

Efficiency and Effectiveness (E&E) Report

2019



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Introduction



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Current Context

The UMass system needs to be more efficient given long-term enrollment projections, flat state support, and the mission to maintain quality and affordability.

- While enrollment has been growing, changing demographics are expected to slow enrollment
- Fringe rate and collective bargaining have driven the majority of state funding increases
- University-funded aid is the largest source of “free” aid to students; Increases to tuition and student need add pressure to this cost driver
- Increases to In-State Undergraduate tuition is born out of the need for reliable sources of funds that support cost drivers, however this adds to student cost of attendance and directly impacts financial aid

Efficiency & Effectiveness Initiative

- The University of Massachusetts Efficiency & Effectiveness initiative was launched in 2012
- System-wide collaboration has helped leverage economies of scale to reduce costs & achieve operating efficiencies
- Collaboration has led to new System-wide initiatives:
 - **Better Together Initiative:** The University has established a solid foundation by leveraging common technology and working “Better Together”
 - **Shared Services:** Alternative service delivery models, such as shared services, present opportunities to build on the foundation and bring significant benefits to all campuses
- This report highlights those efforts and reports on progress for FY17 & FY18, as well as progress to date through the E & E program

Cost Savings and Reductions

- Since the launch of the Efficiency & Effectiveness initiative, \$124 million in total cost savings has been achieved
- Actual spending was reduced by \$22.3 million – cost avoidance totaled \$102.3 million
- Allows for re-investment into student programs and services that help improve academic quality
- The University's goal is to accelerate the pace of cost reduction achieved through re-alignment of the organizational structure and enhanced operational efficiencies

Cost Savings Methodology

Cost Reduction and Cost Avoidance

In order to ensure that cost savings are being appropriately estimated, the University has created two categories by which costs savings are evaluated.

Cost Reduction represents the amount of actual savings due to the implementation of an initiative usually within the first year of the project.

Costs Avoided represent the amount of costs avoided due to the implementation of an initiative usually over a period of fiscal years of costs were averted that would otherwise have been spent.

Total Cost Savings = \$124M

Summary of E&E Effort Since 2012

(\$ in Thousands)	# Projects	Cost Reductions	Cost Avoidance	Total Savings
Purchasing Initiatives	26	\$6,507	\$26,411	\$32,918
Energy & Sustainability*	33	\$12,975	\$51,617	\$64,592
IT Initiatives	72	\$2,834	\$17,339	\$20,172
Facilities	10	\$0	\$6,200	\$6,200
Library	4	\$0	\$823	\$823
Total	145	\$22,316	\$102,390	\$124,705

Note: Total savings includes savings associated with contracts that were in place when the E & E program was launched in FY13. Savings also include contracts currently in place that have end dates ranging to 2024 (projected savings).

*The energy solar/net metering projects have contract end dates ranging from 2034-2039 that add an additional \$27.3 million in cost avoidance which is not included in totals above.

Achievements

- The UMass system is the largest public off taker of solar net metering projects in the state, supporting the development of solar projects in Massachusetts
- UMass received a Models of Efficiency Award from University Business Journal for the Mobile Device Management Project which consolidated accounts and pooled minutes at a System level, resulting in approximately \$500,000 in annual cost savings
- UMass received a Governor's Citation as Quasi-Public Organization of the year for outstanding participation in the Commonwealth's Supplier Diversity Program
- UMass System has received two Davis Foundations grants to support the work of the Better Together Initiative and Shared Services implementation

Efficiency & Effectiveness: Goals and Strategies



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Efficiency and Effectiveness Goals

1. Maintain access and affordability for students
2. Enhance quality of educational experience by optimizing resources devoted to teaching, research, and the overall student experience
3. Demonstrate UMass is operating efficiently and effectively by reporting on dollars saved and costs avoided
4. Use savings to invest in campus strategic priorities

Efficiency and Effectiveness Strategies

Strategies to help drive greater efficiencies across the UMass System:

- Integrate with *Better Together UMass* to leverage other efficiencies efforts, including Shared Services, happening across the University
- Enhance transparency in current operations
- Support investments in programs that reduce energy consumption
- Leverage the University's buying power
- Determine strategic priorities to streamline IT services
- Redirect efficiency savings to support the University's strategic priorities
- Identify strategic opportunities for new efforts while encouraging cross-campus collaboration

Shared Services Strategy



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Shared Services Key Benefits

- Responsive, consistent, high-quality customer service
- Cost savings achieved through a focus on efficiency and strategic sourcing and category management
- Professional growth opportunities through a shift to a unified organizational structure

Savings Opportunity Overview

Strategic Sourcing and Category Management

\$13.75 million*

Estimated, ongoing savings attributed to increased emphasis on strategic sourcing and category management

Operational Efficiency

\$1.5 million**

Estimated annual savings attributed to a shift to a Unified Procurement Services Team model based on peer research

Prompt Pay Discounts

\$1.25 million***

Estimated annual savings attributed to greater utilization of prompt pay discounts

\$16.5 million total estimated savings

Savings Opportunity Overview

- Shared services will accelerate by 3x the rate at which we have achieved savings through our E&E effort
 - Shared services projected saving over 18 months = \$16.5M
 - E&E savings achieved over last 7 years = \$22.3M

This will help the University:

- Maintain access and affordability for students
- Enhance quality of educational experience by optimizing resources devoted to teaching, research, and the overall student experience
- Further demonstrate UMass is operating efficiently and effectively
- Invest in strategic priorities of the campuses

Shared Services Next Steps

- Establish a Unified Procurement Services Team responsible for system-wide procurement and accounts payable led by a Chief Procurement Officer (CPO)
- Provide services to all campuses through the Unified Procurement Services Team
- Establish a governance structure to ensure strong campus customer relationships
- Measure and report results against Service Level Agreements (SLAs) and Key Performance Indicators (KPIs)
- Continue to analyze payroll and time and labor to develop a future service delivery model

Efficiency and Effectiveness: Areas of Focus



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Efficiency and Effectiveness Committees

Procurement

Stewardship of University resources to maximize the purchasing power of the University System by responsibly managing spend, mitigating risk, creating process improvements and efficiencies throughout the University enterprise procurement system.

Energy

Reduce energy cost by enhancing and expanding energy conservation. Demonstrate that UMass is conserving energy and operating with fiscal efficiency.

Facilities

Enhance overall quality by improving the efficiency & effectiveness of operations and plan facilities investments to maximize lifespan and minimize long-term deferred maintenance costs.

Strategic IT

Propose innovative IT sourcing strategies and opportunities to maximize productivity and effectiveness of technology investments in a manner that demonstrates strong financial stewardship.

Sustainability

Integrate environmental stewardship and social well-being with operational and E&E practices.

Library

Collaboratively and innovatively leverage the economies of scale within our library services to share expertise best practices, and buying power when negotiating with library vendors.

Procurement



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Procurement Council

Mission Statement

- To provide leadership with regard to the stewardship of University resources. Support the University to maximize research and administrative efficiencies through responsibly managing discretionary spend, reducing risk, and creating process improvements and efficiencies throughout. Provide leadership and guidance on procure-to pay and related matters. Continuous adaptation to emerging technology, evolving supply chain thinking and changes in economic conditions. Manage to an overall goal of enhancing the student learning experience.

Goals

- Ensure compliance with Board of Trustee Procurement Policy
- Collaborate to leverage economies of scale to reduce costs, maximize service offerings, and mitigate risk
- Implement creative, automated solutions to managing the procurement process
- Create a central database inclusive of all University contracts
- Conduct all business dealings professionally, with integrity and transparency

Procurement Cost Savings Report By Project

Cost Savings = Cost reduction + Cost avoidance

(\$ in Thousands)	FY10-FY16 Savings	FY17-FY18 Savings	FY19-FY21+ Projected Savings	Total Projected Savings
Purchasing Initiatives	\$11,206	\$8,516	\$13,196	\$32,918

(\$ in Thousands)			
Project	FY17	FY18	Total
Athletics Advertising	300	300	600
Copier/Printer Maintenance	800	800	1,600
Dorm Mattress Bid	30	30	60
Elevator maintenance	572	572	1,144
Executive search services	90	90	180
IT staff augmentation	5	5	10
Lab Supplies re-bid	1,000	1,000	2,000
Office Supplies	1,200	1,200	2,400
Travel Services	125	142	267
Waste stream management	130	-	130
Campus Audits phone & cable	-	111	111
AP Audit-Spendmend	-	14	14
Total	4,252	4,264	8,516

Procurement Council Roadmap

Strategic Initiatives FY19-FY20

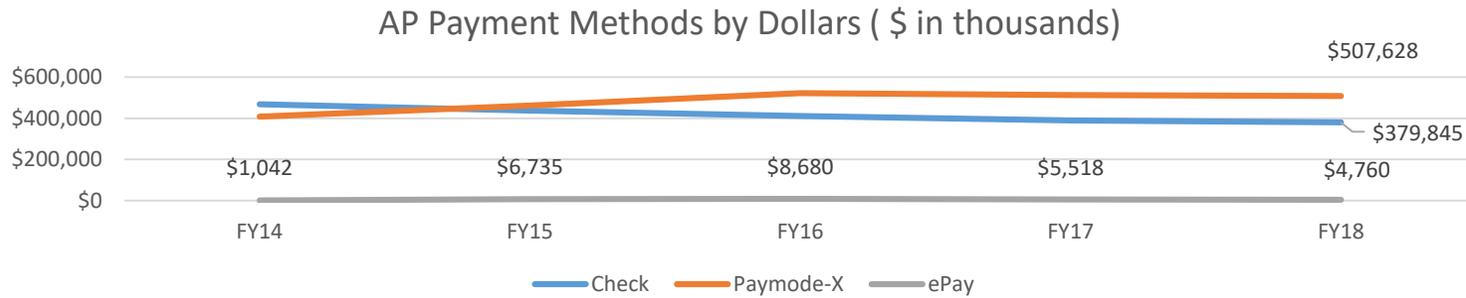
- Supplier Diversity Program
 - Enhance participation with local agencies supporting supplier diversity
 - Increase number of MBE companies under contract
- Achieve System standardization
- Enhance procurement metrics, goals, reports across the system

Targeted Projects FY19-FY20

- Award & Implementation Janitorial Supplies
 - \$3.5 million Annual Spend
 - Projected cost reduction \$580K annual based on low bid
- Bid for Multi-functional Printing Devices
 - 1200 units with coterminous lease end dates
 - Existing contract provides \$800k cost avoidance
- Bid Temporary Help Services
 - \$2 million annual spend
 - Projecting 10% cost savings through system bid

Procurement Metrics: Accounts Payable E&E Efforts:

The University continues to move away from check payments to alternative forms of electronic payment.



Transaction Count	FY14	FY15	FY16	FY17	FY18
Check	71,670	66,239	65,205	61,460	56,380
Paymode-X	28,982	34,723	41,349	45,160	49,880
ePay	224	1,173	1,807	1,604	1,203
Total	100,876	102,135	108,361	108,224	107,463

Procurement Metrics

Approximately 90% of requisitions approved in one day or less providing the shopper with next day delivery of goods purchased in many cases.

Days to Process Requisitions				
Days to Process	FY17 Reqs Processed	FY17 % Processed	FY18 Reqs Processed	FY18 % Processed
30+	271	0.20%	509	0.35%
11-29	1,561	1.14%	1,863	1.29%
6-10	2,967	2.16%	3,192	2.21%
2-5	9,797	7.13%	10,417	7.20%
<1	122,734	89.37%	128,622	88.95%

Procurement Metrics

University Goal is 70% (best in class) electronic invoice processing. Additional onboarding of catalogue vendors will help drive that goal.

Electronic Invoices Processed					
	FY14	FY15	FY16	FY17	FY18
Total Invoices	179,361	201,759	207,870	228,506	251,853
Total Electronic Invoices	45,486	71,693	72,575	110,420	133,645
% Electronic Invoices	25%	36%	35%	48%	53%

Energy



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Energy Working Committee Charter

Mission Statement

- Enhance and expand energy conservation so as to reduce the cost impacts of energy to support the University's goal of affordability for students. Contribute to sustainability to achieve prescribed goals and set the example for students of today and the future. Demonstrate that UMass is conserving, operating fiscally efficiently by reporting savings, costs avoided and energy consumed against agreed metrics.

Goals

- Identify and implement cost-effective energy conservation strategies
- Collaboratively share between campuses successful energy technology, procedures and opportunities
- Leverage the University's resources and size for commodity and technology procurements as well as acquiring grants
- Identify opportunities to invest in energy conservation that will support the University's strategic priorities, especially in facilities infrastructure, the backlog of deferred maintenance, and sustainability
- Seek opportunities for energy incentives (grants) for the purpose of reinvesting to achieve energy goals

Energy Cost Savings By Project

Cost Savings = Cost reduction + Cost avoidance

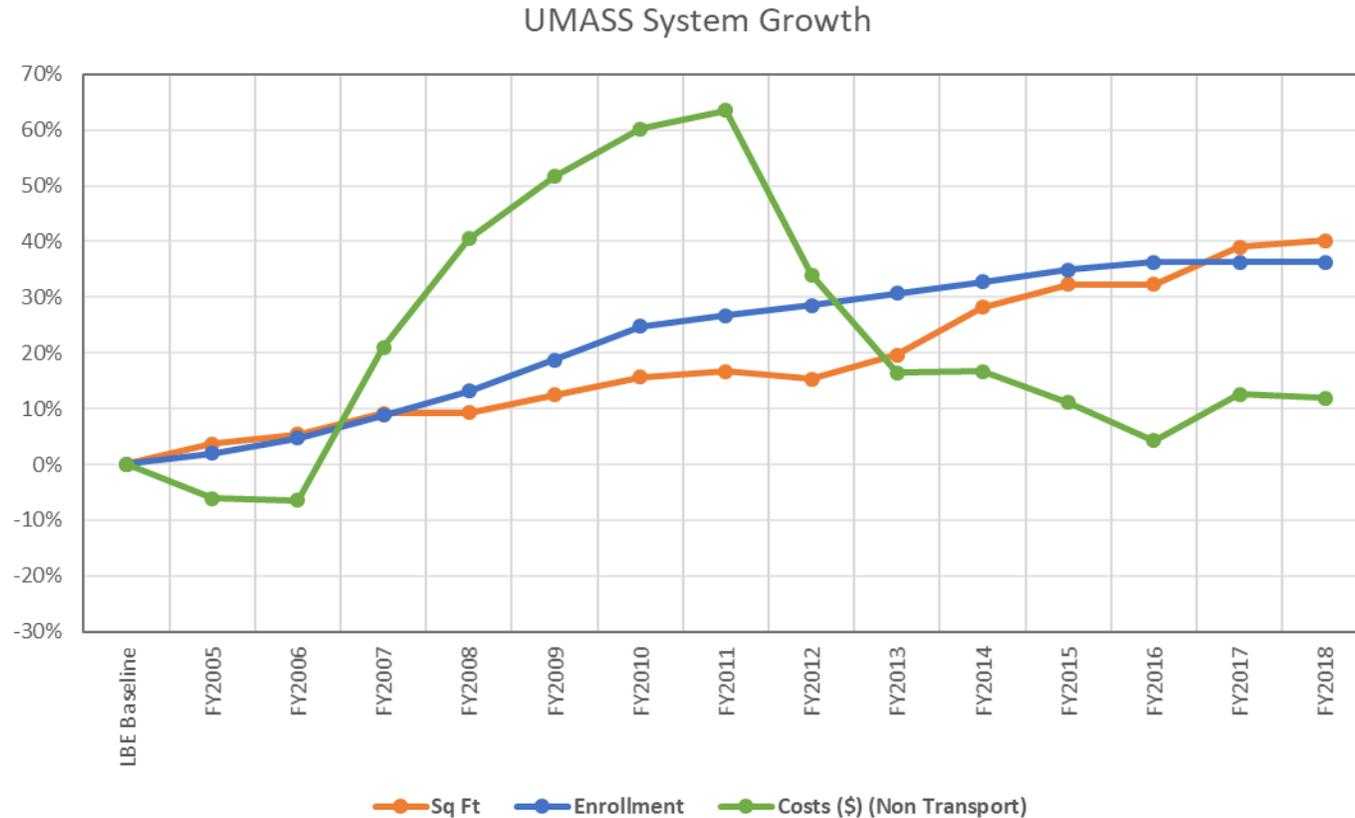
(\$ in Thousands)	FY10-FY16 Savings	FY17-FY18 Savings	FY19-FY21+ Projected Savings	Total Projected Savings
Energy & Sustainability*	\$34,675	\$6,537	\$50,695	\$91,907

(\$ in Thousands)			
Project	FY17	FY18	Total
Electricity Bid	759	459	1,218
Natural Gas Procurement	(259)	(112)	(371)
Solar/Net Metering Contract	2,655	3,035	5,690
Total	3,155	3,382	6,537

*Projected savings incorporate any savings associated with contracts that extend through or beyond FY19. The energy solar/net metering projects have end dates ranging from 2034-2039.

Efficiency Measures

Despite growth in enrollment and square footage, energy supply costs have declined.

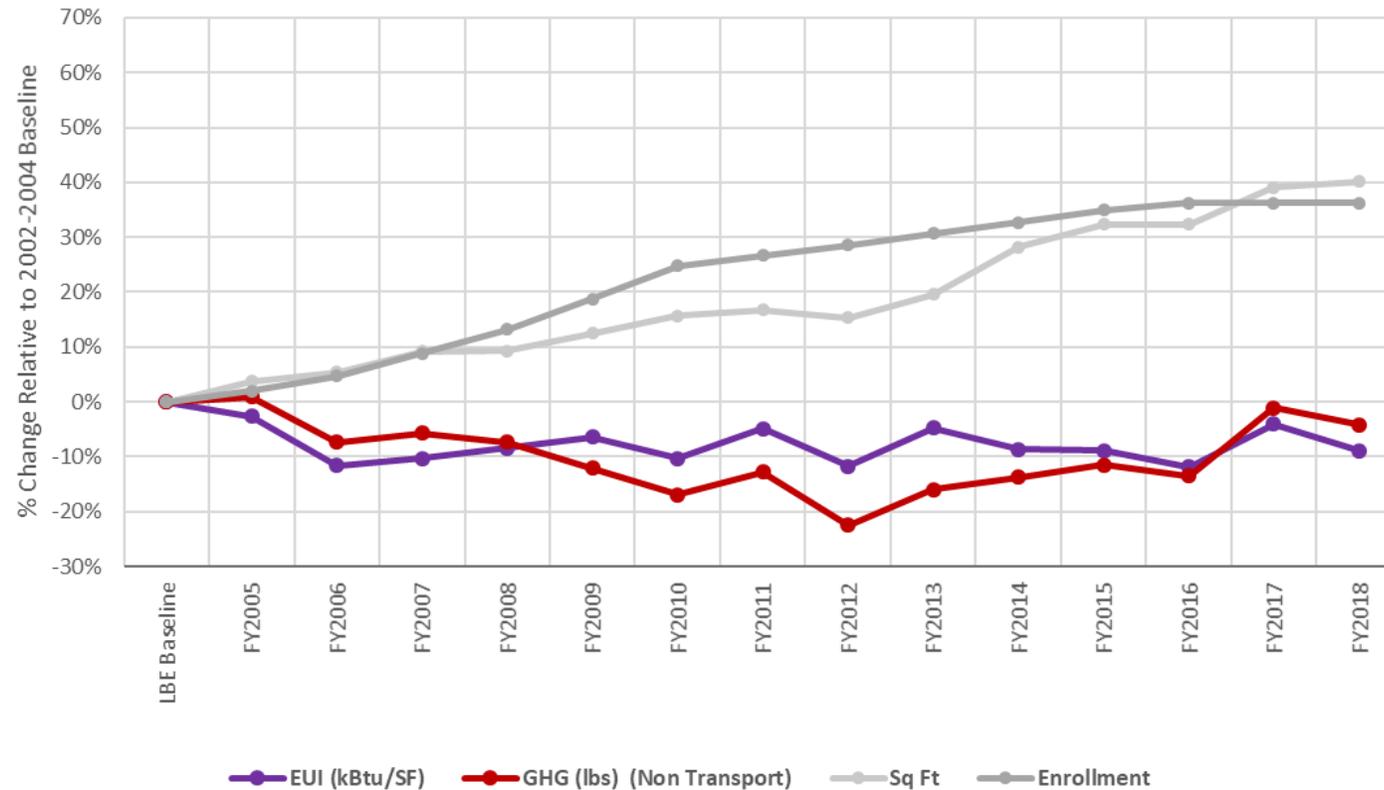


Note: Leading By Example baseline 2002-2004 indicates when the Commonwealth implemented Executive Order 484 requiring state-owned facilities to report energy usage and carbon output to the Department of Energy Resources. Baseline will be used in all of the energy metrics incorporated in this report.

Efficiency Measures

Despite growth in enrollment and square footage, energy use (EUI) and related carbon emissions (GHG) have remained level.

Energy Use and Growth Have Decoupled



Energy Working Committee Roadmap

Targeted Projects FY19-FY20

- Investigate/develop RFP's for new technologies & Alternative Energy sources
 - Additional Solar Projects, Battery Storage Projects , Fuel Cell Projects
 - Electric vehicle charging stations
 - Pilot natural gas curtailment program
- Electricity and natural gas bids
 - Complete Bid process for both commodities to leverage coterminous agreements across the system
- Complete retro-commissioning pre-qualified vendor contract; these vendors will assess the energy efficiency of our existing building systems (heating, cooling, electrical, etc.) and recommend updates to maximize the efficiency of these systems over the life span of the building
 - Implement recommendations made by vendors to optimize building efficiency

Facilities



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Facilities Committee

Mission Statement

- Through collaboration, leveraging of purchasing power and implementation of industry best practices, deliver quality and cost-effective facilities services to the campuses. Benchmark and track asset reinvestment and annual stewardship targets providing the resources to assure quality and reliable infrastructure. Validate and demonstrate the effectiveness and quality of systems in place.

Goals

- Identify, socialize and execute long-term and sustainable opportunities to be more efficient and effective in delivering facility and operational services
- Encourage cross-campus collaboration to discover best practices
- Develop strategies to buy down the problematic deferred maintenance backlog
- Develop and define cost avoidance strategies
- Research and explore ways to optimize the vast human capital infrastructure providing facilities operations through joint technical training, enhanced management training, process improvement and work order tracking systems
- Articulate the funding requirements to meet varying levels of facility and infrastructure quality and resiliency levels and match to current funding sources

Facilities Working Committee Cost Savings Report

- The Facilities Working Committee formed during the second half of FY17 and has been working on implementing projects in the areas listed below. While there are no savings to report for FY17-FY18, projects initiated during that period are projected to save \$6.2 million during FY19. Those projects include a preventive maintenance pilot program for roof maintenance that has yielded \$5.2 million in savings, and the implementation of janitorial best practice with regard to office waste services that has resulted in \$1 million in savings.
- The Committee work has been divided into four sub-committees to more effectively manage the \$361 million assigned spend :
 - Facilities Maintenance System Improvements
 - Janitorial Services Efficiencies
 - Shared Procurement Opportunities
 - Design & Construction Contracting

Facilities Working Committee Roadmap

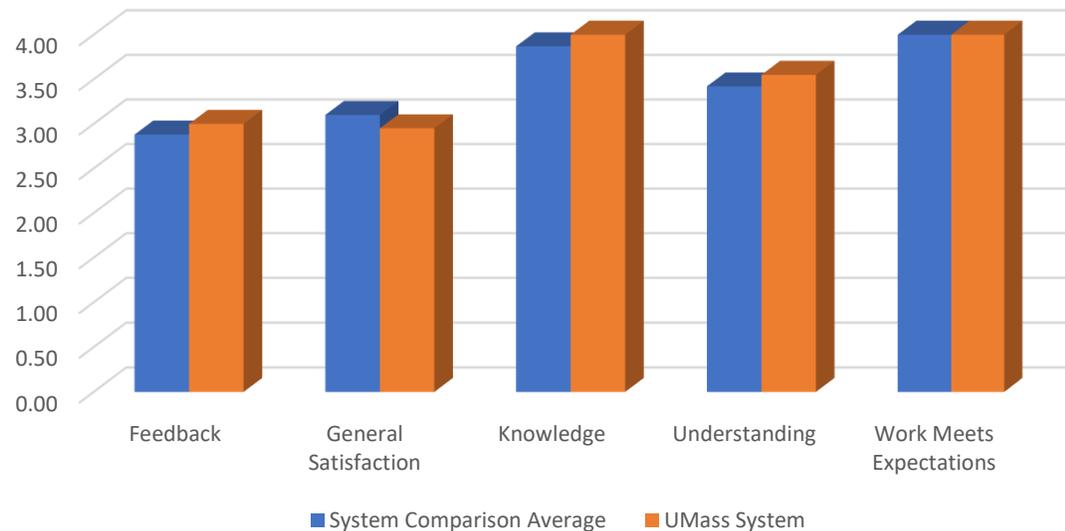
Targeted Projects FY19-FY20

- Complete review of Facilities Software Maintenance Systems
 - Develop list of targeted areas for system-wide standardization
- Implement University-wide Janitorial Standards
 - Training, staffing, procedures
- Complete retro-commissioning pre-qualified vendor contract
 - Optimize building efficiency
- Expand roof preventive maintenance program
- Develop best practices, including pre-qualified vendors in the design & construction areas

Facility Metrics- UMass as Compared to Peer Group

The Sightlines web-based customer survey is sent to a selected group of facilities users and results are reviewed to understand the level of expectation that customers have regarding facilities services. Rating scale: 1-5 (5 best)

Customer Satisfaction Metrics

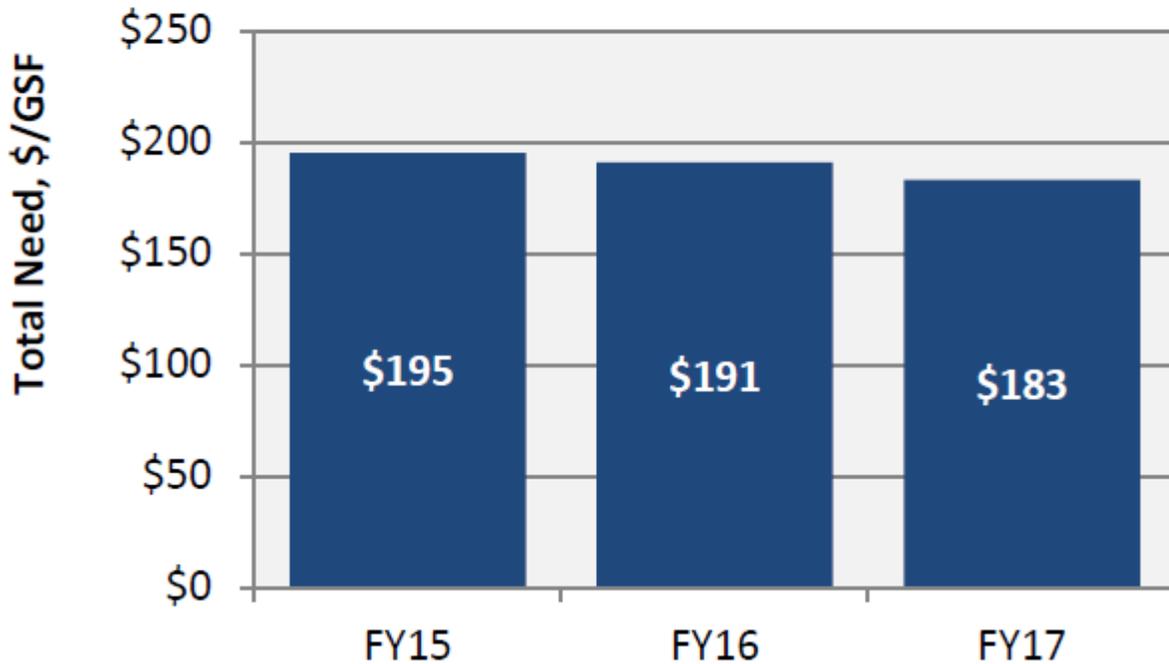


System Comparison Group*
Massachusetts State Colleges & University System
PASSHE System
Penn State System
University of Alaska Statewide System of Higher Education
University of Maine System
University of Missouri System
University System of New Hampshire

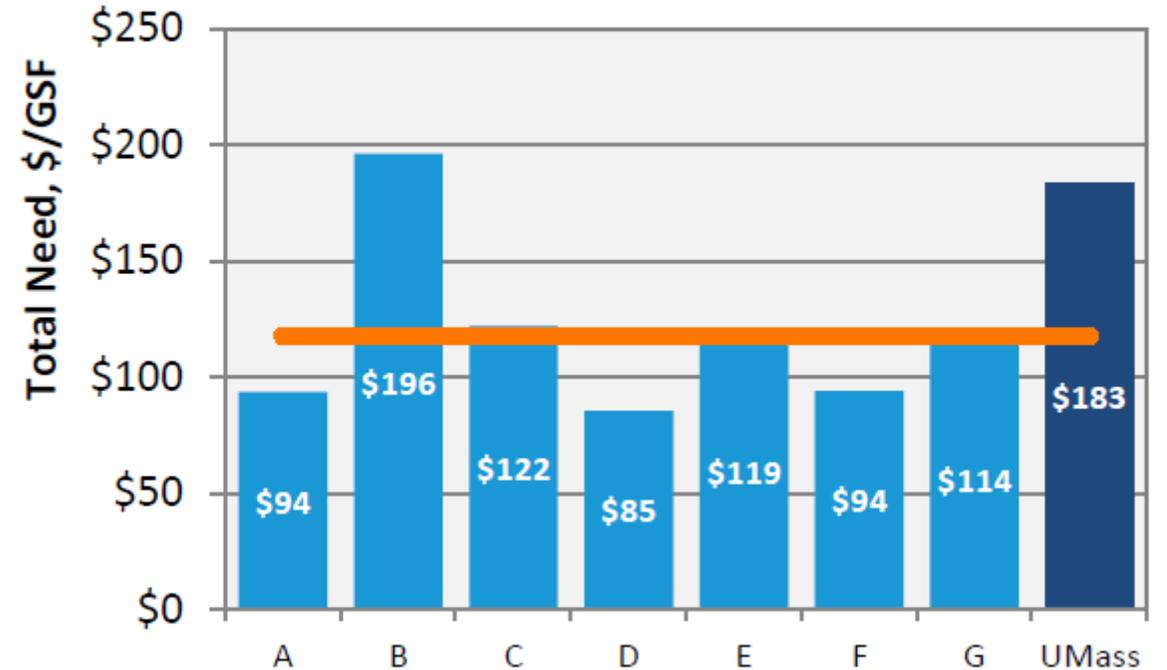
Facility Metrics- 10 year maintenance back-log UMass as Compared to Peer Group

UMass is addressing deferred maintenance back-log, however has a ways to go to reach the average of peer institutions.

Total System Identified Needs, \$/GSF



Total System Identified Needs vs. System Comparisons



Strategic IT Sourcing



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Strategic IT Sourcing Committee

Mission Statement

- To make bold strategic recommendations with regard to sourcing strategies and the management of technology resources to maximize productivity & effectiveness in a fiscally responsible way to achieve the UMass mission.

Goals

- Improve the quality of data to inform assessment and identification of IT sourcing opportunities
- To leverage economies of scale through joint purchasing to reduce costs & maximize service offerings
- Unless clear differentiation can be justified, create and implement product standardizations across major technology categories where efficiencies can be gained
- Review all vendor agreements to eliminate duplicative product offerings
- Identify opportunities to reduce cost and improve productivity by significantly changing service delivery models, business processes, and organization restructuring

IT Working Committee Cost Savings Report By Project

Cost Savings = Cost reduction + Cost avoidance

(\$ in Thousands)	FY10-FY16 Savings	FY17-FY18 Savings	FY19-FY21+ Projected Savings	Total Projected Savings
IT Initiatives	\$13,856	\$4,579	\$1,737	\$20,172

(\$ in Thousands)			
Project	FY17	FY18	Total
Echo 360 Contract Re-negotiation	50	50	100
IBM (SPSS) Renewal	-	10	10
IT Reseller RFP	128	-	128
Qualtrics - Survey Tool	30	40	70
VM Ware	305	400	705
Document Imaging Program	188	-	188
Employment Verification	60	55	115
Dashboard development-multiple	196	-	196
Immigration Dashboard	80	95	175
Math Works (Math Lab) Renewal	-	43	43
Mobile Device Management	-	480	480
Total	2,703	1,876	4,579

*Project List above features key contracts for FY17-FY18 but does not include all projects.

IT Working Committee Roadmap

Targeted Projects FY19-FY20

- Consolidate all campus VMWare contracts into a new enterprise licensing agreement
- Complete system-wide bid for electron signature services
- Develop total cost of ownership assessment for cloud/document storage, and Salesforce/CRM
- Complete system-wide contract for 3rd party maintenance
- Create an applications retirement program to reduce the number of legacy applications
- Consolidate the management and service delivery of the UMass wide area network
- Complete migration of all Exchange email environments to the cloud

Sustainability



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Sustainability Working Committee Charter

Mission Statement

- The University of Massachusetts Sustainability Council is committed to responsible stewardship of resources, demonstrating leadership in sustainable business practices, and continuously improving sustainability consistent with best practices.

Goals

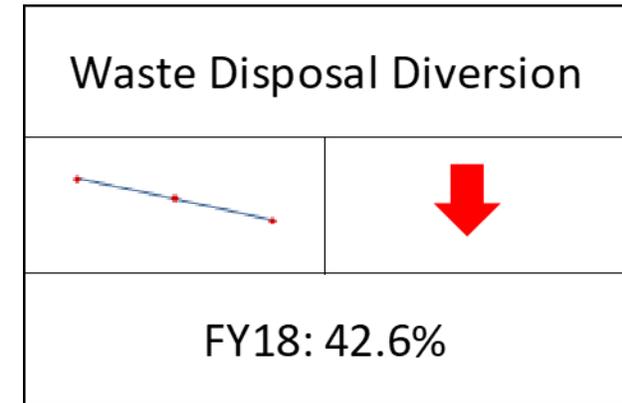
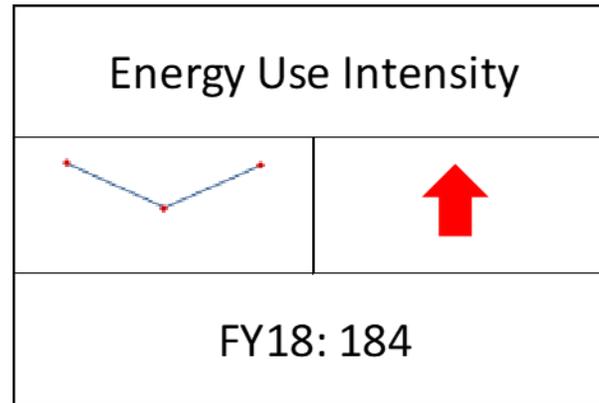
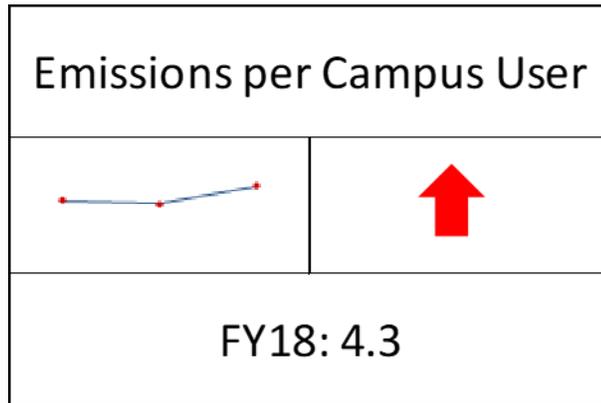
- Reduce energy consumption, increase efficiency and renewable energy, and include energy conservation as key value in capital projects
- Achieve carbon neutrality by 2050 or as specified through the sustainability planning occurring through the development of campus-specific action plans
- Preventative measures in waste diversion to promote waste reduction, re-use and recycling of used materials
- New construction to meet the MA Leadership in Energy and Environmental Design (LEED) plus green building standards, (LEED most current version) or other standards as identified through sustainability planning efforts

Sustainability Working Committee Roadmap

Targeted Projects FY19-FY20

- Develop a standard set of best practices for increasing clean and renewable energy options on campus
- Develop an Energy Use Intensity (EUI) benchmark by building type in line with energy star portfolio standards and/or other relevant standards
- Implement an energy tracking system on each campus
- Increase the % of Electronic Product Environmental Assessment Tool (EPEAT) certified electronic products
- Increase the amount of recycled content of paper products purchased
- Reduce cost of disposal for surplus furniture and equipment
- Improve performance of LEED buildings

Sustainability Metrics



Metric Tons of GHG Emissions/Campus User	FY2016	FY2017	FY2018
Amherst	4.3	4.1	4.2
Boston	2.2	2.2	2.3
Dartmouth	3.6	3.3	3.7
Lowell	1.8	1.8	2.2
Medical School	11.6	11.7	11.3
University	4.1	4.0	4.3

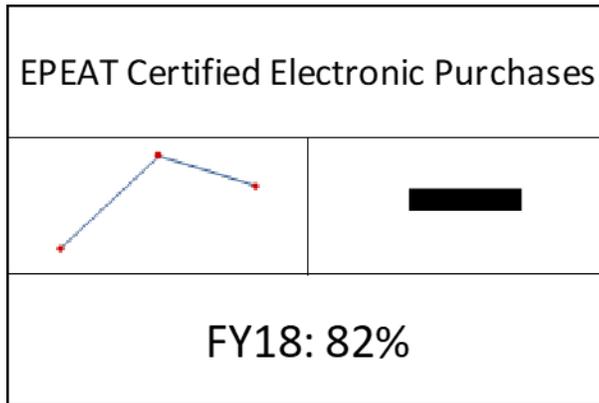
Kbtu/GSF	FY2016	FY2017	FY2018
Amherst	163.9	160.9	169.9
Boston	118.0	116.7	127.0
Dartmouth	138.7	23.6	31.1
Lowell	93.8	95.4	132.2
Medical School	498.9	516.5	505.6
University	186.0	148.4	184.0

%	FY2016	FY2017	FY2018
Amherst	NA	59.4	56.3
Boston	63.8	62.9	51.3
Dartmouth	NA	31.5	14.8
Lowell	42.1	40.8	48.0
Medical School	26.2	27.1	26.4
University	49.6	46.3	42.6

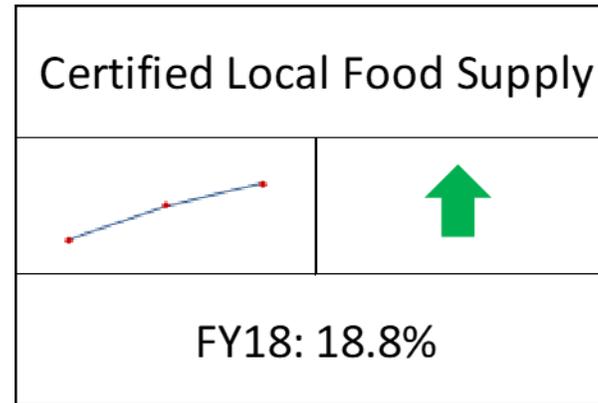
*GHG = Green House Gas

*Kbtu = kilo-British thermal unit (measure of energy)
GSF = Gross Square Foot

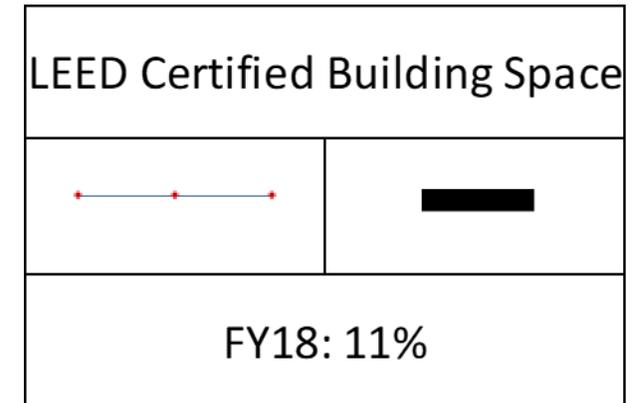
Sustainability Metrics



%	FY2016	FY2017	FY2018
Amherst	NA	NA	71.0
Boston (1)	NA	NA	100.0
Dartmouth	NA	NA	NA
Lowell	37.0	94.0	84.0
Medical School	51.0	96.0	98.0
University	54.0	96.0	82.0



%	FY2016	FY2017	FY2018
Amherst	NA	15.3	22.6
Boston	NA	25.0	20.6
Dartmouth	12.9	22.1	11.7
Lowell	NA	NA	6.3
Medical School	NA	NA	12.7
University	9.6	15.2	18.8



%	FY2016	FY2017	FY2018
Amherst	9.0	9.0	9.0
Boston	8.0	14.0	14.0
Dartmouth	0.0	0.0	1.0
Lowell	14.0	13.0	14.0
Medical School	24.0	24.0	24.0
University	11.0	11.0	11.0

*EPEAT = Electronic Product Environmental Assessment Tool

*LEED = Leadership in Energy and Environmental Design

Libraries



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Library Working Committee Charter

Mission Statement

- Maintain commitment to financial stewardship, high-quality resources and services for the UMass System, and affordability for students. Enhance overall quality by identifying opportunities to improve the efficiency & effectiveness of operations. Continue long-standing cross-campus collaborations. Evaluate and propose instances where university resources can be leveraged to improve services and resources. Where relevant, document efficient and effective operations by reporting impacts against agreed upon targets and benchmarks.

Goals

- Identify long-term and sustainable opportunities to be more efficient and effective in library operations
- Continue and grow cross-campus collaboration when such efforts affect E&E positively
- Develop strategies to leverage the University's resources including opportunities to seek grant funding
- Evaluate and propose opportunities where new and/or additional University funding for libraries can be leveraged to improve services and resources, making recruitment, retention, and affordability improvements
- Identify opportunities to support the University's strategic priorities, especially in areas that have identified needs

Library Working Committee Cost Savings Report

Cost Savings = Cost reduction + Cost avoidance

(\$ in Thousands)	FY10-FY16 Savings	FY17-FY18 Savings	FY19-FY21+ Projected Savings	Total Projected Savings
Library	\$448	\$150	\$225	\$823

(\$ in Thousands)			
Project	FY17	FY18	Total
Elsevier	112	38	150

- Contract also eliminated \$1 million in duplicate journals purchased across the UMass System allowing those funds to be reinvested in other Elsevier journals
- The Library Working Committee was newly formed during FY18. Informal collaboration was in place prior to formalizing the committee resulting in savings reported prior to FY17-FY18

Library Working Committee Roadmap

Targeted Projects FY19-FY20

- Intercampus subscription privileges based on 'relevant FTE' rather than total campus FTE
 - Lowell to pilot "Open Athens" platform; permissions granted at the UML student-level to a Boston subscription to the Invisible Body (with proportionate Lowell contribution); e.g. subscribe for targeted users, not the entire campus
- Achieve savings around Content Optimization Analyses
 - Consolidate subject-area subscriptions from two vendors to one; e.g. upgrade one subscription, cancel the partial duplicate, resulting in more content at lower cost
- Complete bid process for subscription services currently offered by EBSCO
 - For July 1, 2019 effective date
- Develop comprehensive eBooks program for student use
 - Target specific classes and faculty with offers to 1) purchase a multi-user e-textbook to replace the course text (with tech fees) and 2) adopt texts from our existing e-book subscription bundle as well as 3) adopt open educational (public domain) textbooks and, lastly, 4) create custom coursepacks with library materials to replace or supplement textbooks
- Establish a system-side Working Group to track ongoing changes in licensing practices, including Big Deal contracts, in preparation for future negotiations with Elsevier and other major publishers

Summary



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Appendices



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Appendices

1. Spend Analytics
2. Campus Reports

Spend Analytics

E & E FY18-FY19 Report



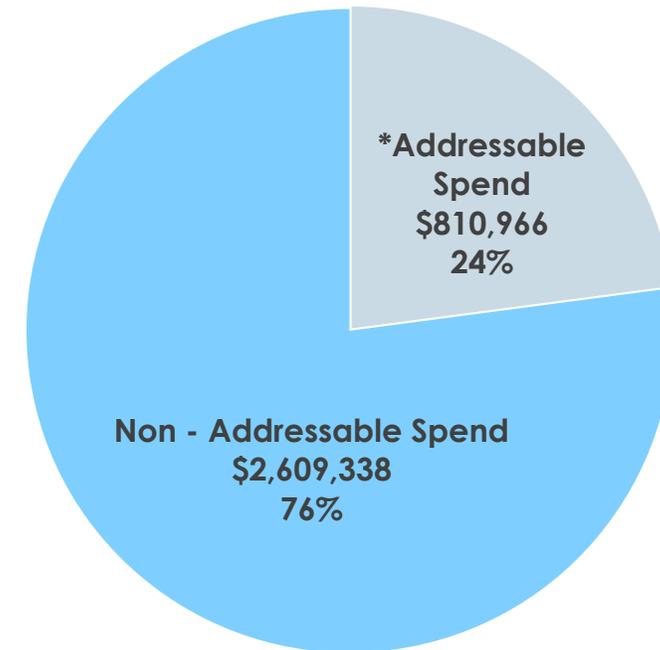
University of Massachusetts

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UMass Addressable Spend FY18

- Leveraged UMass financial (FY18 expenditures)
- Addressable Spend: Spending that can be impacted by competition to leverage economies of scale, driving costs down and maximizing contract value
- Non-addressable Spend: Spending that will not be impacted by competition; i.e., payroll, stipends

Total Addressable vs. Non-Addressable Spend = \$3.42 Billion
\$ in Thousands-



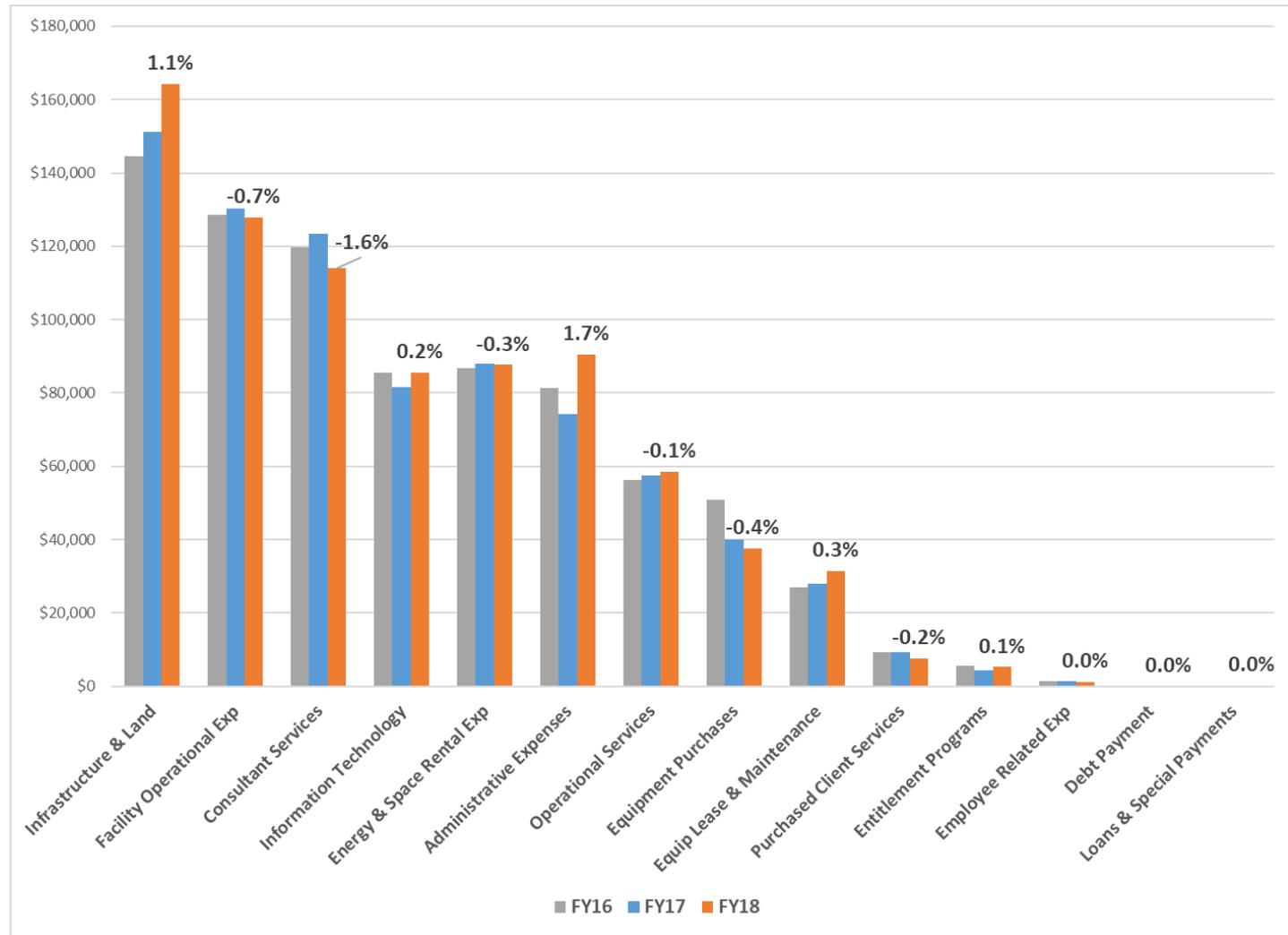
*The UMass standard methodology for calculating addressable spend is based on exclusion of account codes that include spend determined to be not impacted by procurement activities. The recent Accenture analysis of UMass addressable spend is based on methodology adopted for all Accenture clients and resulted in FY18 addressable spend of \$910M. This methodology is being reviewed for potential adoption for future reports.

UMass Spend Analysis

\$ in Thousands

<u>Expense Category</u>	<u>FY16 Spend</u>	<u>FY17 Spend</u>	<u>FY18 Spend</u>	<u>Assigned Working Group</u>
Infrastructure & Land	144,625	151,080	164,265	Facility
Facility Operational Expense	128,462	130,171	127,914	Facility
Consultant Services	119,812	123,382	113,989	Purchasing
Energy & Space Rental Expense	86,681	81,543	87,614	Energy
Information Technology	85,401	87,863	85,621	IT Procurement
Administrative Expenses	81,446	74,158	90,345	Purchasing
Operational Services	56,268	57,352	58,375	Human Resources
Equipment Purchases	50,888	39,980	37,637	Facility
Equip Lease & Maintenance	26,936	28,059	31,433	Facility
Purchased Client Services	9,182	9,138	7,464	Purchasing
Entitlement Programs	5,448	4,262	5,213	Human Resources
Employee Related Expense	1,260	1,324	1,039	Human Resources
Loans & Special Payments	30	42	58	Not Assigned
Debt Payment	-	84	0	Not Assigned
Total	796,440	788,439	810,966	

UMass Spend Analysis: Annual % Change FY17 to FY18



Contract Source by Annual Spend

Vendor by Annual Spend - Accounts Payable Spend Only

FY18 Spend Range	# of Vendors	% of Vendors	Spend (\$ in Thousands)	% of Spend	UMass System Contract	UMass campus or multi-campus contracts	State Contract	Buying Consortium Contracts	*Under Review
\$5 Million +	18	0.12%	159,829	20.7%	6	10	1	1	-
\$2 Million - \$5 Million	44	0.30%	133,513	17.3%	10	25	3	5	1
\$1 Million - \$2 Million	70	0.48%	98,606	12.8%	9	34	6	10	11
\$500K - \$1 Million	145	0.99%	96,886	12.5%	5	20	7	6	107
\$100K - \$500K	758	5.16%	165,130	21.4%	18	17	6	8	709
UNDER \$100K	13,648	92.95%	119,302	15.4%	9	16	3	5	13,615
Total	14,683	100%	773,266	100%	57	122	26	35	14,443

*contract source is reviewed periodically with a focus on the highest spend categories

Contract Types

UMass Campus or Multi-Campus Contract: Contracts bid/negotiated at a campus or multi-campus level that provide value to those campuses, but are not suited for all campuses for a variety of reasons such as: contracts may be revenue generating for a campus or include vendor investment in the campus; not all campuses have a need for the good/service; conflicting contract terms exist; etc. These contracts are continuously reviewed for potential system-wide contracting as circumstances change.

State Contract: Contracts publically bid through the State's procurement team and available to all campuses.

Consortium Contract: Contacts available through industry consortiums such as Mass Higher ED (MHEC), Educational & Institutional Purchasing Cooperative (E & I), and others (see detail below). These consortium contracts are typically awarded through a public bidding process and are available to all campuses. All consortiums are reviewed and approved by the UMass Procurement Council.

University System Agreements: System contract opportunities are targeted based on supplier spend, contract expiration/renewal opportunities for common spend areas where volumes can be accumulated for bidding purposes, and common vendor contracts that exist at individual campuses that allow for the formation of a negotiated system-wide contract. The chart on the previous page provides a detailed listing of the contracts broken down by spending categories.

Annual Spend by Vendor

Vendors over \$5 million Annual Spend

FY18 Vendor	Current Year Spend (\$ in thousands)	Contract Term	Product/Service
PERFORMANCE FOOD GROUP INC	\$ 18,870,588.56	*2014 -2022	Food Service
ARAMARK SERVICES	\$ 16,682,137.63	2030	Food Service
EVERSOURCE ENERGY**	\$ 14,688,792.87	2019	Gas-Electricity
COMPASS GROUP USA INC	\$ 12,318,916.58	*2011 - 2026	Food Service
DIRECT ENERGY BUSINESS**	\$ 11,987,022.78	2019	Gas-Electricity
FISHER SCIENTIFIC COMPANY LLC**	\$ 8,723,835.71	*2015 - 2022	Scientific Supplies
NATIONAL GRID- ELECTRIC**	\$ 8,637,147.04	2019	Gas-Electricity
SPRAGUE OPERATING RESOURCES LLC**	\$ 7,348,342.06	2019	Gas-Electricity
CONDUENT STATE HEALTHCARE LLC	\$ 7,207,445.31	2019	Prescription Processor
EBSCO	\$ 6,800,321.97	2019	Journal Subscriptions
SOHO DEVELOPMENT LLC	\$ 6,289,661.88	2023	Student Housing
VANGUARD CONSTRUCTION CO INC	\$ 6,160,329.57	2019	Gen Contractor
DELL MARKETING LP**	\$ 5,990,210.49	2015 - 2020	Laptop-desktop
PERMEDION INC	\$ 5,966,070.08	2015 - 2020	Healthcare Consultant
110 CANAL STREET	\$ 5,929,959.00	2022	Building lease
ONX USA LLC	\$ 5,553,968.49	Expired	IT Services-MGHPCC
RISK STRATEGIES COMPANY	\$ 5,428,193.39	Annual	Student Health Insurance
LIFE TECHNOLOGIES CORPORATION	\$ 5,246,287.55	2020	Scientific Supplies
	\$ 159,829,230.96		

** indicates system wide contract

*contract term includes renewal options

Campus Reports



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Campus Level Efficiency and Effectiveness Projects

- While the focus of the E & E report is system level activity, there are substantial efforts ongoing at each of the campuses to support the overall E & E effort.
- Many of these serve as pilot projects that, if successful, can be scaled up and become an system-wide effort
- Those activities/projects are summarized in the campus activity reports included in the attached appendices



CAMPUS E&E EFFORTS



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UMass Amherst

Efficiency and Effectiveness Report – FY18 and FY19

The Amherst campus continually manages our physical and financial assets in the most effective and efficient manner possible. Savings from these efforts allow the campus to maintain a positive operating margin while providing strategic funding to reach our goals of being a destination of choice for students, faculty & staff and the research community. The campus reallocates resources to key priorities, accomplished through an aggressive pursuit of cost savings and revenue enhancements in all aspects of operations.

Over the past six years over \$54M in cost savings has been achieved in such areas as Procurement, Energy & Sustainability, Information Technology, Organizational Restructure and Space/Building Improvements. In FY18 alone \$10M in savings was achieved, and an additional \$18M in savings are expected through FY21.

We have achieved \$14M through energy costs savings and sustainability initiatives over the past six years, over \$4M saved in FY18 alone. These savings involve:

- A strategic partnership with WMECO to develop a roadmap for sustainable/energy reduction goals. This arrangement provides \$3.5M in incentive payments from Eversource.
- An internal funding pool that provides funding for energy efficiency projects whose savings will payback their costs in seven years or less. In the last five years the campus has invested \$14M in such projects, generating a permanent cost savings of over \$4M per year, reductions in both cost and energy usage. These projects have funded projects like the installation of energy efficient lighting and water- saving devices throughout campus, occupancy sensors to control lights in many campus buildings, and reduced energy consumption in high energy-use buildings by 2-3% via continuous commissioning. These energy saving projects have touched every area of campus, and our work continues.
- Enhancements to our central heating plant facility including a Gas Turbine Generator Inlet Air Chiller System, a permanent Liquefied Natural Gas (LNG) facility as well as an Energy Command Center have saved \$4M.
- Development of commodity purchasing contracts to optimize utility commodity contract rates saves over \$1M per year.
- Solar PV system installations in several parking lots and rooftops result in electricity cost avoidance of \$1M per year.



FY18 Efficiency and Effectiveness Report

The campus aggressively implements our competitive bidding process to expanded categories of purchased items. \$20M has been saved/avoided in the last six years, with \$5M in savings achieved in FY18 alone. In FY18 Information Technology expanded competitive bidding to software products including Echo360, Palo Alto Maintenance, Juniper Network Engineering and Carousel Fund, achieving \$1M in savings. The Amherst campus participates in several incentive programs to amplify savings achieved by our Central Heating Plant including the ISO-NE (Independent System Operators New England Region) Forward Capacity Market onsite electric generation program and the Executive Office of Energy & Environmental Affairs Alternative Portfolio Standards (APS) electrical cogeneration program, achieving \$4M in cost savings in FY18. Past savings have been achieved in competitive bidding of lab and janitorial supplies, residence hall furniture, computer equipment and leased campus vehicles.

We have utilized technology to streamline processes, allowing for improved processes and better utilization of labor and space. Over the last six years we have saved over \$7M in this area, saving over \$1M in FY18 alone. In FY18 we converted many paper-based processes to electronic, saving time and improving accuracy. One such change utilizes Adobe e-sign to electronically route documents throughout campus for approval. The campus has pulled many web development and design projects in-house, offering cost savings for campus departments over external vendor rates and easing the incorporation of the final product into campus websites. In FY18 we also completed a project to increase the use of print-on-demand programs in the University Press. This department invested in print-in-house, on-demand technology, eliminating the need to order minimum quantities of publications. Past projects have included computerized work order management systems, databases to track best practices and lessons learned in repair, maintenance and construction projects, movement of paper-based processes to electronic in human resources, finance and accounting, procurement and facilities.

The campus has worked extensively to achieve efficiencies in administrative areas while maintaining or improving service levels. Campus units, particularly in administrative areas, are regularly asked to reduce operating budgets and must implement efficiency improvements to continue to provide acceptable service levels at reduced costs. Units utilize process improvements including organization restructure, where appropriate, to achieve such savings. These efforts are guided by benchmarking metrics, best practices and/or customer feedback to ensure budgets and staffing levels are appropriate and that service levels are satisfactory. Vacancies are assessed prior to filling by campus departments, positions are often consolidated, administrative duties are shared where feasible and in some cases the frequency of services has been reduced. All of these actions have kept staff FTE number relatively flat while new buildings have been added and enrollment and research continue to grow. In many cases, savings



achieved by administrative units are reallocated to areas of highest priority such as instruction and student wellness and support.

Over \$9M in savings through these initiatives have been achieved in the last six years. Some examples include:

- Facilities & Campus Services has reduced costs by \$3M including
 - Consolidation of business and human resources staff, creating efficiency and operational effectiveness by leveraging workflow, cross training, improved materials handling and procurement processes.
 - Reduction in overtime by moving some shifts to include Saturdays
 - ADQUAD Review of the Alterations department improved project scheduling, reduced overtime, implemented periodic cost reviews. These actions reduced the bill out rate for this group to be 15 – 25% lower than state prevailing wage rates for third party construction labor.
 - Consolidation of Alterations & Building Maintenance staff to leverage workforce productivity and utilization, improve materials management, reduce number of management staff and improve project scheduling.
- Custodial Services has analyzed cleaning staff and routes to achieve maximum efficiency and effectiveness. These efforts realigned staff between shifts and implemented quality control programs. Staff FTEs have been reduced guided by these efforts. Custodial services is also piloting a change to office cleaning which involved employees taking their trash/recycling to a central area vs custodial staff going into each office. Savings of 0.5 FTE in the one, pilot office building have been achieved.
- Landscape Services is reusing materials, growing 80% of plantings used on site and is converting to battery-powered equipment, reducing cost and improving their environmental footprint.
- Human Resources utilized the ADQUAD process to review processes and staffing levels. Reorganization of some units and reallocation of vacant positions has improved the efficiency and effectiveness of their organization.
- Academic Affairs has reorganized and consolidated service units in key support areas such as admissions, registrar/records, academic programs and information technology to create efficiencies that have allowed for a reduction in staff of about 10 FTE (staff reductions through non-replacement of vacancies).

The campus has initiated a variety of efforts to collaborate with our strategic partners and vendors to fund campus initiatives through increased revenues or price discounts as well as internship and employment opportunities for our students. Over \$4M in increased sponsorships



and revenues have resulted. The campus established a Corporate Relations Council of advancement, academic and administrative leadership to promote relationships with our strategic partners. These actions have resulted in the funding of instructional and teaching assistant staff, additional technology and other equipment, and price discounts as well as employment and internships opportunities for our students.

In addition to these E&E efforts, the campus has held faculty FTE increases to modest levels despite growing enrollment. The campus uses its annual strategic budget planning process to shift faculty resources between schools/colleges in order to meet critical campus needs within tight operating budget parameters. Each faculty vacancy is reviewed to determine if reallocation between schools/colleges would better address enrollment and strategic needs. Faculty are regularly reallocated to ease instructional stress, meet new programs needs and resource key research areas.

The Amherst Campus is proud to demonstrate considerable cost savings and revenue enhancements in all aspects of the campus, with all areas of management actively engaged in these cost containment/reduction scenarios. The campus provides no significant inflationary budget increases to campus departments outside of collectively bargained salary increases, so constant E&E efforts play a central role in achieving a balanced annual budget. In addition, campus departments continually strive to fund many key priorities from within, shifting resources within their own units to the extent possible before requesting additional campus resources. At the same time, departments have a continual eye on maintaining appropriate service levels, meeting student needs and maintaining a safe and respectful work environment. All UMass Amherst departments work toward the campus strategic goals of becoming a destination of choice for students, a partner of choice in advancing and applying knowledge and innovation and a community of choice for students, staff and faculty.



UMass Boston Efficiency and Effectiveness Report – FY18 and FY19

UMass Boston is committed to supporting efficient and effectiveness initiatives with the System Office and at the campus level. The campus regularly reviews our practices and policies to ensure best practices are deployed whenever possible. In recent years, as the campus has sought to address its fiscal challenges, these efforts have become even more important and necessary. Below are some examples of campus-driven measures undertaken recently.

Facilities

The closure of the campus substructure parking garage, and the relocation of the utilities and parking contained within it, have given the campus opportunities to implement new energy-savings initiatives. In addition, as the campus addresses deferred maintenance and regular maintenance projects there is an emphasis on creating savings from our investments.

Solar + Storage Project (ACES, SMART)

Over the last five years, the Commonwealth of Massachusetts has increasingly focused on advancing energy storage adoption to help further the state's goals to reduce greenhouse gas emissions and energy costs. Following the announcement of a competitive grant program for energy storage demonstration projects in 2016, Advancing Commonwealth Energy Storage (ACES), the UMass System conducted a competitive solicitation process for innovative storage solutions and use cases at the five University campuses. UMass Boston selected Enel Green Power North America as its demonstration project partner to deploy multiple solar systems on campus along with a co-located lithium ion battery that can store solar power generated during the day and then discharge the electricity in the late afternoon and early evening when the campus' electric demand peaks.

In late 2017, UMass Boston was one of twenty electric end users across the Commonwealth to be awarded a demonstration grant by the Massachusetts Clean Energy Center. The \$850,000 grant will help offset the upfront cost of the solar plus storage system, which will generate clean energy on campus and help reduce local grid congestion and related peak costs. Under the 20-year shared savings arrangement, Enel will install a 500 kW / 2mWh lithium ion battery storage system, a 644 kW-dc carport PV array located on newly constructed West Parking Garage, and a 304 kW-dc PV array mounted on the rooftop of University Hall.

UMass Boston is seeking additional grant monies from DOER to further improve the expected payback from this project and expects to save approximately \$100,000 in energy costs per year when finalized. UMass Boston students will be able to leverage a range of educational



opportunities with Enel including paid internships, professional development, and educational curriculum development.

Roadway Lighting

As part of UCRR project UMB installed new, more efficient roadway lighting along campus roadways. Over 200 lighting fixtures were installed with LED lighting replacing previously installed HPS lighting fixtures. The total annual savings associated with upgrade is 81,234 kWh (\$10,967 @ \$0.135/kWh). UMB received a \$16,270 incentive from Eversource to install these lighting upgrades.

Substructure Lighting

UMB has entered contract with Engie Services, USA to replace 494 existing HID lighting fixtures in substructure with new, efficient LED light fixtures. The fixtures will also have occupancy sensing, daylight harvesting and dimming capabilities to maximize savings. This project is receiving a \$100,000 incentive from Eversource and is expected to be completed by the end of August 2019. Annual savings from this lighting replacement are 482,257 kWh (\$65,104 @ \$0.135/kWh).

Net Metering

UMB entered into three net metering contracts with third party solar farms. Eversource provides 100% of the credit on the UMB bill related to the generation from the solar arrays, which is around \$1.3 million per year and UMB pays the project owners about 75% of the credits received and UMB retains the remainder, which has been roughly \$325,000 in energy savings per annum over the last 2 years. FY18 was the first year that all 3 projects were fully operational. The Meadow project in Dedham, Ma was expected to generate about 5.1 million kwh in its first full year of operations, but generated slightly more at around 5.2 million kwh in its first full year of operations. UMB will continue to evaluate additional offsite projects under the new SMART program.

Elevator Modernization

UMB has recently completed the modernization of 14 elevators across campus. As part of this modernization elevator motor-generator systems were replaced with regenerative Variable – Voltage, Variable Frequency (VVF) drives which are more efficient when operating, virtually eliminating standby power, and allow the drive system to recover energy while descending and feed it back into the building, rather than simply braking and dissipating the energy as heat. Machine room cooling systems were replaced with new, more efficient split system heat pumps. Lighting in the elevator cabs is efficient LED lighting with occupancy control. Smoke dampers were installed on open louvers in penthouses of the elevator shafts which will significantly reduce



infiltration of outside air into the buildings. The annual savings from this project are 376,505 kWh (\$50,828 @ \$.0135/kWh) and UMB received a \$75,300 incentive from Eversource to install these measures.

Natural Gas Procurement

Since May 2015, UMB has elected not to sign contracts for natural gas supply, instead opting to remain on the cost of gas supply service provided by the utility, National Grid (NGrid). There have been two factors to UMB's approach. First, the long-term contracts that NGrid has had in place with the Algonquin pipeline for large quantities of gas supply in the Boston area have provided stability to the cost of gas supply price, partially mitigating the effects of gas supply constraints in the region that have arisen in recent years. By entering into multiple long-term contracts, NGrid reduced the volatility of cost of gas supply compared to competitive supply. At that time UMB was evaluating natural gas procurement options, cost of gas offered a significant rate savings because of its structure of long-term contracts. With the growth on campus it also provided added flexibility for this load growth, without the uncertainty of the actual volumes or weather in the first couple of year of operations in the new buildings. The net savings for the natural gas costs with the utility compared to the best bid received for competitive supply resulted in about \$363k over FY17 & FY18. (FY18 is \$109,516, FY17 is \$253,730). As the below market rate contracts with the utility run out UMB will continue to evaluate market options.

Library Services

Healey Library entered into a negotiated five-year contract for Elsevier's ScienceDirect electronic journal portal with the other UMass campuses. This saved UMB approximately \$42K and provided access to over \$1 million in journal content. By negotiating jointly, all five UMass campuses gained access to the same extensive suite of scientific journal titles, with each library paying a proportional cost. This process allows Healey Library to offer access to key journal titles that otherwise could not have been covered by their subscriptions budget.

Healey Library is a member of multiple consortia (Boston Library Consortium, Fenway Library Organization, Center for Research Libraries/NERL, LYRASIS, WALDO, Eastern Academic Scholars Trust, RapidILL) through which it gains significant financial advantages in journal subscription discounts, technical training opportunities and resource-sharing collaborations that amplify the resources and services that they are able to deliver to the UMB community.

Information Technology

- Re-implementation of Kace desktop management. Using Active Directory to deploy the agent has eliminated manual installations across campus. We have more than doubled the number of desktops we are actively managing. In addition to pushing out security



patches weekly we are able to use Kace to push out new anti-virus software (Sophos) and to identify and communicate with users of Windows 7 to schedule their upgrade to Windows 10.

- Initial ServiceNow rollout enabled more streamlined service management especially of service incidents. Eliminated the need to copy and paste emails by enabling emails to IT Service Desk to generate tickets automatically. Enabled automatic routing of select incidents directly to groups with specialized expertise.
- Implementation of new Account Management system accompanied with change in password management rules has made it easier for users to claim and manage their accounts and minimized the need for Service Desk involvement.
- Implementation of Microsoft's Advanced Threat Protection has reduced the threat of phishing attacks among other threats.
- Upgrade of two heavily used computer labs replacing older drives with high-speed SSD drives dramatically improving performance of technology used in teaching classes without the need to purchase new computers.
- The implementation of a 240TB backup solution in research computing provided significant improvement in service levels for research computing supported servers at a price point well below alternative offerings.
- Consolidated duplicative infrastructure services – the areas of VPN, Listserv Services and Storage.
- Consolidated Firewall Services across campus from seven to one reducing costs of redundant and differentiated software.
- Continuing to virtualizing servers at a ratio of 4 : 1
- Used DCO (Data Center Optimization) in Active/Active mode for redundancy and high availability of critical servers
- Eliminated the legacy phone system (350 square feet of floor space and maintenance fees (saving ~\$185K)
- Discontinued our subscription to SurveyMonkey and encouraged departments to do the same and use Qualtrics – an industry standard safe and secure survey tool.
- Document imaging is another service which has resulted in better and more efficient access to information. The team converted the entire graduate admission process into a paperless process.
- Investment in ALLY – a system that flags documents in Blackboard that are not accessible and recommends alternative formats.
- Investment in closed captioning service in VoiceThread – allowing ALL students to access content presented in this tool.

Key Projects in Progress – FY 19 & Beyond:

- Building out a new data center which is 1/3 of the size of the existing one, which will be demolished when the Science Building is leveled as part of SDQD project.



- Optimized and consolidated existing facilities (i.e. Building Management Systems (BMS), Utility Corridor (UCRR), are two big initiatives)
- Use technology solution to provide online application for One Stop, Home Offices (Bursar, Financial Aid, Registrar), Graduate Student Prospecting, and Academic Advising, replacing manual processes and more effectively serving students
- Replace antiquated document and collaboration software (Xythos) with Microsoft One Drive as a part of our O365 Suite offerings – which is included in our cost of our Microsoft Subscription. This initiative saves our campus over \$10k annually.
- A RFP has been issued by the Amherst campus to select a new vendor for electronic signature processing.

In FY18, UMMS IT took over financial administration of the Massachusetts Green High Performance Computing Center (MGHPCC), which resulted in a 50% reduction in the President’s Office operating cost of \$133,000. The \$66,500 in savings will be evenly split across the five campuses in FY19.

At the campus level, UMMS IT, in FY18, introduced online student class enrollment and streamlined numerous academic administrative tasks. Students benefited from real-time feedback during the enrollment process. Academic administrators and leadership saved 800 hours of time on tasks related to student evaluations. This included a 70% reduction in hours spent by an Associate Dean for work on student performance evaluations.

In FY17, UMMS IT developed new chargeback mechanisms for several software packages, as well as for MGHPCC storage. The chargeback for one of these software packages, SPSS, saved UMMS \$24,000 in expenditures. Storage chargebacks capped overall high performance computing storage costs at less than \$232,000 per year, at a time when storage expenditures would increase by 25% to 50% on an annual basis.

UMMS IT enhancements to PeopleSoft workflows enabled academic administrators across all three schools to save a combined 1,200 work hours annually. Specifically, the system enhancements dramatically simplified recording and managing grades. These enhancements also resulted in 1,500 fewer emails and paper communications between academic offices each year, creating additional efficiencies.

Further, IT initiated a classroom projector refresh, replacing incandescent lamp projectors with laser projectors. Laser projectors have a 20,000-hour maintenance-free lamp life, which eliminates the need for costly bulb replacements (average: \$2,000) and classroom downtime due to bulb failure. UMMS anticipates a five-year payback on the laser projector investment.



UMass Boston IT's participation in the Data Center Optimization (DCO) project resulted in the elimination of three hardware maintenance contracts at the campus level. By migrating 300 virtual machines to the Data Center, IT will save \$106,562 in annual maintenance costs.

Budget

The 2017 KPMG Report on Budget Review of the University of Massachusetts – Boston recommended the campus improve budgeting procedures to develop, implement and monitor its budget better through improved forecasting, in-year budget monitoring, etc. Ultimately controlling costs through better management and allocation of all the university's resources.

The following improvements are a sampling of those that have been made during the FY18 and FY19 fiscal years:

- Aligned debt with operational needs to avoid unnecessary interest costs
- Developed a capital budgeting process including support for the accounting of operational impacts of capital expenditures and modeling of depreciation
- Aligning actual operating expenses with the appropriate budget year
- Implementing in-year budget to actual variance reporting
- Developing and "all funds" budget development approach
- Aligning budgets with actual expenses at the department level
- Budgeting previously unbudgeted expenses (ex. Graduate tuition waivers)
- Implementing position management and control of salary savings
- Creating a new fund to manage non tenure-track faculty (NTT)
- Restoring student activities fund and departmental non-GOF carry-forward balances
- Delivered GOF budgets to all departments for July 2018 (FY19) fiscal year start
- Actively participating in the development and implementation of an enterprise budgeting software tool

Reorganizations

Over the last several years, the campus has looked closely at its organizational structure and made significant changes to conserve resources and improve service delivery

- Reorganization of departments: University Advancement, Human Resources, Office of Diversity, Equity and Inclusion, and Facilities among other smaller reorganizations
- Closed Early Learning Center for at saving of approximately \$500,000 (FY19 full year value)
- Created 5 year "glidepath's" for Centers and Institutes to self-sufficiency (FY16 value of \$4.3M annually)



Procurement

The campus continues to work closely with the UMass Purchasing Council to review spend data to identify opportunities for joint, system-wide contracts. UMass Boston has benefitted from system-wide procurements. The campus continues to accrue benefits realized with the use of BuyWays including the expansion of catalog vendors, another UMass System initiative.

The UMass Boston Procurement team has focused on improving efficiency and effectiveness and locally and has implemented solutions and training to accomplish these goals. In FY17 and FY18, the following solutions have been implemented:

- All contracts are now uploaded into the UMass Total Contract Manager database, are shared, and stored electronically, eliminating hard copies, courier and postal costs and physical storage.
- The University eSourcing bid solicitation tool, Bonfire, has been instrumental in standardizing the solicitation process for all the campuses. It helps streamline the information flow, facilitates proposal scoring and evaluation and eliminates the use of paper documentation. Since April 2017 to Y.T.D. (May 2019), UMB has managed 36 RFPs through Bonfire. Some examples include RFPs for the following; Residential Hall Security, Predictive Analytics, Mental Health Services, iHub Relocation project, Comprehensive Property Inventory and One Card Services.
- The Procurement team also has purchased a new benchmarking tool called GovSpend. It is utilized by over 27,000 agencies throughout the country sharing spend data of over \$12 trillion from 14 million vendors. It is now used by the Procurement team and soon will be implemented for use by University departments.

ProCard – Since 2015, there has been a campus effort to reduce the number of ProCard holders and to strengthen card controls as noted below;

- ProCard spending has been reduced by more than 13.57 % in FY'17 and FY'18 (\$3,275,825 million to \$2,769,561 million).
- The number of cards has been reduced from over 300 to currently 273.
- Mandatory refresher training is conducted every 2-3 years (renewal card triggers training requirement).
- 70 cardholders attended a Procard Refresher Workshop in FY2018 and 26 new cardholders were trained during this time.
- Monthly notification reminders of required departmental review/sign off.



Support of the Budgeting Processes -

The Procurement department, in cooperation with the Office of Budget & Financial Planning (“OBFP”), began in FY18 providing lists of active contracts by department for budget development hearings and schedules joint meetings during the year with OBFP and larger departments, like the Library, Facilities and Information Technology departments, to review planned current year operating and capital purchases to align with budgeted resources and determine appropriate procurement methods and timing. The Fixed Asset Manager in the Procurement department reviews the new Capital Appropriation Request form for equipment, which finalizes a capital request, for capitalization requirements of the intended purchase and movable asset inventory accounting.

Below are some examples of issues addressed in large department meetings in FY19:

Library Department: The UMass Boston Procurement Team has been working with the Healey Library on a regular basis to review all of their purchases and strategic needs. These meetings have focused on the Healy Library’s prior commitments, the future strategic contracting needs and provided sourcing guidance and recommendations on such needs. Currently, UMass Boston Procurement team is leading a system wide Library Subscription Management Service RFP for library subscription services. The goal of the RFP is to reduce cost of the management service fee for all campuses and to streamline the ordering process with one supplier for all campuses.

Facilities Department: The Procurement team has been working with the Facilities department on a renewed janitorial contract. Boston is the only UMass campus with contracted janitorial services. The development of the RFP and bid for this important contract is being aided by an outside consultant with expertise in generating efficiencies and improved performance from vendors in this area.

Information Technology Department: The Procurement team has been working with IT, with the help of UITS, to scope and source its procurements better. An example of these efforts is the rebid of over \$3M of network edge equipment after receiving only one response. The bid was canceled, the scope refined and the equipment rebid with the expectation of considerable savings from the previous effort.

Additional Efforts

Participation and support for *We Are Better Together*, the business process review initiative currently underway with support by the Davis Foundation. The campus is actively engaged in supporting the three projects underway – position management, management reporting, and vendor maintenance.



**UMass Dartmouth
Efficiency and Effectiveness Report – FY18 and FY19**

Information Technology

- In FY18 and FY19, CITS completed the build-out of the wireless network in the academic buildings with surplus network equipment from the UMass Medical School (which was switching network platform at the time) resulting in savings of \$500k. Additional savings are being realized in a fixed-cost, multi-year maintenance contract for the network equipment, that includes any new hardware purchases and provides replacements for failing equipment. The contract includes comprehensive network analytics tools.
- In FY19, CITS was able to increase the cyber security with a state-of-the-art border firewall without any additional expense (using the budgeted maintenance cost of the old firewall solution).
- The use of OneDrive, the shared UMass private cloud (DCO), and a reduced local footprint of systems eliminated the need to replace the local storage solution (SAN) at a savings of about \$200k.
- In FY18, CITS launched a consolidated IT case management in Salesforce Service Cloud. The new case management solution improved IT customer service by allowing to route and track cases between teams and enabling consistent communication with the customers. In the first year, 30,000 cases were logged. 90% of the users who submitted feedback were very satisfied with the IT service.
- UMass Dartmouth deployed the virtual desktop infrastructure (VDI), CorsairDesktop, with 90 physical thin clients in CCB and 500 virtual seats. CorsairDesktop allows students to access University-licensed software 24x7 from their own devices outside the traditional computer classroom. The savings on desktop computers were \$50k in FY17.
- UMass Dartmouth leverages UMass system-wide contracts for savings on most software licenses.
- By realigning organizational needs, CITS was able to save approximately \$500k in salaries in the last 5 years.

Facilities Information for Efficiency & Effectiveness Report – FY 18-19



Energy Efficiency:

- Net Generation Credits that UMD receives from the Dartmouth and Freetown solar facilities has provided us with approximately \$327,195 of benefit this year thru February and cumulatively since FY2013, \$2,482,762.
- Completed campus wide steam trap survey and subsequent repairs resulting in \$210,900 of annual savings. Financial incentives in excess of \$150,000 were used to complete the work resulting in an effective return on investment (ROI) of nine months.
- Completed insulation improvements to 330 valves and pipe sections with calculated energy and cost savings of 88,667-therms and \$45,600 annually. The financial incentives used for the improvements reduced the ROI to fourteen months.
- Facilities management and capital planning have worked collaboratively on the development of a battery storage facility on campus. This facility will allow the University to shave peak time energy utilization on campus and save money on the University's utility bills. Although the co-gen facility was down this year for nearly 2 months, overall utility expense is nearly \$500,000 under budget.

Facilities Management:

Over 30 initiatives were implemented in Facilities, leading to improvements in efficiencies, effectiveness, organizational structure and staff alignment.

- The Grounds staffing compliment was reduced and is currently in alignment with the best practices of our peers. Staff and supervision were reorganized into zones and appropriate APPA performance levels applied. Snow operations were revised with a reduced contractor presence, resulting in a \$100,000 decrease in overall expense from last year's more heavily contracted model.
- Overtime reduction initiative is tracking in alignment with 2018 expenditures, which was the lowest utilization of overtime in over 15 years. This represents a 60% reduction over the past 6 years and is being maintained.
- The organizational structure and staffing matrix in the Central Utility plant has been adjusted in alignment with best practices, resulting in a 10% labor reduction while controlling OT send in the 7/24/365-day facility.
- Additional efficiencies include a reduction of department pro-card use from \$170,000 to only about \$20,000 annual spend, which has been maintained for 2 years.
- The new Trirega work order system, for the first time, was opened to the entire campus this past fall semester. Facilities and our customers are working through the initial learning curve of this new, more robust, process. DCAMM indicates that work order system roll out takes 2 to 3 years to be fully implemented. The new system has a great deal of available capacity and intuitive programing. However, the change has not been without issues. In response to our customers, Facilities is in the process of kicking off a work order service center, which will allow students, faculty and staff to simply call in their work order request. This new service



will help address work order back log, improve customer satisfaction, and improve data integrity within the work order system

Facilities management successfully completed phase 1 of the Department's Cultural Change Initiative, by presenting the program to all management and supervisory staff. This program was developed internally to enhance staff and customer interactions and outcomes. A consolidated program is being developed for the line staff in 2020.

According to Sightlines 2018 assessment, UMD Facilities increased preventative maintenance (PM) activities 500% over the past 2 years. Although this is reason to celebrate, the celebration must be tempered by the fact that we are still below our peers in overall PM activity. We are headed in the right direction, but it is still a journey with a long road ahead.

Procurement Operations

- The UMass Dartmouth's Procurement operation partner with the campus community to deliver holistic innovative value-driven Solutions based on transparency, data, professionalism, expertise and commitment to a quality campus experience.
- Managed Spend: Dartmouth Campus had addressable spend in FY18 of \$48.6 Million of which \$37.6 million was managed, reflecting efficient use of available funds. This represents a managed spend of 77.4% of addressable spend.
- Strategic Contracting: UMass Dartmouth has negotiated and executed 363 contracts in FY17 and 323 in FY18. This is an increase from FY15 of 290%. This is a reflection of centralization of contract negotiations and management to drive efficiencies while reducing costs and risk to the benefit of the community serviced. This resulted in negotiated savings of approximately \$637,000 in FY18.
- Solicitations: In FY18 solicitations managed through the procurement operations resulted in approximately \$1.46 Million or 35% average savings. In addition, in FY18 and FY 19 Dartmouth was or is the lead campus on the rebid of the University System Multifunctional Devices (In process), Elevator Maintenance (Completed) and Janitorial Supplies (In Process). Multifunctional Devices cost savings of the current contract is approximately \$1 million annually, with Dartmouth's savings being approximately \$120k annually.
- Consulting Services to Community: Staff in procurement act as consultants to the community to facilitate the developing of specifications, evaluation criteria and manage the process to ensure that the best solution for clients in the community are proposed by vendor community and awarded.



UMass Lowell Efficiency and Effectiveness Report – FY18 and FY19

Striving to improve services and support a sustainable financial future are key elements of the Entrepreneurial Stewardship Pillar of Lowell’s 2020 Strategic Plan. Numerous E&E initiatives related to Energy, Information Technology, Human Resources, Purchasing and Revenue Generation in recent years reflect our on-going commitment to these goals. The campus regularly reviews opportunities for initiating new projects and coordinates reporting results to the Executive Cabinet, the 2020 Financial Planning Committee and to the President’s Office.

The 2020 Committees under the Transformational Education Pillar of the Strategic Plan also identify E&E opportunities focused on improving student success, course and program delivery, enhancing collaborations with other colleges and universities, laboratories and industry partners. The campus thinks entrepreneurially and embraces new ideas to fund the university in the face of decreased state support for operations and facilities and the shrinking population of college-bound students in our region.

In addition to our campus efforts to increase efficiencies and identify new sources of revenue, we continue to collaborate with the President’s Office and our peer UMass campuses.

In FY19, the campus has taken a number of steps to meet its budget target including establishing a campus-wide committee on strategic cost savings to identify \$2 million in cost savings; reducing non-academic departmental base budgets by 5 percent; reducing on-going (annual) personnel costs by \$2 million and outperforming budget projections in key revenue areas such as sponsorships and gifts, grants, auxiliaries and events.

Information Technology

- Telephony: In FY18, to replace its end-of-life Aastra PBX, UML IT chose the software-based unified communications solution of Microsoft Skype for Business. Traditional PBX bids from Cisco and others ranged from \$2.0M - \$3.0M. The deployment of Skype cost \$1.5M, saving in excess of \$500k over FY17 & FY18.
- Virtual desktop deployment to UML’s College of Engineering was both a functional and cost-savings success. Expanding on our successful VLabs platform, UML IT designed and delivered a standalone Engineering-only virtual cluster that served up 100 software titles to over 1,500 students and faculty. As a result, 3 dedicated engineering labs with over 100 aging PC’s were converted to virtual desktops, with a savings of \$100k in FY17.
- In FY17, UML IT completed its move from a campus data center to the Shrewsbury Data Center. By transferring the remaining 20% of the production computing footprint, the



campus-based 'Olsen Data Center' was taken off its maintenance plan. Capital savings for new battery-backup, electrical upgrades, and diesel generator replacement were avoided, saving \$200k per year in FY17 & FY18.

- As part of an overall computer lab consolidation VDI Terminals were deployed into multiple labs used by the Centers for Learning, saving \$78,625 in new equipment costs. Additionally, the previous position for a lab manager was able to be recaptured by the university at savings of \$65,000 per year.
- By extending warranty coverage on our existing equipment moved to Shrewsbury instead of replacing it after 6 years in operation, Information Technology was able to spend \$24,000 on maintenance as opposed to \$82,000 on replacement, a savings of \$58,000.
- The consolidation of computer lab management into the Digital Learning Center team allowed IT to leverage students on federal campus work study programs instead of cash payment to student staff, resulting in \$35,000 in savings.

Procurement Service (Procure-to-Pay)

Achievement of Excellence in Procurement Award (2017, 2018 and expected 2019) – The UMass Lowell Procurement Operation has become the only Massachusetts public entity and one of only 27 institutions of Higher Education to earn the National Procurement Institute's *Achievement of Excellence in Procurement Award*, which is a national award that recognizes organizational excellence in public and non-profit procurement.

Purchasing & Strategic Contracts - UMass Lowell Purchasing & Strategic Contracting team worked hard to increase efficiencies to realize more savings and better utilization of available tools all in an effort to continue delivering a high level of service to the UMass Lowell community.

Bidding – Increased our bidding by nearly 50% with 105 bids being conducted in FY19 year-to-date (10 months) vs. 72 bids in FY18. These bids resulted in a FY19 savings of \$2.43 million YTD and FY18 savings of \$2.2 million dollars.

Contract Management – We began to fully utilize the Total Contract Management (TCM) tool toward the tail end of FY18 and throughout FY19 to track all the contracts handled by the UMass Lowell Team. This shows over 350 contracts managed, reviewed and negotiated by the team in FY19 YTD and another 200 or so contracts tracked for FY18. The use of TCM has improved our ability to better track and proactively deal with contract expirations, contract compliance, tracking insurance certificates and bond expirations and to better identify bidding opportunities.



Contract Negotiation - The team used each of these contract reviews as an opportunity to negotiate more favorable terms, improve warranties and shipping terms, increase company provided training for high end equipment or software purchases and to mitigate risk to the University.

Project Management – Procurement Services provides project management many sourcing initiatives throughout campus. This service ensures timely and successful delivery of the product or service being acquired:

Parabolic Mirror for Space Research – Purchasing & Strategic Contracting managed the bid process of a \$160,000 mirror to be launched into the stratosphere as part of our LoCSST groups space exploration project under a NASA grant. Given the highly detailed work that goes on for the 6 – 12-month lead time item to be manufactured, Procurement Services decided to require the company and department researchers participate in a weekly check-in call to ensure the project is staying on budget and on schedule. When a recent error in the measurement of the mirror occurred during manufacturing, these meetings allowed for the early identification and resolution of the problem before it caused a delay in the NASA sponsored mission.

Confocal Microscope – Procurement worked with department to define specifications for bidding of this \$600,000 highly specialized microscope. By working with the department and the awarded bidder, Procurement was able to help identify valued engineering ideas to reduce the overall cost of the microscope to \$300,000. This oversight and management of both the researcher and manufacturer over a period of several weeks resulted in a savings of \$30,000 and cost avoidance of \$270,000.

Accounts Payable & Travel

Online Expense Reporting – fully implemented the PeopleSoft automated expense reimbursement tool, including workflow, half way through FY18 moving mainly paper transactions to paperless. In a non-mandated environment, they have been able to go from 53% to 94% utilization of the tool. This automation has virtually eliminating paper, reduced human error and expedited the reimbursement process.

Terra Dotta Travel Registry – Fully implemented to include Faculty, Staff and Student pre-registration for all out-of-state travel. This registry has resulted in the University being able to track over 2,000 UMass Lowell travelers going to over 168 destinations in 59 different countries each of the last two years. There have been 9 global incidents over this time where the Procurement Services Travel team has reached out to our travelers to ensure they were safe and



sound during these incidents. The configuration of this tool not only allows UMass Lowell to track our travelers but it also allowed us to combine 7 paper forms into one automated tool improving the pre-travel experience for the travelers, the administrators, the Academic leadership and the compliance folks.

Asset Management – Our Asset Management group began working with the Purchasing & Strategic Contracting, Facilities and Sustainability Departments to begin using a Nationally recognized surplus property bidding site geared toward the disposition of municipal surplus. Through the use of this site in just a few months’ time we have sold surplus resulting in nearly \$10,000 in revenue and avoiding thousands of dollars more in disposal costs. This effort has proven to be a new source of revenue, cost avoidance and sustainability all in one.

Facilities Management and Operations: Energy & Sustainability

Energy Efficiency

UMass Lowell completed its comprehensive \$23.1 million Accelerated Energy Program in April, 2019. As the state’s largest completed AEP site to date, the university implemented more than 100 energy-saving measures in 30 buildings across campus over the last three years. More than 6,000 pieces of mechanical equipment and lighting were updated or replaced, including the installation of a new solar hot water system at the UMass Lowell Inn & Conference Center, new LED lighting at the Tsongas Center and Costello Athletic Center, and low-flow plumbing fixtures in residence halls.

As a result of these improvements, the university expects to see \$1.2 million in annual energy savings. The upgrades will save 1.7 million gallons of water and reduce carbon dioxide emissions by 9 million pounds each year. The AEP also eliminates \$10 million in deferred maintenance across campus.

- Heat plant day shift staffing and procedures adjusted to reduce OT in the 24/7 operation. Estimated annual cost avoidance \$25,000
- Created an agreement with local town of Dracut for snow dumping and also established a small on campus location. Estimated average annual reduced hauling costs estimated at approximately \$40,000 per year
- Negotiated new electric utility rate (R2 changed to R3) for River Hawk Village student resident housing. Estimated \$25,000K per year cost avoidance.
- Secured energy related financial incentives and grants wherever possible as well as energy rebates. We have received roughly \$2M over 7 years.
- Through use of a special energy fund supported from conservation incentives/rebates, many of our minor projects renovations and deferred maintenance are enhanced to



include energy savings opportunities. Examples include: HVAC system replacement for the Alumni Hall renovations, LED lighting in the Olsen third floor office space improvements, HVAC replacements for the Pinanski laboratory spaces and Electric Vehicle (EV) charging stations. Savings are achieved in the cost-effective reduction of deferred maintenance, functionality of the spaces and energy savings.

- Although not required, designed all size projects to LEED silver guidelines with LED lighting, occupancy sensors, low flow plumbing and high efficiency MEP systems.
- Completed Fox Parking Lot Light replacement for reduced energy consumption.
- AEP- energy savings mostly included in UMass summary: For the last four years worked with the State's Accelerated Energy group to upgrade over 6,000 pieces of mechanical equipment and lighting in 30 buildings for an estimated annual savings of \$700k in electricity, over \$600k in natural gas and \$20k in water usage. This \$23M creative energy performance contract, the largest in the state, more than pays for itself from energy savings and has concurrently reduced our backlog of deferred maintenance by about \$10M. The project consisted over 100 energy saving measures ranging from weather stripping to major boilers replacements. Some of the more complex upgrades included installation of new energy efficient boilers in the South Campus Steam plant, Donahue, Fox, Recreation Center, and ICC as well as 15 new Air Handlers and Chillers for improved reliability and energy efficiency. In Costello, the entire mechanical room was gutted of old HVAC systems and replaced with new highly efficient and reliable equipment. New LED lighting, lighting controls and occupancy sensors were installed in 15 buildings including having our nationally ranked hockey team receiving new lighting for the Tsongas Arena. A new Solar Panel canopy system was installed on the south garage.
- Continued to expand our Facility Information System including GIS mapping and electronic records retrieval enabling more rapid and efficient decisions and operations
- Implemented an automated key management system for tracking keys issued, and record keeping.
- Reused/reallocated quality furniture from vacated areas to save hundreds of thousands of dollars in new furniture purchases. Collaborated with Purchasing Dept for resale of good quality used furniture on Municibid.

Entrepreneurial Approach to Sustainability

Since its inception in 2015, UMass Lowell's Office of Sustainability has taken an entrepreneurial approach to the stewardship of human, physical and financial resources in support of the sustainability goals outlined in the university's 2020 Strategic Plan. Through consensus building



and a strong partnership focused approach, our core sustainability functions have been enhanced by a steady stream of grant awards over the last two fiscal years. Totalling over \$300,000 these grants have supported innovative approaches to waste and recycling, sustainable transportation and a unique urban agriculture program.

In addition, the student body at UMass Lowell has become increasingly engaged and active with sustainability initiatives on campus. In 2016, UMass Lowell students established an opt-out sustainability fee to support the campus strategic plan's sustainability goals. Funding is administered through the Office of Sustainability and supports a range of activities focused on sustainability including student employment and internship opportunities.

\$50,000 of this student sustainability funding is available annually through a competitive Sustainability Engagement and Enrichment Development (S.E.E.D.) grant program. Since its inception, the program has funded 19 projects on campus focused on a wide array of areas from agriculture and energy enhancements to lab-based water conservation projects. Based on the success of the SEED program and the student body's role in administering the funds, UMass Lowell students recommended changing the sustainability fee from its initial opt-out format to a mandatory annual fee with the caveat that student involvement in the administration of fund be continued.

Regional Transit

UMass Lowell is a direct beneficiary of a strong collaborative relationship with both Merrimack Valley Regional Transit Authority (MVRTA) and Lowell Regional Transit Authority (LRTA). All students and staff can ride any of the Lowell Regional Transit Authority's (LRTA) 18 bus lines at no cost to them with their campus ID. The program also provides free service on the Merrimack Valley Regional Transit Authority's (MVRTA) Route 01/41 bus, which connects Lowell to Dracut, Lawrence and Methuen, as well as Haverhill, where the university recently opened a satellite campus. Since the Regional Transit Pass Program was implemented in 2017, LRTA has seen ridership peak at 9,000 UML-affiliated riders per month. This represents a significant and growing percentage of total ridership and a significant diversion of vehicular traffic removed from regional roadways. The approach also saves the university significant operating costs.

Lowell Canal Bridges

Construction work began this year on the Lowell Canal Bridges TIGER Project. This project is the result of a \$13.4 million FHWA TIGER grant that will majority fund the repair and replacement of a network of canal bridges in Lowell, including two that serve as vital links to the campus. University staff were integral in securing the TIGER grant for Lowell.

On East Campus, the one-lane bridge used by many residential students to cross the Northern Canal, will be replaced by a more attractive span that will include a 12-foot-wide sidewalk. The Pawtucket Street bridge over the Pawtucket Canal, located between University Crossing and



Wilder Street (heading toward South Campus), is also being replaced. The current bridge, last rebuilt in 1920, is unable to accommodate the weight of university buses, which must detour through the city to reach South Campus.

When complete, this project will have a positive impact on transportation-related GHG emissions both for the university and the city through more direct transportation links and added amenities for bicyclists and pedestrians. In addition to greenhouse gas emissions reductions, the TIGER project will result in significant operational savings for UMass Lowell's transit system through the elimination of costly and time-consuming detours.

Urban Agriculture Program

UMass Lowell's Office of Sustainability has developed an innovative urban agriculture program in partnership with Mill City Grows, a local food justice organization. This community partnership is unique in that it provides services to both the university and also to residents of the City of Lowell in an innovative and engaging setting. Development of this site has been supported by over \$150,000 in grant funding from the Massachusetts Department of Agricultural Resources. Underpinned by an 1,800 square foot greenhouse on an acre of ground which was formally an East Campus parking lot, the site serves as a testing ground where university researchers and students are paired with community members to develop new and efficient ways to use water and energy to grow sustainable crops year-round. Produce from this site is sold and donated back to the local community in Lowell, while fresh food donations are provided to the UMass Lowell student food pantry.

Workforce Management

The campus was an early adopter of position management and initiated an essential hiring review process in 2017 to manage payroll and ensure all vacant staff positions and any new positions requested are necessary for maintaining the health and safety of the campus community, are vital to the recruitment and retention of students, or ensure critical needs or internal controls are not put at risk. Since instituting these controls, the campus has eliminated or reallocated nearly 70 positions and is able to generate vacancy savings each year to help achieve bottom-line targets and reinvest in one-time needs such as academic and laboratory equipment purchases.

The EHC process also works hand in hand with our on-going organizational development and renewal efforts. The EHC proactively reviews potential staff retirements and proposed reorganizations to manage costs and provide valued staff opportunities throughout the organization.



**UMass Medical School
Efficiency and Effectiveness Report – FY18 and FY19**

UMass Medical School (UMMS) strives to identify, evaluate and execute cost saving, cost avoidance and efficiency improvement projects. An internal efficiency and effectiveness committee meets to evaluate initiatives and provides a path for ideas to be brought forward for study and discussion. The committee collaborates with UMMS department heads on campus-based projects. The committee also partners with UMass System-wide groups, including the UMass System Efficiency and Effectiveness Committees on Information Technology, Energy, Facilities, Procurement, Sustainability and Library Services.

UMMS further understands the importance of engaging and collaborating with the other four UMass campuses, particularly on best practices related to cost savings and procurement initiatives.

The following Medical School initiatives achieved savings in FY'17 and FY'18.

A. Information Technology

In FY'18, UMMS IT took over financial administration of the Massachusetts Green High Performance Computing Center (MGHPCC), which resulted in a 50% reduction in the President's Office operating cost of \$133,000. The \$66,500 in savings will be evenly split across the five campuses in FY'19.

At the campus level, UMMS IT, in FY'18, introduced online student class enrollment and streamlined numerous academic administrative tasks. Students benefited from real-time feedback during the enrollment process. Academic administrators and leadership saved 800 hours of time on tasks related to student evaluations. This included a 70% reduction in hours spent by an Associate Dean for work on student performance evaluations.

In FY'17, UMMS IT developed new chargeback mechanisms for several software packages, as well as for MGHPCC storage. The chargeback for one of these software packages, SPSS, saved UMMS \$24,000 in expenditures. Storage chargebacks capped overall high performance computing storage costs at less than \$232,000 per year, at a time when storage expenditures would increase by 25% to 50% on an annual basis.

UMMS IT enhancements to PeopleSoft workflows enabled academic administrators across all three schools to save a combined 1,200 work hours annually. Specifically, the system enhancements dramatically simplified recording and managing grades. These enhancements also resulted in 1,500 fewer emails and paper communications between academic offices each year, creating additional efficiencies.



Further, IT initiated a classroom projector refresh, replacing incandescent lamp projectors with laser projectors. Laser projectors have a 20,000-hour maintenance-free lamp life, which eliminates the need for costly bulb replacements (average: \$2,000) and classroom downtime due to bulb failure. UMMS anticipates a five-year payback on the laser projector investment.

IT's participation in the Data Center Optimization (DCO) project resulted in the elimination of three hardware maintenance contracts at the campus level. By migrating 300 virtual machines to the Data Center, IT will save \$106,562 in annual maintenance costs.

B. Facility Management

Interval Data Systems – In FY'17 and FY'18, UMMS contracted with Interval Data Systems (IDS) to identify energy savings in the Albert Sherman Center. IDS identified a potential reduction of air flow to the building in the range of 150,000 cubic feet per minute. This reduction equates to approximately \$300,000 in yearly savings. Based on this analysis, the Facilities Department is in the process of reducing air flow to the Sherman Center. The expected completion date of this initiative is June 2019.

Groundskeeping – In FY'18, Facilities conducted a cost analysis of steam cleaning the sidewalks every two weeks and periodically cleaning and scrubbing the parking garages. The resultant analysis led to a purchase of a sidewalk scrubber in FY'18, which has reduced both man hours and rental costs for these cleaning tasks. The total ROI for the equipment will be four years, and the FTE hours gained can be redeployed elsewhere.

Planner Hired – In FY'18, Facilities hired a planner to streamline the department's work effort. The planner's main responsibility is to insure work is scheduled by building, floor and type of equipment, thereby improving productivity significantly. (The attached chart illustrates the work effort and time spent to gather parts—just one example how better productivity helps to eliminate costs).

Go Fog Humidification Systems – With the installation of this system, Facilities was able to decommission two gas-fired steam boilers that were beyond their useful life, resulting in savings in water, gas, and electricity.

Mechanical Bid – Currently, Facilities engages the services of mechanical contractors at the South Street campus and the UMass Medicine Science Park. The contracts include preventative maintenance and corrective maintenance for all mechanical systems. By building corrective maintenance into the contract, Facilities can address mechanical failures promptly and without having to complete emergency justifications for required work.

Janitorial Bid – The bid encompassed all off-site UMMS properties. As a result of a well-run bidding process, Facilities was able to realize cost savings at all off-site locations.



South Street LED Lamp Change-Out – A project completed with internal labor on a rebate through a supplier using the Massachusetts Upstream Program made LED lamps available for purchase at \$1 each. This upgrade has reduced electrical usage significantly.

South Street and UMass Medicine Science Park Parking Lots LED Light Change – Facilities has been able to install LED lighting fixtures in the parking lots at the South Street campus and the UMass Medicine Science Park. This will reduce electrical usage.

South Street Rooftop Air Handling Units – This two-year capital project replaced fifteen air handling units. The units replaced were original to the building and well beyond their useful life.

South Street Cooling Tower Replacement – This capital project replaced four cooling towers for the South Street campus. The units replaced were original to the building and well beyond their useful life. The new units were sized to accommodate the load for the entire building, which will allow for decommissioning of a second set of cooling towers also well beyond their useful life.

Paper Products and Liners – A thorough vendor review process was initiated in FY'18 to identify best sources for disposable gloves, can liners, paper products and cleaning chemicals. An award is expected to be made in June 2019.

Dining Services – A technical team and a procurement team developed a request for proposals that included specifically defined services and enhanced quality metrics for dining services in the Albert Sherman Center. After a very competitive evaluation process, NexDine was selected as the successor provider, paying a higher fee to the Medical School and agreeing to new quality metrics and improved customer flow through UMMS cafes. In addition, NexDine will explore future business initiatives, including new kiosks and bookstore operations.

Parking Revenue System Improvements – The campus researched and selected ParkingSoft as the new software system for the visitor garage, which serves more than 4,000 cars daily. This selection has resulted in a more customer friendly point-of-sale system, as well as enhanced real time reporting and accounting.

Facilities Integrated Work Order Management System Improvements – Facilities Management hired a software consultant to review more than 80 operational systems and recommend opportunities for efficiency in system consolidation, integration or replacement. As a result, Facilities is installing a cloud-based integrated work order management system with reduced customization and improved functionality. The reduction of customized fields and reports will yield savings in implementation and report generation and result in cost effective version control and updates.



DCAMM's Accelerated Energy Project – In conjunction with DCAMM's program to identify and fund energy saving opportunities (ESOs), the campus worked closely to identify numerous opportunities for savings. The ESOs were vetted and approved by both DCAMM and UMMS, and a \$1 million project was executed with joint funding from Eversource, NGrid and the campus.

Electrical Resiliency – Over the past few years, UMMS has experienced several electrical power interruptions that have impacted research and academic and health care activity on the campus. In response, the campus has worked closely with NGrid to install new 15kV cables between the campus and the district switchgear and to reconfigure the switchgear to assure supply from two different transmission lines. UMMS also has installed new electronic relays and a high-speed intelligent demand response system, allowing the power plant to instantly switch to island mode. UMass Memorial Health Care, UMMS's clinical partner, began a \$20 million project to replace decades-old electrical switchgear, motor control centers and automatic transfer stations to enhance reliability and resiliency. The school will follow with the replacement of its 45-year-old electrical system over the next three years.

C. Energy and Power Plant

IceTec – The campus operates a sophisticated tri-generation power plant, providing steam, chilled water, normal and emergency power to the school and hospital buildings. The power plant has varying equipment that can provide these services and has the capacity to interchange equipment to maximize efficiencies or economics. Because of the complex interplay of information required to make these decisions, the campus hired IceTec to perform thermal, electrical load and economic modeling of the power plant and to recommend methods of aligning power generation and purchasing with market conditions and equipment efficiency. As a result, UMMS has increased generation efficiency and entered the wholesale electrical market.

AEC – Several years ago, the campus applied for and implemented alternative energy credits from the state through the funding of a 7.8MW gas fired turbine and 1100psi heat recovery steam generator. The campus "mints" alternative energy credits through the operation of this equipment, which had a higher initial cost than standard alternatives, but is more energy efficient and environmentally friendly. The result is more than \$800,000 per year in energy credits that are shared equally between the school and hospital.

Net Metering – UMMS entered into three net metering contracts with third party solar farms that yield about \$750,000 in energy savings per year. NGrid agrees to purchase the power from these solar farms, and UMMS sees a reduction in its bill. Subsequently, UMMS reimburses the solar farm for this power at a discounted rate, resulting in savings of 20% per kwhr generated. UMMS has contracted for over 10 megawatts of generation—the maximum permitted by DOER.

D. Procurement and Accounts Payable (Procure to Pay)



Cost Savings and Measurables – The UMMS Procurement team saved \$19.25 million in FY'17 and another \$22.8 million in FY'18 through the development and execution of competitive bidding processes, consortium contracts, state contracts and negotiated efforts. Through this initiative, the campus managed more than ninety formal procurement solicitations in the past two years, resulting in a 12% cost reduction on true addressable spend. The Medical School also has reduced ProCard spending by more than 50% in FY'17 and FY'18 (\$21.7 million to \$10.7 million).

The UMMS Purchasing team also manages the scientific supplies contracts and other associated contracts for the University System. This includes contract negotiation and new supplier identification, as well as working with procurement leadership in managing suppliers, resolving issues and enhancing university relationships. This focus has resulted in several new system contracts, including five new enablements on the UMass BuyWays catalog platform.

Efficiency and User Experience Enhancements – The UMMS Procurement team has focused on improving the user experience and has implemented solutions and training to accomplish these goals. In FY'17 and FY'18, the following solutions have been implemented:

1. Launching a Total Contract Manager for all UMMS business units, responsible for processing more than one thousand contracts per year. All contracts are now processed, shared and stored electronically utilizing electronic signature, eliminating hard copies, courier and postal costs and physical storage. This process also centralized and standardized the contracts within the Medical School.
2. Rolling out Bonfire, the University bid solicitation tool. This tool helps to standardize the solicitation process, streamline information flow, facilitate electronic storage and eliminate hardcopy files and responses.
3. Reintroducing the BuyWays user training process, now required for all new employees who use BuyWays. Given that UMMS processes more than 50,000 purchase orders annually, with more than 95% approved within twenty-four hours, it was critical to improve the training process and overall experience for users.

Accounts Payable – UMMS Accounts Payable has been focused on maximizing the use of available tools to achieve maximum efficiency. The following processes and enhancements were implemented in FY'17 and FY'18, enabling the 20% staff reduction:

1. Ensuring that 100% of all invoices are scanned and available in SciQuest for all users to access at any time, thereby removing handling, filing and storage costs, while remaining compliant with state law.
2. Utilizing email for invoices (more than 1,000 invoices are received via email weekly), as a means to greatly reduce processing time.



3. Issuing corrective actions plans to limit delinquent payments by departments.
4. Launching a direct payment process for BuyWays in FY'18 to improve the user experience, as well as to reduce the invoice process for 250 vouchers per month.
5. Reporting, tracking and maximizing payment terms from available vendors. In FY'18 UMMS took advantage of 94% of available discounts.
6. Contracting with an outside accounts payable auditor to review AP processes and payments over a three-year term. The UMMS AP Office has gained a highly efficient rating that far exceeds peer results.

E. Library Services

1. The Lamar Soutter Library entered into a five-year contract for Elsevier's Science Direct electronic -journal portal with the other UMass campuses. This saved UMMS \$60,000 and provided access to an additional \$1.2 million in journal content.
2. Other consortia contracts for electronic journals which were already in place in FY'18 saved UMMS \$49,000.
3. The Lamar Soutter Library also joined a number of library consortia that lends materials UMMS does not own for free (Boston Library Consortium, Eastern Academic Scholars' Trust).
4. The Lamar Soutter Library installed two filtered water filling stations, resulting in less waste (33,000 fewer plastic bottles).