance of the planned projects address deferred maintenance and research space refurbishment.

The Worcester campus encompasses more than three million square feet of health sciences education, biomedical research and health care program space. The original facilities date to the mid-1970s, and most of the initial buildings are still occupied in their originally constructed condition. Over the past ten years, the campus has added more than one million square feet in newly-constructed space. In 2001, the 380,000 square foot Lazare Research Building opened, providing space for more than 144 principal investigators. The Medical School's clinical partner, UMass Memorial Health Care, added the 270,000 square foot Lakeside Wing shortly thereafter, which provided space for an expanded emergency department, trauma services, operating rooms and intensive care units. In 2010, the opening of the 250,000 square foot Ambulatory Care Center provided new space for the Centers of Excellence in Diabetes, Cardiovascular, Orthopedics and Cancer. These projects were the result of increases in research funding and investments by both UMass Memorial and UMMS.

The Worcester campus 2013 Capital Plan positions the Medical School to accommodate anticipated growth while continuing to plan and execute deferred maintenance and renewal projects. The principal goal is to assure the ongoing development and sustainability necessary to attract and retain top students, faculty and staff.

In addition to supporting the Commonwealth's Life Sciences Initiative, the Worcester campus executes to a 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 well-being of the people of the Commonwealth and the world. This vision supports 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 basic and translational sciences research on the Worcester campus over the past decade and the Medical School's role as the anchor of the region's life sciences industry. By constructing this 515,000 square foot building, the Medical School will be able 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 receives 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, the Medical School 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, including the RNA Therapeutics Institute, programs in stem cell biology and regenerative medicine and a Gene Therapy Center, serves as the catalyst for the Albert Sherman Center, additional critical needs are being addressed through this expansion. Modern educational spaces to accommodate curriculum changes; student life spaces; auditorium and conference spaces; as well as parking, power plant and utility improvements are included in the scope of the Sherman Center.

Based on the \$90 million appropriation from the Commonwealth to accelerate this project, the Worcester campus developed a long-range financial plan to ensure completion of the Sherman Center and guarantee support for its operating costs and 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 Worcester campus 2013 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 (currently being updated) that 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 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 critical or potentially critical requirements, most of which have already been addressed. The largest and most urgent deferred maintenance project is the replacement of thirty large 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 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 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 2013.

UMMS' ambitious **sustainability objectives** are reflected throughout the Worcester 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 thirty 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 fifty percent of the electrical power to the campus as a distributed generation site, the Power Plant saves more than thirty percent 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 seventy percent, further reducing the campus carbon footprint and providing a cost effective solution to increased energy demands.

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

The Medical School's Jamaica Plain Campus consists of three buildings on approximately ten acres of land. The buildings are multi-tenanted, with Mass Biologics of UMass Medical School and the Department of Public Health State Laboratory Institute comprising the major occupants. The buildings range in age from 33 to more than 100 years old. Mass Biologics of UMMS 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 testing and analysis necessary for the early detection of outbreaks of infectious disease, such as rabies, HIV, foodborne 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.

Current plans for maximal use of the Mass Biologics of UMMS Mattapan campus, which houses two major Mass Biologics of UMMS facilities, include moving all Mass Biologics of UMMS operations in Jamaica Plain to the Mattapan site. The Mattapan site includes the main production and filling facility for monoclonal antibodies; and new research and development laboratory and office space. The design, production transfer and installation of Jamaica Plain operations to the Mattapan campus will take 18 -24 months and include build out of shelled basement space for a vivarium. The vivarium is necessary to comply with GMP manufacturing and production requirements and is included in the FY 2013 capital plan under "WCCC properties."

### ***Shriver Center***

The 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 \$8.5 million funding line for the Shriver Renovation Project was deleted on the EOAF cash flow plan. The Worcester campus has requested the reinstatement and transfer of this funding through the President's Office, DCAM and EOAF, as it has been determined that moving the Shriver operations to the Worcester campus is more efficient operationally and economically. DCAM-required project studies validated that the cost of refitting the existing buildings would exceed the capital appropriation and with the opening of the Sherman Center, space will be available on the main Worcester campus.

### **WCCC Properties**

Worcester City Campus Corporation has properties on the Worcester campus and in Shrewsbury, Mattapan and Auburn. These properties 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 Mass Biologics of UMMS conducts operations, as well as the South Street site.

### **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 the campus were constructed in the 1970s and due to the life cycle of building systems, the stress of heavy utilization, changes in space use and reduced maintenance, there are many components that require replacement. These replacements have been deferred due to reduced funding levels; they currently create an operational, energy efficiency, safety and environmental risk. The maintenance backlog for the 900,000 square foot main school building is over \$100 million. The largest and highest priority item is the \$35 million project to replace 30 air handling units that have exceeded their life expectancy. Most of the high priority and life safety deficiencies are funded immediately upon recognition, or accelerated, to stay current with building codes and regulatory and accreditation requirements.

The Worcester campus 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; the use of operational funds, internal funding and parking trust fund revenues; the review and disposal of unneeded systems; and through coordination of energy conservation funds from our electrical supplier, NGrid.

The Medical School's complex building infrastructure requires a more nuanced level of attention than a typical college campus. The hospital and biomedical research programs require a substantial investment in redundant building systems and thus have a bigger backlog of deferred maintenance. These sophisticated systems include those that support the laboratories and specialty areas such as medical imaging, biocontainment and animal quarters. These systems include enhanced lab plumbing systems that handle CO<sub>2</sub>, vacuum, natural gas, and acid waste. In addition, the requirement for air distribution is 100% outside air, along with specialty space pressurization, humidity control and high ventilation areas.

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. Control systems, cabling, cabs and motors were all replaced. This led to increased operational reliability and also increased the capacity and speed of the elevators.

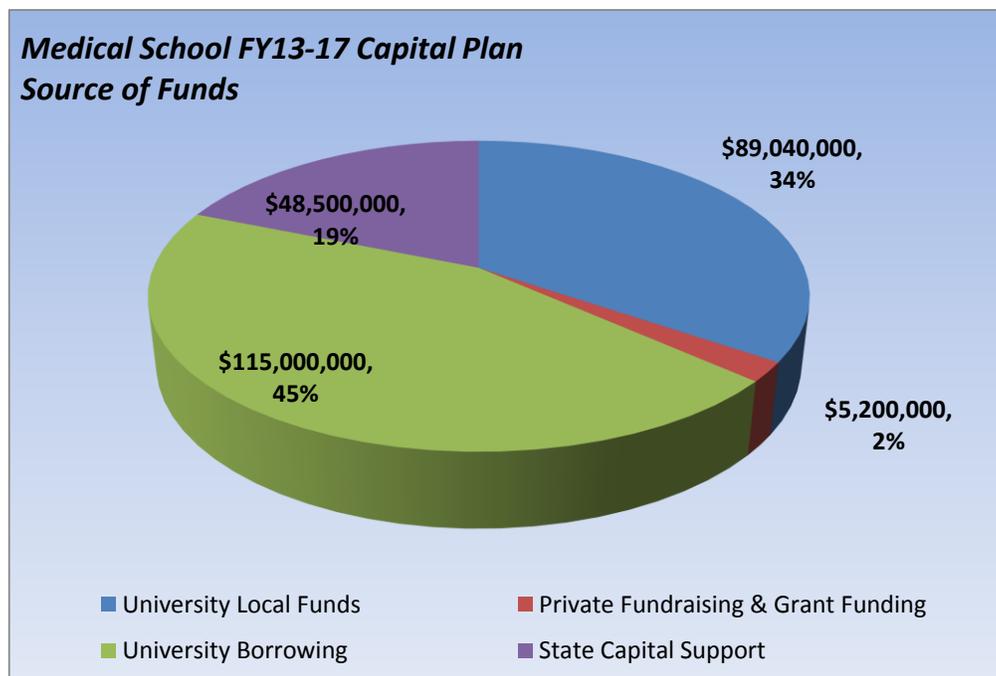
- In 2009, the fire alarm system was replaced throughout the school building. This was a critical life safety system that required system improvements and coverage to meet current code.
- Another deferred maintenance project jointly funded by the school and hospital was the repair and replacement of the original exterior wall system and roof, executed several years ago. The Granite Replacement Project replaced a granite façade failing due to its original design and poor quality materials and construction techniques. This \$65M project included 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 \$500,000 to \$1 million per year in backlog reduction. Recent 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.
- Over the past two years, the campus has replaced the building management system in both the school and hospital; changed from high to low pressure steam service at the Brudnick Neurological Research Institute and added new 13.8kV electrical service; made extensive concrete and steel repairs to the employee parking garage; and installed additional reverse osmosis processing in the Power Plant. The campus continues to invest with internal and NIH funding in the modernization of critical research areas such as the animal quarters and biocontainment laboratories.

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 \$30 million project on this cash flow list that will replace the air handling units.
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. UMMS 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 construction 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.

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 FY13 Capital Plan Update  
Medical School Projects

Campus Priority	Campus Project Names	Project Type	Program Type	Total Project Cost Est. August 2012	Five Year Spending Anticipated FY13-17 Cash Flow
1	Power Plant Expansion	O	BI	\$51,000,000	\$5,000,000
2	Albert Sherman Center	O	TL	\$350,000,000	\$100,000,000
3	New NW Parking Garage	O	BI	\$40,000,000	\$20,000,000
4	School 4th fl Lab to Office Renovations - Backfill Phase 1 Basic Science wing	RV	R	\$2,000,000	\$2,000,000
5	School Building renovate Labs to Offices - Floor 2, 3 Backfill Project Phase 2	RV	TL	\$8,000,000	\$8,000,000
6	Enhance chilled water loop pump/controls	RV	BI	\$3,000,000	\$3,000,000
7	School HVAC Upgrades/Replacements	DM	BI	\$38,500,000	\$38,500,000
8	Renovate and Expand BL3 Suite - 7th Fl	RV	R	\$6,400,000	\$6,400,000
9	Steam Chiller Replacement 3 (New)	RV	BI	\$4,000,000	\$4,000,000
11	Balance of Plant Controls (BOP) Upgrade	RV	BI	\$2,257,500	\$0
12	Replace the Acid Neutralization Tanks	DM	BI	\$525,000	\$0
13	Land Acquisition per Master Plan	O	BI	\$35,000,000	\$0
14	Replace School Electric Substations	DM	BI	\$9,900,000	\$0
15	North Road Pavement, Sidewalks and Lighting	DM	BI	\$1,500,000	\$0
16	Parking Lot Maintenance - Main Campus	DM	BI	\$10,840,000	\$10,840,000
17	LP Boiler Re-tubing	DM	BI	\$4,000,000	\$0
18	Power Plant Governor PLC	RV	BI	\$1,200,000	\$0
19	Deferred Maintenance List - Priority 2, 3	DM	BI	\$35,000,000	\$0
20	School Interior Renovations	RV	TL	\$4,000,000	\$0
21	School Building Retro Commissioning, LEED EB	RV	TL	\$3,000,000	\$0
22	Steam Chiller 2 Retrofits	DM	BI	\$1,000,000	\$0
23	Campus Landscape Improvements	O	BI	\$1,500,000	\$0
24	Network Infrastructure	E	BI	\$10,000,000	\$10,000,000
25	Departmental equipment purchases	E	R	\$10,000,000	\$10,000,000
26	Miscellaneous Roadway Projects	DM	BI	\$1,000,000	\$0
27	BNRI Upgrades	DM	R	\$1,500,000	\$0
JP-1	Deferred Maintenance and Compliance Repairs	CO	BI	\$18,638,672	\$0
WCCC-1	Master Plan Opportunities	O	BI	\$40,000,000	\$40,000,000
WCCC-2	Mattapan Newborn screening and animal quarters fit up	RV	BI	\$7,000,000	\$0
WCCC-3	South St Renovations, Deferred Maintenance, and Misc. WCCC Renovations	RV	BI	\$22,875,000	\$0
<b>Total Designated Projects</b>				<b>\$723,636,172</b>	<b>\$257,740,000</b>



**Appendix A – University Capital Plan  
 Projects Requested for Board of Trustee Approval**

Trustee Policy T92-122 requires that all 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 projects from the University’s FY13-17 Capital Plan Update that will be active during fiscal year FY13 and FY14.

***Projects New to the Capital Plan with activity to commence by FY14:***

<b>Campus</b>	<b>Priority</b>	<b>Project Name</b>	<b>Cost Estimate August 2012</b>	<b>FY13-17 Spending</b>
Amherst	36	Water tank repairs	\$1,000,000	\$1,000,000
Amherst	41	Whitmore deferred maintenance	\$14,000,000	\$14,000,000
Boston	BI.03	Healey Building: Replace Plaza Level Waterproofing	\$4,000,000	\$4,000,000
Boston	BI.07	Clark Athletic Center Ice Rink: Replace Chiller Unit	\$1,000,000	\$1,000,000
Boston	BI.08	Clark Athletic Center: Repair South-facing Façade on Ice Rink facility	\$1,000,000	\$1,000,000
Boston	BI.14.02	Service and Supply Building: Install Fire Suppression System and Upgrade Fire Alarm System	\$2,300,000	\$2,300,000
Dartmouth	7	Security Installation Project	\$7,000,000	\$7,000,000
Lowell	18	Alumni Hall Renovations	\$5,000,000	\$5,000,000
Lowell	20	Transportation & Parking Improvements	\$4,000,000	\$4,000,000
Med School	9	Steam Chiller Replacement 3	\$4,000,000	\$4,000,000
<b>Total of New Projects that will be Active in FY13 and FY14</b>			<b>\$43,300,000</b>	<b>\$43,300,000</b>



*Projects authorized by the Board of Trustees through previous Capital Plan Updates with activity to commence by FY14:*

**Amherst Campus Projects**

Priority	Project Name	Cost Estimate	FY13-17
		August 2012	Spending
1	Housing Expansion	\$188,000,000	\$129,000,000
2	Life Science Laboratories	\$160,000,000	\$44,444,000
3	Academic Classroom Building	\$91,000,000	\$75,700,000
4	Life Science Laboratories, OIT data center fitout	\$7,000,000	\$7,000,000
5	Physical Sciences Building	\$85,000,000	\$80,800,000
6	Integrated Sciences Building fitout	\$2,000,000	\$1,944,000
7	Hills replacement Building	\$25,800,000	\$25,800,000
8	Bartlett Replacement Building	\$50,000,000	\$50,000,000
10	McGuirk Stadium Improvements	\$34,500,000	\$34,000,000
11	Champions Center	\$25,000,000	\$25,000,000
12	Life Sciences Facility	\$95,000,000	\$73,500,000
13	New Substation and Electrical Upgrades	\$40,000,000	\$40,000,000
14	Isenberg School of Management renovations and addition	\$40,000,000	\$40,000,000
15	School of Public Health facilities study	\$500,000	\$500,000
16	Life Science Laboratories Fit out	\$50,000,000	\$50,000,000
17	Relocate Chemical Storage Facility Study	\$500,000	\$500,000
20	Morrill complex repairs and renovations	\$9,081,000	\$1,800,000
21	McNamara & Brown roof, parapet and masonry	\$3,300,000	\$1,600,000
22	Kennedy & Washington laundry venting	\$1,700,000	\$900,000
23	Dickinson House, Field & Webster elevator	\$1,500,000	\$1,200,000
24	DuBois Library Elevator Replacement	\$5,000,000	\$1,500,000
25	DuBois Library Electrical, Plumbing, Fire Suppression, Deferred Maintenance	\$25,000,000	\$22,450,000
27	Totman Physical Education Building MEP	\$1,000,000	\$6,000,000
28	Fine Arts Center fire protection and emergency generator	\$3,250,000	\$3,000,000
29	ISOM architectural and MEP	\$2,000,000	\$1,850,000
30	Bartlett Deferred Maintenance & Façade	\$2,000,000	\$1,300,000
31	Webster, Grayson, Field window/masonry	\$13,500,000	\$8,700,000
32	Lincoln Apartments Utilities	\$1,500,000	\$80,000
33	Morrill IV Bridge replacement	\$500,000	\$475,000
34	Research Admin, MEP & fire alarm	\$1,500,000	\$1,490,000
35	Physical Plant deferred maintenance & renovations	\$7,500,000	\$7,200,000
37	Lederle Graduate Research Center Window encapsulation/replacement	\$4,500,000	\$4,500,000
38	Lederle Research Center Repairs and Renovations	\$41,250,000	\$39,500,000
39	Morrill Science Center Renovations	\$51,300,000	\$47,300,000
40	Farm and outlying stations renovations	\$4,500,000	\$4,500,000
43	Marston Repairs and Renovations	\$6,000,000	\$6,000,000
44	Roadway/Sidewalks/Parking lot Repairs and Improvements	\$5,000,000	\$5,000,000
45	Landscape Improvements	\$1,500,000	\$1,500,000
46	Deferred Maintenance & Modernization Projects	\$15,000,000	\$15,000,000
47	Replace Oil Filled Transformers	\$2,000,000	\$2,000,000
48	Intermediate Processing Facility DM/Sitework	\$500,000	\$500,000
49	Housing Sprinkler Systems	\$23,000,000	\$4,600,000
50	Fine Arts Center fire protection	\$2,500,000	\$2,500,000



**Amherst Campus Projects**

Priority	Project Name	Cost Estimate	FY13-17
		August 2012	Spending
51	Facility Demolitions	\$12,800,000	\$12,100,000
52	Central Campus Infrastructure	\$25,000,000	\$24,700,000
53	Chilled Water Loop	\$3,000,000	\$2,000,000
54	University Drive Infrastructure	\$8,000,000	\$8,000,000
55	Solar Panels	\$2,350,000	\$2,350,000
56	Lot 12 environmental	\$1,500,000	\$1,500,000
57	Coal Yard Decommission	\$1,000,000	\$1,000,000
58	Life Safety/Code Compliance	\$5,000,000	\$5,000,000
59	Campus Security Improvements	\$5,000,000	\$5,000,000
60	Campus Infrastructure	\$13,000,000	\$13,000,000
61	North Pleasant Street Road Improvements	\$9,000,000	\$9,000,000
62	Wayfinding and Signage	\$1,000,000	\$1,000,000
63	Property Acquisitions	\$1,500,000	\$1,500,000
64	Marks Meadow/Furcolo Renovations	\$21,400,000	\$21,400,000
65	ADA Accessibility	\$6,000,000	\$6,000,000
66	Lederle Research Center Faculty Renovations (NIH)	\$12,700,000	\$5,950,000
67	Paige Lab Renovations	\$9,900,000	\$9,600,000
68	Hampshire DC renovations	\$15,000,000	\$14,950,000
69	Lincoln Campus Center Concourse Improvements	\$12,000,000	\$11,900,000
70	Academic Renovations Pool	\$2,500,000	\$2,500,000
71	Campus Space Reallocation	\$5,000,000	\$5,000,000
72	Housing Repair & Renovation	\$25,000,000	\$25,000,000
73	Classroom Renovations	\$2,000,000	\$2,000,000
74	Goessmann Renovations	\$15,000,000	\$6,800,000
75	Hampden Dining/Student Union Study	\$400,000	\$400,000
76	New Faculty Hire Renovations	\$14,000,000	\$13,000,000
77	Electrical/other infrastructure	\$5,000,000	\$5,000,000
78	Hills relocations	\$4,000,000	\$4,000,000
79	Goodell deferred maintenance & renovations	\$3,500,000	\$3,490,000
80	Machmer renovations	\$1,200,000	\$1,200,000
81	Tobin Renovations	\$1,000,000	\$1,000,000
82	Fine Arts Center renovations	\$9,000,000	\$9,000,000
83	New Africa House renovations	\$1,700,000	\$1,700,000
84	Office Renovations	\$10,000,000	\$9,000,000
85	Life Science Laboratories backfill renovations	\$18,000,000	\$18,000,000
86	Dining Commons Renovations/study	\$1,000,000	\$1,000,000
87	Old Chapel Renovation/study	\$1,000,000	\$1,000,000



**Boston Campus Projects**

<b>Priority</b>	<b>Project Name</b>	<b>Cost Estimate August 2012</b>	<b>FY13-17 Spending</b>
Bl.01	Replace and Construct new Structure for Primary Campus Electrical Switchgear	\$5,500,000	\$5,500,000
Bl.02.01	Wheatley Hall Roof Replacements and Building Envelope Repairs	\$3,600,000	\$100,000
Bl.02.02	Clark Athletic Center: Replace/Repair East Curtain Wall	\$2,000,000	\$2,000,000
Bl.02.03	Healey Building: Roof Replacement and Building Envelope Repairs	\$1,800,000	\$1,800,000
Bl.02.04	Service and Supply Building: Roof Replacement and Building Envelope Repairs	\$1,750,000	\$1,750,000
Bl.04	Campus Center: Install Interior Glazing on 2nd & 3rd Floors of Interior Atrium	\$600,000	\$550,000
Bl.05	Grounds: Sea Wall and Harborwalk Construction on North-Facing Shore	\$3,800,000	\$3,725,000
Bl.06	Nantucket Field Station: Repairs to Field Station Buildings and Septic System and Gouin Village Apartment Repairs	\$2,000,000	\$1,500,000
Bl.09	Healey Building: Fire Protection Improvements (Install Fire Sprinklers, Replace Fire Alarm System and Fire Pumps)	\$8,200,000	\$8,200,000
Bl.10	Clark Athletic Center/McCormack Hall/Quinn Administration/Wheatley Hall: Elevator Renovations	\$3,300,000	\$3,200,000
Bl.11.01	Saltwater Pump House: Mechanical System Upgrades	\$1,500,000	\$1,500,000
Bl.12	Campus-wide: Central IT Upgrades/Replacements	\$5,000,000	\$5,000,000
Bl.13	Campus-wide: Telephone System Upgrades	\$1,300,000	\$1,300,000
Bl.15	Calf Pasture Pumping Station: Security and Button-up Envelope at ownership transition	\$500,000	\$440,000
Bl.16	Campus Wide: One Card System	\$2,000,000	\$2,000,000
Bl.17	Campus-wide: ADA Compliance	\$1,000,000	\$1,000,000
Bl.18	Fox Point Docks: Upgrades and ADA Accessibility	\$1,500,000	\$1,500,000
Bl.19	Campus-wide: Replace Exterior Doors to Ensure Climate Control (including vestibules) and Code Compliance	\$3,200,000	\$3,150,000
Bl.20	Campus-wide: Off-site Data Center Backup	\$600,000	\$600,000
Bl.22	Projects Less Than \$500,000 (Aggregate)	\$4,700,000	\$4,350,000
MP.01.01	Master Plan Phase I: Construct New Integrated Sciences Complex	\$182,000,000	\$161,000,000
MP.01.02	Master Plan Phase I: Utility Plant System Expansion and Upgrades to Accommodate ISC and GAB	\$3,000,000	\$3,000,000
MP.01.03	Life Sciences: Center for Personalized Cancer Therapy (To be located within Integrated Sciences Complex)	\$10,000,000	\$10,000,000
MP.02.01	Master Plan Phase I: Utility Corridor and Roadway Relocation Project	\$143,000,000	\$140,900,000
MP.02.02	Master Plan Phase I: Utility Plant Upgrades related to pumps, controls, heat exchangers and Utility Corridor	\$11,000,000	\$11,000,000
MP.02.03	Master Plan Phase I: Construct new Trigereneration Facility to accommodate increased campus water and electrical	\$27,500,000	\$27,500,000
MP.03	Master Plan Phase I: Construct New Academic Building 1	\$113,000,000	\$110,800,000
MP.04	Master Plan Phase I: Construct 1,000 Bed Residence Hall 1	\$100,000,000	\$100,000,000
MP.05.01	Master Plan Phase I: Renovations to Existing Campus Buildings	\$75,000,000	\$75,000,000
MP.06.01	Master Plan Phase I: Study Substructure and Science Center Demolition	\$1,150,000	\$1,150,000
MP.06.02	Master Plan Phase I: Construct new campus Greenhouse for research, teaching and community service	\$5,000,000	\$5,000,000
MP.06.03	Master Plan Phase I: Relocate College of Science and Mathematics Machine Shop	\$1,000,000	\$1,000,000
MP.06.04	Master Plan Phase I: Study Replacement of Catwalk/Enclosed Campus Walkway System and Connections	\$1,000,000	\$1,000,000
MP.06.05	Master Plan Phase I: Study new LL/UL Facades and Access to Buildings from Grade	\$1,000,000	\$1,000,000
MP.06.06	Master Plan Phase I: Substructure and Science Center Demolition	\$15,000,000	\$15,000,000
MP.06.08	Master Plan Phase I: Relocate Track/Athletic Field	\$2,800,000	\$2,800,000
MP.07	Master Plan Phase I: Construct New Academic Building 2	\$100,000,000	\$74,500,000
MP.08	Master Plan Phase I: Construct +/- 1,200 Vehicle Parking Garage West including Public Safety Space	\$45,000,000	\$45,000,000
MP.09	Master Plan Phase I: Build Out Campus Center UL Parking Garage Space as Assignable Space	\$5,000,000	\$5,000,000
MP.10	Master Plan Phase I: Secure or Demolish Bayside Expo Center building and initial property improvements	\$6,000,000	\$6,000,000
SU.01	Substructure: Interim Structural Stabilization, Access/Egress and Acid Neutralization Tanks	\$28,505,000	\$500,000
SU.02	Substructure: Utility Plant Roof Replacement	\$4,570,000	\$1,050,000
TR.01	McCormack Hall: Conversion of Vacant Cafeteria, Servery and Kitchen Space for College of Nursing	\$2,275,000	\$2,275,000
TR.02	Campus -wide: Renovations to Support Teaching and Research	\$850,000	\$850,000
TR.03	Healey Building/Quinn Administration Building: Construct new classrooms	\$1,000,000	\$1,000,000
TR.04	Clark Athletic Center: Replacement of Gymnasium Floor and Bleacher Repairs	\$2,450,000	\$1,850,000



**Dartmouth Campus Projects**

<b>Priority</b>	<b>Project Name</b>	<b>Cost Estimate August 2012</b>	<b>FY13-17 Spending</b>
1	Claire T. Carney Library - Expansion & Renovation	\$46,000,000	\$14,000,000
2	Energy / Water Savings Project	\$40,000,000	\$28,000,000
3	Massachusetts Accelerator for Biomanufacturing (MAB) (Fall River)	\$25,600,000	\$23,846,624
4	SMAST / DMF Expansion	\$48,000,000	\$47,359,830
8	Feasibility/Planning New Academic Bldg	\$500,000	\$500,000
9	New Academic Building	\$75,000,000	\$46,500,000
10	Repair Four Oldest Residence Halls	\$75,000,000	\$22,750,000
11	Fitness Center Expansion	\$5,100,000	\$5,100,000
13	Tripp Athletic Center - Locker & Training Room Renovations	\$1,900,000	\$1,305,564
14	Research Laboratory Improvements	\$11,865,800	\$10,781,875
16	Charlton College of Business, Phase II	\$15,000,000	\$15,000,000
17	Replace Failed HVAC Systems	\$3,500,000	\$3,500,000
20	ADA Renovations Immediate Needs	\$2,184,000	\$750,000
24	Landscape/Lighting Improvements	\$1,832,000	\$832,000
25	Ring Road Replacement Study	\$500,000	\$500,000

**Lowell Campus Projects**

<b>Priority</b>	<b>Project Name</b>	<b>Cost Estimate August 2012</b>	<b>FY13-17 Spending</b>
1	ETIC Bldg. (incl. 3rd & 4th floors)	\$81,500,000	\$25,750,000
2	Health & Social Sciences Bldg (HSSB) (South Campus Academic Bldg.)	\$41,000,000	\$21,000,000
3	University Suites (Aiken St.)Residence Hall	\$56,000,000	\$56,000,000
4	University Crossing - Student Life, Student Services & Admin Serv.	\$91,500,000	\$91,500,000
5	Fox Hall Dining Renovations	\$10,500,000	\$6,000,000
6	North Campus Garage	\$20,000,000	\$10,000,000
7	South Campus Garage	\$20,000,000	\$20,000,000
8	Pulichino/Tong School of Business Building	\$35,000,000	\$35,000,000
9	On-Going Academic Modernization incl. Relocations (Phase 1: FY13-22)	\$30,000,000	\$15,000,000
10	Energy & Power Plant Improvements (incl. Performance Contract)	\$30,000,000	\$24,000,000
11	Science & Engineering Master Plan-Perry Hall (Engineering Bld.) Renewal	\$25,000,000	\$25,000,000
12	Science & Engineering Master Plan-Olsen Renovations	\$45,000,000	\$26,100,000
13	Leitch & Bourgeois Res Hall Renovations	\$25,000,000	\$25,000,000
14	South Campus Master Plan & Initial Space Revisions	\$20,000,000	\$20,000,000
15	Capital Renewal/Deferred Maintenance/Compliance (Phase 1: FY13-22)	\$80,000,000	\$40,000,000
16	Property Acquisitions	\$10,000,000	\$10,000,000
17	Technology Infrastructure	\$15,000,000	\$7,500,000
19	Science & Engineering Master Plan-North Campus Quad Renew	\$31,500,000	\$8,230,000
21	Residential Hall Comprehensive Renewal Program (Phase 1: FY13-22)	\$30,000,000	\$15,000,000
22	Wannalancit	\$7,100,000	\$5,700,000
23	Civic & Athletic Facilities	\$3,300,000	\$2,500,000

**Medical School Projects**

<b>Priority</b>	<b>Project Name</b>	<b>Cost Estimate August 2012</b>	<b>FY13-17 Spending</b>
1	Power Plant Expansion	\$51,000,000	\$5,000,000
2	Albert Sherman Center	\$350,000,000	\$100,000,000
3	New NW Parking Garage	\$40,000,000	\$20,000,000
4	School 4th fl Lab to Office Renovations - Backfill Phase 1 Basic Science wing	\$2,000,000	\$2,000,000
5	School Building renovate Labs to Offices - Floor 2, 3 Backfill Project Phase 2	\$8,000,000	\$8,000,000
6	Enhance chilled water loop pump/controls	\$3,000,000	\$3,000,000
7	School HVAC Upgrades/Replacements	\$38,500,000	\$38,500,000
8	Renovate and Expand BL3 Suite - 7th Fl	\$6,400,000	\$6,400,000
16	Parking Lot Maintenance - Main Campus	\$10,840,000	\$10,840,000
24	Network Infrastructure	\$10,000,000	\$10,000,000
25	Departmental equipment purchases	\$10,000,000	\$10,000,000



**Appendix B**  
**Change in Estimates of Total Project Cost Greater than 20%**  
**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:

---



Campus	Project Name	Initial Approval Date	Initial TPC	Revised TPC	% Increase	Explanation for Change in Cost
Amherst	New Substation and Electrical Upgrades	FY08-12 Cap Plan	\$16,000,000	\$40,000,000	150%	The campus generates electricity at the Central Heating Plant, but is also supplied electricity from the local electric utility company. Studies showed that the local utility must improve their distribution system in order to provide reliable and sufficient power supply to the campus. The original concept was for the utility company to rebuild one of two sub-stations that feeds the campus, and the campus would undertake corresponding distribution upgrades on campus. However, given the utility company's failure to maintain and improve the electrical distribution system, the campus' ability to borrow money at a lower interest rate, an approximately \$1,000,000 per year of electric cost savings by bypassing the utility company substation and connecting directly to the electrical transmission system, the campus has determined that it is prudent to build its own substation and also make corresponding electrical infrastructure improvements.
Amherst	Paige Lab Renovations	FY09-13 Cap Plan	\$6,000,000	\$9,900,000	65%	Paige Laboratory was vacated when Vet & Animal Science relocated to the Integrated Sciences Building. At that time, Paige was classified as a bridge building and therefore the approved funding of \$6 million supported minimal renovations to accommodate research for a short term period. Subsequent planning efforts determined that Paige should be more fully renovated in order to eliminate deferred maintenance and make program enhancements to accommodate research over a long term period.
Boston	Nantucket Field Station: Repairs to Field Station Buildings and Septic System and Gouin Village Apartment Repairs	FY12-16 Cap Plan	\$1,400,000	\$2,000,000	43%	The cost for the septic system repair increased by approximately \$355,000 due to the need for extensive archeological inspection and archeological finds that required modifications to avoid sensitive cultural sites. As design work for the renovations and repairs progressed, the extent of identified deterioration to building systems and the extent of remediation efforts increased, increasing the scope and cost of repairs needed to bring Nantucket Field Station facilities up to the condition necessary needed to remain operational.
Boston	Master Plan Phase I: Utility Plant Upgrades related to pumps, controls, heat exchangers and Utility Corridor Reconfiguration	FY09-13 Cap Plan	\$7,000,000	\$11,000,000	57%	As the design process has continued, additional equipment replacement was identified in order to achieve maximum capacity from the chillers and boilers. This capacity is needed to supply chilled and hot water to the campus, including the ISC and GAB. Without these improvements, the poor operational efficiency of Utility Plant systems as currently configured will not supply the necessary chilled water and hot water capacity. In addition, the significant increase seen in pricing for Mechanical, Electrical and Plumbing trade work (MEP) that has taken place over the past year has also been included in the most recent estimates.
Boston	Master Plan Phase I: Construct +/- 1,200 Vehicle Parking Garage West including Public Safety Space	FY09-13 Cap Plan	\$35,000,000	\$45,000,000	29%	This project was originally placed in the Capital Plan four years ago and required factoring escalation into the planning estimate. In addition, the revised price for Parking Garage West includes \$4 million for the relocation of the Department of Public Safety to that facility. Space for Public Safety was included in the FY12 Capital Plan as project MP.01.03



Campus	Project Name	Initial Approval Date	Initial TPC	Revised TPC	% Increase	Explanation for Change in Cost
Dartmouth	New Academic Building	FY12-16 Cap Plan	\$55,000,000	\$75,000,000	36%	Reviewing comparable projects at Umass-Amherst (\$93M) and Umass-Boston (\$113M & \$100M) which average \$93M it was determined that in the very early stage of this project the total project cost should be increased. This increase will reflect a more realistic budget for the project. Confirmation of the total project budget will be done through Priority 7 the Feasibility Study. \$46.5M in state funding is currently planned for this project an additional \$28.5M in funding needs to be identified.
Dartmouth	Athletic Field Replacement & Track Renovation	FY12-16 Cap Plan	\$819,000	\$1,400,000	71%	After review of the initial planning estimate with comparable projects constructed recently the Athletic Field Replacement project is approximately \$1.2M. The track surrounding this field requires renovation and an initial planning estimate is approximately \$200K.
Lowell	Leitch & Bourgeois Residence Hall Renovations	FY10-14 Cap Plan	\$20,000,000	\$25,000,000	25%	Initial review projects an increase in TPC
Medical	School Building renovate Labs to Offices - Floor 2, 3 Backfill Project Phase 2	FY12-16 Cap Plan	\$4,200,000	\$8,000,000	90%	To reflect additional scope specified by senior leadership
Medical	School HVAC Upgrades/Replacements	FY10-14 Cap Plan	\$30,000,000	\$38,500,000	28%	Per DCAM allocation (see Appendix A DCAM Managed Projects of this spreadsheet)
Medical	Renovate and Expand BL3 Suite 7th Fl	FY10-14 Cap Plan	\$5,500,000	\$6,400,000	16%	Additional funding from local funds to cover scope not funded in NIH grant.
Medical	North Road Pavement, Sidewalks and Lighting	FY11-15 Cap Plan	\$600,000	\$1,500,000	150%	To reflect additional scope specified by infrastructure and safety requirements
Medical	Steam Chiller 2 Retrofits	FY11-15 Cap Plan	\$500,000	\$1,000,000	100%	To reflect additional scope specified by infrastructure requirements