FY 2019-2023
Five-Year Capital Plan
September 2018

Residence Hall 1
UMass Boston

University of Massachusetts

Amherst • Boston • Dartmouth • Lowell • Medical School • UMassOnline

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Introduction

The University of Massachusetts has been providing high quality educational opportunities for Massachusetts residents and for students and faculty from all over the world for over 150 years. The University's mission is to provide an affordable and accessible education of high quality and to conduct programs of research and public service that advance knowledge and improve the lives of the people of the Commonwealth, the nation, and the world. With five campuses located across the Commonwealth, the University is an economic engine and a catalyst for social development throughout the entire state.

The University was established in 1863 as the Massachusetts Agricultural College, located in Amherst. It became known as the Massachusetts State College in 1932 and in 1947 became the University of Massachusetts. The Worcester and Boston campuses were established in 1962 and 1964, respectively. The Lowell and Dartmouth campuses (previously the University of Lowell and Southeastern Massachusetts University, respectively) were consolidated into the University under Chapter 142 of the acts of 1991.

The University of Massachusetts is governed by a single Board of Trustees composed of 19 voting members and three non-voting members. The President of the University oversees the five-campus system and Chancellors manage the campuses located at Amherst, Boston, Dartmouth, Lowell, and the Medical School in Worcester.

University of Massachusetts funding sources are diverse and consist of the annual state appropriation from the Commonwealth of Massachusetts, student tuition and fee revenues and research grant funding from federal, state and private sources.

Each year the University of Massachusetts educates more than 71,000 students and confers over 16,000 degrees. The UMass campuses are noted for their diverse students and faculty and for their affordability in comparison with other institutions of higher education. Award-winning faculty members provide undergraduate and graduate students with research opportunities in a multitude of disciplines.

The University of Massachusetts is responsible for maintaining its physical assets across its five campuses which have a total replacement value of $11.6 billion.

Every two years, the President's Office works with each campus to refresh the University's Capital Plan which consists of the following types of projects:

1. Board Approved Projects – Capital projects that have been approved by the Board and are reviewed on a quarterly basis. Each project is approved by the Board at least two times. This list contains projects that are underway or ready to begin in the next 24-36 months and have a funding source identified. The costs associated with these projects are included in the University's financial forecast and state funded projects are approved on the most recent state plan.

2. President's Approved Project List – Capital projects that are reviewed and approved by the President on a quarterly basis. These are smaller projects, between $2 million and $10 Million and are funded with campus operating funds. No borrowed funds are used for these projects. The costs associated with these projects are included in the University's financial forecast.

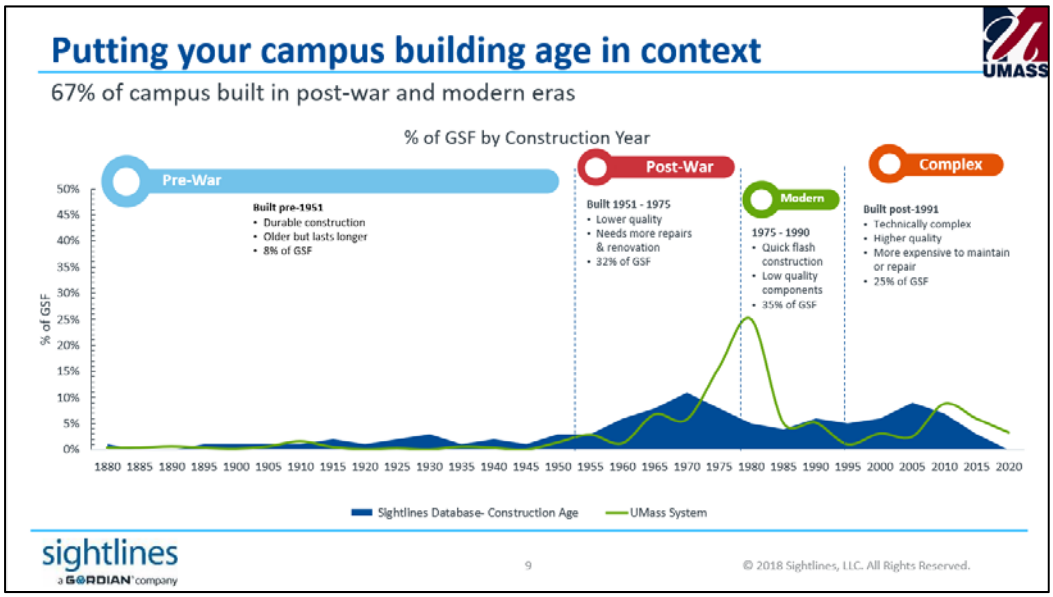
	BOT Approved		President Approved		Total Approved	
Campus	Projects	Project Cost	Projects	Project Cost	Projects	Project Cost
UMA	18	$880,850,000	16	$87,300,000	34	$968,150,000
UMB	8	$635,212,693	6	$23,574,000	14	$658,786,693
UMD	5	$268,654,559	0	$0	5	$268,654,559
UML	6	$169,900,000	5	$19,600,000	11	$189,500,000
UMMS	8	$138,340,000	10	$51,375,000	18	$189,715,000
University	**45**	**$2,092,957,252**	**37**	**$181,849,000**	**82**	**$2,274,806,252**

With enrollment increasing over the past two decades, the University's campus infrastructure is important to both attracting and retaining students and faculty. Without investments to ensure deferred maintenance needs are addressed and state of the art safety, technology, teaching, and research needs are maintained, the University could fall behind its peers in many of the measured performance areas that it has invested so much to improve over the last several years. The capital spending program has resulted in a reduction of the deferred maintenance backlog, the replacement of outdated science and academic facilities, and has made long overdue improvements to the University's housing and dining facilities.

The University's Fiscal Year 2019-2023 Capital Plan is an essential planning tool for each of our campuses and serves as a critical planning document for our communication with the State on the University's capital needs – specifically those underway during the next 24 months.

Brief History of Capital Investments

Despite annual investments in our facilities, the age of each campus alone demonstrates the challenge to maintain and upgrade our assets:



Prior to 1995, the State was responsible for building non-auxiliary buildings (classrooms, laboratories, administration) and the University was responsible for building auxiliary buildings (dormitories, dining halls, parking garages, recreational facilities, campus centers). Over 63% of assets are more than 25 years old and 47% of space inventory was built between 1965 and 1980 – the post war/modern time period classified by low-quality construction.

Prior to 2008, three state bond bills were passed that benefitted the University in 1988, 1995, and 2002. Chapter 208 of the Acts of 1988 authorized funding to support economic development projects, science & technology buildings, classrooms, student and athletic facilities. Chapter 267 of the Acts of 1995 authorized funding for Title IX improvements, and science and technology facilities. Although the University was given over $200 million in new legislative authorizations in FY 1996, the release of the funds was slow (around $25M per year) due to competing capital projects Statewide. Lastly, Chapter 245 of the Acts of 2002 authorized funding to complete UMass Boston campus center.

In the mid-1990s, the Board of Trustees, the President's office, and campus leadership identified capital issues as among the biggest challenges facing the University. Image, reputation, capacity, and mission effectiveness would require modern and functional facilities, and a major commitment of University resources followed. The University understood that it faced an enormous challenge to maintain and upgrade its capital assets including its infrastructure, buildings, and grounds, and that no single source of funds had the capacity to address the vast capital needs of the University. With an ever-growing backlog in deferred maintenance, the University decided it was time to invest in its campuses' physical assets.

In order to meet the needs of the Commonwealth and its students, in 1995 the University obtained an expansion of its statutory authority to develop capital facilities and engaged in a system-wide construction and renovation effort over the past two decades, transforming its five campuses to create the facilities the University needed to take its place as a national research and academics leader. While previously the University only constructed dining and dormitory facilities, for the first time in its history the decision made the University responsible for financing 100% of the costs of non-revenue producing buildings. In each case, these investments were made with the approval of Commonwealth officials.

During the mid-2000's, the University made an effort to secure a new Higher Education bond bill in order to acquire a greater funding commitment from the Commonwealth. In the summer of 2008, two important State initiatives provided a boost to the University Capital Program: Chapter 130 – the Life Sciences Industry Investment Act (Life Sciences Bond Bill) and Chapter 258 – the Higher Education Capital Improvement Act (Higher Ed Bond Bill).

Most recently, the Executive Office of Education (EOE) along with the Division of Capital Asset Management & Maintenance (DCAMM) have partnered to develop a new Strategic Framework for Higher Education capital investments. With the recent passage of the $950 million higher education bond bill, the Administration is beginning the implementation phase of this framework through three key areas:

- **Critical Repairs** – $250 million of critical repair funding over the next five years for all of higher education. Of the $250 million, $76.3 million will be allocated to UMass for the five year period (with a $59.5 million required match).
- **Critical Infrastructure** - $50 million was included for all of higher education for projects that address failing or obsolete systems which have the potential to shut down campuses or cause life safety threats.
- **New Major Projects** - For FY19, a total of $10 million has been allocated for the first year of the selected New Major Projects, with a commitment to fund construction costs over successive years. The Dartmouth Science and Engineering (SENG) project was the only UMass project chosen for this funding.

FY19-23 Capital Plan

The capital planning process is governed by the Board's Capital Planning and Land and Facilities Use Policy and associated standards. The standards are intended to assist in the implementation of the Policy and they specify the review and approval process for capital projects. As explained in the standards, a project must first be approved by the President and/or the Board before a campus can proceed with the project. A project must go before the Board for an approval vote on two separate instances: the preliminary campus estimate (first vote) and the full project approval (second vote). The standards state the following:

Per Board of Trustees Policy T93-122, approval from the Board is required to initiate or finance any capital projects requiring University borrowing, and all capital projects over $10,000,000 in cost. The President's approval is required for capital projects between $2,000,000 and $10,000,000 in cost.

The President's Office maintains a database of capital projects which contains project details including a description, funding sources, and other key project elements.

Board Approved Project List

The Board Approved Project list includes all projects that have been approved by the Board (by Vote 1 and Vote 2 described above) and are reported on quarterly at each Board of Trustees meeting. This list comprises projects that are underway or set to begin in the next 24-month period (before the next biennial Capital Plan update). Each project on this list has an identified funding source and in most cases has spending underway. The costs associated with these projects are included in the University's financial projections and state funded projects are approved on the most recent state plan.

President's Approved Project List

The President's Approved Project List includes capital projects that are reviewed and approved by the President on a quarterly basis. These are smaller projects, between $2 million and $10 million and are funded with campus operating funds. No borrowed funds are used for these projects. The costs associated with these projects are included in the University's financial projections.

	BOT Approved		President Approved		Total Approved	
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The campus master plans also reflect a future pipeline of projects that will be considered based on affordability in the future and will be brought to the Board as needed.

Board Policy T93-122, as amended provides further detail of the requirements to meet in order to bring forth a project for the Board's approval. This policy is included in the attachments.

Quarterly Reporting to the Board
The status of all capital projects on the Board Approved Project list is tracked and reported to the Board on a quarterly basis. In order to facilitate quarterly reporting to the University President and the Board, campuses use the capital project database to update project information, monitor approvals and request new projects.

Capital Plan Dashboards
In an effort to summarize the information included in the Capital Plan, specific dashboards have been developed and are reported to the Board quarterly.

FY19-23 Approved Capital Projects:
This dashboard shows the full list of projects that are approved by the Board and built into the University's financial forecast:

	BOT Approved		President Approved		Total Approved	
Campus	**Projects**	**Project Cost**	**Projects**	**Project Cost**	**Projects**	**Project Cost**
UMA	18	$880,850,000	16	$87,300,000	34	$968,150,000
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Project Phases Dashboard
This dashboard displays the number of projects and total project cost by project phase for each campus and the University system as a whole. It also distinguishes between projects that have received the Board's first and second vote.

		UMA		UMB		UMD		UML		UMMS		Total	
	Project Phase	**#**	**$**	**#**	**$**	**#**	**$**	**#**	**$**	**#**	**$**	**#**	**$**
Prelim. Campus Estimate (First Vote)	1 - Conceptual	4	$262,250,000	0	$0	0	$0	1	$18,500,000	4	$40,840,000	9	$321,590,000
	2 - Feasibility Report	1	$25,000,000	0	$0	0	$0	0	$0	0	$0	1	$25,000,000
	3 - OPM/Designer Procurement	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
	4 - Study/Schematic Design	5	$146,800,000	0	$0	1	$54,436,421	0	$0	0	$0	6	$201,236,421
	Vote 1 Subtotal	**10**	**$434,050,000**	**0**	**$0**	**1**	**$54,436,421**	**1**	**$18,500,000**	**4**	**$40,840,000**	**16**	**$547,826,421**
Full Project Approval (Second Vote)	5 - Design	4	$105,000,000	2	$155,500,000	1	$133,900,000	1	$10,000,000	3	$82,000,000	11	$486,400,000
	6 - Final Design/Early Constr. Pkgs.	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
	7 - Construction	3	$167,800,000	6	$479,712,693	1	$11,440,000	4	$141,400,000	1	$15,500,000	15	$815,852,693
	8 - Substantial Completion	1	$174,000,000	0	$0	2	$68,878,138	0	$0	0	$0	3	$242,878,138
	Vote 2 Subtotal	**8**	**$446,800,000**	**8**	**$635,212,693**	**4**	**$214,218,138**	**5**	**$151,400,000**	**4**	**$97,500,000**	**29**	**$1,545,130,831**
	Total Sep 2018 BOT	**18**	**$880,850,000**	**8**	**$635,212,693**	**5**	**$268,654,559**	**6**	**$169,900,000**	**8**	**$138,340,000**	**45**	**$2,092,957,252**

Funding Sources Dashboard
The dashboard displays the Approved Project List broken into its funding sources. It also distinguishes between projects that have received preliminary approval and secondary approval.

FY2019 Q1

Funding Source	Prelim. Campus Vote 1	Full Project Vote 2	Total BOT Approved	% Total
University - Local Funds	96,876,421	140,493,360	237,369,781	11%
University - External Funds	1,000,000	19,000,000	20,000,000	1%
University - Borrowing	171,550,000	774,914,214	946,464,214	45%
State Funding	33,400,000	383,538,899	416,938,899	20%
P3	245,000,000	227,184,358	472,184,358	23%
TOTAL Approved Projects	**547,826,421**	**1,545,130,831**	**$2,092,957,252**	

The primary factor constraining investments in the capital plan is affordability. The funding sources available for capital investment which consist of University funds (including operating funds), donations, borrowing, and State funds, are limited.

There are five sources of funds that are used either individually or in combination with each other to support capital projects.

1. University – Local Funds – These are funds programmed within a campus's operating budget and are generated at the campus level through tuition and fees. Since campus revenues are generally needed to support ongoing educational costs, this funding source is not widely available for funding capital projects. An example of a project funded significantly with University Local funds is the Parking Lot Maintenance project at the Medical School campus.
2. University – External Funding including Fundraising and Grants – These are funds generated at each campus through specific fundraising efforts or grant applications from federal, local or private sources. An example of a project funded significantly with University External Funds is Phase II of the Charlton College of Business at the Dartmouth campus.
3. University – Borrowing – UMBA / MHEFA / WCCC / Other – These are funds borrowed using UMBA, MHEFA or WCCC for which the borrowing campus is responsible for principal and interest payments annually. An example of a project funded significantly with University Borrowing is the construction of University Hall at the Boston campus.
4. State – GO Bonds, Life Sciences, Supplemental Appropriations – These are funds authorized, borrowed or appropriated by the State in support of capital projects. An example of a State funded project is the MLSC Life Sciences Facility at the Amherst campus.
5. Public Private Partnerships (P3) – These partnerships are contractual agreements between the University and a private entity to facilitate the construction, operation, and financing of a capital project. This type of arrangement is typically used for auxiliary buildings such as housing, dining and parking.

Project Spending Dashboard
Each quarter, total project spending for each funding source is reported, including borrowed funds, state funds, and local/external funds. Total spending for the Approved Project List is also displayed.

Campus	Capital Plan: Borrowing	Borrowed to Date	Spending to Date: Borrowing	% Spent	Capital Plan: State Funding	Spending to Date: State Funds	% Spent	Capital Plan: Local/External /P3 Funding	Spending to Date: Local/External/ P3 Funds	% Spent	Total Capital Plan	Total Spending to Date	% Spent
UMA	$353,602,000	$151,650,000	$126,514,457	83%	$191,048,000	$174,450,171	91%	$336,200,000	$1,860,255	1%	$880,850,000	$302,824,883	34%
UMB	$356,387,436	$311,204,390	$256,537,455	82%	$159,440,899	$48,884,990	31%	$119,384,358	$75,848,635	64%	$635,212,693	$381,271,080	60%
UMD	$95,824,778	$49,724,778	$41,179,858	83%	$55,000,000	$30,040,976	55%	$117,829,781	$376,026	0%	$268,654,559	$71,596,861	27%
UML	$80,650,000	$34,042,534	$18,547,870	54%	$11,450,000	$822,184	7%	$77,800,000	$34,696,789	45%	$169,900,000	$54,066,843	32%
UMMS	$60,000,000	$0	$0	0%	$0	$0	0%	$78,340,000	$2,900,000	4%	$138,340,000	$2,900,000	2%
Total	**$946,464,214**	**$546,621,702**	**$442,779,640**	**81%**	**$416,938,899**	**$254,198,321**	**61%**	**$729,554,139**	**$115,681,705**	**16%**	**$2,092,957,252**	**$812,659,667**	**39%**

Debt Capacity Dashboard

This dashboard displays the amount of borrowing identified for projects that have received approval, the total amount of bond proceeds already borrowed, and the amount required to be borrowed in the future.

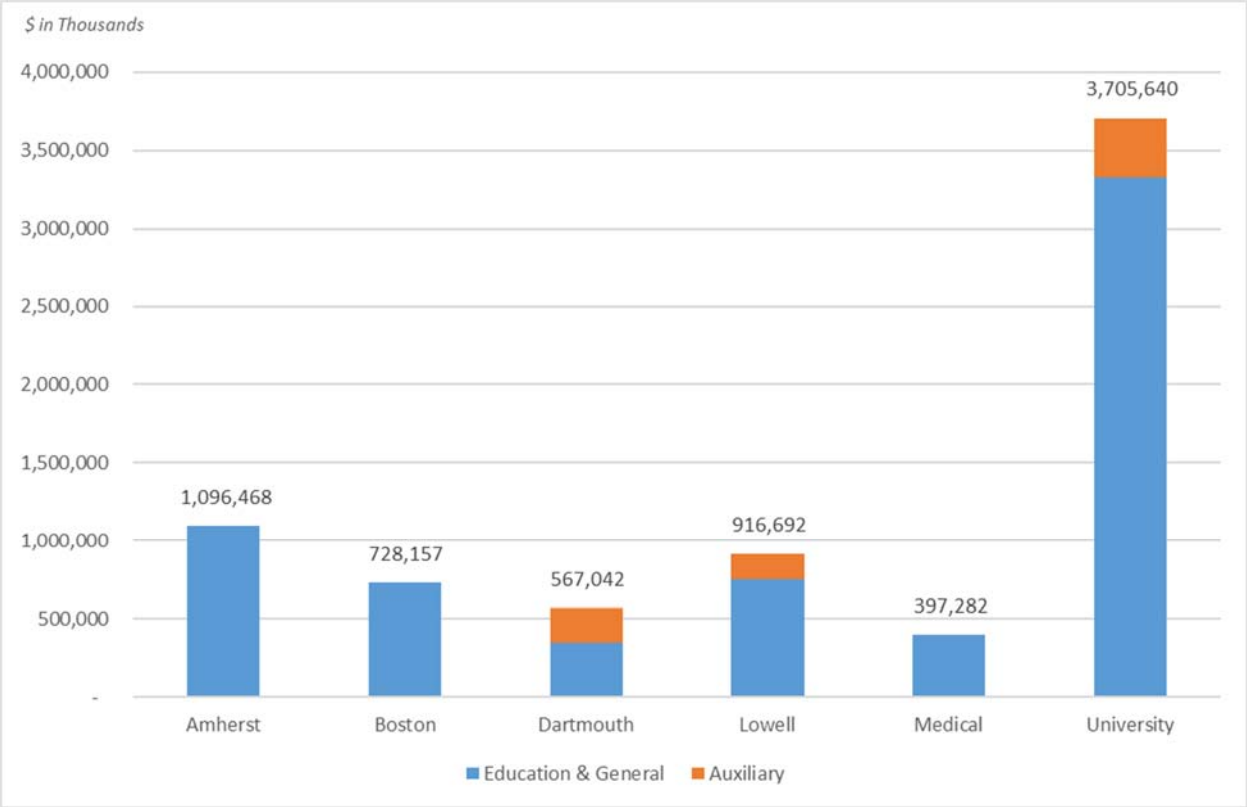
Each year, debt affordability is evaluated by each campus to determine if and when additional debt can be issued to finance capital projects. The most common metric used to determine a campus's ability to finance debt is the debt service ratio, which compares debt service payments (interest and principal) to total operating expenditures. This indicator simply shows how much of the annual operating budget must be set aside for long-term debt payments. It is extremely important to creditors who are planning to lend UMass money, or to purchase UMass bonds.

Campus	Total Borrowing Need Vote 1 Projects	Total Borrowing Need Vote 2 Projects	Total Borrowing Need	Bonds Issued	Additional Bonds Required
UMA	151,550,000	202,052,000	353,602,000	151,650,000	201,952,000
UMB	-	356,387,436	356,387,436	311,204,390	45,183,046
UMD	20,000,000	75,824,778	95,824,778	49,724,778	46,100,000
UML	-	80,650,000	80,650,000	35,000,000	37,650,000
UMMS	-	60,000,000	60,000,000	-	60,000,000
Total	**$171,550,000**	**$774,914,214**	**$946,464,214**	**$547,579,168**	**$390,885,046**

Deferred Maintenance

Over the past 20 years, the University has reduced its deferred maintenance backlog, replaced outdated science and academic facilities, and put in place reserves to fund the maintenance needs of any new facilities built by the University. Improvements have been made to housing and dining facilities across the campuses – facilities that generate revenue to cover the cost of operations, including the debt service associated with the buildings. These improvements have helped transform UMass.

Beginning in FY15, Sightlines was contracted with the entire system to inventory the deferred maintenance backlog. The most recent Sightlines update identifies 10-year backlog totaling $3.7 billion.



The Capital Plan focuses on reducing this backlog by $1 billion using the following strategies:

- State Critical Repair Funding: State committed to $76 million of funding over the next five years for critical repair funding. The campuses have submitted the required 5-year spending plans to DCAMM which include campus matching funds. A total of $154.3 million of spending is planned to address critical repairs/deferred maintenance over the next five years at UMass through this State program
- Reserve Policy: Policy will require prioritization of capital projects that address the "catch up" targets as defined by Sightlines, and to consider future facility lifecycle costs when building reserves
- Capital Planning, Land and Facilities Use Policy: The draft revised policy requires funding to be provided through the operating budget and the building of reserves to address the "keep up" and "catch up" spending targets as defined by Sightlines

- Capital Plan: Deferred maintenance is the focus of the Capital Plan. All projects fall within Timeframes A&B and address Sightlines defined deferred maintenance criteria.

Appendices

The following pages include information supporting the FY19-23 Capital Plan.

A. Campus Narrative Sections
B. Board Approved Project List
C. Board Policies pertaining to Capital & Debt

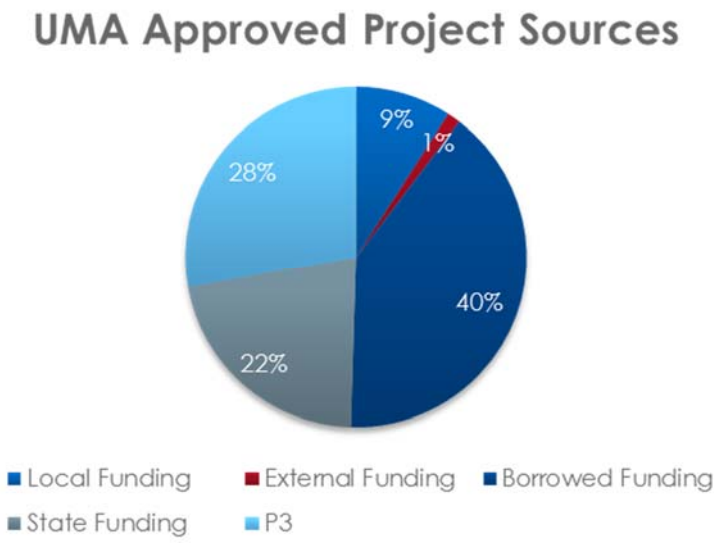
This plan along with the summary presentation to the Board of Trustees can be found on our website at: https://www.umassp.edu/budget-office/capital-planning

APPENDIX A

Campus Narratives

AMHERST CAMPUS

Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
#	$	#	$
10	$ 434,050,000	8	$ 446,800,000



Campus Introduction and Overview of Campus Capital Plan

The Amherst campus capital plan is focused on a five-year planning timeframe from FY19 through FY23 and is organized to identify approved funded projects by designated funding sources, and to describe planning in areas that may results in projects through the Biennial Plan.

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. The capital plan provides 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 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 top twenty 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. The Amherst capital plan is structured with priorities that support the strategic challenges and campus goals of being the destination of choice for the Commonwealth's talented students of all backgrounds and the investment of choice for the Commonwealth's and the nation's future. The underlying strategy of the plan is to 1) target investment in areas of the highest impact; and 2) balance investments across deferred maintenance, modernization, and new construction so as to achieve the greatest possible return on investment and broadest improvement in physical capacity.

In the past decade we have made impressive progress in modernizing the campus. Continued progress demands an aggressive funding strategy to complete high priority capital projects. The Amherst campus places heavy and growing reliance on expenditures from the campus operating budget to support capital improvements, especially in terms of borrowing through the UMBA. The approved project list includes projects for which debt has already been budgeted for by the campus. Debt service rises from $81 million in FY17 to $102 million in FY23 as we borrow incrementally for on-going approved projects based upon cash flow schedules. New projects will be needed, however, and absent state funding will add to that growth.

The next generation of investments is at the center of our capital planning. Despite ongoing deferred maintenance challenges, recent building demonstrates how critical new construction is to our competitive position. Projects now in construction or in the pipeline are critical, but our attention must also turn to building support for a next wave of state investment. It is our obligation to demonstrate why such an investment makes sense — both for us and the Commonwealth — and our capital planning is sharply focused on making that case. Additional projects to improve the student experience will allow us maintain our momentum in the competition for talented students. Research and development capacity build on existing strengths and focus on economic development priorities for the Commonwealth. Of special importance is building on recent success in innovative, adaptive reuse of existing but aging assets. The renovation/addition project for South College demonstrates how powerful and cost-effective this strategy can be — and how it impacts both deferred maintenance and modernization needs.

In order to sustain and build upon our current momentum, the campus recognizes the need to seek additional funding from other sources including private donations, federal grants, state and through public-private partnerships. Currently, the Isenberg School of Management is undertaking a targeted fund-raising campaign to support an addition, and a lead donation has led to upgrades to our McGuirk Football Stadium. Successful fundraising to support our capital needs remains a high priority. However, the scale and nature of the campus's needs go far beyond what can be raised through private giving. Expansion of state investment remains the key to our capital plan.

Planning Needs & Priorities

The overall plan is the result of a thoughtful process of developing and reviewing capital priorities with campus stakeholders. The flagship campus, with approximately 13 million gross square feet of space requires continued investment in order to maintain and improve upon its high national ranking. The plan is based upon input and findings from various planning exercises, including the master plan, science and engineering facilities study, instructional space assessment, public health & health sciences facilities study, energy master plan and the student experience master plan.

The plan continues our focus on key areas of impact including instructional facilities improvements, STEM facilities renewal, student experience, energy efficiency improvements, and continued targeted reductions to deferred maintenance.

Future needs recognize the importance of investments in data science. The campus received a 10-year, $15 million grant from the MassMutual Foundation aimed at driving education, economic opportunity in Western Massachusetts. The grant is being invested to hire additional faculty to support growth in the Center for Data Science which is already a leading destination for data science and related research, as well as support research education at the campus' Cybersecurity Institute. The project will provide much needed space to accommodate the growth in these programs.

Housing and Student Experience areas continue to be a priority in capital planning for the flagship campus. The campus completed a Student Experience Master Plan process that solicited student and staff input and identified impactful and cost effective improvements. The proven and established campus strategy of revitalizing core campus buildings will continue to provide impacts to the student experience and provide corresponding reductions to deferred maintenance in several post war era buildings, including the renovation of the Student Union.

The overall STEM facilities renewal plan also continues a program of renovations and upgrades to existing research and related spaces with significant corresponding reductions to deferred maintenance. A number of projects nearing completion will create backfill laboratory and office space that can be more cost effectively renovated once vacant to resolve existing space deficiencies or accommodate faculty renovations. The campus is also fitting out the majority of the remaining shell space in the Life Science Laboratories for the new Biomedical Engineering Department. The plan includes a renovation to Goessmann Laboratory for the School of Public Health and Health Sciences.

The campus continues to complete a number of smaller energy efficiency related projects. The campus leverages a strategic Memorandum of Understanding (MOU) with our local utility provider to maximize funding incentives for energy efficiency scope in all projects. The plan identifies continued investments

in larger projects to provide cost effective improvements to the campus utility and related infrastructure. The campus completed an energy master plan that helped identify the most important and impactful areas of investment including additional boiler at the Central Heating Plant, duct bank improvements, and energy efficiency improvements in existing buildings.

Deferred Maintenance

The flagship campus has been focused on deferred maintenance in its capital planning process for over fifteen years. The campus continues to work with Sightlines LLC as a strategic advisor in the review and monitoring of deferred maintenance. The strategy has involved systematic reductions through new construction and demolition, adaptive reuse and specific projects directly targeted as deferred maintenance. The campus has reduced deferred maintenance by over $500 million since fiscal year 2010. The campus continues to utilize data from sightlines to guide deferred maintenance decisions including recommendations from the most recent building portfolio analysis. The sightlines report identified the top 10 building with the highest needs. Many existing and planned projects are aimed directly towards reductions in these buildings.

Although the campus has made significant progress in reducing the deferred maintenance backlog, total identified needs of Sightlines remains at a relatively high level of approximately $1.7 billion including educational & general, infrastructure, housing and auxiliary building needs. Although it's not financially feasible or reasonable for the campus to undertake projects to completely reduce this magnitude of deferred maintenance in a 3 year planning timeline, the campus would realize continued significant reductions to deferred maintenance through most projects in the plan.

The Sightlines report identified the top 10 highest need buildings. The existing approved projects or the priority projects included in our Biennial Plan address these top priority buildings. The DuBois Library has received over $30 million of deferred maintenance work in prior capital plans. These deferred maintenance projects enable more effective programmatic renovations to spaces in the library, for example the writing program and image library renovations that were recently completed. Lederle and Morrill science complexes have received minimal debt funded upgrades to the most critical building system needs in recent years. However, state funding earmarked in the previous higher education bond bill for both complexes is critical to addressing top priority needs that are negatively impacting academic and research operations. A number of other buildings identified with top needs will be addressed through instructional facilities improvements and STEM facilities renewal projects. In addition, Bartlett hall which has one of the highest amounts of deferred maintenance on campus, is planned to be demolished at the end of this planning period and after its use for swing space to help enable other building renovations. The campus recently demolished Hills House and eliminated a significant amount of corresponding deferred maintenance.

The West Experiment Station revitalization is complete as part of the Physical Sciences Building construction and completely eliminated deferred maintenance in this historic building. The campus is also currently replacing priority infrastructure, including major underground utilities and roads. Several projects are proceeding through design including the renovation of the Student Union and replacement of the Worcester Dining Commons through more cost effective new construction that will enable the demolition of Worcester Commons. The campus submitted two major project requests as part of the new state framework for capital funding. These projects would result in significant reductions to

deferred maintenance in several STEM related buildings including Morrill, Lederle, Hasbrouck, and Goessmann. The campus also is planning to spend $45 million over this five year planning period on many smaller projects that directly eliminate deferred maintenance. The campus is budgeting $25 million from state funds with a $20 million campus match for these priority deferred maintenance projects.

With nearly one-third of the campus facilities in residential structures and much of it aging and programmatically obsolete the campus is developing a strategy to move forward with a long term comprehensive upgrade for the campus' housing stock, including options for public/private partnerships. Housing continues to make smaller investments in top priority deferred maintenance, but a larger systematic approach is planned and would be enabled through housing expansion in a public private partnership.

Affordability

All the approved capital projects are fully built into the five-year operating budget. Due to modest increases in the State Appropriation and the desire to keep student tuition low, there isn't enough room in the budget to fully fund future projects without funding from the state. Projects have been built into the model through FY23 through a combination of funding from gifts, campus general operating funds, debt and the state.

The campus is required to produce a positive operating margin and the impact of depreciation and interest on the bottom line does not allow for many of the Biennial Projects to be completed without state support. The debt ratio increases to 7.4% in FY21, but there is capacity for additional debt due to bond retirements in FY22. The viability ratio and financial cushion remain steady throughout the five-year forecast as net assets, debt and expenses all increase at a similar rate.
The campus actively participated in the Commonwealth's new strategic framework process for state capital funding. The campus submitted comprehensive and compelling projects that responded to the stated Commonwealth priorities. It was very disappointing that the campus did not receive any state funding towards these priority projects. Based upon follow up with DCAMM it appears that deferred maintenance funding of approximately $25 million over the next five years is the extent of state capital funding expected which greatly increases the financial burden of the capital plan on the campus.

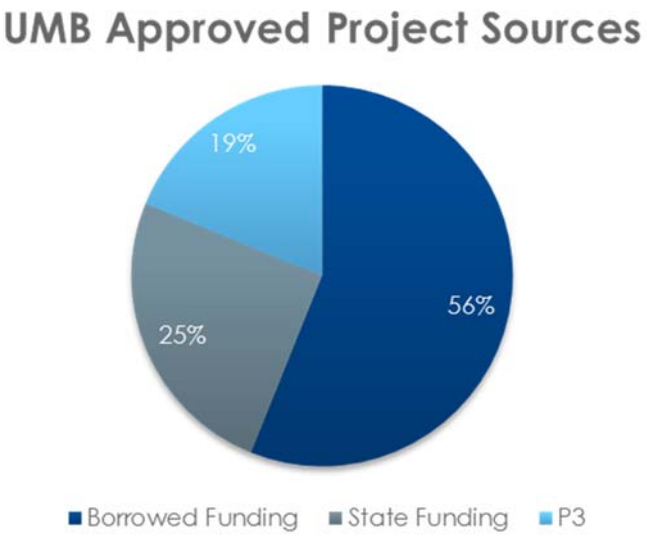
Other

The Amherst campus and UMass Building Authority facilitated a request for information to solicit formal input from potential developers interested in providing public-private partnership services at the Amherst campus. Concurrent with the review of the responses the campus completed an updated housing demand study. This study identified the need for 1,000 additional undergraduate beds on the Amherst campus. The campus plans to take next steps towards a more formal request for proposals on this project. The campus is also pursuing public private partnership opportunities with respect to family graduate housing.

Project Name	Project Cost
North Village Apartments	$70,000,000
Housing Expansion	$175,000,000
Thompson Deferred Maintenance	$2,250,000
Energy Improvements	$15,000,000
Central Heating Plant Boiler/Co-Gen Fitout	$25,000,000
Fine Arts Center renovations	$9,000,000
Goessmann, SPHHS Renovations	$14,300,000
Office/Lab/Academic Renovations	$52,500,000
Central Campus Core Utility, Landscaping & Accessibility	$16,000,000
Student Union Building	$55,000,000
Worcester Dining Commons Renovation	$65,000,000
Life Science Laboratories backfill renovations	$18,000,000
McGuirk Scoreboard & Seasonal Bubble	$18,000,000
Whitmore deferred maintenance	$4,000,000
Isenberg School of Management renovations and addition	$64,000,000
Physical Sciences Building	$101,800,000
Replace Oil Filled Transformers	$2,000,000
Life Science Laboratories	$174,000,000

BOSTON CAMPUS

Prelim Campus Estimate First Vote			Full Project Approval Second Vote	
#	$		#	$
0	$	-	8	$ 635,212,693



Campus Introduction and Overview of Campus Capital Plan

The University of Massachusetts Boston FY19-FY23 Capital Plan represents the University's best effort to meets its most critical physical plant needs with the resources currently projected to be available. It consists of 15 projects that fall into three categories:

A) Completing essential construction and renovation projects already underway;

B) Accomplishing the demolition of a large portion of the Substructure, the Science Center, and the Clark Pool, and the development of a central Quadrangle in their place; and

C) Addressing other high-priority infrastructure and Critical Repair needs.

Following is a brief description of the specific projects that comprise each of these categories.

A. Essential construction and renovation projects already underway

1. Utility Corridor and Roadway Relocation Project, or UCRR (Master Plan Phase I) This major public works project is the principal enabling effort to both protect campus operations from catastrophic utility failure due to the deterioration of the Substructure and allow for the Substructure's demolition, establishing a modern mechanism for providing utilities to all main campus buildings and building sites, completely revamping roadways and walkways, and opening and humanizing the campus. *Cost estimated at approved $259.5 million. Targeted for completion FY19.*

2. Construct New Residence Hall 1 (P3 Project) (Master Plan Phase I) UMBA and Boston campus personnel worked with Capstone Development Partners, LLC, and its team, including Elkus Manfredi Architects and Shawmut Construction, to design and program an 1,076 student-bed approximately 263,000-gross square foot residence hall project located on the University's campus. In addition to 1,076 student beds—provided in a mixture of unit types from single to four-person, with private and community bathrooms—the project will house over 27,000 gross square feet of "commons" space on the first floor including a new university-funded dining facility (see following project). *P3-funded Residence Hall 1 cost estimated at $119.384 million. Targeted for completion FY19.*

3. Construct University Dining Facility in New Residence Hall 1 Located within the larger of the two buildings comprising the Residence Hall 1 complex is a first floor commons that includes a dining facility serving the University community as well as residential students. This dining facility is intended to address University-wide food service demand that has surpassed the capacity of current campus facilities, as well as address food service needs associated with the addition of a residential cohort that has not previously existed on campus. *Cost estimated at approved $18.0 million. Targeted for completion FY19.*

4. Construct New Garage Facility (Master Plan Phase I) This approximately 1,400-space parking garage will provide the University's employees and commuting students with replacement of a substantial portion of the parking capacity lost when the Substructure was forced to close 12

years ago, and the surface lots created at that time have subsequently been closed due to needs of UCRR and other construction projects. *Cost estimated at $69.725 million ($1.275 million below approved $71.0 million). Targeted for completion FY19.*

5. Elevator Renovations in Clark Athletic Center, McCormack Hall, Quinn Administration Building, and Wheatley Hall Four campus buildings still had their original passenger and freight elevators, which were long past their useful life and increasingly expensive and problematic to maintain, as many parts no longer were available from the manufacturers. This project replaces these with safe, efficient, code-compliant new elevators. *Cost estimated at approved $8.3 million. Targeted for completion FY19.*

6. Clark Athletic Center: Replace Gymnasium Roof and East Curtain Wall and Repair Rink South Façade This project replaces a long-outdated spray-on roof above the Gymnasium (whose floor and bleachers were replaced in FY14 at a cost of nearly $2.5 million) and repairs two deteriorating and potentially hazardous exterior wall areas of the Clark complex. *Cost estimated at approved $5.25 million, including $1.625 million in Deferred Maintenance funding from DCAMM. Targeted for completion FY19.*

B. Substructure/Science Center/Clark Pool demolition and Quadrangle development

7. Renovations to Existing Academic Buildings (McCormack Hall and Wheatley Hall) (Master Plan Phase I), or REAB This project has been revised to focus on repurposing and upgrading portions of Wheatley Hall and McCormack Hall, as well as the Healey Library building and Quinn Administration Building, to provide appropriate spaces to relocate staff and facilities which must be moved out of the Science Center in order to enable its demolition. In the process, it will accomplish some related Critical Repairs work in these 1970s structures. *Cost estimated at $41.0 million versus approved $45.0 million. Prior design work for previous project scope totaled approximately $4.4M, a portion of which was written off in FY18, and the remainder that is related to the new scope will continue as prior spending ($2.045M). Targeted for completion FY20.*

8. Demolish Substructure, Science Center, and Pool (Master Plan Phase I) The demolition will remove a major risk to the safety and operation of the campus and provide the key step in transforming the campus by removing deteriorated and outmoded 1970s structures and opening up the central Quadrangle. Following the completion in 2016 of DCAMM's study, the project underwent substantial scope reduction and subsequent revision in 2018 to reduce the cost. *Cost estimated at $114.5 million;* ***entire cost of demolition project, including REAB $41.0 million for Science Center "decanting" (see preceding project), estimated at $155.5 million.*** *Targeted for completion FY22.*

C. Other high-priority infrastructure and Critical Repairs needs

9. Utility Plant: Add 3,200 Tons of Cooling Tower Capacity As the campus has added to its cooling load via new buildings, and the Energy-Producing Facility originally planned to meet this need is not going forward, additional cooling tower capacity now is planned to supplement the

existing chilled water capacity of the central Utility Plant. *Preliminary pre-study estimate $2.0 million. Targeted for completion FY20.*

10. Healey Library Building Fire Protection The 13-story Healey Library building does not have any fire protection sprinkler or fire suppression systems installed. In addition to being the Boston campus's library facility, the building also houses computer laboratories, classroom spaces, and office spaces. In addition, the building's fire alarm system is at the end of its useful life and must be replaced, and because of changes in space use and configuration there are areas where additional devices will need to be installed to ensure proper coverage of horns and strobes. *Preliminary pre-study estimate $8.11 million ($4.559 million DCAMM Critical Repairs funding sought). Targeted for completion FY21.*

11. Quinn Administration and Service & Supply Buildings Fire Protection The Quinn Administration Building lacks any fire protection sprinkler system. The adjacent Service & Supply Building has only a limited fire protection system at its loading dock area, but other areas used for both office space and storage lack sprinklers. In addition, in both buildings the fire alarm systems have reached the end of their useful life. *Preliminary pre-study estimate $3.025 million ($1.7 million DCAMM Critical Repairs funding sought). Targeted for completion FY20.*

12. Wheatley Hall Façade Repairs Earlier exploratory investigation of limited failures of the brick façade on Wheatley Hall indicated that the original installation of the brick facing on the building was not to design and, most importantly, did not include all of the supports called for to secure the exterior brickwork. The façade has been closely monitored for areas needing repair, but should be addressed in a more comprehensive manner. *Preliminary pre-study estimate $6.041 million ($3.396 million DCAMM Critical Repairs funding sought). Targeted for completion FY23.*

13. Healey Library Transformer Replacement The primary electrical transformer serving the Healey Library building has reached the end of its useful life and requires replacement. Failure of the Healey transformer would require closure of the building, as it would be without electrical service. *Preliminary pre-study estimate $2.025 million ($1.138 million DCAMM Critical Repairs funding sought). Targeted for completion FY21.*

14. Quinn Administration and Service & Supply Buildings Roof Replacement/Repair The main roof on the Quinn Administration Building and the PVC roof over a portion of the Service & Supply Building have reached the end of their useful life and require replacement. These roofs will be replaced with a mechanically fastened roofing system that can be warrantied for winds of up to 105 MPH, vital due to the campus's location on Boston Harbor and susceptibility to strong winds from nor'easters, tropical storms, and hurricanes. *Preliminary pre-study estimate $2.373 million ($1.334 million DCAMM Critical Repairs funding sought). Targeted for completion FY22.*

15. McCormack Hall Roof Replacement and Building Envelope Repairs This major Critical Repairs project is required to address serious chronic water intrusion in one of the primary classroom/laboratory/academic office buildings on campus. The sources of water intrusion have compromised the 40-year-old masonry envelope and negatively affected structural and building systems. Health and safety problems arising from constant water intrusion have

resulted. The projected cost of a previously developed design has been inflated to adjust for execution in the FY21-FY23 timeframe. *Cost estimated at $4.3 million. Targeted for completion FY23.*

The FY19 operating budget, currently planned with a $0.0M operating margin, assumes first-year, half-year depreciation and increased interest cost (related to changes in capitalized interest) from all projects above moving from CIP to in-service in that year. Please see below for plan effects on the 5-year forecast for Debt Ratio, Operating Margin and Reserves.

Planning Needs & Priorities

The only projects in the FY19-FY23 Capital Plan that are new are the following smaller projects in category C, Other high-priority infrastructure and Critical Repair needs:

9. Utility Plant: Add 3,200 Tons of Cooling Tower Capacity As explained above, in the absence of the Energy-Producing Facility, which was included in the FY17-FY21 Capital Plan submission, this much smaller project now is required to meet the campus's need for additional cooling tower capacity.

10. Healey Library Building Fire Protection This project had been deferred to Contingent on Funding status in the FY17-FY21 Capital Plan submission. The prospect of DCAMM Critical Repairs funding makes feasible its inclusion in the FY19-FY23 Capital Plan.

11. Quinn Administration and Service & Supply Buildings Fire Protection The Service & Supply Building portion of this project had been deferred to Contingent on Funding status in the FY17-FY21 Capital Plan submission. The prospect of DCAMM Critical Repairs funding makes feasible its inclusion, along with the Quinn Administration Building portion, in the FY19-FY23 Capital Plan.

12. Wheatley Hall Façade Repairs The prospect of DCAMM Critical Repairs funding makes feasible the inclusion of this new project in the FY19-FY23 Capital Plan.

13. Healey Library Transformer Replacement The prospect of DCAMM Critical Repairs funding makes feasible the inclusion of this new project in the FY19-FY23 Capital Plan.

14. Quinn Administration and Service & Supply Buildings Roof Replacement/Repair The prospect of DCAMM Critical Repairs funding makes feasible the inclusion of this new project in the FY19-FY23 Capital Plan.

Deferred Maintenance

Sightlines' latest Building Portfolio Solutions list of the University's Deferred Maintenance (DM) or Critical Repairs needs totals $376.8 million. This figure already is net of the DM costs being addressed by the $8.3 million Elevator Renovations project and the $5.25 million Clark Athletic Center roof and envelope project (numbered 5 and 6 in Section 1 above). Including these two costs, the DM total prior to the effects of this Capital Plan is actually $390.4 million.

In Sightlines' estimation, the completion of the UCRR project together with the Substructure/Science Center/Clark Pool demolition will result in the elimination of $296.4 million of the total DM need. When completed, this Capital Plan's six small Critical Repairs projects (numbered 10 through 15 in Section 1 above) will have eliminated another $25.1 million of the current DM need. The FY19-FY23 Capital Plan thus is expected to reduce the current DM need by $334.9 million, or over 85% of the University's $390.4 million total.

Affordability

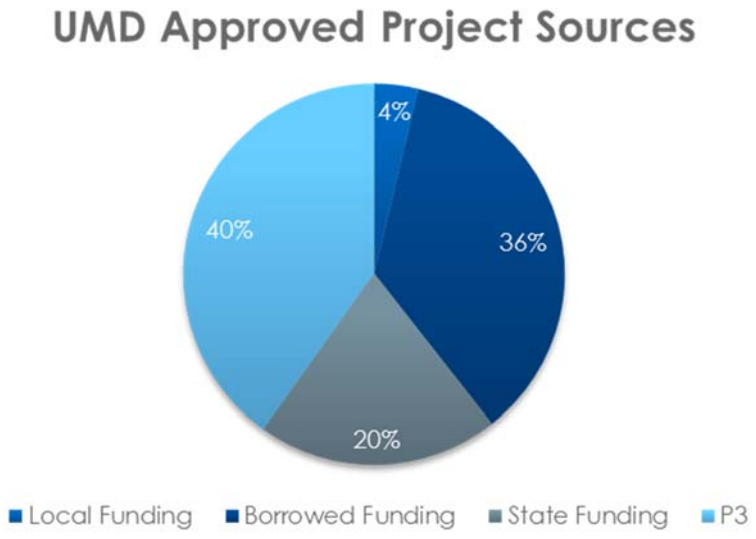
The current 5-year model projection includes all projects listed above and estimated local capital project costs. Additional borrowing of $77.5M for SDQD is still assumed though the actual need for that project will likely be less based on current estimated costs versus all available funding sources.

The 5-year model projected Debt Ratio remains slightly under the 8.0% cap and peaks in FY21. The Operating Margin target of reaching 2.0% by FY23 remains intact, though FY20 is currently forecast in deficit due to increased depreciation (full year after half year in FY19) and interest. Cash reserves are projected to remain stable throughout the forecast period.

Project Name	Project Cost
Demolish Substructure, Science Center, and Pool (Master Plan Phase I)	$114,500,000
Renovations to Existing Academic Buildings (McCormack Hall and Wheatley Hall) (Master Plan Phase I)	$41,000,000
Construct University Dining Facility in New Residence Hall 1	$17,998,636
Utility Corridor and Roadway Relocation Project (Master Plan Phase I)	$259,500,000
Construct New Residence Hall 1 (P3 Project) (Master Plan Phase I)	$119,384,358
Construct New Garage Facility (Master Plan Phase I)	$69,279,699
Elevator Renovations in Clark Athletic Center, McCormack Hall, Quinn Administration Building, and Wheatley Hall	$8,300,000
Clark Athletic Center: Replace Gymnasium Roof and East Curtain Wall and Repair Rink South Façade	$5,250,000

DARTMOUTH CAMPUS

Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
#	$	#	$
1	$ 54,436,421	4	$ 214,218,138



Campus Introduction and Overview of Campus Capital Plan

UMass Dartmouth is pleased to submit its FY19-FY23 Capital Plan, which is driven by the completion of the Campus Masterplan in late 2017. Central to the Campus Masterplan is our commitment to honor the legacy of the university's original architect, the internationally renowned Paul Rudolph, while confronting our deferred maintenance challenge though the renovation and replacement of outdated facilities. The Carney Library project proved that we can combine Rudolph's vision with 21st century realities to create compelling learning, living and discovery spaces. This will position the university to attract and retain student, faculty and staff talent that will strengthen the regional economic and cultural ecosystem.

Every dollar we invest in the campus will be mission specific. The highlights include:

- Renovated and new academic facilities with flexible, collaborative, technology-rich and engaging learning environments.
- Replacement of first-year housing to provide a compelling mix of living and learning options.
- An expanded Campus Center with improved student activity, services, and dining venues.
- Enhanced visitor experiences that will be more inviting to potential students and connect our university community to our neighbors.
- Improve and expand research capacity and capability to boost faculty recruitment, retention and productivity. Continue to grow Graduate student program recruitment.
- Expanded athletic and recreational facilities that will increase student participation and access for our community partners.
- Traffic flow improvements that integrate pedestrian, bicycle and transit ways.
- Sustainability best practices related to energy use and green space.

The facilities and landscape master plan will be a component of our university strategic plan, which we will develop in the coming year.

Planning Needs & Priorities

The 2017 Campus Master Plan is the first step in solidifying the framework for projects and priorities for the FY19-FY23 Capital Plan Update. The campus also completed a Student Housing Master Plan in 2016 and STEM Facilities Master Plan in 2017 which heavily guided the initiation of several priority projects. Carrying forward from the work in the Campus Master Plan UMassD is working to develop comprehensive Energy and Landscaping Master Plans.

Two major priority projects were presented to the Board of Trustees and are moving forward.

1. **New Housing / Dining Facility - $133.9M:** The University is committed to developing a Public Private Partnership (P3) project and working through UMBA has advanced this project through the various approvals and is projecting a groundbreaking in the late Fall and a projected opening for the Fall of 2020.

    - **First Year Housing - $107.8M:** Development of 1,210 bed / 267,500 GSF mixed-use residential facility designed to enhance recruitment and retention of first year students. The development would replace the current 1,600 first-year housing beds constructed

in 1976 and eliminate approximately $75M in identified deferred maintenance. Alternative procurement through a P3 will minimize the impact on the balance sheet and debt capacity. Implements best practices of design, construction, operation, maintenance and adds 'live-learn' spaces;

- **Dining Facility - $26.1M:** New student dining commons to support the residential program and the total campus community. To be co-located with the first year housing development to accommodate 800 seats and 38,000 GSF. This would replace the existing Residence Dining Facility that was constructed in 1977 to accommodate 1,600 and now serves 3,200. The project would be developed and constructed as part of the residential project and funded by debt through UMBA.

2. **Science & Engineering (SENG) Building System Project - $54.4M:** As part of the Commonwealth's Higher Education Major Project Capital Request process UMassD was awarded $25M in state funding toward a project that will address the majority of the deferred maintenance and life cycle items in order to reset the facility to allow for unencumbered programmatic renovations in the future. Additional funding projected to be $20M in borrowing and $9.4M in local funds. The project details and prioritizes the most urgently needed repairs and upgrades which include: building envelope, base building MEP systems, life safety, and fire protection systems; in addition, accessibility upgrades are a particularly pressing need as many of the spaces and facilities in the building are simply not accessible. The goal of this systematic renovation approximately $32M in DM and $6.8M in accessibility is to provide a foundation for the facility which will be stable enough to provide basic needs while becoming flexible enough to support academic programs that are not yet envisioned.

   The SENG Building at UMassD was built in 1968 according to the design of Paul Rudolph and is an iconic example of mid-twentieth century Brutalist architecture. In the intervening half century there has been significant infrastructural deterioration and increasing non-conformance with current accessibility, energy, life safety and laboratory standards. Despite piecemeal repairs and upgrades, the building now faces systematic failures that, if not comprehensively addressed in the near term, will prevent its continued use as UMassD's primary STEM (Science, Technology, Engineering and Math) teaching and research facility. This project only addresses facility modernization, which will indirectly enhance the learning environment in support of current teaching programs.

Future plans will focus on deferred maintenance and renewal needs of a physical plant that is now over 50 years old. Several major renovation / modernization projects centered around the strategy of revitalizing the campus core which will significantly improve the campus / student experience while addressing deficiencies; funding sources will need to be identified and Board approval will be required before these move forward.

- **STEM Discovery Center:** Approximately 65,000 sq. ft. facility that concentrates on STEM programs dedicated to teaching and learning specifically first year programs in the College of Arts and Sciences (Biology, Chemistry) and the College of Engineering. Academic classrooms, teaching labs and COE capstone and makerspace. This project is a key to the recruitment and retention strategy for the University. This facility will also support workforce development training and education for the region.

- **Campus Entrance (Welcome Center):** Looking to improve the focus on recruitment and retention of potential students, a Campus Entrance has been identified as a priority project. The current location of Admissions is difficult to find and does not have significant reserved parking for visitors. The campus understands a logical Campus Entrance and Admissions location is an important element of the University's first impression. It is the opportunity for our prospective students, and families to settle on the campus in a central location that enhances the campus experience. The 2017 Master Plan has completely reimagined this project and is proposing the creation of an Entry Plaza and the expansion of Admissions in their current location. This project would include the construction of new roadways, drop off area and visitor parking.

- **Campus Center Renovation and Addition (Student Union):** The Campus Master Plan recommends the construction of additions and renovation to the MacLean Campus Center to accommodate the growing needs of our larger student population. Student unions continue to play a central role on college campuses as a gathering place. The most frequently reported reasons for visiting the union include eating, socializing with friends, studying independently, and obtaining information about campus events, using a computer or visiting a retail shop. 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. The addition of a Student Union has come through consistently as the number one priority identified by students through multiple surveys.

- **Central Administrative Services Building:** Initially the plan calls for building two modular buildings (one for garage functions and vehicular and equipment storage, the second for the Print Shop, Mail Distribution Center, Facilities Shops, and administrative units) at the east end of the campus in an area not visible from the main academic buildings and Ring Road but close to the existing steam plant building. The work will include the construction of parking for assigned personnel and a new emergency egress road to Chase Road. The creation of the Chase Road Exit addresses the serious second egress issues raised in the Campus Master Plan and The Report of The Special Task Force related to the Boston Marathon tragedy. The Chase Road Exit construction would entail a new two-lane roadway from the Ring Road to Chase Road on the eastern edge of the campus meeting all Massachusetts Highway Department standards including curbing and lighting. This road would provide access to the proposed Facilities Building site and would also provide a secondary vehicular egress from the campus in case of emergency evacuation of the site. After Auxiliary Services and Facilities functions are moved into the new building, the spaces they have vacated will be retrofit for use by academic units for research space, storage, offices and classrooms. In more a directive and deliberate manner the University is seeking opportunities to create efficiency and effectiveness in our services. Our currently decentralized operational and administrative services create levels of redundancy. In proposing the centralization of services we seek efficiencies in shared services with the campus allowing cross-functionality to service within one facility for the campus.

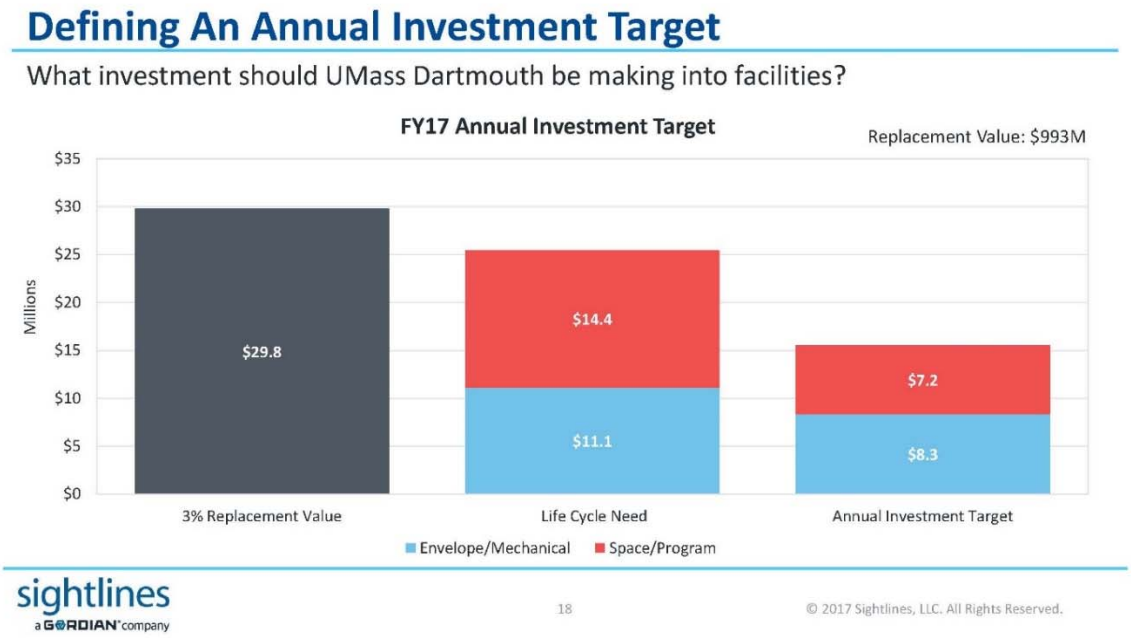
Deferred Maintenance

UMass-Dartmouth continued to work with Sightlines, a facilities asset advisory firm, in FY17 we collaborated on the Building Portfolio Solutions and Return on Physical Assets (ROPA+). Summary of Findings in these presentations were:

- Significant amount of need exists. An identified need of $621M in deferred maintenance. The age of campus and lack of consistent capital investment drives backlog of need over $200/GSF.
- Large infusions of capital in buildings flagged with high risk, high need will drastically reduce the overall campus need and risk. Given the need, the strategy should be major renovations, not systemic repairs.

Capital Investment:

- FY17 Annual Investment Target: $15.5M is needed annually to maintain current condition of campus. UMass Dartmouth should target $25.5M annually to address more backlog needs moving forward.



- Sightlines recommends the establishment of a recurring Facilities Fund. Start at peer levels, funding 30% of the Sightlines Annual Target at $4.65M and grow to meet 100% of target.

Affordability

The two major approved capital projects are fully incorporated into the five year financial forecast.

For the Public Private Partnership (P3), the campus will incur no debt on the first year housing since this is an off book transaction. For the dining facility the campus expects to borrow approximately $17 million of the total $26.1 million cost. The balance of funding will be derived from available reserve

funds held by UMBA for the campus and a drawdown of funds from our outside dining provider, Chartwells.

For the SENG renovation, the current plan is to borrow $20 million to cover most of the $29 million net cost ($54 million cost less $25 million state funding). We had expected to receive $34 million from the state. Since we just recently were informed about the lower $25 million appropriation, a solution for the $9 million difference is to be determined. Options include reducing the scope of the building renovation, fund raising, additional borrowing, or some combination of the above.

As presented in our five year financial projections that supported the P3 proposal (Board Vote 2 received in July) that included the above funding plans, our projected operating margins and debt service ratios are as follows:

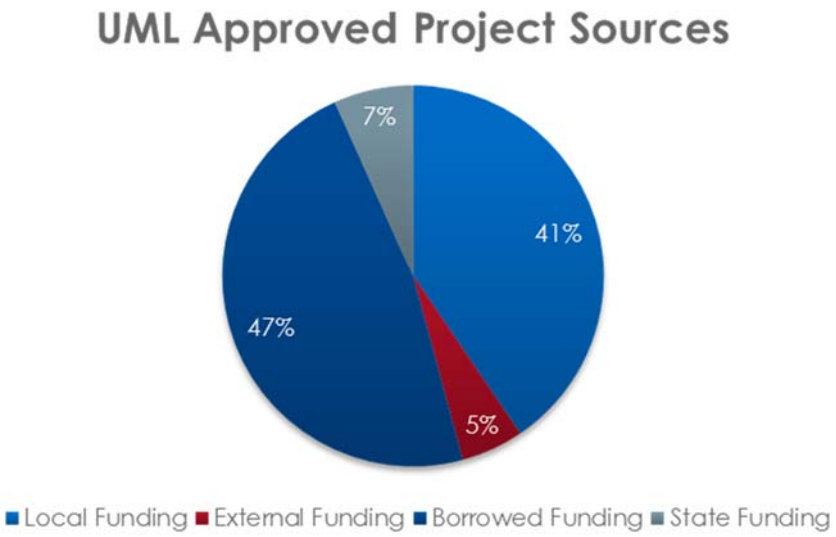
	Actual				Budget	Projection	Forecast				
	FY2014	FY2015	FY2016	FY2017	FY2018	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Operating Margin (%)	-1.5%	2.8%	3.1%	3.4%	0.2%	0.7%	1.1%	1.7%	0.3%	0.5%	1.0%
Operating Margin ($)	*(3,351)*	*6,484*	*7,434*	*8,442*	*542*	*1,691*	*2,808*	*4,673*	*853*	*1,504*	*2,752*
Operating Cash Flow Margin (%)	7.6%	12.5%	12.1%	13.9%	9.7%	10.2%	11.1%	11.6%	10.4%	11.7%	12.8%
Operating Cash Flow Margin ($)	*16,549*	*27,482*	*28,208*	*33,475*	*23,423*	*24,548*	*28,166*	*30,158*	*27,021*	*31,292*	*35,060*
Debt Service Burden (%)	8.5%	9.3%	8.4%	7.8%	7.1%	7.5%	7.1%	6.9%	7.2%	6.7%	6.5%
Annual Debt Service Coverage (x)	0.8	1.3	1.4	1.8	1.3	1.4	1.5	1.6	1.4	1.7	1.9
Enrollment	7,865	7,930	7,766	7,557	7,558	7,286	7,286	7,286	7,286	7,286	7,286
Enrollment (% Change)		*0.8%*	*-2.1%*	*-2.7%*	*0.0%*	*-3.6%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Given the financial indicator projections including the requirement for a positive operating margin and a debt service ratio of less than 8% combined with the impact of depreciation and interest, means that priorities beyond what is in our approved list of projects cannot be completed without additional support from the Commonwealth.

Project Name	Project Cost
SENG - Building System Project	$54,436,421
New Housing/Dining Facility	$133,900,000
Classroom, Teaching Laboratory, and Learning Space Improvements	$11,440,000
Research Laboratory Improvements	$13,878,138
SMAST / DMF Expansion	$55,000,000

LOWELL CAMPUS

Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
#	$	#	$
1	$ 18,500,000	5	$ 151,400,000



Campus Introduction and Overview of Campus Capital Plan

This document provides an update to the most recent Capital Plan for UMass Lowell for approval by the Board of Trustees for FY2019-FY2023. It reflects the priorities outlined in the UMass Lowell 2020 Strategic Plan within a constrained fiscal environment. UMass Lowell's success in executing its Capital Plan will reinforce its growing national and international recognition as a world-class institution.

The plan includes one new capital project that exceeds the $10 million threshold for Board of Trustee approval and two additional new capital projects estimated to cost between $2 million and $10 million. These projects total $23.6 million. In addition, the plan includes eight other capital projects which were approved under the FY2017-FY2021 Capital Plan, totaling $144.2 million, whose implementation continues during this new capital planning cycle. All campus projects costing more than $2 million have been entered into the system database and are regularly reviewed as part of the quarterly capital plan update.

The funded projects included in the FY2019-FY2023 capital plan are affordable within the FY2019-FY2023 multi-year financial plan. The new projects utilize state and campus contributions to the campus's critical repairs program to address deferred maintenance and do not require additional borrowing. Planned borrowing for previously-approved ongoing projects will not push the campus over the 8% debt ratio policy cap and the capital expenditures funded from campus operating funds and accumulated reserves also fit within the operating margin targets included in the multi-year plan which will be updated for Board of Trustee review in November.

Anticipated capital expenditures will directly address academic, research, student life, recreational and infrastructure needs. All of the new projects and the vast majority of the ongoing major projects included in this capital plan will help reduce the substantial deferred maintenance backlog on campus. UMass Lowell employs a thorough process to document and track deferred maintenance in all campus facilities, with every building studied in detail at least once every three years.

The Lowell campus consists of 3 major locations: North, South and East. The campus's master planning emphasizes concentrating academic functions on the North and South campuses, reinforcing the identity of East Campus as a hub for student life and residence halls, and decanting administrative functions that do not directly engage students to the edges of campus. Each of the campuses is densely developed and directly adjacent to well-established residential and commercial neighborhoods.

Rolling campus planning initiatives conducted in partnership with the University of Massachusetts Building Authority and DCAMM have guided a capital strategy to provide the facilities necessary to support the four major transformative trends that the campus has experienced over the past decade: dramatic enrollment growth, evolution from a predominantly commuter environment to a highly residential campus, significant expansion of its research portfolio, and the conversion of its athletics programs to NCAA division one. While these transformations have largely been achieved, campus planning has also identified the investments necessary to sustain and support continued positive changes in these and other areas, consistent with the campus's strategic vision.

Total enrollment grew by more than 57% between Fall 2007 and Fall 2017 and is projected to grow at a more modest 1.5% to 2.0% per year through Fall 2022. This growth *has not* come at the expense of

selectivity, quality or diversity. Measures of student retention, graduation rates, Honors College enrollments, and diversity among students, faculty, and staff are among the many indicators continue to trend upward, in some cases dramatically.

University research & development funding increased by 75% during the same period. With the anticipated continuation of this trend, the campus is placing particular emphasis on addressing the infrastructure and programmatic needs of its laboratory buildings in both its deferred maintenance and capital programs.

Planning Needs & Priorities

Campus Planning and Capital Construction:

A rolling process of coordinated plans for facilities renewal and space reassignment has yielded a capital program that has supported the campus's transformation.

Over the past decade, North Campus academic growth has been reinforced by the opening of the Pulichino Tong Building as the new home to the Manning School of Business and the Saab Emerging Technology and Innovation Center, the September re-opening of Dandeneau Hall as the fully-renovated home for Computer Science and Mechanical Engineering, the comprehensive renovation of Perry Hall as a center for interdisciplinary Engineering research (to be completed in late Fall 2018), and the upcoming renovation of portions of Olsen Hall to support instruction, research, and academic offices. South Campus academic expansion has been aided by the opening of the Health and Social Sciences building, the ongoing renovation of Coburn Hall (re-opening in January 2020), and the transformation of O'Leary Library into a state-of-the-art learning commons. These major capital projects enable a sequence of carefully planned "domino" space renewal and reassignment projects on each campus that will be implemented over the next several years.

Signs of transformation have been particularly visible with the expansion of the campus's residential and student life facilities. More than 2500 beds have been added since the Fall of 2013 with the opening of University Suites, two phases of Riverview Suites, and Riverhawk Village, as well as comprehensive renovations of the Inn and Conference Center, Bourgeois Hall, and Leitch Hall, the addition of Fox Hall elevators, and several smaller projects. Student life has been greatly enhanced by the University Crossing student center, new dining facilities on all three campuses, Aiken Street recreation fields, and the landscaped South Campus Mall. Plans for the progressive renewal of the remaining older residential and student life facilities will continue to be implemented in the coming years, financed largely by the additional revenue from the expanded on-campus housing program, with a particular emphasis on deferred maintenance, energy efficiency improvement, and compliance with ADA/MAAB and other code requirements.

The capital program continues to be informed by thoughtful planning to identify and prioritize the projects necessary to continue to achieve the academic and strategic objectives of the campus, within an increasingly constrained fiscal environment. Ongoing planning efforts range from regular periodic updates to plans for each of UMass Lowell's campuses, to constant space assignment modeling, to topical program planning for campus initiatives, to building and project-specific development planning.

Projects Identified:
These efforts have identified project priorities detailed in this capital plan. The highest priority projects are the funded capital projects, most of which are already underway in construction or design. Second highest priorities are the proposed projects addressing academic needs on the campus, subject to the availability of funding. These are followed by residence life and student affairs initiatives and athletics projects. Nearly all of these projects carry significant deferred maintenance components.

Eight funded projects continue from prior approved capital plans. Three new funded projects are included. These are the largest investments contemplated as part of the campus's five-year Critical Repairs Plan that has been submitted in response to the Commonwealth's new approach to supporting deferred maintenance investment in higher education facilities. UMass Lowell's Critical Repairs plan includes $46.8 million in projects over five years funded with a combination of state and campus resources. Only the three projects listed exceed the $2 million approval threshold. The first is an $18.5 million investment in the infrastructure serving Olsen Hall, UMass Lowell's 1974 Life Sciences teaching and research building, against a deferred maintenance backlog of over $32 million. The second is the replacement of a key component of the electrical infrastructure serving South Campus and the third is the resurfacing of the severely deteriorated athletic running track.

Aspirational priorities subject to the availability of funding exist with significant need to modernize the campus's instructional and research labs as well as the building infrastructure serving those facilities.

Deferred Maintenance
In April 2018, Sightlines reported a $917 million deferred maintenance backlog in UMass Lowell facilities, including infrastructure. This represents a net reduction of the total deferred maintenance need on the campus due to the completion and removal of projects which addressed $83.4 million, while cost escalation and emergent projects only added $76.3 million to the backlog. Unfortunately, two-thirds of the total backlog is critical now or will require remedy within the 1-3 year time horizon.

This "Asset Reinvestment Backlog" includes projects that represent the most critical deferred maintenance needs; life cycle projects for systems that will be coming due in the next decade across 6 major systems (Exteriors, Roof, Interior, HVAC, Plumbing, Electrical), additional building needs including modernization and safety/code, as well as needs outside of the buildings such as grounds and utility distribution infrastructure.

The campus has incorporated these needs into the capital plan, and is addressing them through a variety of means and funding sources. The larger projects proposed in this capital plan will all incorporate some deferred maintenance reductions, and several are primarily or exclusively investments in building systems and infrastructure. The projects in Perry, Dandeneau, Coburn, and Olsen Halls will all virtually eliminate or dramatically reduce the deferred maintenance backlogs in these buildings. Many of the contingent projects listed would also substantially address deferred maintenance should funding be identified to implement them.

Consistent with the new procedures promulgated by the Commonwealth, UMass Lowell has developed a five-year, $46.8 million Critical Repairs Plan, which includes a local match of nearly $30 million solely

focused on reducing the deferred maintenance backlog. This plan incorporates investments in 18 different campus buildings as well as infrastructure serving both the North and South Campuses.

In addition to the program defined in the Critical Repairs Plan, UMass Lowell anticipates continuing to make targeted investments to reduce deferred maintenance in Residence Life buildings using campus resources. Energy efficiency projects funded through energy rebates programs as well as annual operational investments in Facilities services will also support the continued focus on both catching up and keeping up with maintenance needs.

Affordability

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 even as a substantial amount of need remains contingent on future funding. The absence of significant state investment in major capital projects forces the campus to utilize all other available sources to the maximum amount feasible.

Nevertheless, as previously noted, the projects included in the FY2019-FY2023 capital plan are affordable within the FY2019-FY2023 multi-year financial plan. New borrowing will not push the campus over the 8% debt ratio policy cap and the capital expenditures funded from campus operating funds and accumulated reserves also fit within the operating margin and primary reserve ratio targets included in the multi-year plan.

State Funds

The state is a critical partner in the success of this capital plan and by extension the realization of the university's strategic goal to achieve national and international recognition as a world-class institution. Unfortunately, the state has not made any funding available to UMass Lowell for major capital projects. The campus has therefore adjusted its financial and capital plans, recognizing that previously committed state funds are no longer available.

This plan has been developed without including any new state funding other than for Critical Repairs discussed above. It does not include resources committed in previous state capital plans which included $36 million for Perry Hall and $40 million for Olsen Hall as part of the Science & Engineering renewal and renovation program, $19 million for the Coburn Hall Renewal and Addition project, and $30 million for the Tsongas Center Extension. The University, however, has moved forward to self-fund the critical Perry Hall, Olsen Hall and Coburn Hall projects. The Tsongas Center project is still a priority for the campus but as yet remains unfunded. The Lowell Campus is exploring a potential multi-partner P3 alternative as a solution to the athletics and recreation needs which a portion of state funding was intended to address.

Many of the projects listed as contingent on funding, including the urgent need to address the campus's instructional and research laboratory facilities, are dependent on a new infusion of state resources from future Higher Education Bond Bill(s).

This plan does reflect the commitment of $17.2 million in state Critical Repairs funding to address deferred maintenance over five years as discussed above.

Campus Debt

The capital plan includes $80.6 million of projects funded with debt; $26.9 million of which has already been borrowed (as of June 30, 2018) for the previously state funded Perry Hall, Olsen Hall, and Coburn Hall renovation projects. The campus previously had a relatively low debt to operations ratio of 6.3% in FY14. Despite this borrowing it is expected that UMass Lowell's debt ratio will remain just below the 8% policy threshold. However, the borrowing program does require a significant annual operating budget commitment to debt service, resulting in the reallocation of campus resources.

Campus Funds and Other Funding Sources

The campus is committing considerable annual operating funds and accumulated capital reserves towards the capital plan. More than $45.8 million will be spent between FY2019 and FY2023 on the capital plan. The campus fully funds depreciation as part of its annual budgeting and multi-year financial planning processes. By doing so we generate sufficient cash flow and reserves to spend on this capital plan.

In addition, the campus will use $15 million from a combination of private gifts, funding from our dining services vendor, savings from the campus utility budget and the system's equipment loan pool to fund other priority projects.

Project Name	Project Cost
Critical Repair - Olsen Strategic Renovations, Repairs and Replacements	$18,500,000
Science & Engineering Master Plan-Olsen Renovations 1	$10,000,000
Coburn Hall Renewal and Addition	$47,000,000
AEP	$28,500,000
Science & Engineering Master Plan-Perry Hall, Engineering, Renewal	$50,000,000
Pasteur Second, Third, and Fourth Floors – Comprehensive Renovation	$15,900,000

MEDICAL SCHOOL

Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
#	$	#	$
4	$ 40,840,000	4	$ 97,500,000

Campus Introduction and Overview of Campus Capital Plan

The University of Massachusetts Medical School (UMMS) is pleased to submit its five-year capital plan. The campus has analyzed capital needs for academics and teaching; the research enterprise; Commonwealth Medicine; and MassBiologics; in addition to the existing backlog of deferred maintenance and repair projects. As a result of this analysis, UMMS is submitting a five-year capital plan identifying 37 projects totaling $257 million in capital outlay over the next five years. Understanding there is limited funding from state sources in the foreseeable future, the UMMS plan identifies internal funding sources where possible to achieve objectives. One project—the Veterans Administration Community-based Outpatient Clinic—anticipates the need for external borrowing.

UMMS joined with the Executive Office of Education (EOE), Department of Higher Education (DHE), and, Division of Capital Assets Management and Maintenance (DCAMM) in the Higher Education Master Planning process and the DCAMM major capital project selection process; the campus appreciates the current state of the Commonwealth's capital funding resources and, as a consequence, has chosen to focus on optimizing existing space and reducing the maintenance backlog. This plan takes this into consideration as we prioritize projects and identify funding resources to accomplish our goals.

Planning Needs & Priorities

New projects submitted in this plan include the NeuroNexus Institute; the replacement of chilled water lines; and the third phase of Clinical Wing renovations. Additionally, under the DCAMM Critical Project Initiative, we plan to modernize the electrical infrastructure of the main medical school building (constructed in 1970) to support specialty imaging centers, animal quarters, biosafety level 3 laboratories and research space. The current electrical infrastructure is well past its useful life and does not adequately provide support to the academic and research programs within this building. If funded, the project will replace transformers, 13.8kv breakers, switchgear and bus ducts throughout the building, providing a reliable and robust system better suited to support technological advancements in imaging, animal quarters and biomedical research. We anticipate receiving $9.2 million from the state and $7.8 million from internal funding for a total of $17 million spending on the project over five years.

The Life Science Bond Bill, signed by Gov. Charlie Baker in June 2018, identified $50 million for UMass Medical School and UMass Lowell to develop joint resources that will advance neuroscience-related workforce training, translational research, and commercialization of devices and image-based diagnostics across the state. The funding will create the UMass NeuroNexus Institute, which will increase researchers' ability to image the brain and develop diagnostic tool, new medical devices, therapeutics and drugs. The NeuroNexus Institute, to which UMMS has committed $23 million in funding, will be co-located with the New England Center for Stroke Research; the Electron Microscopy Facility; the Optical Animal Imaging Facility; the High-Resolution Cryo-Electron Microscopy Facility; and Animal Medicine. We anticipate the purchase and installation of a third cryo-electron microscope; a new angiography machine; a 7.0T small bore magnetic resonance imaging device; a PET/CT scanner; and a cyclotron. The facility will also support contract manufacturing, administrative space and conferencing facilities for the new Institute.

Future needs include a seven-year project to renovate the clinical wing of the Medical School. The renovations replace obsolete wet lab space—now conducted in the Lazare Research Building and the Sherman Center—with much-needed faculty office and small group meeting space. The renovated space

increases efficiency and productivity; mechanical systems are also being updated, with the installation of dedicated outside air systems, heat recovery and chilled beam environmental systems. We continue to work collaboratively with UMass Memorial Medical Center on sharing capital costs and operational expenses for this initiative.

The plan adds a new project to replace deteriorated infrastructure on the campus: a thirty-inch chilled water supply and return line system (original to the construction of the campus in 1970) serving the medical school and hospital buildings is leaking. Exploration to repair the leak revealed extensive external corrosion on the underside of the return pipe. We anticipate further deterioration; an increased leak or pipe failure would result in the potential loss of the ability to maintain cooling and humidity control for the hospital and medical school, including operating rooms, ICUs, patient rooms and animal medicine. A project to first, temporarily bypass, and then replace, these critical lines will cost $7.5 million.

In the fall of 2017, the U.S. Department of Veterans Affairs (VA) Office of Construction and Facilities Management issued an expression of interest to lease space for a 40,000 square foot Community Based Outpatient Clinic (CBOC) in central Massachusetts. UMMS, acting through the Worcester City Campus Corporation, responded to this request and received favorable feedback from the VA early this year. Our campus plan, done in collaboration with UMass Memorial, is to construct a 100,000 square foot building that would support the VA CBOC on the first two floors and have the remaining floors available for the future UMass Memorial expansion. The project will also include the demolition of existing buildings (formerly occupied by the state transportation department), site work and the construction of an addition to the South Road Parking Garage.

UMMS recently commissioned a study of the campus utility plant, which provides electrical generation, steam and chilled water to the campus. The study will articulate the risk of component failure and assist in the development of a multi-year plan to upgrade and replace these components. The plant was expanded in 2002 and again in 2013 to support growth on the campus. The original power plant infrastructure, which dates to the 1970s, requires recapitalization due to age: more than half of the power plant equipment has exceeded its useful life and has experienced downtime for repairs.

UMMS has also partnered with DCAMM on the selection of a master planning architect through the Designer Selection Board. NBBJ was chosen to develop the campus master plan in collaboration with UMass Memorial Medical Center. The master plan will review all medical school business lines to formulate and define future aspirations, consolidations and right sizing of our facilities.

Affordability

This capital plan has been developed to be consistent with the funding contemplated in the campus financial plan. It is currently anticipated that the new debt would be $60M for the VA CBOC and would only be incurred if an agreement is reached with the VA for that building. This potential borrowing is not included in the campus financial plan, but would have a minimal impact on operating margin, resulting in a 0.2% increase in the debt service ratio. Debt service ratio would still be below 6%. Of the remaining portion not funded from the Life Science Bond Bill or DCAMM, $122 million of capital investments would be paid for from campus funds anticipated in the campus financial plans. The remaining $40 million of projects are contingent on funding and will not be undertaken until funds are identified for them.

Project Name	Project Cost
Departmental equipment purchases	$10,000,000
Animal Quarters A Level Renovations (HVAC, Cage Wash, and Holding Rooms)	$14,500,000
Parking Lot Maintenance - Main Campus	$10,840,000
Library repurposing and renovations	$5,500,000
VA-1 Worcester VA Community Based Outpatient Clinic - New Facility - Phase 1	$70,000,000
VA-1 Expansion to South Road Garage	$10,000,000
VA-1 Mass DOT Building Demolition	$2,000,000
REN - 4 Clinical Wing Lab to Office Conversions (Floor 2 - 7)	$15,500,000

APPENDIX B

Approved Projects

Reporting Type	Campus	Project Name	Local Funding	External Funding	Borrowed Funding	State Funding	P3	AdjustedCost	Project Phase
Quarterly Reporting - BOT	Amherst	North Village Apartments	$0	$0	$0	$0	$70,000,000	$70,000,000	1 - Conceptual
Quarterly Reporting - BOT	Amherst	Housing Expansion	$0	$0	$0	$0	$175,000,000	$175,000,000	1 - Conceptual
Quarterly Reporting - BOT	Amherst	Thompson Deferred Maintenance - formerly part of DM project 46 in prior year	$0	$0	$2,250,000	$0	$0	$2,250,000	1 - Conceptual
Quarterly Reporting - BOT	Amherst	Energy Improvements	$11,700,000	$1,000,000	$0	$2,300,000	$0	$15,000,000	1 - Conceptual
Quarterly Reporting - BOT	Lowell	Critical Repair - Olsen Strategic Renovations, Repairs and Replacements	$12,400,000	$0	$0	$6,100,000	$0	$18,500,000	1 - Conceptual
Quarterly Reporting - BOT	Worcester	Departmental equipment purchases	$10,000,000	$0	$0	$0	$0	$10,000,000	1 - Conceptual
Quarterly Reporting - BOT	Worcester	Animal Quarters A Level Renovations (HVAC, Cage Wash, and Holding Rooms)	$14,500,000	$0	$0	$0	$0	$14,500,000	1 - Conceptual
Quarterly Reporting - BOT	Worcester	Parking Lot Maintenance - Main Campus	$10,840,000	$0	$0	$0	$0	$10,840,000	1 - Conceptual
Quarterly Reporting - BOT	Worcester	Library repurposing and renovations	$5,500,000	$0	$0	$0	$0	$5,500,000	1 - Conceptual
Quarterly Reporting - BOT	Amherst	Central Heating Plant Boiler/Co-Gen Fitout	$0	$0	$25,000,000	$0	$0	$25,000,000	2 - Feasibility Report
Quarterly Reporting - BOT	Amherst	Fine Arts Center renovations	$0	$0	$9,000,000	$0	$0	$9,000,000	4 - Study / Schematic Design
Quarterly Reporting - BOT	Amherst	Goessmann, SPHHS Renovations	$0	$0	$14,300,000	$0	$0	$14,300,000	4 - Study / Schematic Design
Quarterly Reporting - BOT	Amherst	Office/Lab/Academic Renovations	$6,500,000	$0	$46,000,000	$0	$0	$52,500,000	4 - Study / Schematic Design
Quarterly Reporting - BOT	Amherst	Central Campus Core Utility, Landscaping & Accessibility	$16,000,000	$0	$0	$0	$0	$16,000,000	4 - Study / Schematic Design
Quarterly Reporting - BOT	Amherst	Student Union Building	$0	$0	$55,000,000	$0	$0	$55,000,000	4 - Study / Schematic Design
Quarterly Reporting - BOT	Dartmouth	SENG - Building System Project	$9,436,421		$20,000,000	$25,000,000		$54,436,421	4 - Study / Schematic Design
Quarterly Reporting - BOT	Amherst	Worcester Dining Commons Renovation	$10,000,000	$0	$55,000,000	$0	$0	$65,000,000	5 - Design
Quarterly Reporting - BOT	Amherst	Life Science Laboratories backfill renovations	$0	$0	$18,000,000	$0	$0	$18,000,000	5 - Design
Quarterly Reporting - BOT	Amherst	McGuirk Scoreboard & Seasonal Bubble	$11,000,000	$7,000,000	$0	$0	$0	$18,000,000	5 - Design
Quarterly Reporting - BOT	Amherst	Whitmore deferred maintenance	$0	$0	$1,752,000	$2,248,000	$0	$4,000,000	5 - Design
Quarterly Reporting - BOT	Boston	Demolish Substructure, Science Center, and Pool (Master Plan Phase I)	$0	$0	$50,444,246	$64,055,754	$0	$114,500,000	5 - Design
Quarterly Reporting - BOT	Boston	Renovations to Existing Academic Buildings (McCormack Hall and Wheatley Hall) (Master Plan Phase I)	$0	$0	$22,239,855	$18,760,145	$0	$41,000,000	5 - Design
Quarterly Reporting - BOT	Dartmouth	New Housing/Dining Facility	$0	$0	$26,100,000	$0	$107,800,000	$133,900,000	5 - Design
Quarterly Reporting - BOT	Lowell	Science & Engineering Master Plan-Olsen Renovations 1	$0	$0	$10,000,000	$0	$0	$10,000,000	5 - Design
Quarterly Reporting - BOT	Worcester	VA-1 Worcester VA Community Based Outpatient Clinic - New Facility - Phase 1	$10,000,000	$0	$60,000,000	$0	$0	$70,000,000	5 - Design
Quarterly Reporting - BOT	Worcester	VA-1 Expansion to South Road Garage	$10,000,000	$0	$0	$0	$0	$10,000,000	5 - Design
Quarterly Reporting - BOT	Worcester	VA-1 Mass DOT Building Demolition	$2,000,000	$0	$0	$0	$0	$2,000,000	5 - Design
Quarterly Reporting - BOT	Amherst	Isenberg School of Management renovations and addition	$2,000,000	$4,000,000	$58,000,000	$0	$0	$64,000,000	7 - Construction
Quarterly Reporting - BOT	Amherst	Physical Sciences Building	$0	$0	$16,800,000	$85,000,000	$0	$101,800,000	7 - Construction
Quarterly Reporting - BOT	Amherst	Replace Oil Filled Transformers	$0	$0	$2,000,000	$0	$0	$2,000,000	7 - Construction
Quarterly Reporting - BOT	Boston	Construct University Dining Facility in New Residence Hall 1	$0	$0	$17,998,636	$0	$0	$17,998,636	7 - Construction
Quarterly Reporting - BOT	Boston	Utility Corridor and Roadway Relocation Project (Master Plan Phase I)	$0	$0	$184,500,000	$75,000,000	$0	$259,500,000	7 - Construction
Quarterly Reporting - BOT	Boston	Construct New Residence Hall 1 (P3 Project) (Master Plan Phase I)	$0	$0	$0	$0	$119,384,358	$119,384,358	7 - Construction
Quarterly Reporting - BOT	Boston	Construct New Garage Facility (Master Plan Phase I)	$0	$0	$69,279,699	$0	$0	$69,279,699	7 - Construction
Quarterly Reporting - BOT	Boston	Elevator Renovations in Clark Athletic Center, McCormack Hall, Quinn Administration Building, and Wheatley Hall	$0	$0	$8,300,000	$0	$0	$8,300,000	7 - Construction
Quarterly Reporting - BOT	Boston	Clark Athletic Center: Replace Gymnasium Roof and East Curtain Wall and Repair Rink South Façade	$0	$0	$3,625,000	$1,625,000	$0	$5,250,000	7 - Construction
Quarterly Reporting - BOT	Dartmouth	Classroom, Teaching Laboratory, and Learning Space Improvements	$417,334	$0	$11,022,666	$0	$0	$11,440,000	7 - Construction
Quarterly Reporting - BOT	Lowell	Coburn Hall Renewal and Addition	$1,000,000	$0	$45,650,000	$350,000	$0	$47,000,000	7 - Construction
Quarterly Reporting - BOT	Lowell	AEP	$23,500,000	$0	$0	$5,000,000	$0	$28,500,000	7 - Construction
Quarterly Reporting - BOT	Lowell	Science & Engineering Master Plan-Perry Hall, Engineering, Renewal	$16,000,000	$9,000,000	$25,000,000	$0	$0	$50,000,000	7 - Construction
Quarterly Reporting - BOT	Lowell	Pasteur Second, Third, and Fourth Floors – Comprehensive Renovation	$15,900,000	$0	$0	$0	$0	$15,900,000	7 - Construction
Quarterly Reporting - BOT	Worcester	REN - 4 Clinical Wing Lab to Office Conversions (Floor 2 - 7)	$15,500,000	$0	$0	$0	$0	$15,500,000	7 - Construction
Quarterly Reporting - BOT	Amherst	Life Science Laboratories	$22,000,000	$0	$50,500,000	$101,500,000	$0	$174,000,000	8 - Substantial Completion
Quarterly Reporting - BOT	Dartmouth	Research Laboratory Improvements	$176,026	$0	$13,702,112	$0	$0	$13,878,138	8 - Substantial Completion
Quarterly Reporting - BOT	Dartmouth	SMAST / DMF Expansion	$0	$0	$25,000,000	$30,000,000	$0	$55,000,000	8 - Substantial Completion

APPENDIX C

Policies

Doc. T93-122, as amended
Passed by the BoT
12/1/93
Revised: 8/7/02
Revised: 11/16/05
Revised 6/10/09
Revised 6/18/14

UNIVERSITY OF MASSACHUSETTS
CAPITAL PLANNING, LAND AND FACILITIES USE POLICY

PURPOSE

The *Capital Planning, Land and Facilities Use Policy* provides specific criteria relating to capital planning, land and facilities use and other related topics such as ongoing maintenance, acquisition of real property, disposition of real estate, and private use.

I. INTRODUCTION

Capital and facilities planning is an integral part of the long-range and strategic planning processes, as it affects all aspects of the University's programs and operations. Participants in this process should include, but not be limited to the strategic planning committees, facilities managers, physical plant directors, the Offices of Administration and Finance, and the University of Massachusetts Building Authority. While specific assumptions and criteria may vary for short-term and long-range projects, the long-range objectives of the University must underlie both. The goals and priorities in the campus master plans shall form the basis for all facilities planning and land use decisions, regardless of whether the University is contemplating changes in existing uses of facilities, the development of unused land, the acquisition of new property, the construction or renovation of facilities, or the transfer of property to an another party.

II. POLICY STATEMENT

A. CAMPUS LAND AND FACILITIES MASTER PLANS, CAPITAL PLANNING, PROJECT REVIEW AND APPRPOVAL

1. Each campus shall prepare and maintain a land and facilities use master plan which shall include, but not be limited to:

   a. information about the campus' mission and goals;
   b. an inventory and description of existing land and facilities, including a description of the possible new or revised use of existing land and facilities;
   c. projections of future land and facilities' needs;
   d. the assumptions and criteria used to identify the needs of the campus;
   e. the plan shall be consistent with State requirements for facilities and land use master plans;
   f. the campus master plan shall be consistent with the five-year capital plan and other capital planning and land use decisions;
   g. the campus master plan shall be reviewed and approved by the University President;

h. the plan shall be evaluated and updated on a periodic basis, including when substantial changes to the campus' mission statement for strategic goals have taken place.

2. Each campus shall develop and maintain a Five Year Capital Plan and shall include, but not be limited to:

   a. A prioritized list of all campus capital projects over $2 million in total project cost that are planned to be initiated over the next five years;
   b. statement on how each project supports the mission and goals of the campus;
   c. statement describing how the projects address the deferred maintenance of the campus;
   d. five-year capital budget projection along with the revenue source(s) for each project;
   e. the University President shall issue guidance as needed and may request additional information as needed;
   f. the plan shall be updated biennially and shall require the approval of the University President and the Board of Trustees.

3. Before a campus can proceed with a project it must receive approval. The following are the thresholds and delegation of approval:

   a. Capital projects with a total cost between $2 million and $10 million will require the approval of the University President.
   b. Capital Projects greater than $10 million will require the approval of the University President and the Board of Trustees.
   c. Capital projects with a total estimated cost greater than $2 million that requires any amount of University borrowing will require the approval of the University President and the Board of Trustees.
   d. Projects that have an increase in cost of 10% or more, as defined by the standards, will require an additional approval from the Board.
   e. The University President shall issue guidelines detailing the approval process and the criteria that will be used for a project to receive approval. The University President may request additional information as needed.

B. RESERVES FOR RENEWAL AND FUNDING FOR ON-GOING MAINTENANCE OF FACILITIES

   a. Campuses shall set aside funds for the general renewal, replacement and renovation of campus facilities and shall fund the on-going maintenance of new facilities.
   b. The University President shall promulgate standards and guidelines for establishment and funding of reserves.

C. DISPOSITION OF UNIVERSITY REAL ESTATE

   a. Real estate (including land, buildings, air rights, water rights and mineral rights) owned by the University is the property of the Commonwealth of Massachusetts which has been entrusted to the University for stewardship. The University's role as steward of this property is crucial, since the prudent use of our limited resources is key to our ability to provide for our future needs and to meet our long-range commitments to the citizens of the Commonwealth.
   b. Disposition of Ownership. Ownership rights in surplus state owned University real estate shall not be conveyed or transferred without approval by the Division of Capital Asset Management and Maintenance (DCAMM), and/or the Legislature and the Governor of such

proposals. In order to allow for adequate review and analysis, campus proposals for such dispositions must be presented to the Board of Trustees for informational purposes at one meeting and presented at a later meeting for approval. Such proposals must be complete and contain particular findings as to why the property is surplus to both current and future needs of the University.

c. Other Dispositions. When a proposed use involves a disposition of less than ownership of University real estate, to a Non-affiliate, final review and approval by the President is required in addition to the necessary campus approvals. However, leases or licenses which do not exceed five (5) years, including any optional extensions or renewals ("Short-term"), shall be exempt from the requirement of Presidential review and may be approved by the campus or systems office. Any campus seeking to lease or license University property to a Non-Affiliate for more than five (5) years ("long-term") must use a public process to solicit competitive offers to assure best value for the University. Any long-term lease or license for University property must be reviewed and approved by the President.
d. Negative Easements. In certain circumstances a Non-affiliate may request that a campus agree not to perform, exercise, use, or conduct a lawful activity on a portion of real property owned by the University. These easements shall be treated the same as any other disposition of University real estate to a Non-affiliate and subject to the same restrictions of duration and requirements for approval.
e. When beneficial to a University campus, a Chancellor may enter into disposition agreements with public utilities and/or municipality service providers which allow limited use of University real estate. All such agreements shall be approved as to form by the General Counsel's office prior to execution by the campus.

D. ACQUISITION OF REAL PROPERTY

a. Any lease or license from an entity or person not affiliated with the University ("Non-affiliate") that exceeds a term of 20 years, including any optional extensions or renewals, shall require final review and approval by the President in addition to the necessary campus approvals.
b. Prior to the purchase or acceptance of a gift of real property, a due diligence review must be conducted. Such review shall include the anticipated cost based on recent appraisals, assessments and other available information; an environmental investigation confirming the environmental condition; an evaluation of all improvements; and an appropriate title search confirming the title for the property is in acceptable condition (i.e. no unduly burdensome encumbrances or restrictions).

E. PRIVATE USE

a. Any facilities of the campuses that are purchased, constructed, renovated, rehabilitated, improved or otherwise funded by use of funds from a tax-exempt bond issue are subject to private business use limitations as described in the federal tax law. When proposing a substantive change in the existing use of a facility financed with tax-exempt debt, campuses should consider the private use implications of such a change. A change in existing use must not cause the University to be in violation of private use regulations.

F. DELEGATION

The President and Chancellors may delegate all or any part their authority set forth in this Policy in accordance with the University's delegation policy.

G. STANDARDS

The President, in consultation with the Vice President(s) and Chancellors, will issue administrative standards to implement this policy.

ADMINISTRATIVE STANDARDS FOR THE
CAPITAL PLANNING, LAND AND FACILITIES USE POLICY
(Doc. T93-122, as amended)

I. INTRODUCTION

Capital Planning and Land and Facilities Use Standards are intended to assist in the implementation of the University's Capital Planning and Land and Facilities Use Policy. The policy provides a framework within which the University develops and reviews campus master plans, the development of the University's Five-Year Capital Plan and the review and approval of capital projects. It includes other related topics such as capital renewal, ongoing maintenance, acquisition of real property, disposition of real estate, and private use.

II. STANDARDS STATEMENT

Definitions Used in the Capital Planning Process

A. Five Year Capital Plan – The University's five-year capital plan contains priority projects that a campus plans on starting over the five-year planning period. The plan is updated biennially and is informed by the campus master plan. Sources of funding for some projects may not be identified in the five-year plan. Official studies on project costs may not been complete and the total project costs are to be considered preliminary. Projects on the five year plan must be reviewed and approved before a campus can move forward with a project. The goal of the five-year plan is to ensure that campuses are planning for future capital needs and are implementing the campus master plan. The five year capital plan also serves as prioritized list to advocate and seek funding for projects and other capital support.

B. Approved Capital Project List – A list of projects reviewed and approved by the University President or the Board of Trustees and reviewed quarterly.

C. UMBA Capital Project Review – This review conducted by University of Massachusetts Building Authority will evaluate the scope and cost of each project. The goal is to have an independent review of the proposed scope and cost of each project to ensure rationality and feasibility in an effort to avoid unforeseen cost increases.

D. Approval of the Preliminary Campus Estimate (first vote) – Preliminary approval is granted to a project that meets the criteria listed below and secures the President's and/or the Board approval. Preliminary approval is one of two required votes and allows a campus to proceed with a project. The campus will work with UMBA and other professionals to complete all the necessary studies and designs and develop a more complete project scope and cost estimate.

E. Full Project Approval (second vote) – Full Project Approval is granted to a project that has completed the UMBA review process and has a confirmed project cost estimated. Once a project has reached the fourth construction phase or has completed the UMBA project review it is eligible for Full Project Approval by the President and or the Board. A project shall not move beyond the fifth project phase unless it has secured the Full Project Approval.

F. Project Phases – There are nine (9) pre-defined project phases ranging from conceptual design to completion. Campus will categorize and track projects using the following phases:

1) Conceptual
2) Feasibility Report
3) OPM / Designer Procurement
4) Study / Schematic Design
5) Design
6) Final Design / Early Construction Packages
7) Construction
8) Substantial Completion
9) Complete

A. CAMPUS LAND AND FACILITIES MASTER PLANS; CAPITAL PLANING AND PROJECT REVIEW AND APRPOVAL

1. Development of the Land and Facilities Master Plan

The campus land and facilities use master plan is for the purpose of establishing a framework for orderly growth and development of capital improvements that is responsive to a campus' current and projected needs and sufficiently flexible to accommodate changes that can be expected to occur in a dynamic environment. The plan describes the optimal development of available space consistent with the approved mission statement of the campus. The plan is a working document that will require evaluation and updating periodically to ensure its consistency with revised mission statements and with other circumstances. The plan does not constitute a commitment to a specific timetable for the completion of projects. A land and facilities use master plan is a component of the overall planning responsibility of the campus and the System. The University President will work with Chancellors and the Board of Trustees to ensure consistency with this policy and with other University policies and standards and with the System wide strategic priorities established by the University President and the Board of Trustees.

Each campus shall prepare and maintain a land and facilities use master plan which shall include, but not be limited to the following information:

a. Information about the campus' mission and goals;
b. An inventory and description of existing land and facilities, including a description of the possible new or revised use of existing land and facilities;
   (1) In assessing proposals for a change in the use of existing facilities and/or land, campuses should additionally consider the following:
      (a) The short-term and long-range cost implications must be beneficial to the University.
      (b) There should be no adverse legal implications for the University.
      (c) Compliance with Private Use requirements.
c. Projections of future land and facilities' needs;
d. The assumptions and criteria used to identify the needs of the campus;
e. The plan shall be consistent with State requirements for facilities and land use master plans;
f. The campus master plan shall be consistent with the five-year capital plan and other capital planning and land use decisions;
g. The campus master plan shall be reviewed and approved by the University President;
   (1) The President in collaboration with the Chancellor shall determine the most appropriate review and approval time for the plan and consider issues such as rolling planning processes.
h. the plan shall be evaluated and updated on a periodic basis, including when substantial changes to the campus' mission statement or strategic goals have taken place.

2. Development of the Five-year Capital Plan

Each campus shall develop and maintain a Five Year Capital Plan, which shall be informed by the campus master plan and be submitted to the University President and the Board of Trustees for review and approval. The University President shall establish and maintain guidelines to be followed by campuses in preparing the capital plan and will issue specific instructions and make additional requests as needed from time to time. The guidelines shall include but not be limited to statements of how the new project fits with the campus master plan, plans for construction funding, operating funds for the project when completed and sources of revenue including detailed debt service schedules, if necessary. Approvals for such projects will be subject to the capital approval process and be contingent on the general requirements that any new building must be consistent with the strategic plans and priorities of the University and the campus, and projects requiring new borrowing should be in compliance with the University's Debt Policy.

The Five Year Capital Plan shall include, but not be limited to the following:

a. A prioritized list of all campus capital projects over $2 million in total project cost that are planned to be initiated over the next five years;
b. Statement on how each project supports the mission and goals of the campus;
c. Statement describing how the projects address the deferred maintenance of the campus;
d. Five-year capital budget projection along with the revenue source(s) for each project. Revenue sources shall be tracked as follows;
    i. University Local Funds (operating and plant funds)
    ii. Private Fundraising and Grants
    iii. University Financing through UMBA/MDFA/ or some other entity
    iv. State Appropriated – G.O. Funds or Supplemental Funds
    v. Projects with no identified funding source should be listed as Contingent on Funding
e. The plan shall be updated biennially and shall require the approval of the University President and the Board of Trustees.
    i. The vote will clearly stipulate that approval of the five-year plan does not constitute project approval and that projects are required to follow the capital approval process.

3. Capital Project Review and Approval Process

Frequency: Quarterly

Before a campus can proceed with a project the project must receive approval by the University President and/or the Board. The following are the thresholds and delegation of approval:

a. Any capital project with a total cost between $2 million and $10 million will require the approval of the University President.
b. Any capital project greater than $10 million will require the approval of the University President and the Board of Trustees.
c. Any capital project with a total estimated cost greater than $2 million that requires any amount of University borrowing will require the approval of the University President and the Board of Trustees.
d. The status of all projects will be tracked and reported to the Board on a quarterly basis.

Approval of the Preliminary Campus Estimate (first vote) and Full Project Approval (second vote):

Before a project can receive Approval of their Preliminary Campus Estimate (the first vote) by the President and/or the Board, the following criteria must be met:

a. A campus can request preliminary approval for a project at any time by notifying the President's Office. The request will be reviewed and approved on a quarterly basis corresponding with the quarterly Committee and Board schedule.
b. Project is projected to begin within the next 24 months.
c. Project is included in the University's five-year capital plan or, if it is not, an explanation as to why it has become a priority from the time the last five-year plans was approved will be required.
d. Funding source(s) needs to be identified for the total project cost
e. If the State is contributing to the project it needs to be:
    i. Approved by the Executive Office for Administration and Finance
    ii. Project amount and authorization needs to be confirmed by the DCAMM
f. Project needs to be reflected in the campus operating budget projections
    i. Budget projections should be based, in part, on guidance issued by the President's Office and consistent with the University's policies and any other financial requirements.
g. Debt affordability analysis must comply with the University's Debt policy
    i. Debt affordability projections must be calculated using guidance issued by the President's Office.

Before a project can receive Full Project Approval (the second vote) by the President and/or the Board, the following additional criteria must be met, in addition to those required for preliminary approval (the first vote):

h. UMBA will conduct an independent review and will confirm the total project cost. This process is described further in the Appendix A – The UMBA Review Process.
    i. All cost reported shall include hard and soft costs associated with the project.
i. A project approval checklist will be signed off on by all parties certifying that the project has met all of the above criteria and is ready for approval by the University President or the Board.
j. A project shall not be advanced beyond the 5th construction phase, as defined herein, without receiving Full Project Approval.

The Review and Approval process shall not be applied to projects that received Full Project Approval on or before June 18, 2014.

a. Projects that are in the late phases of construction, or near completion, will not be subject to the additional review needed to secure the second vote granting Board Approval.

Project Initiation

Frequency: On-going

Once a project receives approval by the President and/or the Board, the following will occur:

a. If a campus requires borrowing for one or more projects, it will submit a request to the President's Office requesting the amount to be borrowed along with any additional information required by the President's office.
b. President's Office will request that UMBA initiate project management and financing, when appropriate, on behalf of the University in accordance with the Board's authorization to give this authority to the University President or his designee.
c. If it is a DCAMM project, the University enters into the proper agreements with DCAMM.

d. UMBA is required to seek the approval of the Executive Office for Administration and Finance to issue debt to finance any campus project. Per guidance issued by the Executive Office for Administration and Finance, UMBA will provide the following information:
e. The project is added to the approved capital projects list and reviewed quarterly.

Quarterly Reporting to the Board

Frequency: Quarterly

a. The status of all capital projects will be tracked and reported to the Board on a quarterly basis.
b. In order to facilitate quarterly reporting to the University President and the Board, campuses will use the capital project database to update project information, monitor approvals and request new projects. Instructions will be sent out each quarter and will be updated as needed. It is the campuses responsibility to ensure accuracy and shall review each field in the project database to make sure the information is updated and accurate.

Changes to Project Costs

Frequency: Quarterly

As part of the quarterly reporting to the Board all project costs will be provided for each project on the list. Projects that have received the Full Project Approval (second vote) that have an increase in cost of 10% or more will require an additional approval from the Board.

Before the Board is asked to vote on a revised project cost, the project must meet the following criteria:

a. A detailed description of the reason for the change in cost
b. A campus must identify funding for the additional amount needed
c. If the additional amount is being borrowed the debt affordability analysis must comply with the University Debt policy
d. UMBA must review and sign off on the revised project cost estimate
e. If it is a State project, DCAMM needs to reflect the increased cost in their project list and the Executive Office for Administration and Finance must have it included in their latest capital plan.

B. RESERVES FOR RENEWAL AND FUNDING FOR ON-GOING MAINTENANCE OF FACILITIES

a. One and one half percent (1.5%) of the total construction cost of all new construction projects shall annually be set aside in a reserve fund to provide funding for the general renewal, replacement and renovation of campus facilities.
b. Alternatively, a campus may satisfy the above requirement by fully funding depreciation through budgeted capital expenditures or by funding reserves as long as it can be audited for compliance.
c. In addition, an amount equal to three and one half percent (3.5% - may revisit this percentage) of the total construction cost of all new construction projects shall be expended annually for the operational and maintenance expenses, excluding utilities, of the campus facilities; and campuses shall prioritize such spending so as to provide the maximum useful life of all new construction projects.

C. DISPOSITION OF UNIVERSITY REAL ESTATE

a. Real estate (including land, buildings, air rights, water rights and mineral rights) owned by the University is the property of the Commonwealth of Massachusetts which has been entrusted to the University for stewardship. The University's role as steward of this property is crucial, since

the prudent use of our limited resources is key to our ability to provide for our future needs and to meet our long-range commitments to the citizens of the Commonwealth.

b. Disposition of Ownership. Ownership rights in surplus University real estate shall not be conveyed or transferred without approval by the Division of Capital Asset Management and Maintenance (DCAMM), and/or the Legislature and the Governor of such proposals. In order to allow for adequate review and analysis, campus proposals for such dispositions must be presented to the Board of Trustees for informational purposes at one meeting and presented at a later meeting for approval. Such proposals must be complete and contain particular findings as to why the property is surplus to both current and future needs of the University.

c. Other Dispositions. When a proposed use involves a disposition of less than ownership of University real estate, to a Non-affiliate, final review and approval by the President is required in addition to the necessary campus approvals. However, leases or licenses which do not exceed five (5) years, including any optional extensions or renewals ("Short-term"), shall be exempt from the requirement of Presidential review and may be approved by the campus or systems office. Any campus seeking to lease or license University property to a Non-Affiliate for more than five (5) years ("long-term") must use a public process to solicit competitive offers to assure best value for the University. Any long-term lease or license for University property must be reviewed and approved by the President.

d. Negative Easements. In certain circumstances a Non-affiliate may request that a campus agree not to perform, exercise, use, or conduct a lawful activity on a portion of real property owned by the University. These easements shall be treated the same as any other disposition of University real state to a Non-affiliate and subject to the same restrictions of duration and requirements for approval.

e. When beneficial to a University campus, a Chancellor may enter into disposition agreements with public utilities and/or municipality service providers which allow limited use of University real estate. All such agreements shall be approved as to form by the General Counsel's office prior to execution by the campus.

D. ACQUISITION OF REAL PROPERTY

a. Any lease or license from an entity or person not affiliated with the University ("Non-affiliate") that exceeds a term of 20 years, including any optional extensions or renewals, shall require final review and approval by the President in addition to the necessary campus approvals.

b. Prior to the purchase or acceptance of a gift of real property, a due diligence review must be conducted. Such review shall include the anticipated cost based on recent appraisals, assessments and other available information; an environmental investigation confirming the environmental condition; an evaluation of all improvements; and an appropriate title search confirming the title for the property is in acceptable condition (i.e. no unduly burdensome encumbrances or restrictions).

E. PRIVATE BUSINESS USE

a. Any facilities of the campuses that are purchased, constructed, renovated, rehabilitated, improved or otherwise funded by use of funds from a tax-exempt bond issue are subject to private business use limitations as described in the federal tax law. Excessive private business use of facilities financed with tax-exempt bonds may cause the interest on the tax-exempt bonds to become taxable to the holder of the bonds.

b. Private business use is defined as direct or indirect use of the tax-exempt bond financed facilities in any activity carried on by a nonqualified user.

c. A qualified user is a state or local governmental unit or, in certain circumstances, a nonprofit, charitable organization described in Section 501(c)(3) of the Internal Revenue Code using

facilities in furtherance of its tax exempt purpose. The federal government is not a qualified user for the purposes of private business use.

d. For financings by state and local governments or their agencies, private business use related to the qualifying use of the proceeds or facility is limited to 10% or less of the proceeds of facilities financed with tax exempt bonds. Private business use unrelated to such qualifying use of the proceeds or facility is limited to 5% or less of such proceeds.

e. Common instances of private business use of facilities may include, but not be limited to:
   - Ownership
   - Actual or beneficial use pursuant to:
     - Leases
     - Management or service contracts
     - Research agreements
     - Take and pay (output) contracts
     - Special legal entitlements (for example, priority rights)
     - Special economic benefit to a nonqualified user (if the facilities is not available for use by the general public)

f. The Vice Chancellors for Administration and Finance will ensure that the campuses comply with post-issuance procedures to prevent exceeding limitations of such private business use of the facilities financed with tax-exempt bonds. If a campus has any questions or concerns as to the existence of a private business use, it will consult with the President's Office, the UMBA, issuer of the tax exempt bonds, and bond counsel regarding the impact of any proposed or existing use of the facilities on the tax-exempt status of the bonds.

APPENDIX A

University of Massachusetts
Building Authority Review

PURPOSE

The purpose of the Capital Project Review process is to: (1) provide guidance to the University's campuses on project approval from the Board of Trustees; and (2) provide a uniform method for documenting the full capital spending requirements so that capital activity can be effectively communicated and monitored.

The UMass President's Office requires all campuses to complete a Five-year Capital Plan. In addition, the Board has adopted an approval process focusing on projects that will be starting over the succeeding 24 month periods. To aide in that process, the President's Office and UMBA will work collaboratively with campuses to provide assistance and appropriately review any proposed capital project.

The Capital Project Review Process will:

- Review Campus study documentation
- Analyze externally (consultants) produced project information
- Review documented deferred maintenance reports
- Consider hazardous materials in the building or on potential sites
- Examine the proposed project schedule
- Consider enabling projects
- Review the existing project scope given the allocated funding limits and test the project design and construction cost projections
- Assess whether all of the relevant project cost components have been accounted for
- Assure the Campus approvals are in place

It is understood that estimating the cost of proposed capital projects is dependent upon the ability to identify, quantify, and estimate the costs of all of the various elements in a project. Since the Project Review will be conducted in most cases in advance of the design process, the campuses should provide, to the extent possible, applicable documentation that demonstrates the basis of the project.

I. GENERAL INFORMATION

- **Campus:**
- **Project Name:**
- **Capital Plan Reference:**
- **Identify Enabling Projects and critical timing implications:**
- **Project Delivery Method:**

- **Gross Square Footage:** *State the estimated gross square footage of the total project. Explain this projects impact on the Campus's overall space inventory including any plans to reprogram, abandon or demolish existing space.*

- **Project Description:** *Briefly describe the project and its general use. If the project includes a mixture of new construction and renovation work, describe the amounts in each portion of the project. State any unique design objectives for the project that may affect project costs in the areas of appearance, use, or construction methods. Indicate if the project is expected to be less expensive, of average cost, or more expensive than comparable facilities.*

II. PROJECT JUSTIFICATION

- **Justification:** *Briefly justify the need for this project. Reference the campus strategic plan and/or campus master plan as appropriate. Discuss the alternatives considered and why they were rejected. Provide a statement on the campus's realistic expectations for funding. Explain the consequences if the project is not approved.*

- **Facility Purpose/Use:** *Briefly describe how this facility will be used once it is complete.*

- **Site Description:** *Provide a general street address or basic description of location. If appropriate, describe any external factors influencing the cost of construction on the site such as existing streets and roads, parking areas, vehicular access, adjacent construction, drainage, above and below ground utilities, easements, etc.*

III. Project Schedule

- System Office Review and Approval Target: _____
- Board Approval vote target: _____
- Design Start: _____
- Construction Start: _____
- Operational Occupancy: _____

IV. FINANCIAL PLANNING

- **Sources of Project Funding:** *Identify the funding sources*

- **Income Projection:** *For projects with an associated revenue stream, provide a five-year forecast of the project's operating revenues and expenditures from the date of completion of the project. All assumptions should be specified in the forecast.*

V. ESTIMATED TOTAL PROJECT COST

- Planning Costs: $_____
- Architectural & Engineering Fees: $_____
- Acquisition/Demolition Costs: $_____
- Site or Facility Availability Costs (envir, haz, geotech, etc.): $_____
- Site Work/ Infrastructure (utilities, landscaping, signage, etc.): $_____
- Project Management Costs: $_____
- Construction: $_____

- Contingency: $_____
- Furniture/Equipment Estimate: $_____
- Other Anticipated Costs: $_____

Total ***$_____***

VI. PERTINENT CAMPUS APPROVALS

Facilities Leadership: _____ Date: _____
Programmatic Beneficiary: _____ Date: _____
Vice Chancellor for Administration & Finance: _____Date: _____

Doc. T09-050, as amended
Passed by the BoT
9/30/09
Revised 6/18/14

UNIVERSITY OF MASSACHUSETTS
DEBT POLICY

PURPOSE

To fulfill its mission, the University must make ongoing strategic capital investments in academic, student life, research, and other plant facilities using an appropriate mix of funding sources including state bonds and appropriations, University bonds, capital leases, internal reserves, operating funds, grants, and private gifts.

The purpose of the Debt Policy is to ensure the appropriate mix of funding sources is utilized and to provide guidance on the strategic use of debt (external and internal). Debt is a valuable source of capital project financing but should be limited to projects that relate to the mission and strategic objectives of the University consistent with its capital planning process. The amount of debt incurred has an impact on the financial health of the University and its credit rating.

This Policy provides a discipline and framework to be used by senior administration to evaluate the appropriate use of debt in capital financing plans.

I. INTRODUCTION

This policy will assist University management in the evaluation of internal and external debt while seeking to maintain an acceptable credit rating and sufficient liquidity. Although the attainment or maintenance of a specific rating is not the main objective of this policy, maintaining an acceptable credit rating that is the same or better than current rating levels will permit the University to continue to issue debt and finance capital investments at favorable interest rates. The University, consistent with its capital objectives, will limit its external debt to a level that will maintain an acceptable credit rating with bond rating agencies.

Management will use quantitative tests to evaluate the University's overall financial health, liquidity, present and future debt capacity. In addition, project-specific analysis, as appropriate, will be used to determine the financial feasibility of an individual project.

II. POLICY STATEMENT

A. The University will only incur debt in strict compliance with applicable state and federal law and with debt-related contractual covenants.

B. The University may incur debt to refinance existing debt or to fund capital projects that are consistent with the University's mission and strategic priorities and/or the University's capital plan.

C. The University will incur external debt only with the prior approval of the Board of Trustees and the Commonwealth of Massachusetts as required.

D. The ratio of debt service to operating expenses should be no greater than 8% for the University or a campus. An individual campus may exceed 8% if so authorized by a vote of the Board of Trustees, but may at no time exceed 10%.

E. Management will promote the integration of long-term financial planning with long-term capital planning while incorporating sound financial practices and proactive resource management.

F. Management shall seek the best possible national credit ratings based on an analysis of economic and market conditions and the University's capital plan.

G. The University may incur debt bearing interest at variable rates when advantageous based on market conditions and will limit debt portfolio risk to appropriate levels as determined by the Senior Vice President for Administration & Finance in consultation with the President and Board of Trustees.

H. The University shall not enter into debt-related derivative transactions for speculative purposes, but rather may use debt-related derivatives to limit risks and to provide appropriate protection.

III. STANDARDS

The President, in consultation with the Vice President(s) and Chancellors, will issue administrative standards to implement this policy.

ADMINISTRATIVE STANDARDS FOR THE
DEBT POLICY
(Doc. T09-050, as amended)

I. INTRODUCTION

This policy will assist University management in the evaluation of external and internal debt while seeking to maintain an acceptable credit rating and sufficient liquidity. The University, consistent with its capital objectives, will limit its external debt to a level that will maintain an acceptable credit rating with bond rating agencies. Maintaining a credit rating that is the same or better that current levels will permit the University to continue to issue debt and finance capital investments at favorable interest rates, although the attainment or maintenance of a specific rating is not an objective of this policy.

Management will use quantitative tests to evaluate the University's overall financial health, liquidity, and present and future debt capacity. In addition, project-specific quantitative tests, as appropriate, will be used to determine the financial feasibility of an individual project.

II. POLICY STATEMENT

A. The University will only incur debt in strict compliance with applicable state and federal law and with debt-related contractual covenants.

B. The University may incur debt to fund capital projects that are consistent with the University's mission and strategic priorities and/or the University's master plan, or to refinance existing outstanding debt.

C. The University will incur debt only with the prior approval of the Board of Trustees and the Commonwealth of Massachusetts as required.

D. The ratio of debt service to operating expenses should be no greater than 8% for the University or a campus. An individual campus may exceed 8% if so authorized by a vote of the Board of Trustees, but may at no time exceed 10%.

E. Management will promote the integration of long-term financial planning with long-term capital planning while incorporating sound financial practices and proactive resource management.

F. Management shall seek the highest possible national credit ratings given economic and market conditions.

G. The University may incur debt bearing interest at variable rates when advantageous in light of market conditions and will limit debt portfolio risk to appropriate levels as determined by the Senior Vice President for Administration & Finance in consultation with the President and Board of Trustees.

H. The University shall not enter into debt-related derivative transactions for speculative purposes, but rather may use debt-related derivatives to limit risks and to provide appropriate protection.

III. STANDARDS STATEMENT

The University will establish standards for overall debt management using a select number of financial ratios calculated and reported annually and when new debt is issued; and revised periodically to reflect any changes in accounting standards.

By maintaining an appropriate proportion of debt service to total expenses, other critical and strategic needs can be met as part of the expense base. The ratio of debt service to operating expenses should be no greater than 8% for the University or a campus. An individual campus may exceed 8% if so authorized by a vote of the Board of Trustees, but may at no time exceed 10%.

Financial ratios will serve as indicators of the University's financial health and capacity to incur debt. Calculation of these ratios will be calculated annually based on the audited financial statement on a University-wide and campus basis and campus basis and using operating budgets and other projections for years not yet closed and audited.

A. Ratios

The following strategic financial ratios, when considered together and over time, will help to provide a clear, high level, assessment of the overall financial health of the University.

1. **Debt Service Ratio:** Measures the share of the University's operating budget that is going to pay principal and interest on debt.

   Annual Principal & Interest Expense on Debt/Operating Expenses & Interest on Indebtedness.

2. **Primary Reserve Ratio:** Measures the financial strength by comparing expendable net assets to total expenses. This ratio provides a snapshot of financial strength and flexibility by indicating how long the University could function using its expendable resources without relying on additional net assets generated by operations. A negative ratio or decreasing trend over time indicates a weakening financial condition.

   Unrestricted Net Position/Operating Expenses & Interest on Indebtedness.

3. **Operating Margin:** Indicates whether total operating activities resulted in either a surplus or deficit as a percentage of the budget.

   Operating Revenue (Operating Revenue & State Appropriation & Federal Appropriation & Gifts & Endowment Income & Non-Operating Federal Grants & Contracts & Investment Income net of Unrealized Gains/(Losses)) less Operating Expenses (Operating Expenses & Interest on Indebtedness/ Operating Revenue (Operating Revenue & State Appropriation & Federal Appropriation & Gifts & Endowment Income & Non-Operating Federal Grants & Contracts & Investment Income net of Unrealized Gains/Losses)).

4. **Viability Ratio:** Measures the availability of expendable net assets to cover debt. As this ratio falls below 1:1, the University's ability to respond to adverse conditions, to attract capital from external sources, and its flexibility to fund new objectives is diminished. This ratio is regarded as an important indicator of the ability to assume new debt.

   Restricted Expendable & Unrestricted Net Positions/Capital Lease Obligations and Bonds Payable.

B. Synthetic Products Considerations

The University will consider the use of interest rate swaps and other synthetic financial products primarily to manage the University's variable rate debt exposure. They will not be used unless the contract or structure is understood and has been fully evaluated, can be monitored and managed, and the risk imposed has been evaluated and concluded to be appropriate for the University. Swaps and other synthetic financial products shall not be used for speculative purposes.

Procurement and Execution – The University has authority to enter into synthetic financial product transactions either through a competitive bid or a negotiated process. The University must take reasonable steps, such as hiring a qualified advisor, to ensure that the economics involved in a negotiated transaction represent a fair market price while taking into consideration the terms of the agreement and the University's current financial status.

Swap Counterparties – The University will execute synthetic financial product transactions with counterparties with credit ratings in the "A" category or above as of the transaction date. The University may seek credit enhancement in the form of collateral, guarantees, and/or termination event triggers should the counterparty's credit rating be downgraded below the "A" category. The University's ability to procure counterparty credit enhancement and termination event triggers will be subject to then current market standards and the University's then current financial status. The University will seek to maintain voluntary termination rights in all of its swap or synthetic financial product transactions.

Swap Documentation – The University will utilize standard International Swap Dealers Association swap documentation, including the Schedule to Master Agreement and Credit Support Annex (if applicable).

Rating Agencies – The University will seek a Rating Agency review to determine the effect of any synthetic financial product transaction on the credit quality of the University.

C. Disclosure And Reporting Requirements

The University will provide updated financial information operation data, and a timely notice of specified material events to each nationally recognized municipal securities information repository and any State information depository, pursuant to its continuing disclosure undertakings with respect to SEC Rule 15c2-12 (17 CFR 240.15c2-12).

Reporting Requirements – The University will prepare a report for the Board of Trustees on an annual basis which provides an update of the University's current debt structure and status and outlines the proposed future financing plans.

D. Definitions

Direct Debt: Financing that is assigned to and supported by the University of Massachusetts.

Present Value: The value at the current time of a cash payment or stream of payments which is expected to be received in the future, allowing for the fact that an amount received today could be invested to earn interest until the future date(s).

Present Value Savings: A method of calculating the aggregate amount of savings on a refinancing transaction. In each semi-annual period, the present value of the debt service on the Refunding Bonds is subtracted from the present value of the debt service on the refunded Bonds using the arbitrage yield on

the refunding bonds as the discount rate. The present value savings in each year are added together to result in the aggregate Present Value Savings.

Rating Agency: One of the three (Fitch Investors Service, Moody's Investors Service or Standard & Poor's Corporation) nationally-recognized credit rating agencies.

Refinancing: A procedure whereby an issuer issues new bonds to replace outstanding bonds. The newly issued bonds are called the "refunding bonds," while the bonds being refinanced are called the "refunded bonds."

Synthetic Financial Products: Financial products (i.e., interest rate swaps, caps, collars, etc.) that are primarily used to manage interest rate risk or asset/liability balance.

Terms and Structure: Terms and Structure shall have the same meaning as provided by the Treasury Board Debt Structuring and Issuance Guidelines, as amended.

Variable Rate Debt: Debt with interest payment requirements which change based on market conditions during the term of the debt.

E. Related Procedures, Forms, And Other Resources

FY19 – FY23 Capital Plan

Administration & Finance Committee

September 12, 2018

University of Massachusetts

Amherst • Boston • Dartmouth • Lowell • Medical School • UMassOnline

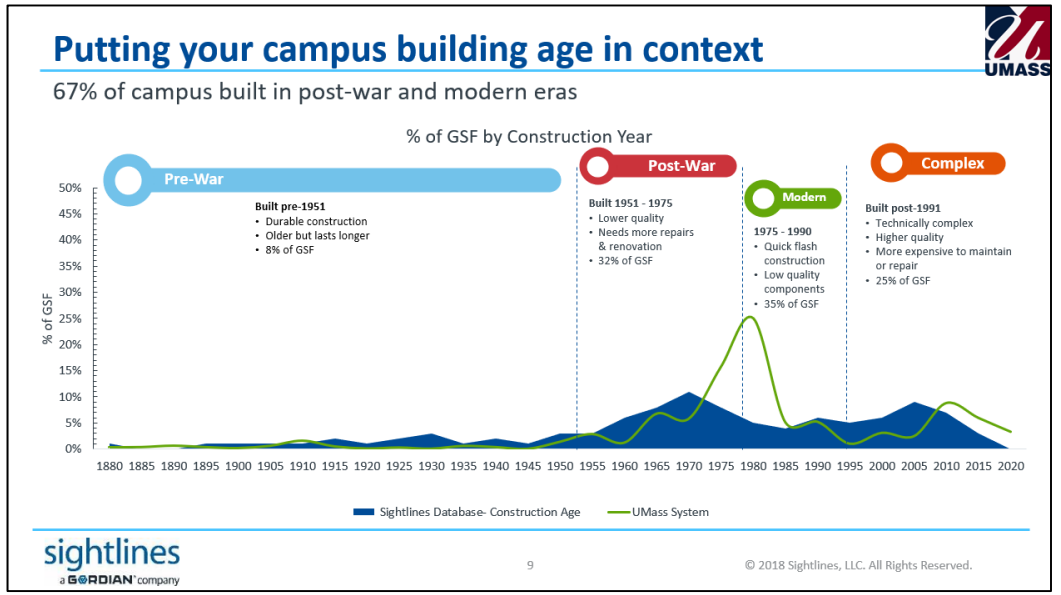
Agenda

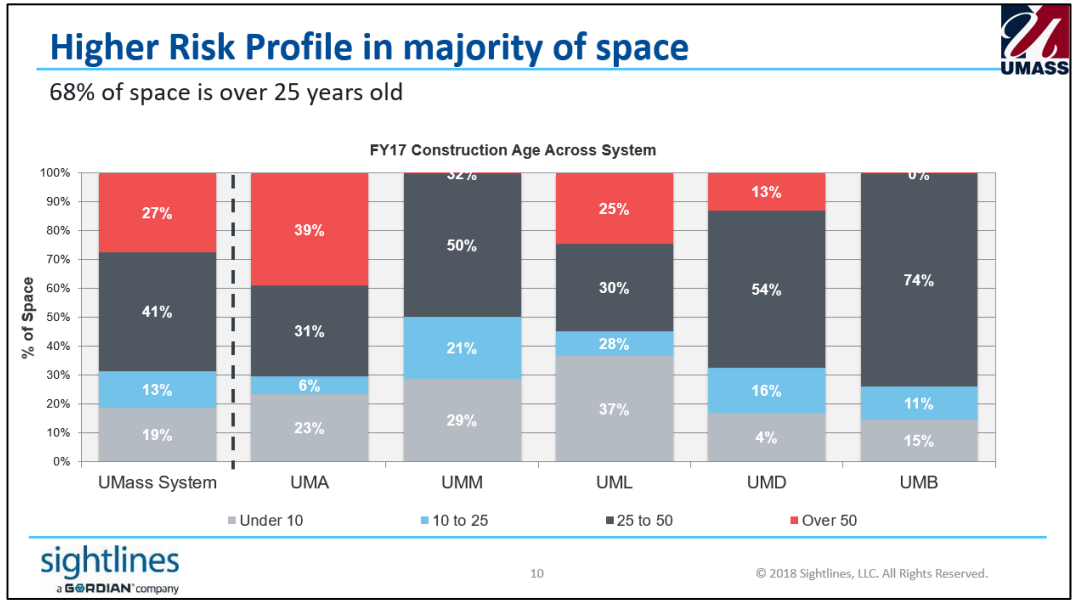
- Capital Planning Context / Background
- Capital Plan Summary
- Deferred Maintenance
- Key Financial Indicators
- Appendix: Campus Data

Capital Planning: Context / Background

Building Portfolio

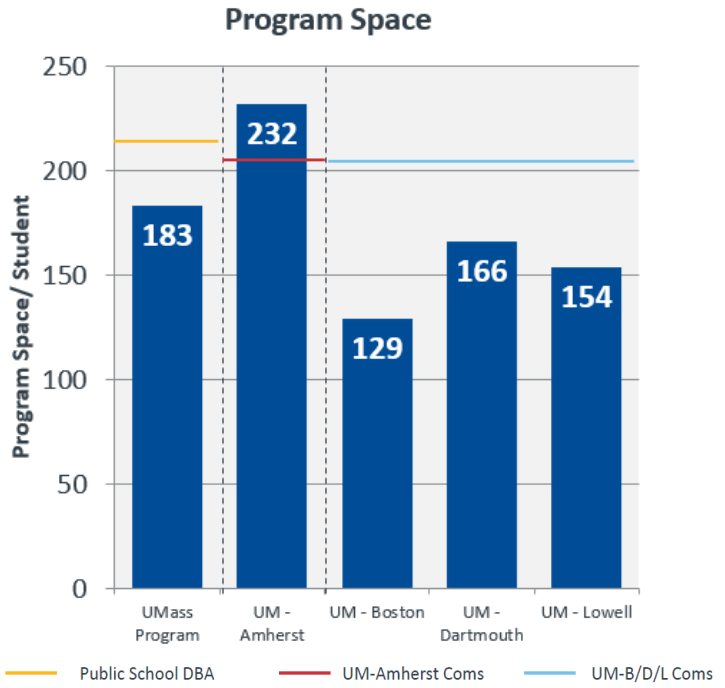
- 27.4 million Gross Square Feet
- $11.6 billion Replacement Value
  - Note: GSF and Replacement Value do not include certain UMA and UMMS properties
- Over 63% of assets are more than 25 years old and 47% of space inventory built between 1965 and 1980
  - Amherst: 47% built 1960-70's; 13% prior to 1950
  - Boston: opened in 1974
  - Dartmouth: core campus opened in 1970's
  - Lowell: most buildings date to pre-1975
  - Medical School: core campus opened 1970

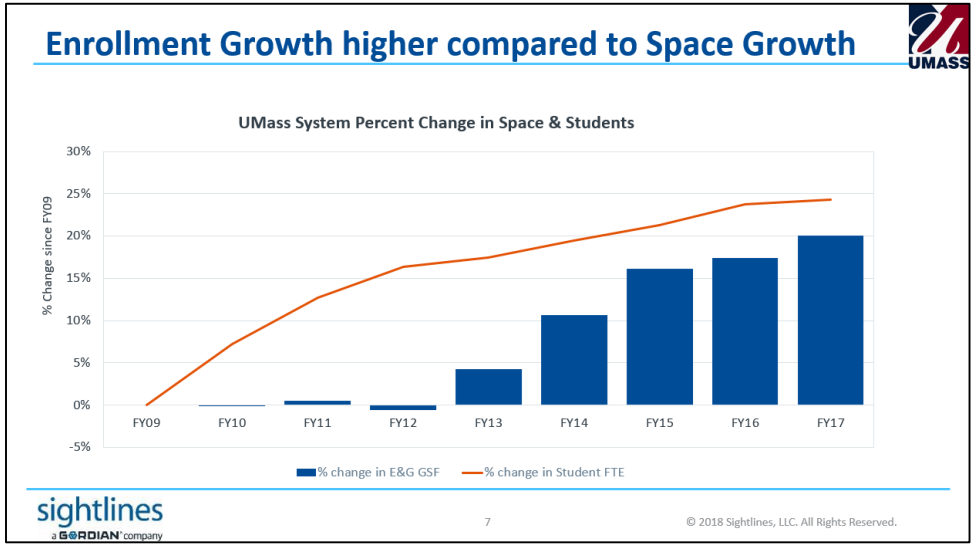




Program Space

- Enrollment continues to outpace square footage growth
  - Over the last 5 years (FY14 thru FY18), FTE enrollment has grown by 5.2%
  - Projected enrollment growth from FY19-23 is 5.4%; on average 1.0% annually
- UMass campuses are below other peers in program space per student
- The investments made have addressed the needs of students while addressing deferred maintenance





Capital Plan Summary

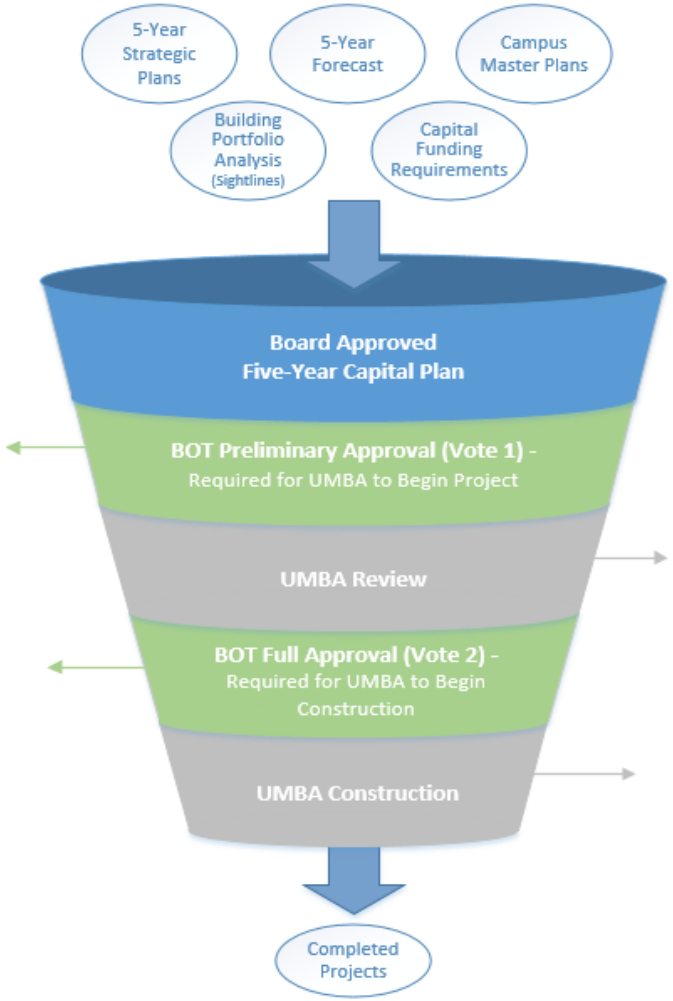
Assumptions

- Projects on the "Approved Project List"; reviewed with the Board quarterly
- Projects accounted for in the 5-year financial forecast & ratios
- Projects address deferred maintenance / projects on the Sightlines inventory
- Requests for Vote 1 (>$10 million) on all new projects added to the plan
- EOE Capital Planning projects for "Critical Repair" funding included if >$10 million
- Projects reflect funding sources, cash flow, and impact on operating budget (depreciation and interest)
- Master / strategic planning projects provided to President's Office; not reflected in the Capital Plan until funding source identified
- Meet with President's Office and UMBA to review the plan and project changes

Current Capital Project Approval Process

Criteria:
✓Project to begin within 24 months
✓Funding source(s) identified
✓Impact on key financial ratios reviewed by A&F
✓Within 8% Debt affordability
✓UMBA seeks Commonwealth approval, if needed
✓Project may advance through study/schematic design

Criteria:
✓Project cost confirmed after UMBA's independent review.
✓Project may advance to design/construction.
✓Total Project Cost increases ≥ 10% require additional Board approval.



Criteria:
✓Ongoing coordination with A&F on key financial ratios
✓Hire POM and Begin project design
✓Review Deferred Maintenance
✓Develop schedule
✓Consider other enabling projects

Approved Projects:
✓Campuses make written request to UMPO to borrow.
✓Initiate bid process
✓Hire contractors
✓Begin Construction
✓Monitor project progress and cost

FY19-23 Capital Plan Summary: Approved Projects

Board Approved Project list: Capital projects that have been approved by the Board and reviewed on a quarterly basis; Each project is approved by the Board through the vote 1 & 2 approval process; Contains projects that are underway or ready to begin in the next 24-months, and have a funding source identified; Included in the financial forecast and state funded projects are approved on the most recent state plan.

President Approved Project List: Projects between $2M and $10M in cost that are reviewed and approved by the President on a quarterly basis. These projects are typically smaller deferred maintenance projects and utilize local funding. Examples include Marston Repairs (UMA), Healy Fire Protection (UMB), Critical Repair – South Campus Substation Replacement (UML), and 30 inch Chilled Water Line Replacement (UMMS).

	BOT Approved		President Approved		Total Approved	
Campus	Projects	Project Cost	Projects	Project Cost	Projects	Project Cost
UMA	18	$880,850,000	16	$87,300,000	34	$968,150,000
UMB	8	$635,212,693	6	$23,574,000	14	$658,786,693
UMD	5	$268,654,559	0	$0	5	$268,654,559
UML	6	$169,900,000	5	$19,600,000	11	$189,500,000
UMMS	8	$138,340,000	10	$51,375,000	18	$189,715,000
University	**45**	**$2,092,957,252**	**37**	**$181,849,000**	**82**	**$2,274,806,252**

Project Phases Dashboard

- There are 9 pre-defined project phases. Each project has been categorized in a phase ranging from conceptual to substantial completion and eventually completed.

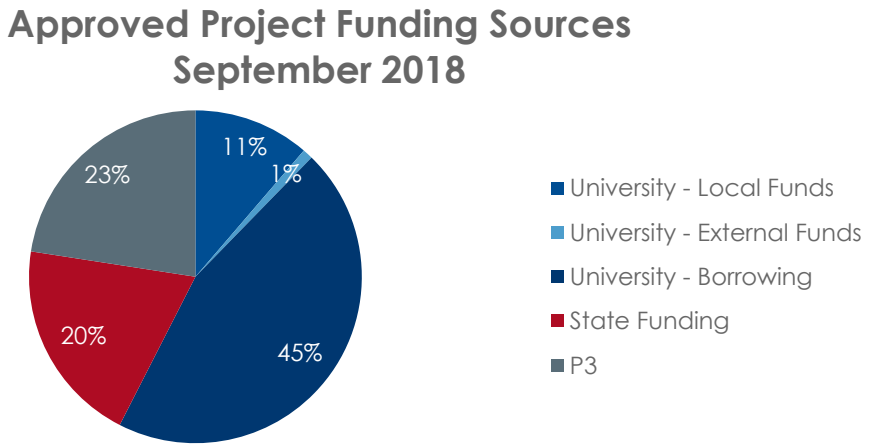
		UMA		UMB		UMD		UML		UMMS		Total
	Project Phase	**#**	**$**	**#**	**$**	**#**	**$**	**#**	**$**	**#**	**$**	**#**	**$**
Prelim. Campus Estimate (First Vote)	1 - Conceptual	4	$262,250,000	0	$0	0	$0	1	$18,500,000	4	$40,840,000	9	$321,590,000
	2 - Feasibility Report	1	$25,000,000	0	$0	0	$0	0	$0	0	$0	1	$25,000,000
	3 - OPM/Designer Procurement	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
	4 - Study/Schematic Design	5	$146,800,000	0	$0	1	$54,436,421	0	$0	0	$0	6	$201,236,421
	Vote 1 Subtotal	**10**	**$434,050,000**	**0**	**$0**	**1**	**$54,436,421**	**1**	**$18,500,000**	**4**	**$40,840,000**	**16**	**$547,826,421**
Full Project Approval (Second Vote)	5 - Design	4	$105,000,000	2	$155,500,000	1	$133,900,000	1	$10,000,000	3	$82,000,000	11	$486,400,000
	6 - Final Design/Early Constr. Pkgs.	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
	7 - Construction	3	$167,800,000	6	$479,712,693	1	$11,440,000	4	$141,400,000	1	$15,500,000	15	$815,852,693
	8 - Substantial Completion	1	$174,000,000	0	$0	2	$68,878,138	0	$0	0	$0	3	$242,878,138
	Vote 2 Subtotal	**8**	**$446,800,000**	**8**	**$635,212,693**	**4**	**$214,218,138**	**5**	**$151,400,000**	**4**	**$97,500,000**	**29**	**$1,545,130,831**
	Total Sep 2018 BOT	**18**	**$880,850,000**	**8**	**$635,212,693**	**5**	**$268,654,559**	**6**	**$169,900,000**	**8**	**$138,340,000**	**45**	**$2,092,957,252**

Funding Sources Dashboard

- Local and External Funds – no major updates
- Borrowing – UMBA planning next issuance in support of Capital Plan in FY2020
- State – New EOE capital planning process underway; Critical Repair funding for deferred maintenance; 1 major project (Dartmouth SENG) funded
- P3 – Amherst, Boston, Dartmouth housing

	FY2019 Q1			
Funding Source	**Prelim. Campus Vote 1**	**Full Project Vote 2**	**Total BOT Approved**	**% Total**
University - Local Funds	96,876,421	140,493,360	237,369,781	11%
University - External Funds	1,000,000	19,000,000	20,000,000	1%
University - Borrowing	171,550,000	774,914,214	946,464,214	45%
State Funding	33,400,000	383,538,899	416,938,899	20%
P3	245,000,000	227,184,358	472,184,358	23%
TOTAL Approved Projects	**547,826,421**	**1,545,130,831**	**$2,092,957,252**	

Note: Project cost does not include interest rate or cost of issuance for borrowing.



Summary of Changes from FY17 Capital Plan

- 21 projects completed (examples: Old Chapel (UMA), ISC & University Hall (UMB), Charlton College of Business (UMD), and Pulichino Tong (UML))
- 15 new projects added (examples: Student Union (UMA), Substructure (UMB), Housing / Dining P3 (UMD), Olsen Critical Repairs (UML))
- 9 projects removed due availability of funds or reprioritization of projects
- **Total net decrease of 15 projects and $108 million**
- 9 projects proceeding to vote 2 (examples: Worcester Dining Commons (UMA), Perry, Pasteur, Coburn Renovations (UML))

	FY17 Plan		Completed		Added		Removed		Cost Changes	FY19 Plan		Net Change	
Campus	#	$	#	$	#	$	#	$	$	#	$	#	$
UMA	19	716,250,000	-9	(326,751,000)	10	481,300,000	-2	(8,000,000)	18,051,000	18	880,850,000	-1	164,600,000
UMB	17	889,150,000	-6	(342,194,692)	1	155,000,000	-4	(46,000,000)	(20,742,615)	8	635,212,693	-9	(253,937,307)
UMD	4	94,745,500	-1	(15,000,000)	2	188,300,000	0	-	609,059	5	268,654,559	1	173,909,059
UML	11	326,000,000	-4	(158,000,000)	1	18,500,000	-2	(20,000,000)	3,400,000	6	169,900,000	-5	(156,100,000)
UMMS	9	174,340,000	-1	(16,000,000)	1	14,000,000	-1	(14,000,000)	(20,000,000)	8	138,340,000	-1	(36,000,000)
University	**60**	**2,200,485,500**	**-21**	**(857,945,692)**	**15**	**857,100,000**	**-9**	**(88,000,000)**	**(18,682,556)**	**45**	**2,092,957,252**	**-15**	**(107,528,248)**

Project Spending Dashboard

- The table below displays total spending through 6/30/18 by funding source
- Projects in Phases 9A and 9B have been archived because the projects are essentially complete and final bills are being paid

Campus	Capital Plan: Borrowing	Borrowed to Date	Spending to Date: Borrowing	% Spent	Capital Plan: State Funding	Spending to Date: State Funds	% Spent	Capital Plan: Local/External /P3 Funding	Spending to Date: Local/External/ P3 Funds	% Spent	Total Capital Plan	Total Spending to Date	% Spent
UMA	$353,602,000	$151,650,000	$126,514,457	83%	$191,048,000	$174,450,171	91%	$336,200,000	$1,860,255	1%	$880,850,000	$302,824,883	34%
UMB	$356,387,436	$311,204,390	$256,537,455	82%	$159,440,899	$48,884,990	31%	$119,384,358	$75,848,635	64%	$635,212,693	$381,271,080	60%
UMD	$95,824,778	$49,724,778	$41,179,858	83%	$55,000,000	$30,040,976	55%	$117,829,781	$376,026	0%	$268,654,559	$71,596,861	27%
UML	$80,650,000	$34,042,534	$18,547,870	54%	$11,450,000	$822,184	7%	$77,800,000	$34,696,789	45%	$169,900,000	$54,066,843	32%
UMMS	$60,000,000	$0	$0	0%	$0	$0	0%	$78,340,000	$2,900,000	4%	$138,340,000	$2,900,000	2%
Total	**$946,464,214**	**$546,621,702**	**$442,779,640**	**81%**	**$416,938,899**	**$254,198,321**	**61%**	**$729,554,139**	**$115,681,705**	**16%**	**$2,092,957,252**	**$812,659,667**	**39%**

Debt Capacity Dashboard

FY2019 Q1

Campus	Total Borrowing Need Vote 1 Projects	Total Borrowing Need Vote 2 Projects	Total Borrowing Need	Bonds Issued	Additional Bonds Required
UMA	151,550,000	202,052,000	353,602,000	151,650,000	201,952,000
UMB	-	356,387,436	356,387,436	311,204,390	45,183,046
UMD	20,000,000	75,824,778	95,824,778	49,724,778	46,100,000
UML	-	80,650,000	80,650,000	35,000,000	37,650,000
UMMS	-	60,000,000	60,000,000	-	60,000,000
Total	**$171,550,000**	**$774,914,214**	**$946,464,214**	**$547,579,168**	**$390,885,046**

FY2019 Q1

Debt Burden Ratio	FY16 Actual	FY17 Actual	FY18 Projected	FY19 Budget	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast
UMA	6.4%	6.6%	6.5%	6.7%	6.5%	7.4%	6.7%	6.8%
UMB	4.9%	5.9%	5.8%	6.9%	7.6%	7.7%	7.7%	7.9%
UMD+	8.4%	7.8%	7.5%	7.1%	6.9%	7.2%	6.7%	6.5%
UML	7.5%	7.3%	7.7%	7.5%	7.4%	8.0%*	7.6%	7.3%
UMMS**	5.2%	6.0%	6.3%	6.1%	5.5%	5.3%	5.1%	4.9%
Total	**6.1%**	**6.5%**	**6.6%**	**6.8%**	**6.7%**	**7.0%**	**6.6%**	**6.5%**

Sources: FY19: FY19 operating budget; FY20-23: December 2017 Financial Forecast Refresh
+Reflects full refresh to UMD financial ratios associated with P3 project.
*UML projected debt ratio assumes level debt service payments on future borrowing; if an alternative debt service structure is implemented, the projected debt ratio will remain under 8%.
**Note: Debt Service Burden does not include borrowing for the UMMS VA Capital Project. If the project is federally approved, this ratio is expected to grow 0.1-0.2% per year over the forecast

- Debt capacity at the campuses is trending toward the 8% cap
- The Campus financial forecast reflects all borrowing needs including approved projects and future planning needs
- Next planned issuance for FY20; Commercial Paper used to bridge timing of next issuance
- Debt Service Payments in FY17 were $212 million - Will rise to over $254 million by FY23

Commercial Paper Dashboard

- UMBA established a $200 million Commercial Paper program in August 2013
- Allows for a "just in time" borrowing program to fund the University's capital plan as needed during construction periods
- Based on actual and planned use of the program, the University expects its next long-term bond issuance to occur in FY2020.
- Outstanding commercial paper has an interest rate of approximately 1.5%.

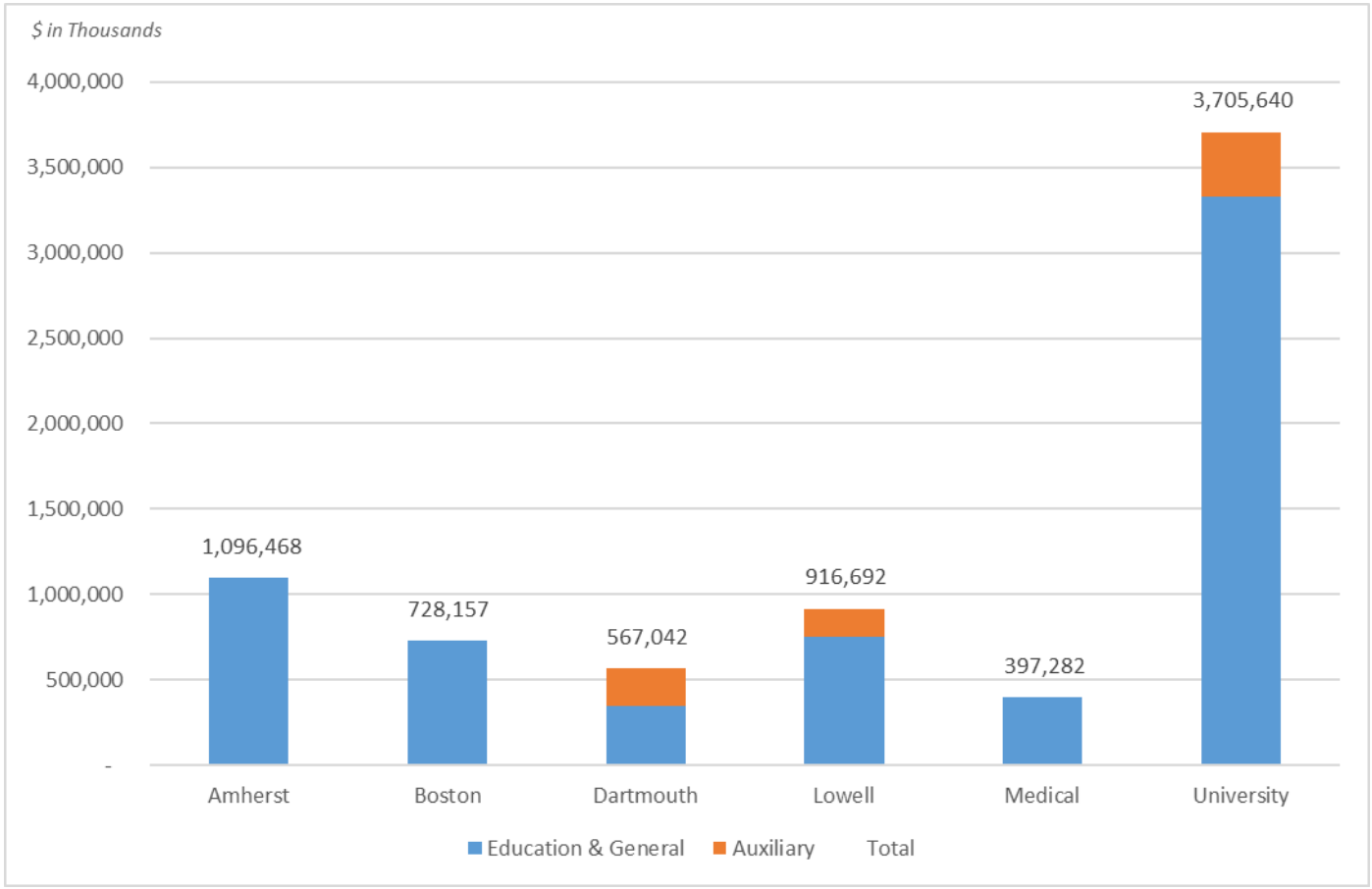
	CP Issued	Planned CP Use		
Campus	to Date	FY2019	FY2020 (Q1 & Q2)	Total CP Use
UMA	37,535,000	15,918,023	21,260,684	74,713,707
UMB	-	-	-	-
UMD	-	26,550,000	202,500	26,752,500
UML	35,000,000	47,472,788	5,983,747	88,456,535
UMMS	-	-	1,000,000	1,000,000
Total	**72,535,000**	**89,940,811**	**28,446,931**	**190,922,742**

Deferred Maintenance

Deferred Maintenance: Backlog

Total Deferred Maintenance:

- **E&G = $3.33 billion**
- **Auxiliary (Dartmouth & Lowell) = $0.38 billion**
- Beginning in FY15, the entire System engaged Sightlines to define and inventory the total deferred maintenance backlog
- Focus on E&G space; full inventory of Amherst Auxiliary space underway for FY19
- Recognized by the State; Sightlines also completes this inventory for State & Community Colleges



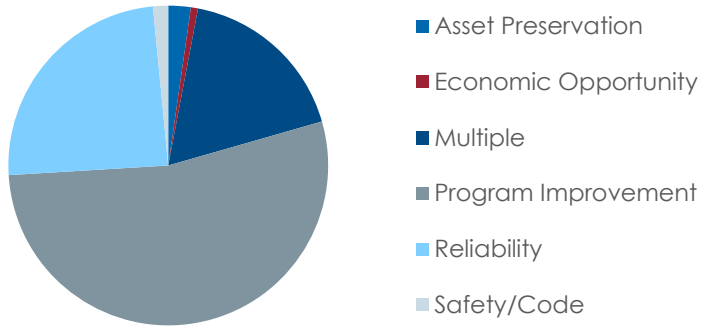
Strategy to Address Deferred Maintenance

- ✓ State Critical Repair Funding: State committed to $76 million of funding over the next five years for critical repair funding. The campuses have submitted the required 5-year spending plans to DCAMM which include campus matching funds. A total of $154.3 million of spending is planned to address critical repairs/deferred maintenance over the next five years at UMass through this State program
- ✓ Reserve Policy: Policy will require prioritization of capital projects that address the "catch up" targets as defined by Sightlines, and to consider future facility lifecycle costs when building reserves
- Capital Planning, Land and Facilities Use Policy: The draft revised policy requires funding to be provided through the operating budget and the building of reserves to address the "keep up" and "catch up" spending targets and reserves for new buildings
- Capital Plan: Deferred maintenance is the focus of the Capital Plan. All projects fall within Timeframes A&B and address Sightlines defined deferred maintenance criteria.

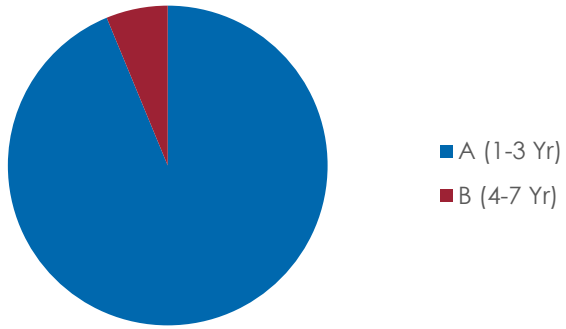
Deferred Maintenance: Consistently Defined Backlog

- Consistent definitions for project timeframe & investment criteria.
- All approved projects fall within timeframes A&B (1-7 years).

Capital Plan - Investment Criteria



Capital Plan - Timeframe



$ in Thousands

Investment Criteria	Amherst	Boston	Dartmouth	Lowell	Medical	University
Asset Preservation	573,190	241,380	222,859	240,542	165,050	1,443,021
Economic Opportunity	8,861	4,564	6,192	75,234	7,710	102,561
Program Improvement	287,522	272,525	238,813	391,866	103,651	1,294,377
Reliability	77,412	184,458	16,880	159,520	97,747	536,017
Safety/Code	149,483	25,230	82,298	49,530	23,124	329,665
Grand Total	**1,096,468**	**728,157**	**567,042**	**916,692**	**397,282**	**3,705,640**

Timeframes: A = 1-3 years; B = 4-7 years; C = 8-10 years

Investment Criteria:

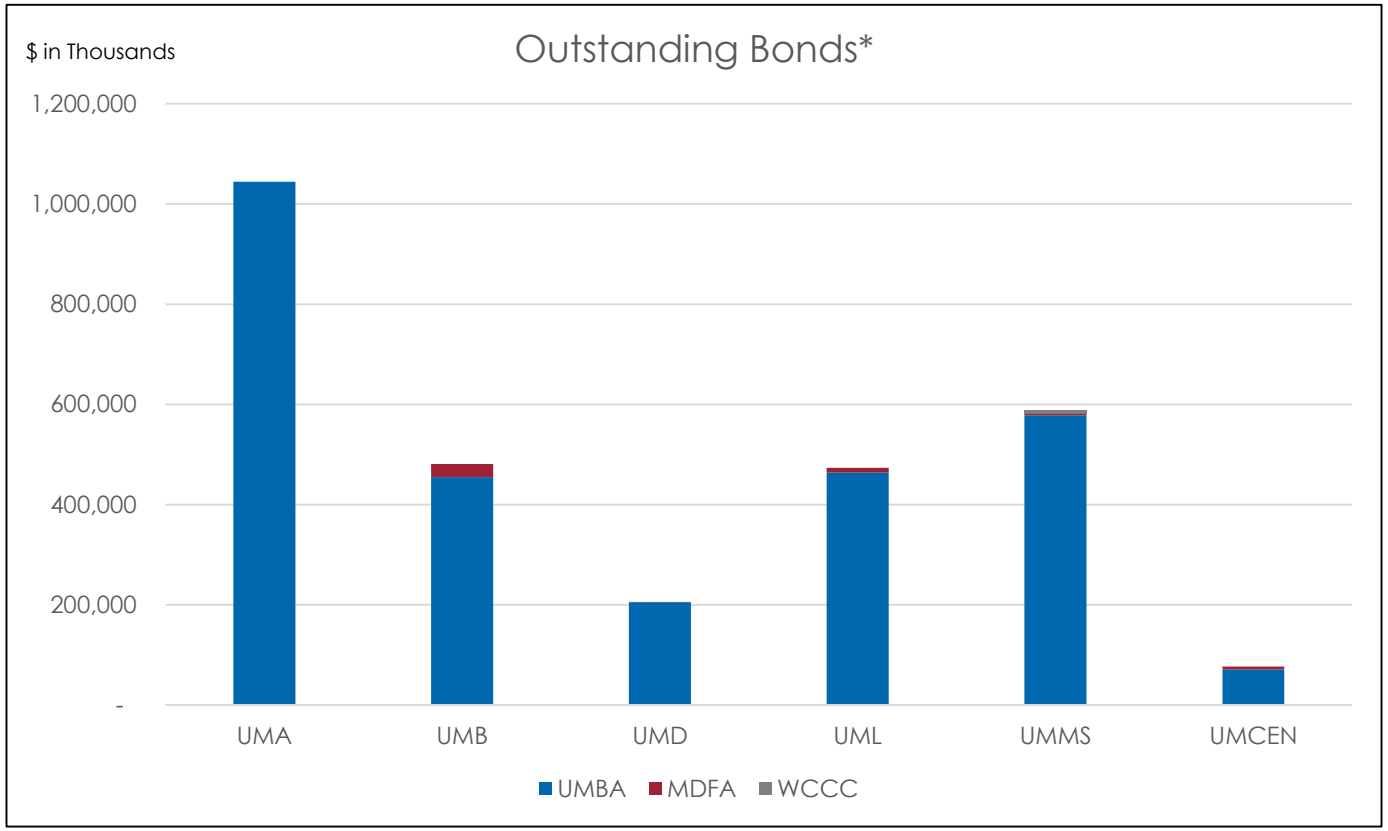
- Reliability: Issues of imminent failure or compromise to the system that may result in interruption to program or use of space.
- Asset Preservation: Projects that preserve or enhance the integrity of building systems or building structure, or campus infrastructure.
- Safety/Code: Code compliance issues and institutional safety priorities or items that are not in conformance with current codes, even though the system is "grandfathered" and exempt from current code.
- Program Improvement: Projects that improve the functionality of space, primarily driven by academic, student life, and athletic programs or departments. These projects are also issues of campus image and impact.
- Economic Opportunity: Projects that result in a reduction of annual operating costs or capital savings.

Key Financial Indicators

University Outstanding Debt

- The University had $2.9 billion in outstanding bonds as of 6/30/18

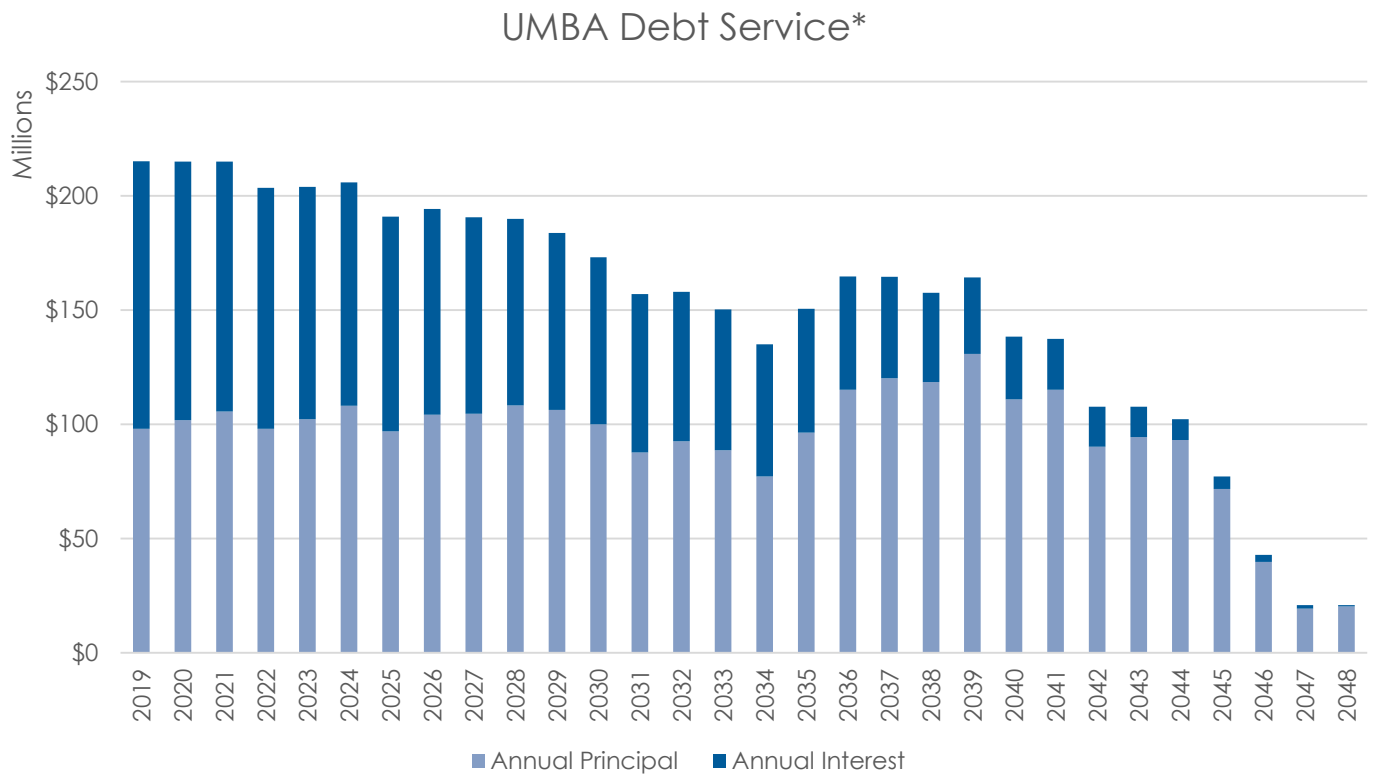
- University Debt consists of UMBA bonds, MDFA bonds, & WCCC bonds:
  - UMBA debt profile = $2.8 billion
  - MDFA debt profile = $45.7 million
  - WCCC debt profile = $6.5 million



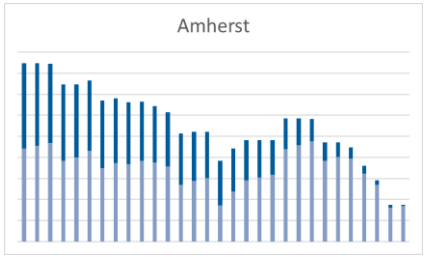
*Outstanding long term bond principal only; does not include unamortized bond premium or capital leases.

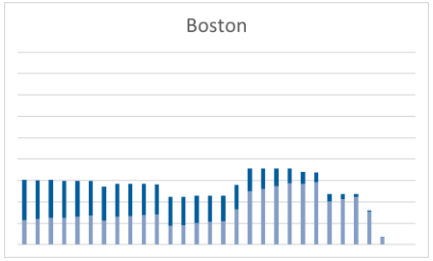
UMBA Bonds

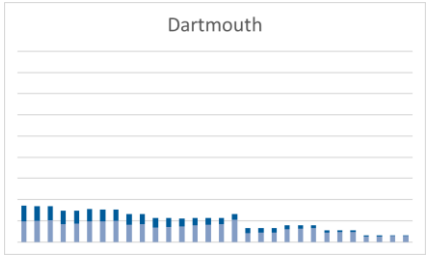
- UMBA debt profile as of June 30, 2018 totals $2.8 billion
- 53.4% of outstanding UMBA bonds are payable within 15 years

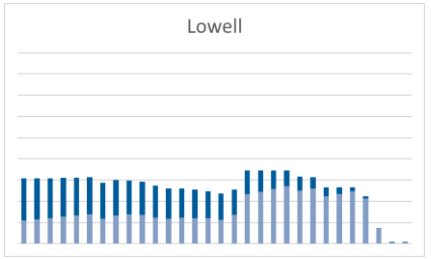


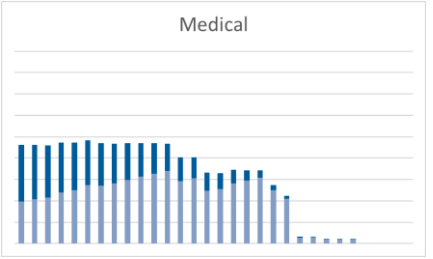
*Does not include outstanding MDFA/WCCC debt



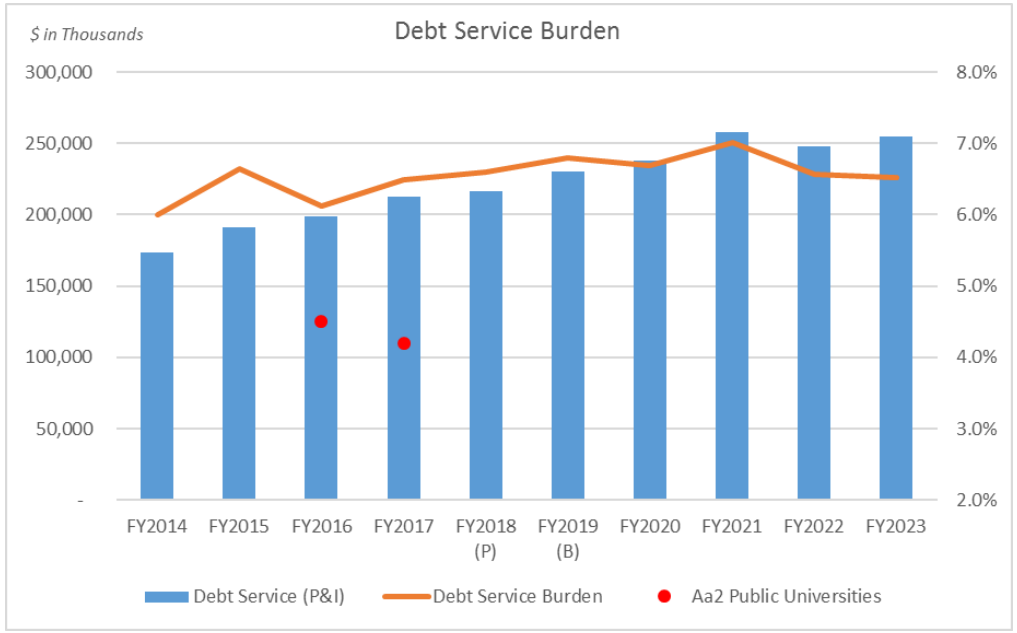






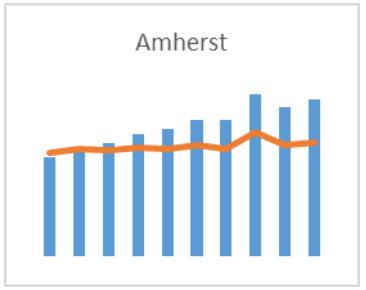


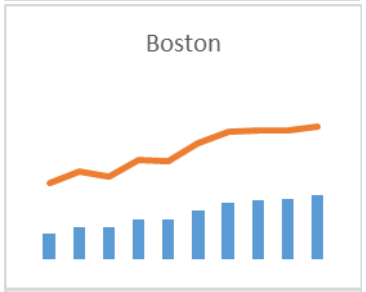
Debt Service Burden

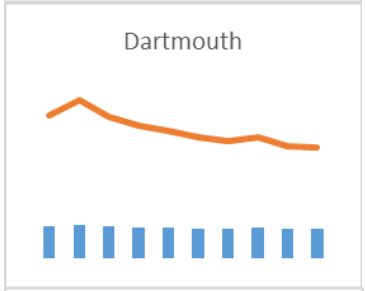


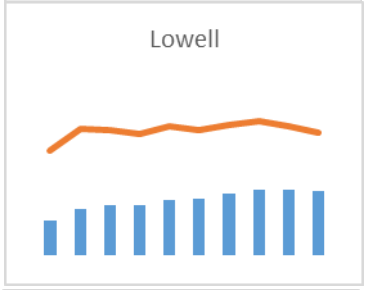
	Actual				Projection	Budget	Forecast			
	FY2014	FY2015	FY2016	FY2017	FY2018 (P)	FY2019 (B)	FY2020	FY2021	FY2022	FY2023
Amherst	6.2%	6.4%	6.4%	6.6%	6.5%	6.7%	6.5%	7.4%	6.7%	6.8%
Boston	4.5%	5.2%	4.9%	5.9%	5.8%	6.9%	7.6%	7.7%	7.7%	7.9%
Dartmouth	8.5%	9.3%	8.4%	7.8%	7.5%	7.1%	6.9%	7.2%	6.7%	6.5%
Lowell	6.3%	7.6%	7.5%	7.3%	7.7%	7.5%	7.8%	8.0%	7.7%	7.3%
Medical	5.6%	6.2%	5.2%	6.0%	6.3%	6.1%	5.5%	5.3%	5.1%	4.9%
Central	0.1%	3.1%	3.7%	3.4%	3.4%	5.8%	5.1%	5.2%	5.2%	5.2%
University	**6.0%**	**6.6%**	**6.1%**	**6.5%**	**6.6%**	**6.8%**	**6.7%**	**7.0%**	**6.6%**	**6.5%**

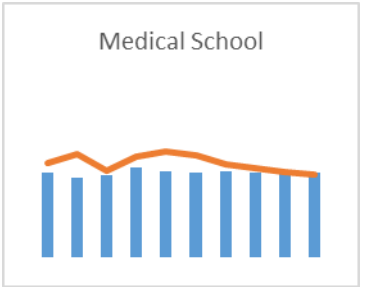
Note: Forecast is from November 2017



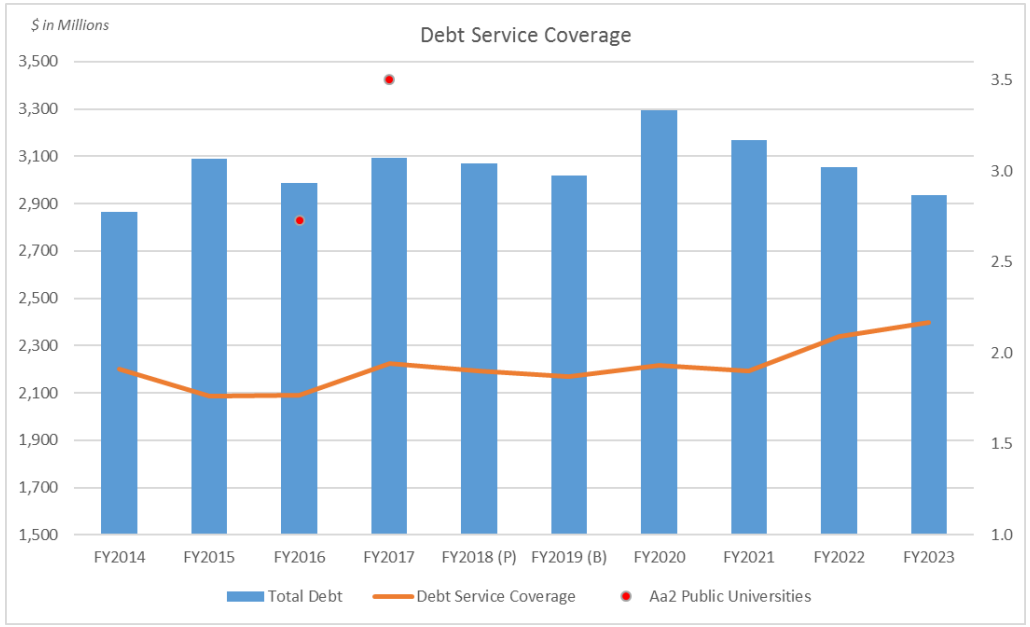






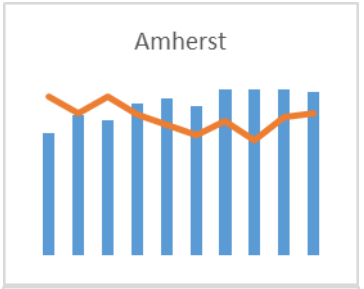


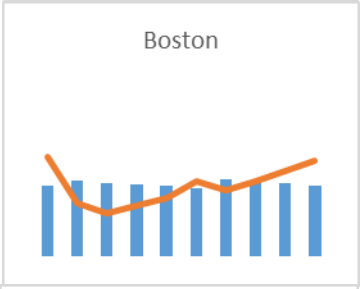
Debt Service Coverage

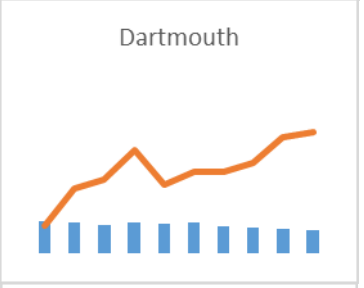


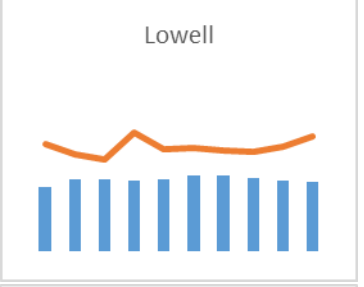
	Actual				Projection	Budget	Forecast			
	FY2014	FY2015	FY2016	FY2017	FY2018 (P)	FY2019 (B)	FY2020	FY2021	FY2022	FY2023
Amherst	2.5	2.3	2.5	2.3	2.2	2.0	2.2	2.0	2.3	2.3
Boston	1.7	1.2	1.0	1.1	1.2	1.4	1.3	1.4	1.6	1.7
Dartmouth	0.8	1.3	1.4	1.8	1.4	1.5	1.6	1.4	1.7	1.9
Lowell	1.8	1.7	1.7	2.0	1.8	1.8	1.8	1.8	1.8	1.9
Medical	1.3	1.3	1.7	2.2	2.2	2.2	2.1	2.2	2.4	2.4
Central	N/A	4.7	4.6	5.7	2.7	1.6	1.7	1.8	1.9	1.9
University	**1.9**	**1.8**	**1.8**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**2.1**	**2.2**

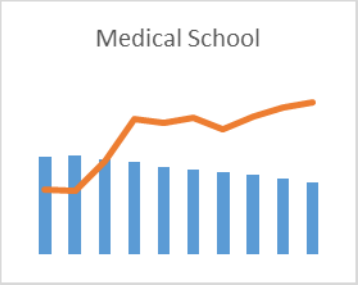
Note: Forecast is from November 2017











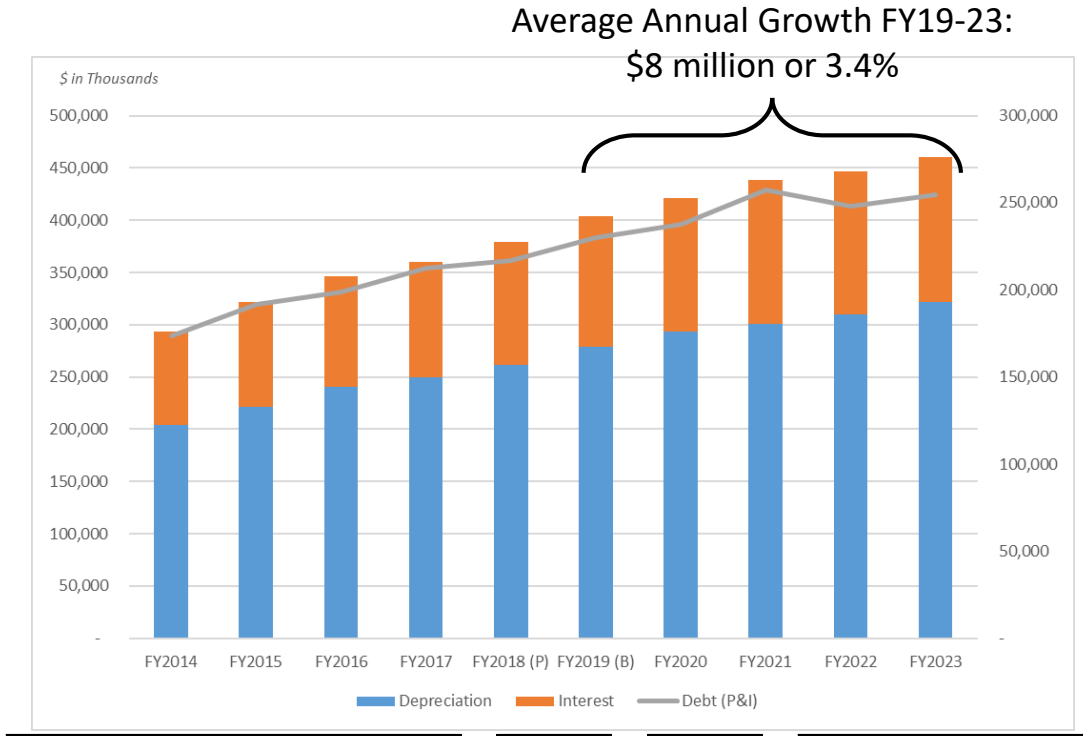
Expense Drivers: Depreciation & Interest

- Depreciation & Interest expenses in support of the capital plan impact the annual operating budget

- The approved project list reflects 30 projects that will come on line over the 5-year financial forecast period and impact these expenses

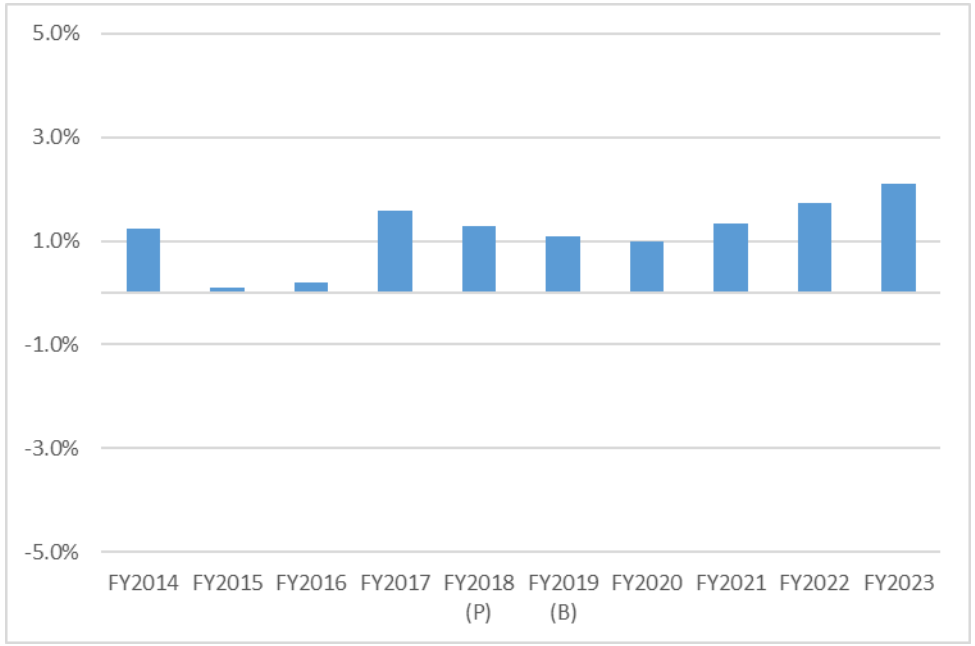
- Those projects are reflected in the expenses presented to the Board in November and drive the annual 3.4% growth

Note: Forecast is from November 2017



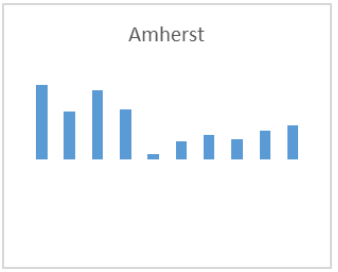
	Actual				Projection	Budget	Forecast			
$ in Thousands	**FY2014**	**FY2015**	**FY2016**	**FY2017**	**FY2018 (P)**	**FY2019 (B)**	**FY2020**	**FY2021**	**FY2022**	**FY2023**
Amherst	108,296	119,262	129,031	136,659	149,483	157,961	164,521	178,604	182,452	191,508
Amherst Growth		*10.1%*	*8.2%*	*5.9%*	*9.4%*	*5.7%*	*4.2%*	*8.6%*	*2.2%*	*5.0%*
Boston	19,949	24,705	28,052	34,722	36,733	46,660	56,030	55,139	57,775	60,168
Boston Growth		*23.8%*	*13.5%*	*23.8%*	*5.8%*	*27.0%*	*20.1%*	*-1.6%*	*4.8%*	*4.1%*
Dartmouth	23,681	24,915	25,872	27,433	28,509	29,780	29,823	30,341	32,532	33,586
Dartmouth Growth		*5.2%*	*3.8%*	*6.0%*	*3.9%*	*4.5%*	*0.1%*	*1.7%*	*7.2%*	*3.2%*
Lowell	36,237	47,037	54,257	52,917	58,073	60,736	63,662	66,882	68,138	68,326
Lowell Growth		*29.8%*	*15.3%*	*-2.5%*	*9.7%*	*4.6%*	*4.8%*	*5.1%*	*1.9%*	*0.3%*
Medical	99,476	97,175	95,791	94,868	98,880	99,584	99,824	100,659	101,949	104,060
Medical Growth		*-2.3%*	*-1.4%*	*-1.0%*	*4.2%*	*0.7%*	*0.2%*	*0.8%*	*1.3%*	*2.1%*
Central	5,978	8,281	13,137	13,139	7,823	8,880	8,562	8,756	8,954	9,151
Central Growth		*38.5%*	*58.6%*	*0.0%*	*-40.5%*	*13.5%*	*-3.6%*	*2.3%*	*2.3%*	*2.2%*
University	**293,617**	**321,375**	**346,140**	**359,738**	**379,502**	**403,601**	**421,297**	**438,042**	**446,913**	**460,583**
Total Growth		*9.5%*	*7.7%*	*3.9%*	*5.5%*	*6.4%*	*4.4%*	*4.0%*	*2.0%*	*3.1%*

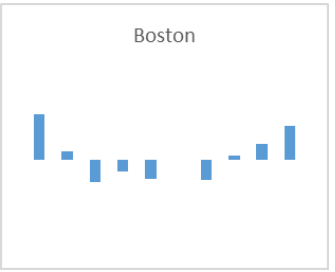
Operating Margin

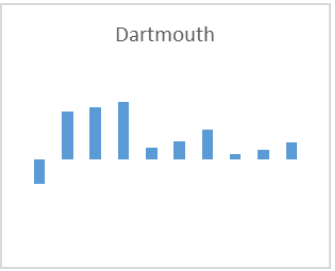


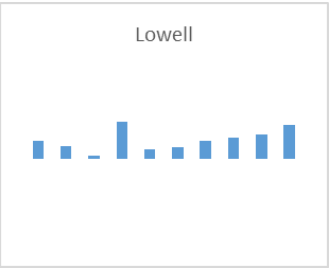
	Actual				Projection	Budget	Forecast			
	FY2014	FY2015	FY2016	FY2017	FY2018 (P)	FY2019 (B)	FY2020	FY2021	FY2022	FY2023
Amherst	4.4%	2.8%	4.1%	3.0%	1.5%	0.9%	1.5%	1.2%	1.7%	2.0%
Boston	2.7%	0.5%	-1.3%	-0.7%	-0.7%	0.0%	-1.2%	0.3%	0.9%	2.0%
Dartmouth	-1.5%	2.8%	3.1%	3.4%	0.7%	1.1%	1.7%	0.3%	0.5%	1.0%
Lowell	1.0%	0.8%	0.2%	2.2%	1.0%	0.7%	1.0%	1.2%	1.4%	2.0%
Medical	-3.6%	-4.2%	-1.1%	3.2%	2.1%	2.0%	1.2%	1.8%	2.0%	2.0%
Central	14.7%	-1.5%	0.7%	6.4%	2.4%	1.3%	1.5%	1.8%	2.0%	2.0%
University	**1.2%**	**0.1%**	**0.2%**	**1.6%**	**1.3%**	**1.1%**	**1.0%**	**1.3%**	**1.7%**	**2.1%**

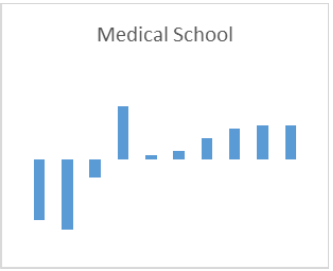
Note: Forecast is from November 2017











Project Votes

September: Preliminary Campus Estimate (Vote 1)

- 4 projects requesting approval for the preliminary campus estimate (first vote)
- These projects are funded by a combination of sources and will follow the traditional procurement process
- All projects are greater than $10 million in cost and therefore require Board approval

			Funding Sources				
Campus	**Project Name**	**Preliminary Campus Estimate**	**Local Funding**	**External Funding**	**Borrowed Funding**	**State Funding**	**P3**
UMA	Central Heating Plant Boiler/Co-Gen Fitout	$25,000,000	-	-	$25,000,000	-	-
UMA	Energy Improvements	$15,000,000	$11,700,000	$1,000,000	-	$2,300,000	-
UMA	Office/Lab/Academic Renovations	$52,500,000	$6,500,000	-	$46,000,000	-	-
UML	Critical Repair - Olsen Strategic Renovations, Repairs and Replacements	$18,500,000	$12,400,000	-	-	$6,100,000	-
	TOTAL	**$111,000,000**	**$30,600,000**	**$1,000,000**	**$71,000,000**	**$8,400,000**	**$0**

September: Preliminary Campus Estimate (Vote 1)

Amherst Central Heating Plant Boiler/Co-Gen Fitout

- Completed an energy master plan that identified priority initiatives; work to date reduced greenhouse gas emissions by 30%.
- Identified as priority to ensure adequate and reliable steam to the campus.
- A spare bay is ready to be fit out with additional boiler infrastructure.
- Completed a study to review options for this spare bay including the need for an additional duct bank to optimize the electrical output and reduce annual costs.
- Project design includes potential opportunities for the use of alternative fuels to further reduce greenhouse gas emissions.

September: Preliminary Campus Estimate (Vote 1)

Amherst Energy Improvements

- Energy conversion project in partnership with DCAMM.
- The campus and DCAMM completed a study to identify top priority energy improvements with returns on investment from utility cost reductions.
- Project will include incentives through strategic MOU with utility provider.
- The campus will continue to work with DCAMM to finalize scope and validate energy saving estimates.

September: Preliminary Campus Estimate (Vote 1)

Amherst Office/Lab/Academic Renovations

- Renovation of various offices, laboratories and academic instruction spaces.
- Includes renovations to accommodate new faculty hires and to renovate backfill spaces on campus.
- Targets deferred maintenance in the spaces and buildings being renovated.

September: Preliminary Campus Estimate (Vote 1)

Lowell Critical Repair - Olsen Strategic Renovations, Repairs and Replacements

- The campus has allocated a significant portion of its five-year critical repair funding to address deferred maintenance needs of Olsen Hall and provide necessary infrastructure in the building to support future work including the recovery and renovation of teaching and research labs on the upper floors of the building.

- The prioritized critical repair projects were developed from a sequence and matrix that was prepared by Goody Clancy as part of a thorough study of the building.

- Scope will include: replacement of roofing, a chiller, the electrical substation and emergency electric system, air handling equipment, the building's chilled water generation system, fire alarm risers, various plumbing systems and equipment, as well as special services supporting research labs and the vivarium that is located in the building.

- Utilizes DCAMM Critical Repair funding.

September: Preliminary Campus Estimate (Vote 1: P3)

- 2 projects requesting approval for the preliminary campus estimate (first vote) for potential P3 financing
- Capital Investment Screening Checklist completed for each project

			Funding Sources				
Campus	**Project Name**	**Preliminary Campus Estimate**	**Local Funding**	**External Funding**	**Borrowed Funding**	**State Funding**	**P3**
UMA	Housing Expansion	$175,000,000	-	-	-	-	$175,000,000
UMA	North Village Apartments	$70,000,000	-	-	-	-	$70,000,000
	TOTAL	**$245,000,000**	**$0**	**$0**	**$0**	**$0**	**$245,000,000**

September: Preliminary Campus Estimate (Vote 1: P3)

Amherst Housing Expansion

- The campus and UMBA previously issued a request for information (RFI) to determine developer interest in a housing P3.
- The campus subsequently completed a housing demand study that identified the need for up to 1000 additional beds.
- An options analysis will be completed to determine if P3 is a possible delivery option.
- Considerations include:
  - Demand for studio/apartment style housing and associated programming
  - Impact on the local community
  - Need to maintain debt capacity to address deferred maintenance backlog

September: Preliminary Campus Estimate (Vote 1: P3)

Amherst North Village Apartments

- The North Village apartments, housing graduate student families, was built in 1971 as temporary modular housing, has significant deferred maintenance needs; it is the only campus family housing.
- It is determined to be more cost effective to rebuild than to renovate.
- An options analysis will be completed to determine if P3 is a possible delivery option.
- Considerations include:
  - Demand for family housing separated from traditional student housing
  - Construction costs to replace current housing on current land
  - Rent rate sensitivities

September: Full Project Approval (Vote 2)

- 4 projects requesting full project approval (second vote)

Campus	Project Name	Preliminary Campus Estimate (First Vote)	Full Project Approval (Second Vote)	Funding Sources				
				Local Funding	External Funding	Borrowed Funding	State Funding	P3
UMA	McGuirk Scoreboard & Seasonal Bubble	$13,000,000	$18,000,000	$11,000,000	$7,000,000	-	-	-
UMA	Whitmore Deferred Maintenance	$14,000,000	$4,000,000	-	-	$1,752,000	$2,248,000	-
UML	Science & Engineering Master Plan-Olsen Renovations 1	$40,000,000*	$10,000,000	-	-	$10,000,000	-	-
UMB	Demolish Substructure, Science Center, and Pool (Master Plan Phase I)	$155,000,000**	$114,500,000	-	-	$36,500,000	$78,000,000	-
UMB	Renovations to Existing Academic Buildings (McCormack Hall and Wheatley Hall) (Master Plan Phase I)	$75,000,000	$41,000,000	-	-	$41,000,000	-	-
	Subtotal UMB		$155,500,000	-	-	$77,500,000	$78,000,000	-

*The Preliminary Campus Estimate (first vote) reflected an allocation of funding that was included in the Higher Education Bond Bill but was subsequently frozen. The scope of the first phase was consequently reduced.

**Boston Substructure Demolition & Quadrangle Redevelopment project tracked as 2 projects in the Capital Plan.

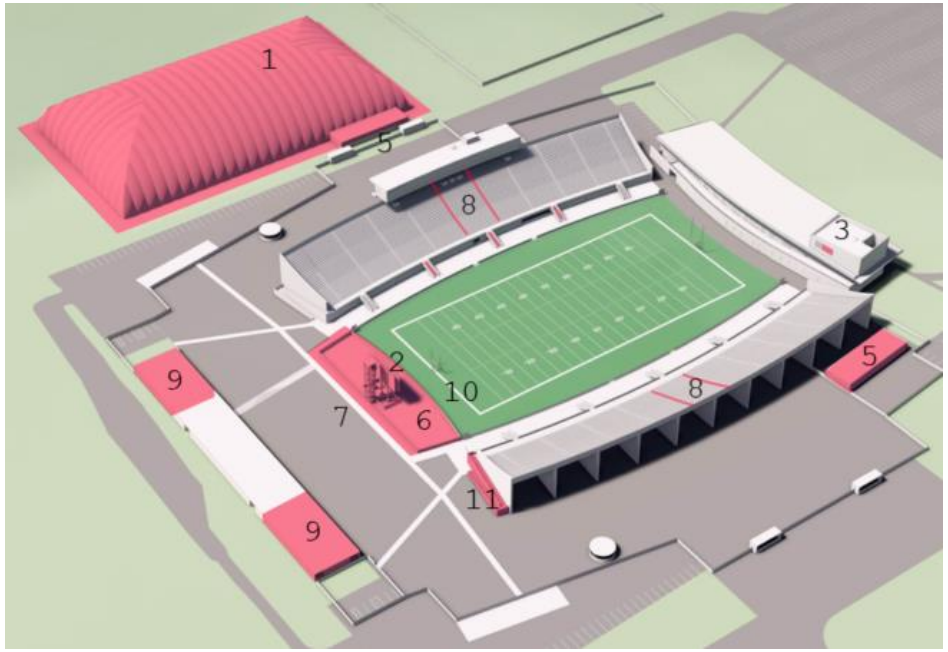
September: Full Project Approval (Vote 2)

Amherst McGuirk Video Scoreboard & Seasonal Bubble

- Construction of new turf field sized for football, lacrosse and soccer, with seasonal air supported structure, adjacent to McGuirk Stadium.

- Additional improvements for accessibility, permanent restrooms, and other related fan experience improvements including video scoreboards and hospitality area in south end zone.

- Total fundraising of $7 million for the project.



September: Full Project Approval (Vote 2)

Amherst Whitmore Deferred Maintenance

- Project scope includes $4 million for priority deferred maintenance in HVAC and electrical.

September: Full Project Approval (Vote 2)

Boston Substructure Demolition and Quadrangle Development (SDQD)

- Substructure (including former parking garage) continues to deteriorate; after several studies, the decision was made by the Campus and DCAMM to demolish; Project scope refreshed in 2018 through concept validation study to keep costs within available funding

- State committed $78 million (50% of the total project cost) to support the project

- Several Projects on the Campus approved project list contribute to the $155.5 million cost :
  - Demolition of Substructure, Science Center & Pool
  - Renovation of Existing Academic Buildings (REAB) project scope updated to accommodate vacating the Science Center and additional enabling work including relocations of the Data Center, Machine Shop & Greenhouse. Project utilizes existing remaining REAB bond funding toward vacating Science Center portion of the project as part of campus 50% funding

September: Full Project Approval (Vote 2)

Lowell Science & Engineering Master Plan-Olsen Renovations 1

- Olsen Hall was constructed as a Biology building in 1974 and has not been significantly updated since.
- Multiple phased projects in the $80 million master plan will replace and modernize the entire building's technical facilities, severely deteriorated infrastructure, and optimize the existing space.
- Will enhance ability to provide foundational workforce training for the health, biotech, and life sciences sectors.
- Previous relocation of the Computer Sciences department has emptied the 2nd and 3rd floors of Olsen enabling this initial phase
  - 3rd floor will be comprehensively renovated to provide 8 conventional classrooms and 2 team-based active-learning instructional rooms for 34 and 64 students.
  - 2nd floor will receive a modest refresh to allow the Biology department to occupy existing offices

University of Massachusetts

September: Cost Increases

- There are no projects with cost increases above 10% this quarter.

Appendix: Campus Data

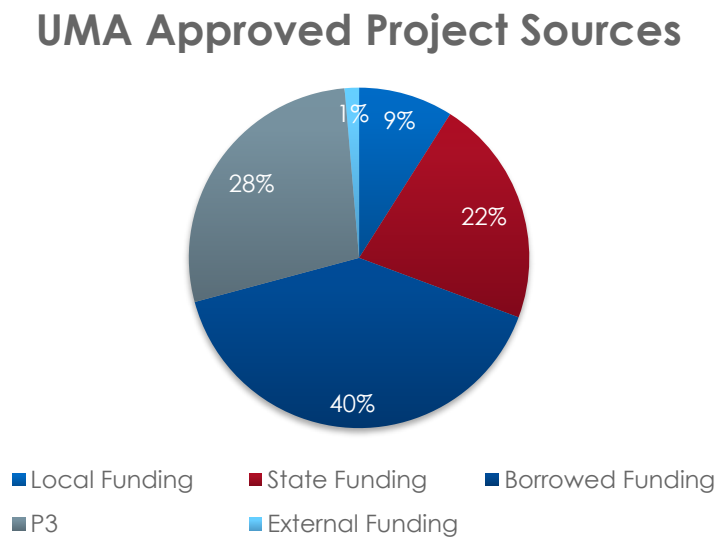
Amherst

- UMass Amherst relies on comprehensive academic program and space utilization studies to inform the implementation of the Master Plan and capital priorities. The capital plan provides new and modernized facilities to meet the demands of an increasingly competitive market in higher education. It also recognizes that UMass Amherst's deferred maintenance backlog and growing inventory of obsolete space must be addressed to remain competitive as a leading public research university.
- The underlying strategy of the plan is to 1) target investment in areas of the highest impact; and 2) balance investments across deferred maintenance, modernization, and new construction so as to achieve the greatest possible return on investment and broadest improvement in physical capacity.

	Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
	#	$	#	$
FY17 Plan	5	$ 33,250,000	14	$ 683,000,000
FY19 Plan	10	$ 434,050,000	8	$ 446,800,000

Debt Burden Ratio

FY16 Actual	FY17 Actual	FY18 Projected	FY19 Budget	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast
6.4%	6.6%	6.5%	6.7%	6.5%	7.4%	6.7%	6.8%



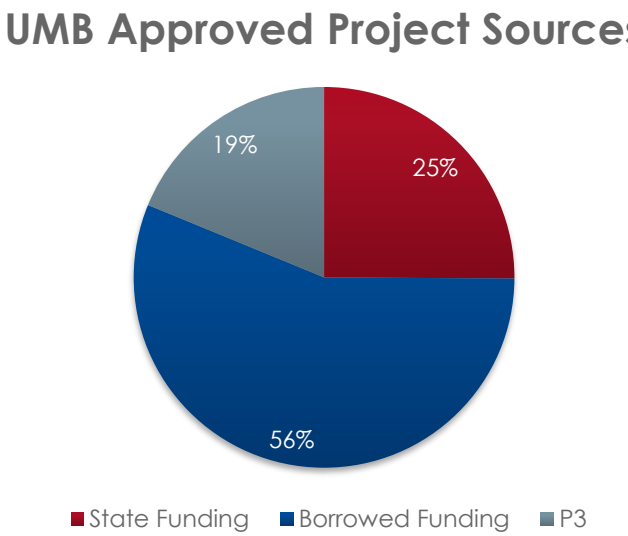
Boston

- The University of Massachusetts Boston FY19-FY23 Capital Plan represents the University's effort to meets its most critical physical plant needs with the resources currently projected to be available. The projects contained in the plan fall into three categories:
  - Completing essential construction and renovation projects already underway;
  - Accomplishing the demolition of a large portion of the Substructure, the Science Center, and the Clark Pool, and the development of a central Quadrangle in their place; and
  - Addressing other high-priority infrastructure and Critical Repair needs.

	Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
	#	$	#	$
FY17 Plan	3	$ 42,500,000	14	$ 846,650,000
FY19 Plan	0	$ -	8	$ 635,212,693

Debt Burden Ratio

FY16 Actual	FY17 Actual	FY18 Projected	FY19 Budget	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast
4.9%	5.9%	5.8%	6.9%	7.6%	7.7%	7.7%	7.9%



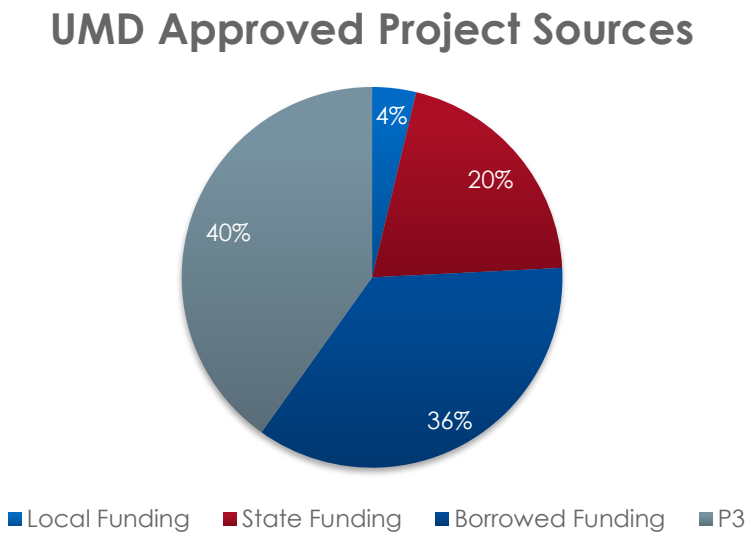
Dartmouth

- UMass Dartmouth's FY19-FY23 Capital Plan is driven by the completion of the Campus Masterplan in late 2017. Central to the Campus Masterplan is our commitment to honor the legacy of the university's original architect while confronting our deferred maintenance challenge though the renovation and replacement of outdated facilities.
- Every dollar invested in the campus will be mission-specific, such as renovated and new academic facilities with flexible, collaborative, technology-rich and engaging learning environments, replacement of first-year housing to provide a compelling mix of living and learning options, improved and expanded research capacity and capability to boost faculty recruitment, retention and productivity, among others.

	Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
	#	$	#	$
FY17 Plan	0	$ -	4	$ 94,745,500
FY19 Plan	1	$ 54,436,421	4	$ 214,218,138

Debt Burden Ratio

FY16 Actual	FY17 Actual	FY18 Projected	FY19 Budget	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast
8.4%	7.8%	7.5%	7.1%	6.9%	7.2%	6.7%	6.5%



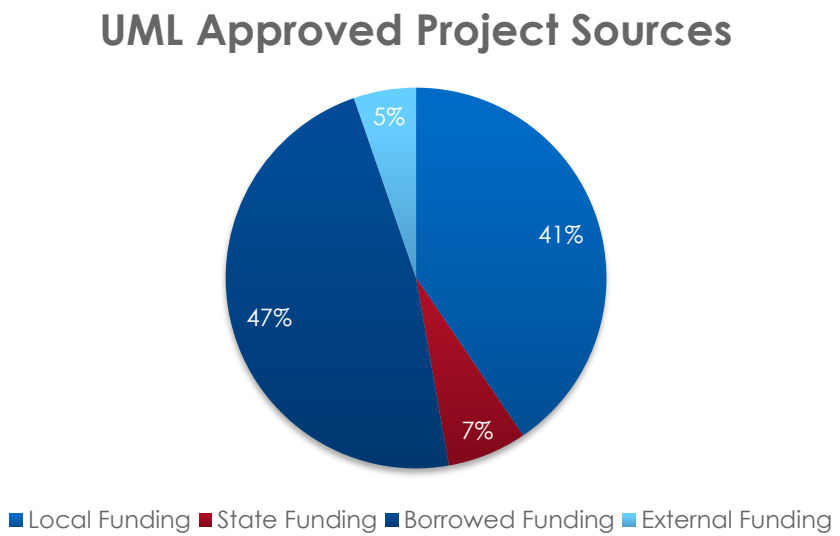
Lowell

- UMass Lowell's FY19-23 capital plan reflects the priorities outlined in the UMass Lowell 2020 Strategic Plan within a constrained fiscal environment.
- UMass Lowell's success in executing its Capital Plan will reinforce its growing national and international recognition as a world-class institution.
- Anticipated capital expenditures will directly address academic, research, student life, recreational and infrastructure needs. All of the new projects and the vast majority of the ongoing major projects included in the capital plan will help reduce the substantial deferred maintenance backlog on campus.

	Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
	#	$	#	$
FY17 Plan	5	$ 92,000,000	6	$ 234,000,000
FY19 Plan	1	$ 18,500,000	5	$ 151,400,000

Debt Burden Ratio							
FY16 Actual	FY17 Actual	FY18 Projected	FY19 Budget	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast
7.5%	7.3%	7.7%	7.5%	7.4%	8.0%*	7.6%	7.3%

*UML projected debt ratio assumes level debt service payments on future borrowing; if an alternative debt service structure is implemented, the projected debt ratio will remain under 8%.



Medical School

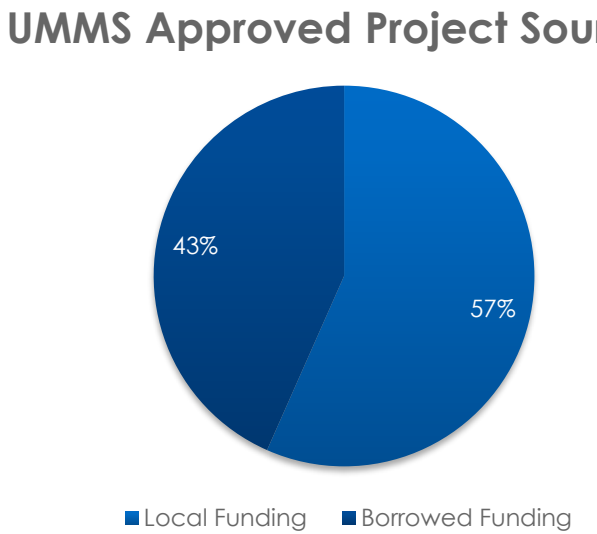
- The University of Massachusetts Medical School's FY19-23 Capital Plan is informed by two key institutional documents: 1) the UMMS/UMass Memorial Academic Health Sciences Center Strategic Plan; and 2) the UMMS Master Plan.
- The strategic plan outlines a path for the campus to advance the health and well-being of the people of the Commonwealth and the world through pioneering advances in education, research and health care delivery. The UMMS Master Plan provides the Medical School with a functional and detailed blueprint for space planning and construction that is based on growth assumptions and institutional goals.
- Management has analyzed capital needs for academics and teaching; the research enterprise; Commonwealth Medicine; and MassBiologics, in addition to the existing backlog of deferred maintenance and repair projects. The plan focuses on optimizing space and reducing the deferred maintenance backlog while balancing funding resources.

	Prelim Campus Estimate First Vote		Full Project Approval Second Vote	
	#	$	#	$
FY17 Plan	7	$ 68,340,000	2	$ 106,000,000
FY19 Plan	4	$ 40,840,000	4	$ 97,500,000

Debt Burden Ratio

FY16 Actual	FY17 Actual	FY18 Projected	FY19 Budget	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast
5.2%	6.0%	6.3%	6.1%	5.5%	5.3%	5.1%	4.9%

Note: Debt Service Burden does not include borrowing for the VA Capital Project. If the project is federally approved, this ratio is expected to grow 0.1-0.2% per year over the forecast



Definition of Phases

1. Conceptual – Initial project identification that there is a need by Campus, possibly from Master Plan.
2. Feasibility Report – Developed by the Campus to identify and establish initial project scope, justification, preliminary program, size, location, deferred maintenance, enabling projects, schedule and project budget. Funding sources identified.
3. Owner's Project Manager / Designer Procurement – Owner's Project Manager (OPM) and Designer selection and award.
4. Study / Schematic Design – Project Study; Program development/verification; Schematic Design. Final scope determined with estimated construction cost (ECC), total project cost (TPC) and schedule defined.

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5. Design – Project design continues through Design Development and Construction Document phase.
6. Final Design / Early Construction Packages – Completion of design, bid phase, construction mobilization, early construction packages commence, establish Guaranteed Maximum Price (GMP).
7. Construction – Project is under construction.
8. Substantial Completion – Final 1% of construction, punch list, final commissioning, certificate of occupancy, closeout, final report.
9. A. Construction Complete – Construction on the project is complete however bills continue to be paid on the project so reporting in the database continues.
9. B. Financially Complete – All construction and bills associated with the project are complete and the project can be archived in the database.