Board of Trustees
15 Estabrooke Drive
Orono, ME 04469

Tel: 207-581-5844
Fax: 207-581-9212
www.maine.edu

February 18, 2020

TO: Members of the Finance/Facilities/Technology Committee

FR: Ellen N. Doughty, Clerk of the Board

RE: **February 26, 2020 - Finance/Facilities/Technology Committee Meeting**

The Finance/Facilities/Technology Committee will meet from **9:00 am to 12:00 pm on February 26, 2020.** The meeting will be located at the University of Maine System Executive Offices, Rudman Conference Room, 253 Estabrooke Hall, 15 Estabrooke Drive in Orono. In addition to the Estabrooke Hall location, the following Polycom locations and a conference call connection will also be available:

UMA – Room 125, Robinson Hall
UMF – Executive Conference Room, Merrill Hall
UMFK – Alumni Conference Room, Nadeau Hall
UMPI – Executive Conference Room, Preble Hall
USM – Room 423/424, Glickman Library

Phone: 1-800-605-5167 code 743544#

Refreshments will be provided at the UMS and the USM locations. The meeting materials are posted to the Diligent Board Portal as well as the Board of Trustees website: https://www.maine.edu/board-of-trustees/meeting-agendas-materials/finance-facilities-technology/

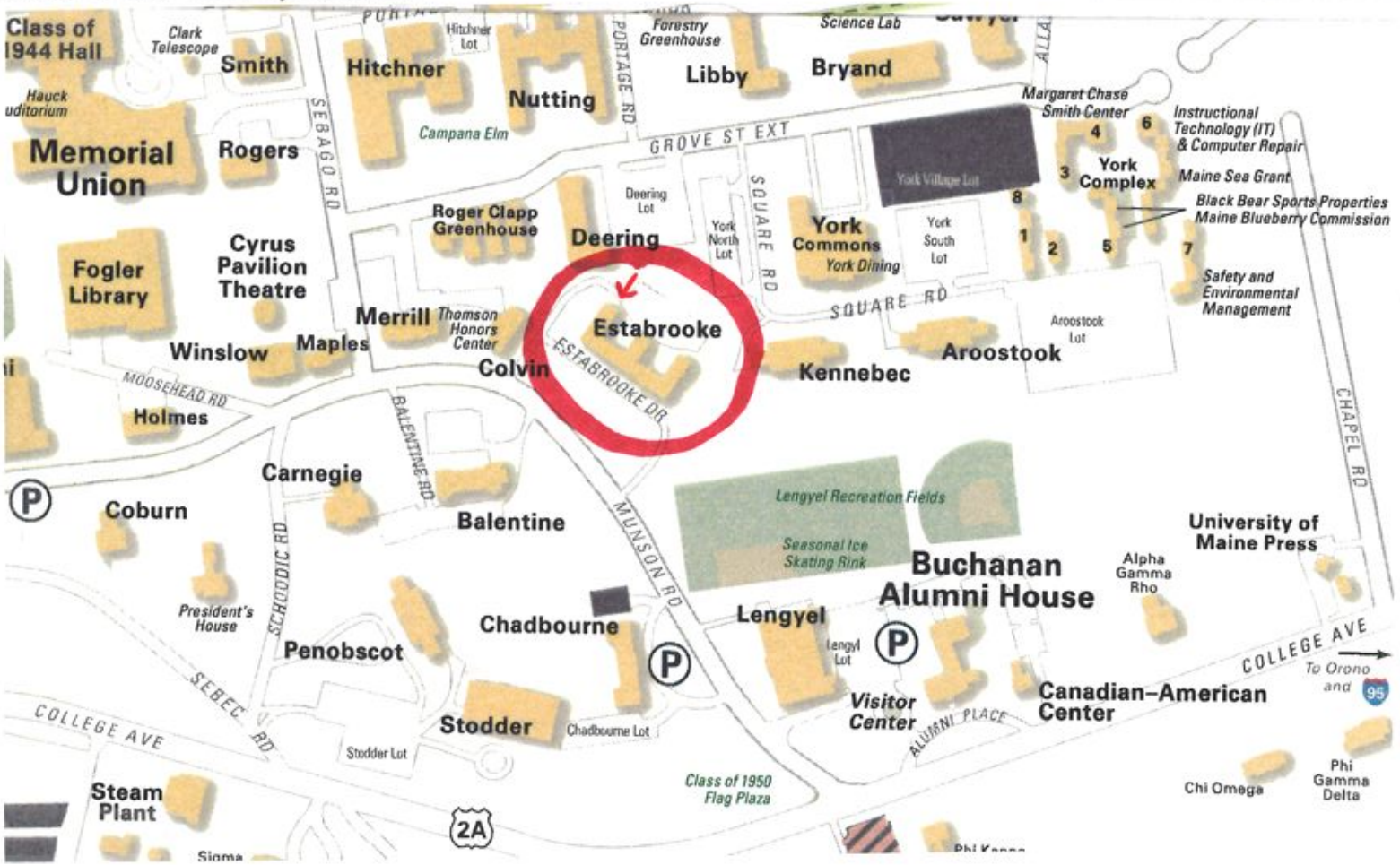
If you have questions about the meeting arrangements or accessing the meeting materials, please call me at 581-5840. If you have any questions or desire additional information about the agenda items, please call Ryan Low at 581-5845.

cc: Dannel Malloy, Chancellor
Board of Trustees
Presidents
System Staff

University of Maine System

15 Estabrooke Drive, Orono

Rudman Conference Room
253 Estabrooke Hall, 2nd Floor
15 Estabrooke Drive, Orono



Directions to the UMS located on the UMaine Campus

From the South on I-95: take exit 191 to Kelly Road and turn right. Continue on Kelly Road for 1 mile until you reach the traffic light, then turn left onto Route 2 and go through downtown Orono. Cross the river. Turn left at the lights onto College Avenue. Buchanan Alumni House will be the first campus-related building on your right. Right after the Buchanan Alumni House, take a right onto Muson Road. Estabrooke Hall is the building on the right after Lengyel.

From the North on I-95: take exit 191 to Kelly Road and turn left. Continue on Kelly Road for 1 mile until you reach the traffic light, then turn left onto Route 2 and go through downtown Orono. Cross the river. Turn left at the lights onto College Avenue. Buchanan Alumni House will be the first campus-related building on your right. Right after the Buchanan Alumni House, take a right onto Muson Road. Estabrooke Hall is the building on the right after Lengyel.

The UMS is located on the 2nd floor of Estabrooke Hall. Enter Estabrooke Hall from the back of the building, the entrance closes to Deering Hall.

Board of Trustees

Finance, Facilities & Technology Committee

February 26, 2020 from 9:00 am to 12:00 pm
Rudman Conference Room, 253 Estabrooke Hall, Orono

AGENDA

Revised - 2/24/2020

9:00am-9:20am TAB 1	Review of Projects with a Value of $250,000 or Greater
9:20am – 9:30am TAB 2	Renovation to Create Nursing Lab, UMPI
9:30am – 9:40am TAB 3	Fitness Equipment Purchase and Space Renovation, USM
9:40am – 9:45am TAB 4	Advance Structures & Composite Center Renovation, UM
9:45am – 9:55am TAB 5	Structured Parking Facility Design, USM
9:55am – 10:00am TAB 6	Bond Financing, Internal Loan and Project Authorization
10:00am – 10:10am TAB 7	Lease Authorization, University of Maine Museum of Art, UM
10:10am – 10:25am TAB 8	Engineering Education & Design Center Update and Naming, UM
10:25am – 10:40am TAB 9	Enrollment and Advancement Center, UMFK
10:40am – 11:00am TAB 10	Update to FFT Committee Meeting Protocol, UMS
11:00am – 11:05am TAB 13	Reduction of Canadian Tuition Rate
11:05am – 11:15am TAB 14	Approval of 2019 Maine Economic Improvement Fund Annual Report
11:15am – 11:45am TAB 11	Sightlines Annual Facilities Report
11:45am – 12:00pm TAB 12	Capital Projects Status Report and Bond Projects Update

Action items within the Committee purview are noted in green.
Items for Committee decisions and recommendations are noted in red.
Note: Times are estimated based upon the anticipated length for presentation or discussion of a particular topic.
An item may be brought up earlier or the order of items changed for effective deliberation of matters before the Committee.

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Review of Projects with a Value of $250,000 or Greater

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **X** **BOARD ACTION:**

4. OUTCOME: **BOARD POLICY:**

5. BACKGROUND:

Dr. David Demers, Chief Information Officer, will provide information on the following projects with a value of $250,000 or greater:

- Classrooms for the Future
- UMS Wireless Infrastructure
- MaineStreet Improvements
- VoIP – UMF
- VoIP – UMPI
- VoIP – USM
- LMS Implementation Project
- Generator Project

02/18/2020

Status Update – February 2020

Classrooms for the Future

Overall status: Change from previous report: None

Budget status: Change from previous report: None

Schedule status: Change from previous report: None

Overview

This project will involve renovations to existing classrooms across the entire University of Maine System. The project team will focus on the data obtained during the earlier classroom assessment phase and resulting classroom ratings in order to prioritize work at each campus. The team will also develop standards for equipment in all classrooms. Vendors will be used for the larger renovations and campus services/classroom technology staff will be used for minor renovations and upgrades. Once the rooms have been updated, they will be re-assessed and scored accordingly.

Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget*	Budget Committed to date	Budget % Committed	Project % Complete	Comments
4/2016	David Demers	12/2019 (updated 11/18)	12/2020	$4,945,075	$4,945,075	100%	98%	Total estimated budget reflects additional allocation provided Dec. 2017 as well as contingency funds added December 2018

Status

Reassessments have been completed on Summer 2019 classroom upgrades. Some installations took place over winter break and these rooms will be reassessed starting next week. The remaining partially completed rooms at USM, UMFK and UMPI will be completed by Summer 2020.

As the overall project nears completion, the CFTF project team will prepare final reports for each of the campuses relating to the work that has been accomplished, the updated assessments, maintenance recommendations, and suggestions for future classroom upgrades.

BUDGET SUMMARY

Campus	Allocation	% Committed to Date	$$ Not Yet Budgeted	% Complete
PROJECT TOTAL	$4,945,075	100%	-0-	98%
UMM	$240,900	100%	-0-	99%
UMF	$415,976	100%	-0-	100%
UMaine	$1,681,630	100%	-0-	100%
UMPI	$360,276	100%	-0-	96%
USM	$1,238,980	100%	-0-	95%
UMFK	$287,348	100%	-0-	97%
UMA	$719,965	100%	-0-	99%

Summary by Campus and Classroom Project

Reference: Campus Room Renovations

Campuses	Rooms By Project Setup	% Complete
UMA	Music Arts 124	100%
	RRSC 248 & 255	100%
	UC Bath/Brunswick 114	100%
	UC Norway SoPar 114 & 206	100%
	UC Saco 111	100%
	UC Ellsworth 2 & 7	100%
	UC Rockland 410 & 413	100%
	Jewett 124, 180, 189, 190 & 291	100%
	RRSC 246	100%
	UC Rockland 403, 410, 412 (Phase 2)	100%
	Fine Arts 122	100%
	Jewett 284, 293, 297	100%
	Katz 5, 15, 51	100%
	Katz 14	100%
	Katz 16	100%
	Handley Hall	100%
	LAC 162J, 162K, 162L, 216A, 216B, 218, 222C	100%
	Bangor 135, 142	100%
	Camden 101, 105, 304	100%
	Randall 253/255	95%
	Jewett 156	100%
	Jewett 284, 293, 297	100%
UMF	Roberts 205 & 207	100%
	Ricker Addition 202, 205	100%
	Roberts C23 & 131	100%
	Ricker Addition 217	100%
	Preble 117	100%
	Roberts 105, 107, 201, 203	100%
	South 115	100%
	Education Center 6 & 113	100%
	Tech Commons Fusion Center	100%

	Roberts 3, 101, 103	100%
	Education Center 103, 106, 110, 114	100%
UMaine	Shibles 202	100%
	DPC 105	100%
	Neville 101	100%
	Estabrook 130, 152	100%
	Bennett 215	100%
	Dunn 315 & 316	100%
	South Stevens 106D	100%
	DPC 107, 115, 117	100%
	Boardman 116	100%
	Boardman 118	100%
	Shibles 217, 313, 316	100%
	Nutting 100	100%
	Aubert 354	100%
	Hitchner 157	100%
	Jenness 102, 104, 108	100%
	Lengyel 127	100%
	Libby 220	100%
	Little 110, 120, 202, 206, 220	100%
	Lord 200	100%
	Colvin 401	100%
	Memorial Gym Complex 106 & 110 (ROTC Army)	100%
	Merrill 228a	100%
	Murray 102 & 106	100%
	N Stevens 235	100%
	Rogers 206	100%
	ROTC Navy 201 & 203	100%
	Deering 101c	100%
	Barrows 123, 131, 133	100%
	Balentine 129	100%
	Dunn 1, 44, 401	100%
	Barrows 124	100%
	Bryand Global 100	100%
	Deering 17	100%

	North Stevens 235	100%
	South Stevens 232-B	100%
	Neville 116, 118	100%
	Neville 120	100%
	Little 212	100%
	Aubert 165	100%
	Barrows 128	100%
	Class of 44 100	100%
	Colvin 401	100%
	DPC 111	100%
	Little 350	100%
	Center Stevens 155	100%
	Darling Marine Center Brooke Hall	100%
	PAIL Necropsy Lab	100%
	Libby 220	100%
	Nutting 213	100%
	Boardman 210	100%
	Lengyel 125, 127	100%
	Center Stevens 355	100%
	Deering 17, 113	100%
	Little 211, 212, 219	100%
UMM	Torrey Hall 230, 232, 234 - Phase 1	100%
	Torrey Hall 102	95%
	Torrey Hall 106	100%
	Powers 208 & 209	100%
	Science 114	100%
	Science 102 & 120	100%
	Reynolds Center 14	100%
	Torrey 230, 232 & GIS Lab - Phase 2	100%
	Performing Arts Center	100%
	Science 13, 115	100%
	Powell 123	100%
	Cyr 113	100%
UMFK	Old Model School 11	100%

	Cyr 200 & 201	100%
	Cyr 203	100%
	Cyr 200, 201, 204, 209	100%
	Nadeau Telecom Room	100%
	Powell 123 - Phase 2	100%
	Old Model School 112	62%
	Armory 119	100%
	Cyr 200-Contingency	100%
	Cyr 204, 205-Contingency	100%
	Folsom 206	100%
	Pullen 113, 212, 216	100%
	Folsom 204 & 205	100%
	Houlton 110	100%
	Folsom 203	100%
	Pullen 212	100%
	Pullen 213	100%
	Preble 239	100%
	Gentile Athletic	100%
	Weidan Training	100%
	Houlton 109	95%
	Houlton 120	49%
	Houlton 124	100%
	Houlton 125	95%
	Pullen 111, 214	100%
	Pullen 215	95%
	Pullen 113, 210, 213, ART	95%
	Folsom 303	100%
UMPI	Folsom 301, 304	100%
USM	405 Bailey	100%
	John Mitchell 217	100%
	Payson Smith 301A	100%
	LB 103	100%
	Masterson 113	100%
	Bailey 320	100%

	Bailey 10, S113, 201, 202, 204, 205, 206, 207, 208, S213, S215, 218, S312, S313, 315, L319, 320, L321, C402, C403, C, 405,	100%
	Corthell 112, 211, 212	100%
	John Mitchell 151, 164, 181	75%
	John Mitchell 233, 235, 242, 252, 265, 270	77%
	John Mitchell 252	100%
	LAC 287	100%
	LAC 210, 211, 212, 214, 216, 218, 224	100%
	LB 208, 209, 241, 302, 303, 310, 326, 327, 402, 403, 410, 424, 425, 502, 503, 509, 510, 523, 524	100%
	Payson Smith 1, 41, 42, 44, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 211, 303, 304, 306	100%
	Wishcamper 103, 113, 417/419, 427	85%
	Science 203, 403	75%
	Law 118	100%
	Payson Smith 42 & 44 - Phase 2	100%
	Payson Smith 201, 206, 304, 306 - Phase 2	85%
	Bailey 218 & 312	100%
	Bailey 313	75%
	Bailey 402	68%
	LAC 104, 106	100%
	Glickman Library 423/424	100%
	Luther Bonney 209	100%
	Science 157	100%
	Science 533	100%
	Russell 1 and Dance Studio	100%
	Masterton G38	100%
	Hill Gym 201	100%
	Ice Arena 154	100%
	LB 410, 524	100%
	Corthell 320	100%
	LAC 105, 108, 110	100%

*Summary Table Note - Phase 1 refers to Summer 2017 projects and Phase 2 refers to Summer 2018 projects.

Status Update – February 2020

UMS Wireless Infrastructure

Overall status: Change from previous report: None

Budget status: Change from previous report: None

Schedule status: Change from previous report: None

Overview

This project is a wireless technology connectivity Initiative to upgrade wireless service and associated cabling and equipment at all campuses to bring wireless capacity to gigabit speeds to support learning and living spaces.

Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget	Budget Committed to date	Project % Complete	Comments
4/2016	Jeffrey Letourneau	12/2018	06/2020	$13,215,000	$12,210,599	96%	

Status

At USM, a schedule has been established with facilities management and the cabling contractor with a targeted completion date of June 2020. Wishcamper is completed and work continues in the Science building. Other buildings in progress include John Mitchell Center, Corthell, Russell, the Costello Complex and Sullivan Gym.

Project funded cabling work is complete on the UM & UMPI campuses with only some FM work left to close out projects.

At UMA, no work is currently underway or being planned.
At UMM, project work is complete on the UMM campus.
At UMF, project work is complete on the UMF campus.
At UMFK, project work is complete on the UMFK campus.

BUDGET SUMMARY

Campus	Allocation	% Budgeted to Date	$$ Not Yet Budgeted	% Expended & Encumbered to Date	$$ Expended & Encumbered	$$ Not Yet Expended/ Encumbered
PROJECT TOTAL	**$13,215,000**	**99%**	**$87,242**	**92%**	**$12,210,600**	**$1,004,400**
Equipment in Inventory					$652,607	
System-wide Services	$620,000	100%	$0	100%	$620,452	-$452
UM - Machias	$733,200	100%	$0	101%	$743,998	-$10,798
UM - Farmington	$1,674,800	100%	-$6,712	100%	$1,681,512	-$6,712
UMaine	$3,294,600	100%	$0	98%	$3,218,832	$75,768
UM - Presque Isle	$700,200	100%	$0	99%	$695,454	$4,746
USM	$5,017,600	98%	$98,186	68%	$3,418,634	$1,598,966
UM - Fort Kent	$614,600	103%	-$17,212	103%	$632,092	-$17,492
UM - Augusta	$560,000	98%	$12,980	98%	$547,020	$12,980

(*) = original $11.2M allocation plus reallocation of $980k plus $620K required from contingency funding for system-wide licensing. 12/2018 - additional $415,000 from contingency.

BUILDING SUMMARY

Complete[1]		**Installation & Deployment Scheduled / In Progress**[2]		**Planning - Not yet Budgeted**
University of Maine at Augusta				
Lewiston Katz Jewett Randall	Eastport Camden Belfast Civic Center College Center			
University of Maine at Farmington				
Mantor Library Dakin Black Mallett Lockwood Purington	Stone Scott North Scott West Scott South Campus Fiber			
University of Maine at Fort Kent				
Powell The Lodge Crocker	Blake Library Cyr Hall			
University of Maine at Machias				
Torrey Hall / Merrill Library Reynolds Powers	Science Kilburn Dorward Sennett			
University of Maine at Presque Isle				
Park Emerson Merriman	Folsom-Pullen Wieden Library Campus Fiber			
University of Maine				
Fogler Library Shibles Bennett Rogers Jenness Lord Bryand Global Science Boardman Murray Hall[4] Aubert Wells Stewart Merrill	Little Class of 1944 Lengyel Estabrook Core Hitchner Hart Core Donald P Corbett Winslow Barrows / ESRB NuttingDeering Center Stevens North Stevens South Stevens Fernald			
University of Southern Maine				
Drawing Studio Print Studio Academy Building Wishcamper Wireless Only	Abromson Masterton Hall Glickman Library Luther-Bonney Payson-Smith	In Progress Science (75%) JMC (wired) Bailey (85%)	Begin 0-3 months Lewiston-Auburn Sullivan Complex Corthell Costello Complex	

Law Building	Brooks Dining		Russell	

[1] Networks are online and functioning; some testing and close-out paperwork may remain to be done

[2] Dates are estimated start dates for cable installation & deployment – subject to change

[3] Insufficient funding to upgrade entire building; minimal upgrades to support Classrooms for the Future or future upgrades

[4] Partial upgrade due to building limitations

Risks

- Identification of asbestos containing materials (ACBM) at USM in an area that was not anticipated has led to a higher awareness of and need to test for ACBM. Both the need for increased testing and the probability of higher than anticipated abatement needs will impact both project schedule and cost. The degree of impact will not be known until test results are completed.
- The project team is working closely with the Classrooms for the Future project team to coordinate efforts. Campus decisions to prioritize upgrades in residence halls over classroom buildings may negatively impact the Classrooms for the Future project.
- Many of the buildings require modifications by Facilities Management prior to network installation. The project team is working with each campus to plan this work. Resource availability and scheduling for this work may cause project delays.
- A risk to perceived success is unreasonable stakeholder expectations. Although a ubiquitous system-wide upgrade is needed, this project will only partially meet that need given the constraints of limited resources (schedule, budget, staffing, construction limitations, and coordination with other campus resources).
- Many buildings have network infrastructure that will need to be upgraded before new wireless networks can be installed. In some cases, this may include new fiber installation and/or the need for facility renovations.
- The phased funding approach will necessitate maintaining two separate WiFi networks on most if not all campuses driving up the ongoing operational costs and efforts for US:IT while creating inconsistent wireless service levels building to building on the campuses.
- There are a large number of factors and variables that will affect this project's timeline. There are other sizeable projects taking place at the same time. Another factor affecting the timeline will be the coordination among involved entities in setting priorities and timing.
-

Status Update – February 2020

MaineStreet Improvements

Overview

This initiative was initially comprised of two projects; a technical upgrade of the PeopleSoft (MaineStreet) Campus Solutions student information system from version 9.0 to 9.2 and a project to enhance the PeopleSoft user experience (UX Enhancements).

- **Campus Solutions 9.2 Upgrade**: This project upgraded the UMS MaineStreet Campus Solutions system from version 9.0 to version 9.2 and the CS PeopleTools (the underlying PeopleTools architecture) from version 8.55 to version 8.56. The upgrade will maintain Oracle compliance and continued support of the system. Wherever possible, the project will make improvements in business practice that will not significantly or materially change the timeline or the scope of the upgrade project.

  In addition to the CS application and PeopleTools upgrades, the scope included transitioning the CS PeopleSoft environments from the legacy Solaris architecture to Linux architecture.

- **PeopleSoft User Interface Platform**: This project will acquire and deploy a 3rd party PeopleSoft User-Interface Platform to streamline and improve usability, navigability, and utility of the MaineStreet environment for students and faculty alike. Additionally, enhanced Single Sign-On capabilities would be deployed to support a secure, fully integrated user environment.

Project	Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Initial Budget	Current Budget Balance	Project % Complete	Comments
CS 9.2 Upgrade	October 2018	David Demers	June 2019	June 2019	$1,349,263	$436,064	100%	Project Closed
UX Enhancements	September 2018		January 2019	June 2020	$1,148,237	$653,217	22%	

PeopleSoft User Interface Platform

Overall status:		Change from previous report:	None
Budget status:		Change from previous report:	None
Schedule status:		Change from previous report:	None

Status

The Project Team has engaged representatives from Student Records, Advising, Financial Aid, Student Financials and admissions in the functional analysis of the Campus Experience module. Fit/gap sessions are scheduled to be completed in February, the results of which will help inform effort estimates for mitigating any technical issues and accommodating critical UMS customizations. The project Technical Team and HighPoint staff continue to meet regularly to transfer knowledge, troubleshoot issues, and configure the Campus Experience module to meet the needs of the UMS.

Recently Completed

- Broader engagement of functional areas
- Application of latest software releases and reapplication of customizations in test environment
- Build of new test database (CSTS3)

In Progress

- Functional testing
- Remediation of technical issues, as needed
- Project planning
- Fit/gap analysis

Risks & Mitigation Strategies

Risk	Risk Management Plan
Failure to complete the project on schedule	Proactive planning, strong communication, and coordination processes, regular project team meetings, and clearly defined escalation path for identifying and resolving issues.
Resource contention due to competing demands	Proactive project management approach with respect to planning and scheduling activities. Leverage qualified Highpoint resources to augment UMS resources when needed.
Changes to project scope	Perform fit/gap analysis and execute the change control process throughout the project.
A high volume of change within a short time period can result in training and support challenges.	Engaging with stakeholders at an early stage will help inform decisions regarding functional deployment, communication, and training.
Many MaineStreet self-service functions are customized and HighPoint modules are designed to work with native Peoplesoft functionality. Users will need to be able to access the appropriate features and functions of MaineStreet in the HighPoint environment.	Conducting a comprehensive analysis of functionality and customizations with functional and technical stakeholders will inform the development of the optimal user experience.

Status Update – February 2020

VoIP – UMF

Overall status:		Change from previous report:	None
Budget status:		Change from previous report:	None
Schedule status:		Change from previous report:	Changed from yellow

Overview

This project will upgrade the UMF telecom system to utilize voice-over-IP (VoIP) and mitigate risk associated with the aging Avaya phone system.

Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget	Budget Committed to date	Project % Complete	Comments
4/2019	Jeffrey Letourneau	9/2021	9/2021	$499,000	$275,666.46	57%	

Status

Electrical circuits have been installed allowing the project to move ahead. Nearly 60% of phones have been moved from the legacy Avaya system. Requisitions have been approved for infrastructure cabling in Merrill, Admissions, and Franklin Hall to allow for VoIP phone installations. This work is scheduled for early summer. In the meantime, the remainder of phones in all other buildings on campus will be converted.

Risks

- The legacy Avaya phone system has showed signs of failing. There is a risk that we will not be able to migrate all services from this system before failure occurs. This risk is being mitigated by temporarily moving line to analog voice gateways.
- Due to the mitigation plan noted above, many users will be required to transition multiple times. This poses a risk of customer dissatisfaction and will necessitate a more comprehensive communication strategy.
- The network infrastructure in many buildings on the UMF campus is not adequate for deploying VoIP phones. This poses a risk to both project schedule and budget.
- Availability of human resources is a risk to this project. Resources needed for this project will also be working on telecommunications upgrades at UMPI and USM as well as providing operational support for all campuses.

Status Update – February 2020

VoIP – UMPI

Overall status:		Change from previous report:	None
Budget status:		Change from previous report:	None
Schedule status:		Change from previous report:	None

Overview

This project will upgrade the UMF telecom system to utilize voice-over-IP (VoIP) and mitigate risk associated with the aging Avaya phone system.

Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget	Budget Committed to date	Project % Complete	Comments
6/2019	Jeffrey Letourneau	9/2021	9/2021	$291,000	$193,835.45	48%	

Status

Cabling infrastructure upgrades have been approved from Preble and South. These are scheduled for early summer. In the meantime, the project team continues to migrate phone and fax lines.

Risks

- There is a risk that we will not be able to migrate all services from this system before failure of the legacy system occurs.
- The network infrastructure in some buildings on the UMPI campus is not adequate for deploying VoIP phones. This poses a risk to both project schedule and budget.
- Availability of human resources is a risk to this project. Resources needed for this project will also be working on telecommunications upgrades at UMF and USM as well as providing operational support for all campuses.

Status Update – February 2020

VoIP – USM

Overall status:		Change from previous report:	None
Budget status:		Change from previous report:	None
Schedule status:		Change from previous report:	None

Overview

This project will upgrade the USM telecom system to utilize voice-over-IP (VoIP) and mitigate risk associated with the aging Avaya phone system.

Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget	Budget Committed to date	Project % Complete	Comments
6/2019	Jeffrey Letourneau	9/2022	9/2022	$809,000	$85,965.02	7.9%	

Status

The team is now scheduling and coordinating voicemail and VoIP migrations on a building-by-building or, in some cases, a floor-by-floor basis. An effort is also in place to coordinate with the network upgrade projects to avoid re-work.

Recently announced plans for construction, office moves, and other facilities changes will likely absorb many of the resources currently working on this project. This may impact progress on the project over the next 12-24 months.

Risks

- Construction, office moves, and other facilities changes planned for the next 12-24 months may cause project delays.
- Constantly changing staff phone assignments and lack of clear processes for notifying IT when staff leave or are hired is a risk to a complete and accurate migration.
- There is a risk that we will not be able to migrate all services from this system before failure of the legacy system occurs.
- The network infrastructure in some buildings on the USM campus is not adequate for deploying VoIP phones. This poses a risk to both project schedule and budget.
- Availability of human resources is a risk to this project. Resources needed for this project will also be working on telecommunications upgrades at UMF and UMPI as well as providing operational support for all campuses.

Status Update – February 2020

Brightspace LMS Implementation

Overall status:		Change from the previous report:	N/A
Budget status:		Change from the previous report:	N/A
Schedule status:		Change from the previous report:	N/A

Project Overview

Blackboard's current Learning Management System (Blackboard Learn) is slated to be superseded with its new product, Blackboard Learn Ultra, in the coming years. Instead of waiting to be forced into the new product on the vendor's timeline, during the 2018 - 2019 academic year the University of Maine System (UMS) has engaged in a comprehensive review process to evaluate and identify the Learning Management System best suited to the needs of our campus communities. Based upon feedback received from faculty across all UMS campuses and a thorough feature evaluation process also involving representation from all campuses, Desire2Learn's (D2L) Brightspace platform was selected to replace Blackboard Learn. This project will implement Brightspace as the UMS's new LMS. Implementation must be completed and the new system operational by August 2020. The Blackboard contract has been extended to August 25, 2020. (The Summer 2020 term concludes on August 21, 2020.)

Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Initial Budget	Current Budget Balance	Project % Complete	Comments
10/9/19	UMS Chief Academic Officers Council (CAOC)	September 2020	September 2020	Implementation and Year 1: $205,825	$0	30%	
				Transition Support Allocations: $1,401,396	$1,401,396		

Status

The core implementation continues to partner with vendor (Desire2Learn) resources and UMS stakeholder groups to complete initial design and configuration decisions for the new Brightspace environment. Early feedback from the spring term pilot indicates an overall positive student response to the LMS.

Recently Completed

- Migration of initial set of courses from Blackboard to Brightspace
- Faculty and support staff training in preparation for Spring 2020 Pilot
- Successful Launch of pilot:
  - 88 live courses from four campuses (UMA, UMF, UMPI, USM)
  - 1749 students participating in active courses
  - 172 active instructors in Brightspace (may not all be in active courses)
- Completion of Single Sign-On configuration
- Integration with ~20 third-party solutions

In Progress

- Active test pilots, allowing staff a faculty the opportunity to work hands-on in Brightspace
- Analysis of data architecture to support further development of the integration between MaineStreet and Brightspace
- Brightspace governance planning

Risks & Mitigation Strategies

Risk	Risk Management Plan
Failure to complete the project on schedule	Proactive planning, strong communication, and coordination processes, regular project team meetings, and clearly defined escalation path for identifying and resolving issues.
Resource contention due to competing demands	Proactive project management approach with respect to planning and scheduling activities. Pre-schedule resources as needed. Leverage qualified D2L consultants to augment UMS resources when needed.
Interruption of project timeline due to delay in decision-making	Defined and closely adhered to the decision escalation process.
Lack of adequate knowledge transfer	Maximize UMS resources participation in the project and execute knowledge transfer throughout all phases of the project. Use project tools and templates to assist with providing detailed documentation and training information.

Status Update – February 2020

Generator Project

Overall status:		Change from previous report:	None
Budget status:		Change from previous report:	None
Schedule status:		Change from previous report:	None

Overview

This project will install backup power generators at five University locations in response to a state-wide weather event in November of 2017 that took down all three paths of the University of Maine System's wide area network (WAN) between Orono and Portland for multiple hours. A more robust backup power solution was deemed necessary at a number of the University campuses and regional centers to sustain the WAN during prolonged, large-scale commercial power outages.

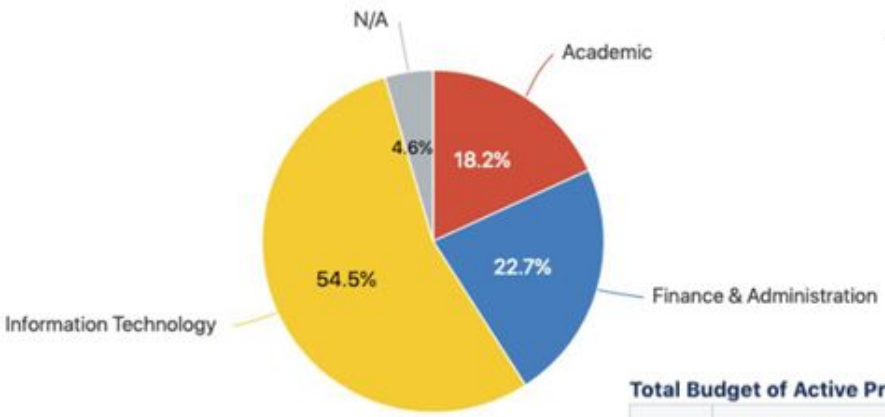
Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget	Budget Committed to date	Project % Complete	Comments
12/04/2017	Jeffrey Letourneau	None identified.	01/10/2020	$470,000	$372,118	100%	

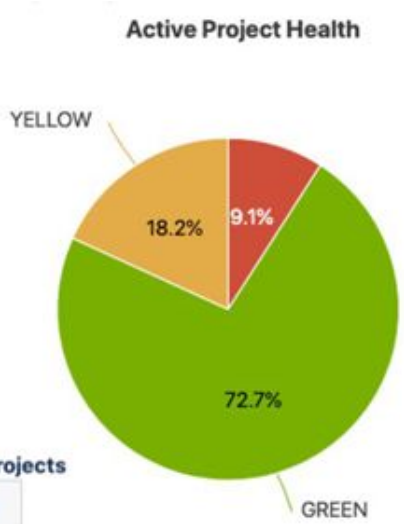
Status

Backup power electrical generators have been installed at UMFK, UMPI, UMF, Hutchinson Center and the Houlton High Education Center. The generators have been positioned to protect the WAN along with providing backup power to the campus networks in support of various security, life safety, and HVAC systems.

Risks

- None identified.





Total Budget of Active Projects

	Sum of Budget
Total	21,736,600.00

US:IT Project (>$250,000) Review

Finance – Facilities – Technology Committee

February 26, 2020

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

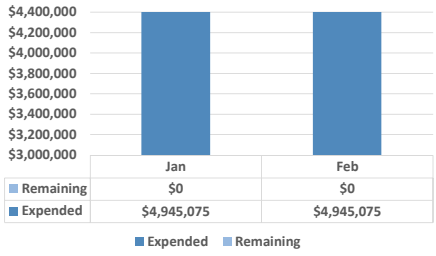
University Services
Information Technology

US:IT Project (>$250,000) Review

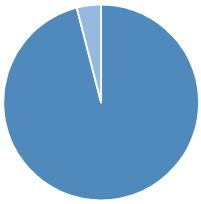
Classrooms for the Future (Tab 1.1; Page 5)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

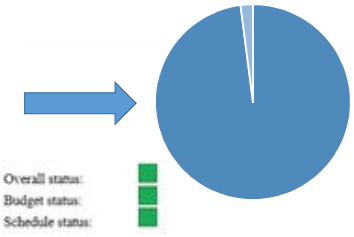
Project Budget - $4.945M**



96% Complete (Jan)



98% Complete (Feb)



Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget*	Budget Committed to date	Budget % Committed	Project % Complete
4/2016	David Demers	12/2019 (updated 11/18)	12/2020	$4,945,075	$4,945,075	100%	98%

**Revised Budget reflects additional $582,730 allocation provided from project contingency funds

US:IT Project (>$250,000) Review

Classrooms for the Future (Tab 1.1; Page 5)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

- **2017-2019 Classroom Upgrades**

Campus	Feb '20
UMA	99%
UMF	100%
UMFK	97%
UMM	99%
UM	100%
USM	95%
UMPI	96%

US:IT Project (>$250,000) Review

Classrooms for the Future (Tab 1.1; Page 5)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

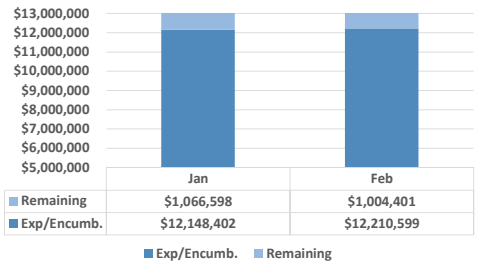
- **Feb 2020 Update**
  - **Majority of final work scheduled was completed during Winter break.**
  - **Partially complete rooms remain at USM, UMFK and UMPI; will be completed during Summer 2020.**
  - **Final room scoring/assessment, including Winter break work, will be completed mid Spring; final project reports for each campus are currently under development.**
  - **$500,000 Rural Utilities Service (RUS) spending plan will target replacement of ITV and Polycom equipment in 62 locations across the state.**
- **Risks**
  - **High anticipation for additional funding to complete effort**

US:IT Project (>$250,000) Review

UMS Wireless Infrastructure (Tab 1.1; Page 11)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

Project Budget - $13.2M**



94% Complete (Jan) **96% Complete (Feb)**

Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget	Budget Committed to date	Project % Complete
4/2016	Jeffrey Letourneau	12/2018	06/2020	$13,215,000	$12,210,599	96%

**Revised Budget reflects additional $415,000 allocation provided from project contingency funds

US:IT Project (>$250,000) Review

UMS Wireless Infrastructure (Tab 1.1; Page 11)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

Campus	Feb (% Budgeted)	Feb (% Complete)
UMA	98%	100%
UMF	100%	100%
UMFK	103%	100%
UMM	100%	99%
UMaine	100%	99%
USM	98%	85%
UMPI	100%	99%

US:IT Project (>$250,000) Review

UMS Wireless Infrastructure (Tab 1.1; Page 11)

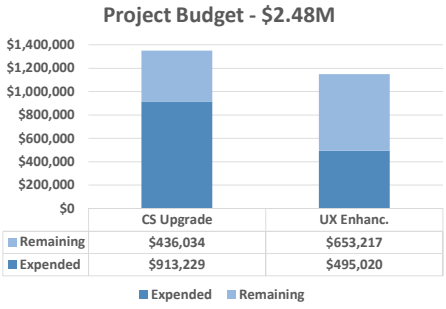
Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

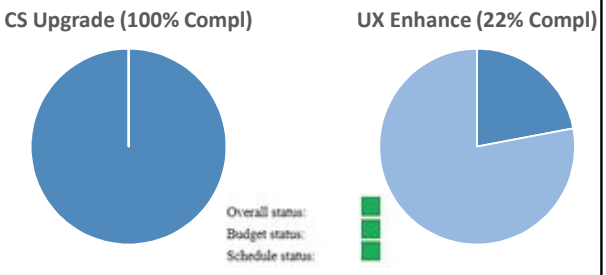
- **Project Status**
  - **Revised schedule with USM facilities management to complete cabling by June 2020.**
- **Recently Completed:**
  - **USM – Wishcamper**
  - **UM – Steward, Wells Commons**
- **Current Work:**
  - **USM –Science Building, John Mitchell Center, Corthell, Russell, Costello Complex and Sullivan Gym**
- **Risks**
  - **Phased funding will necessitate maintaining parallel wireless networks**
  - **High anticipation for additional funding to complete effort**

US:IT Project (>$250,000) Review

MaineStreet Improvements (Tab 1.1; Page 14)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM





Project	Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Initial Budget	Current Budget Balance	Project % Complete
CS 9.2 Upgrade	October 2018	David Demers	June 2019	June 2019	$1,349,263	$436,064	100%
UX Enhancements	September 2018		January 2019	June 2020	$1,148,237	$653,217	22%

*Project budget includes additional resources from contingency to fund SQR Replacement and SSO plugin

US:IT Project (>$250,000) Review

MaineStreet Improvements (Tab 1.1; Page 14)

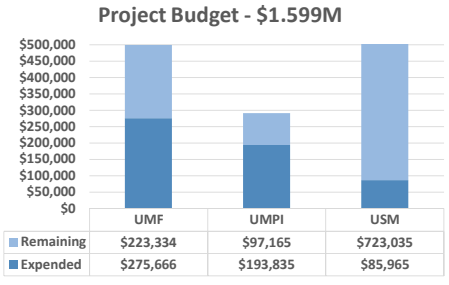
Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

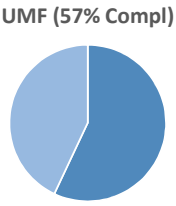
- **CS 9.2 upgrade:**
  - Project is officially closed
  - Finalizing plan to utilize project surplus ($436,064)
- **UX Enhancements:**
  - Fit/Gap sessions with functional stakeholders ongoing through Feb
  - Completed build of new TEST environment
  - Completed upgrade to latest software release
  - Weekly meetings with vendor to review technical issues
- **Risks**
  - Managing change in navigation and interface for the MaineStreet environment

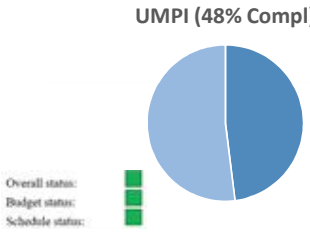
US:IT Project (>$250,000) Review

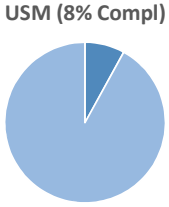
VoIP Implementation (Tab 1.1; Page 16)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM









	Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget	Budget Committed to date	Project % Complete
UMF	4/2019	Jeffrey Letourneau	9/2021	9/2021	$499,000	$275,666.46	57%
UMPI	6/2019	Jeffrey Letourneau	9/2021	9/2021	$291,000	$193,835.43	48%
USM	6/2019	Jeffrey Letourneau	9/2022	9/2022	$809,000	$85,965.02	7.9%

US:IT Project (>$250,000) Review

VoIP Implementation (Tab 1.1; Page 17)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

UMF:

- 60% of phones have been migrated from the legacy Avaya system
- Installation of electrical circuits has been completed
- Additional infrastructure cabling required for Merrill, Admissions and Franklin Hall has been approved

UMPI:

- Infrastructure upgrades to support VoIP deployment have been approved (Preble, South)
- Expect deployment of VoIP for these buildings by early summer

USM:

- Newly approved construction plans will dictate VoIP deployment schedule
- Will support portability of USM staff relocations
- Will require coordination for competing resourcs

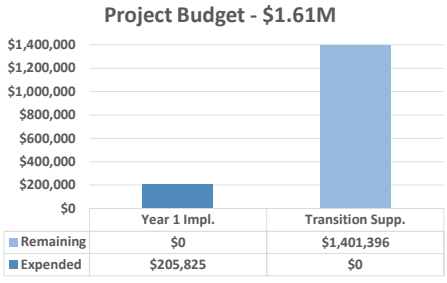
Risks

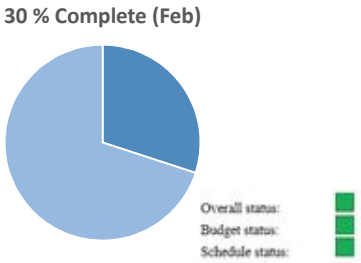
- Ongoing probability of future failures of legacy phone systems at UMF/USM
- Poor network infrastructure on both campuses will pose challenges to the project timeline

US:IT Project (>$250,000) Review

Brightspace LMS Implementation (Tab 1.1; Page 19)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM





Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Initial Budget	Current Budget Balance	Project % Complete
10/9/19	UMS Chief Academic Officers Council (CAOC)	September 2020	September 2020	Implementation and Year 1: $205,825	$0	30%
				Transition Support Allocations: $1,401,396	$1,401,396	

brightspace

US:IT Project (>$250,000) Review

Brightspace LMS Implementation (Tab 1.1; Page 19)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

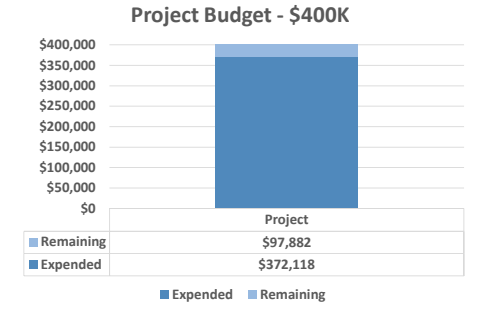
- **Project Overview**
  - **Replace current Learning Management System (Blackboard Learn) with modern, mobile-friendly, cloud-based platform – Brightspace from Desire2Learn for Fall 2020 term.**
- **Recently Completed:**
  - **Testing of course migration tools (Blackboard > Brightspace)**
  - **Completion of Single Sign-On Configuration**
  - **Completion of 20+ 3rd Party Plug-Ins (including Kaltura, Zoom)**
  - **Successful launch of pilot courses for Spring 2020 term**
    - 88 live courses from four campuses (UMA, UMF, UMPI, USM)
    - 1749 students participating in active courses
    - 172 active instructors in Brightspace
- **Current Work:**
  - **Finalize data architecture to better support reporting and analytics**
  - **Complete API-based integration between MaineStreet and Brightspace**
- **Risks**
  - **Very aggressive timeline for completion; desire for campuses to add new functionality within current project scope.**

brightspace

US:IT Project (>$250,000) Review

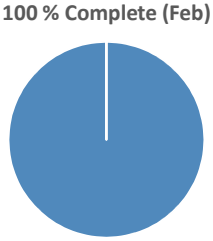
Backup Electrical Generator Project (Tab 1.1; Page 21)

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM



Initiation Date	Sponsor	Original Estimated Completion Date	Current Estimated Completion Date	Estimated Budget	Budget Committed to date	Project % Complete
12/04/2017	Jeffrey Letourneau	None identified.	01/10/2020	$470,000	$372,118	100%

- **Project Overview**
  - **Installation of backup power generators at (5) UMS locations to ensure fiber path redundancy and resiliency for the optical network.**
  - **Sites Included: UMFK, UMPI, UMF, Hutchinson Center, Houlten HEC**



Overall status:
Budget status:
Schedule status:

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Renovation to Create Nursing Lab, UMPI

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION: X**

4. OUTCOME:
Increase Enrollment
Relevant Academic Programming

BOARD POLICY:
701 – Budgets-Operating & Capital

5. BACKGROUND:

The University of Maine System acting through the University of Maine at Presque Isle (UMPI) requests authorization to expend up to $800,000 to construct a Nursing Simulation Lab in an existing lecture hall in the Folsom Hall building on the Presque Isle campus, to be funded by the 2018 Facilities and Infrastructure Improvement Bonds.

This request is pursuant to Board of Trustees Policy 701, which requires projects with a total cost of more than $500,000 to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. In this case, the authority rests with the Committee.

The project would renovate 1,800 square feet of existing space in Folsom Hall to create a new Nursing Simulation Lab. Folsom Hall totals 27,516 square feet and is directly connected to Pullen Hall. Combined, these two facilities make up the main component of the academic space for UMPI, consisting primarily of classrooms and labs. Folsom Hall was built in 1968 and has a net asset value of 97 percent having been renovated in 2008.

This renovation will take place in what is currently a stadium-seating style lecture hall that due to its fixed setup no longer meets the needs of today's student learning experience. Because of the static and limited seating in the large lecture hall, and using information from the space needs analysis conducted during UMPI's Master Plan process, updated scheduling of the remaining classrooms will absorb the loss of these classroom seats.

In an effort to best meet workforce needs for healthcare providers in Aroostook County and to help address the statewide nursing shortage, the University of Maine at Fort Kent and the University of Maine at Presque Isle collaborate to provide a two-plus-two Bachelor of Science in Nursing (BSN) degree program. The collaborative program,

started in fall of 2018, is designed for those who are not able to travel to Fort Kent to complete a Nursing degree due to family and work responsibilities.

Students complete all four years of the BSN on the UMPI campus, where they are UMPI students for the first two years, then transfer as UMFK students for the remaining two years. Students continue to take courses on the Presque Isle campus for their last two years, but those courses will be delivered by UMFK Nursing faculty and students will graduate with their BSN from UMFK.

The addition of this lab space will allow UMPI to support the upper level coursework of the UMFK Nursing program. Specifically, this renovation will transition the existing lecture hall space into a seven-bed lab that will be split between a three-bed simulation lab and four-bed nursing instructional space.

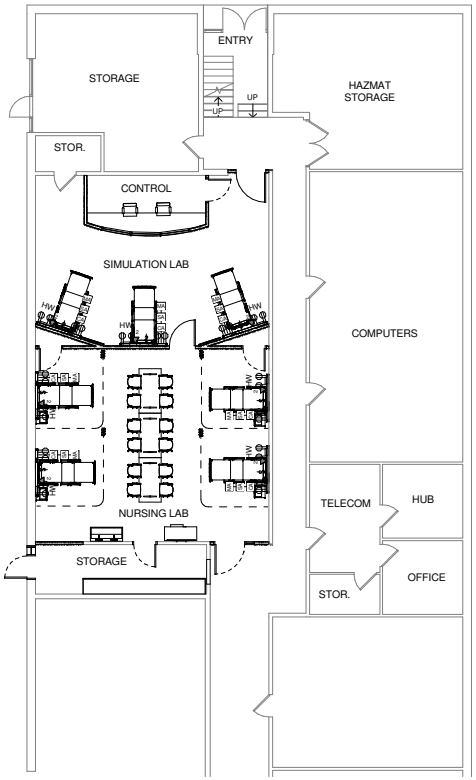
Current enrollment levels of this program are 20 students at the sophomore level and 20 students at the freshman level. Enrollment projections going forward are 40 freshman students to be added in the Fall of 2020. By Fall 2021, cohort levels are expected to be 40, 32, 20 and 20 respectively. In total, with the renovated lab, this program plans to enroll and retain 110 to 120 students.

Construction costs for this renovation are estimated at $579,989, with initial equipment costs estimated to be $220,011, bringing total estimated project cost to $800,000. There are additional equipment needs that will be phased in over coming years as the program grows. Additional external funding options, such as grants to assist in purchasing certain equipment, will be pursued during that time. New, more energy efficient lighting fixtures and other appliances are expected to off-set other electrical demands and no major changes to operating expenses are expected to result from the renovation of this already occupied space.

The current project schedule, if approved, has final design, which is in progress, being complete by March 2020, construction bidding occurring in April 2020, construction starting in late May 2020, substantial completion and occupancy by August 2020.

6. TEXT OF PROPOSED RESOLUTION:

That the Board of Trustees acting through the Finance, Facilities and Technology Committee authorizes the University of Maine System acting through the University of Maine at Presque Isle to expend up to $800,000 from 2018 bond funds to create a nursing simulation lab through the renovation of existing space in Folsom Hall on the Presque Isle campus.



REV.	DESCRIPTION	DATE
0	PREDESIGN	1.10.2020

PROJECT NORTH

WBRC ARCHITECTS • ENGINEERS
WWW.WBRCAE.COM
BANGOR, MAINE 207-947-4511
PORTLAND, MAINE 207-828-451
SARASOTA, FLORIDA 941-556-0757

UMPI FOLSOM HALL RENO

PROJECT: 181 MAIN STREET, PRESQUE ISLE, MAINE 04769

FIRST FLOOR PLAN

SHEET TITLE:

WBRC CAD FILE:

PROJECT No: 4299.00

GRAPHIC SCALE: 0" 1"

SCALE: 1/8" = 1'-0"

SHEET No.

PM: SEP

DRAWN BY: KER

A/E OF RECORD: SEP

AE101

A1	FIRST FLOOR
1/8" = 1'-0"	

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Fitness Equipment Purchase and Space Renovation, USM

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION: X**

4. OUTCOME:
Improve student success and completion
Improve student experience

BOARD POLICY:
701 – Operating & Capital

5. BACKGROUND:
The University of Maine System acting through the University of Southern Maine (USM) requests authorization to expend up to $700,000 to purchase new health and fitness equipment in addition to completing IT and space renovations, to support the new equipment at the University of Southern Maine.

Funding for this project will come from Banc of America financing. Debt payments for this project to be covered by a proposed new student gym fitness fee that would amount to approximately $15 per semester for a full-time student. The fee has been tentatively approved by the campus leadership. Upon approval, the fee revenue and debt service will be included in the campus FY2021 budget that will be considered by Trustees.

Pursuant to Board of Trustee Policy 701 and associated, formally adopted Trustee practices, the scope of this project places it within the purview of the Finance/Facilities/Technology Committee to approve on behalf of the Board without further consideration by the full Board.

The current usage of the fitness centers in Gorham, Portland and Lewiston-Auburn varies by location. Each location tracks memberships and visitors differently so making common comparisons between them is difficult.

Over the last year, Gorham issued 1,892 passes. This includes day passes and various memberships. Student athletes heavily utilize the Gorham fitness center located in the Hill Gym.

The Portland fitness center located in the Sullivan Gym is utilized by students and employees but also has a high level of usage from community members. The Portland fitness center averages about 68,000 visits per year including students, employees, community members, alumni, and retirees.

2/18/2020

The Lewiston fitness center (LAC) is much smaller in comparison and does not track usage in the same way. It is utilized by students and employees. Students and employees have access to all three locations. As the future location of Lewiston Auburn College itself is currently under review, the fitness investments proposed there are moveable equipment as further detailed below and could be relocated if LAC itself moves.

Each fitness center currently has its own rates. All student and employees do not pay directly for gym usage. All other visitors pay a rate depending on type of membership (alumni, community members, retirees, etc.) and the length of membership ranging from a day pass up to a 12-month pass. These rates range from $5 for a day pass to $360 for a community member 12-month membership.

The current equipment in Gorham is about 25 years old and various pieces have been refurbished and repaired over the years. In Portland, the equipment is approximately 22 years old and various pieces have been refurbished and repaired over the years. As the equipment ages, the need for maintenance has increased. A lot of the equipment lacks the features and safety mechanisms of modern equipment. For example, modern equipment has internet accessibility, the ability to stream content, and other features that students and other users have come to expect. The University also is concerned with improving safety. Although great effort has been put forth to maintain it, many pieces are simply wearing out. When equipment does break, it can be out of service for several weeks due to the difficulty of locating replacement parts.

USM has been looking at various ways to increase student satisfaction. Although a number of efforts have improved student satisfaction over the last several years, the fitness centers have not received the attention that they could. USM, and the UMS, have also showcased initiatives around health and wellness. The University believes that replacing 25-year-old gym equipment will increase student and employee utilization of the fitness center, raise student satisfaction, and enhance the reputation of the institution to the community members who utilize the fitness centers.

Through this proposal, USM plans to replace all of the existing equipment in the three fitness centers. This includes 13 treadmills, 13 ellipticals, 4 climbmills, 5 recumbent bikes, 9 upright bikes, 1 stepper, 3 rowers, 28 spin bikes, and a large number of universal equipment and free weights. The vendor has agreed to accept the old equipment as a trade in with a value of $15,000, including removal of the equipment. The total cost of the equipment net discounts and trade in is $555,881.51. There will also be electrical, IT, and cosmetic work performed in the areas where the equipment is located. The University estimates this to be about $100,000 in work and has accounted for contingency in the request for expending up to $700,000.

In the current proposal from the vendor, the three pieces of equipment for Lewiston are at no cost to the University and no renovations are required at that location. If these pieces of equipment were not needed in Lewiston or if they were needed in a different location in Lewiston-Auburn, they could be relocated or returned to the vendor.

USM reviewed both purchase and lease options for cost-effectiveness. Through purchasing, the University was able to negotiate lower pricing and cost savings even factoring in the Banc of America financing. Additionally, at the end of the five-year

financing, the University will own the equipment and can continue to utilize it or realize a salvage value and replace. The vendor also agreed to provide an additional year of warranty to cover all of the years that the equipment is being financed.

Renovations would start early summer 2020 with expected receipt of the equipment in July. Occupancy and use of the spaces will be in time for the start of the Fall 2020 semester. No additional operational expenses are expected because of this expansion.

6. TEXT OF PROPOSED RESOLUTION:

That the Board of Trustees, acting through the Finance, Facilities and Technology Committee, authorizes the University of Southern Maine to expend up to $700,000 for health and fitness equipment and accompanying renovations with funding from Banc of America Financing, contingent upon inclusion of a sufficient, dedicated user fee in the USM fiscal year 2021 budget and approval by Trustees through the normal budget approval process of such a fee.

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Advanced Structures and Composites Center Renovation, UM

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION: X**

4. OUTCOME:
Support Maine through research and economic development

BOARD POLICY:
701 – Budgets-Operating & Capital

5. BACKGROUND:

The University of Maine System acting through the University of Maine (UM) requests authorization to spend up to $1,400,000 to renovate the mezzanine section of the Advanced Structures and Composite Center (ASCC) to create secured office space including, project offices, a conference room, 11 individual offices, two bathrooms (as required by code), and natural light skylights, all within existing square footage.

Funding for this project will come from funds generated by industrial contracts, resources identified by the Vice President for Research and Dean of the Graduate School, a sponsored award from US Army Natick Soldier Center, and residual funds from a previous contract from the Natick center. No additional funds are required from UMaine.

This request is pursuant to Board Policy 701, which requires projects with a total cost of more than $500,000 to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. In this case, the request is to approve and to forward this matter to the consent agenda of the Board of Trustees.

The University of Maine's Advanced Structures and Composites Center is a world-leading, interdisciplinary center for research, education, and economic development encompassing material sciences, manufacturing, and engineering of composites and structures. The Center is housed in a 100,000 square foot, International Organization for Standardization (ISO) 17025-accredited testing laboratory with more than 220 full and part-time personnel.

The proposed renovation of approximately 4,000 square feet of existing space will expand usage and relieve stress on existing office space, provided an improved secured place to house existing work that is subject to federal export controls and provide space to accommodate additional such work.

2/18/2020

The project is precipitated by a growth in research at ASCC. Over the past 5 years, external research grants and contracts at the Center have grown from $5 million/year to $20 million/year. Additionally, ASCC has new government projects which require different levels of security. Nearly $900,000 of the funding for the new office space is coming from those grant resources to create secure space for their research projects.

The proposed renovation includes electrical; heating, ventilation and cooling systems; ductwork; plumbing; erecting walls; and installing floor covering, skylights and security features like swipe cards and video surveillance, doors and side lights.

The timeline for construction to commence is the Spring of 2020 with completion and occupancy anticipated in the Fall of 2020. The original ASCC building has a net asset value of approximately 71 percent. Increases in operational costs are expected to be minimal because it is existing space. To the extent they occur, it will be covered by the campus funds.

6. TEXT OF PROPOSED RESOLUTION:

That the Finance, Facilities and Technology Committee forwards this item to the Consent Agenda at the March 15-16, 2020 Board of Trustees meeting for approval of the following resolution:

> That the Board of Trustees accepts the recommendation of the Finance, Facilities, & Technology Committee and authorizes the University of Maine System acting through the University of Maine to spend up to $1,400,000 from various funding sources, including funds generated by industrial contracts, resources identified by the Vice President for Research and Dean of the Graduate School, a sponsored award from US Army Natick Soldier Center, and residual funds from a previous fixed price contract from the Natick center, to renovate the mezzanine section of the Advanced Structures and Composite Center to secured office space.

5

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Structured Parking Facility Design, USM

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION: X**

4. OUTCOME:
Improve student success and completion
Increase Enrollment
Enhance Fiscal Positioning

BOARD POLICY:
701 – Operating & Capital

5. BACKGROUND:
The University of Maine System acting through the University of Southern Maine (USM) requests authorization to expend up to $1,200,000 to design an approximately 425-space parking structure to be constructed on the Portland campus at the University of Southern Maine. Funding for the design, and ultimately for the construction of this project, is proposed to come from a University Revenue Bond with debt service funded by University of Southern Maine dedicated annual revenue streams.

This request is pursuant to Board of Trustees Policy 701, which requires projects with a total cost of more than $500,000 to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. In this case, the request is to approve and to forward this matter to the Consent Agenda for the March 15-16, 2020 Board of Trustees meeting.

If approved, the University will execute an agreement for the design of this facility. That total project cost is preliminarily estimated at $12.7 million. While the total cost for revenue bonding authorization purposes is elsewhere on the agenda, only the design and initial due diligence portion of up to $1.2 million is currently requested in this agenda sheet today. The University would return at a later time to request authority actually to construct the facility and for full corresponding budget authority.

This project has previously been discussed with Trustees in the context of the preliminarily approved new student residence facility project on the Portland campus. Construction of that new 577-bed facility as well as a Career and Student Success Center is expected to begin, pending further Trustee consideration, during calendar year 2020 with occupancy expected for Fall 2022.

Due to this residence hall construction and other contemporaneous projects, the University expects to lose approximately 185 parking spaces on campus. That would create a parking deficit situation compared to current demand and would not meet future demand.

To avoid a parking deficit and meet future demand, USM is undertaking multiple steps:

a. a transportation demand management effort to reduce parking demand by, for

example, spreading the class schedule over more hours and days to reduce peak demand;
b. expanding the Wishcamper surface parking area, already approved by Trustees, which will largely off-set the anticipated short-term parking losses beginning in calendar year 2020; and,

c. proposing to build the new structured parking facility before Trustees today to address increased future demand beginning in 2022.

The University in mid-2019 contracted with VHB, a civil engineering and transportation-consulting firm, to conduct a parking assessment to determine the current parking demand as well as the expected future parking need once the construction is complete. That report is included in the materials.

In brief, based on the completed assessment, the University has surplus parking capacity of slightly more than 100 spaces during peak periods today. Once the multiple parking demand projects are completed and the new residence hall and Student Career Center facilities open, the increased parking availability would leave USM with an estimated surplus of slightly less than 100 spaces, but still a surplus. On a gross basis, USM would be increasing from a current 1,701 spaces to a new total of approximately 2,050+/- spaces.

The University conducted a separate study with a third party to review parking garage location options and expansion considerations on the Portland campus. As a result, as it begins true design, the University expects to propose an approximately 425-space facility roughly in the footprint of the current 61-space surface lot adjacent to Sullivan Gym and accessed from Falmouth Street.

The proposed site was selected based on numerous factors including the proximity to the new residence hall and Career and Student Success Center, balancing the distribution of traffic flow around campus, and the efficiency of the site design. A four-story, steel structure is among the leading conceptual designs. The design also will consider options that would more readily allow the conversion of or addition to the facility of multi-use space.

The dedicated revenue stream to fund the revenue bond payments would come from three sources: a. existing cell tower revenue of approximately $225,000 annually; b. newly available pouring rights contract revenue of approximately $157,000 annually; and, c. new student fees, which are included in USM's budget beginning in FY2022 and will be considered by Trustees as part of that budget, for approximately $300,000 annually. The proposed revenue bonding for this project is specifically being considered under a separate agenda information sheet, per standard practice.

6. TEXT OF PROPOSED RESOLUTION:

That the Finance, Facilities and Technology Committee forward this item to the Consent Agenda at the March 15-16, 2020, Board of Trustees meeting for approval of the following resolution:

That the Board of Trustees accepts the recommendation of the Finance, Facilities and Technology Committee and authorizes the University of Maine System acting through the University of Southern Maine to expend up to $1,200,000 for design of an approximately 425-space structured parking garage on the Portland campus with funding from a University Revenue Bond with debt service funded by University of Southern Maine dedicated annual revenue streams.

5.1

USM Parking Assessment: Existing and Future Conditions

Presented by
LOURENÇO DANTAS, AICP
FEDERICO TALLIS, AICP

January 17, 2020

1

Contents

Study Purpose

To develop a comprehensive profile of current on-campus parking conditions and to estimate future parking demand levels based upon projections of student enrollment, employment growth, and changes to campus activities.

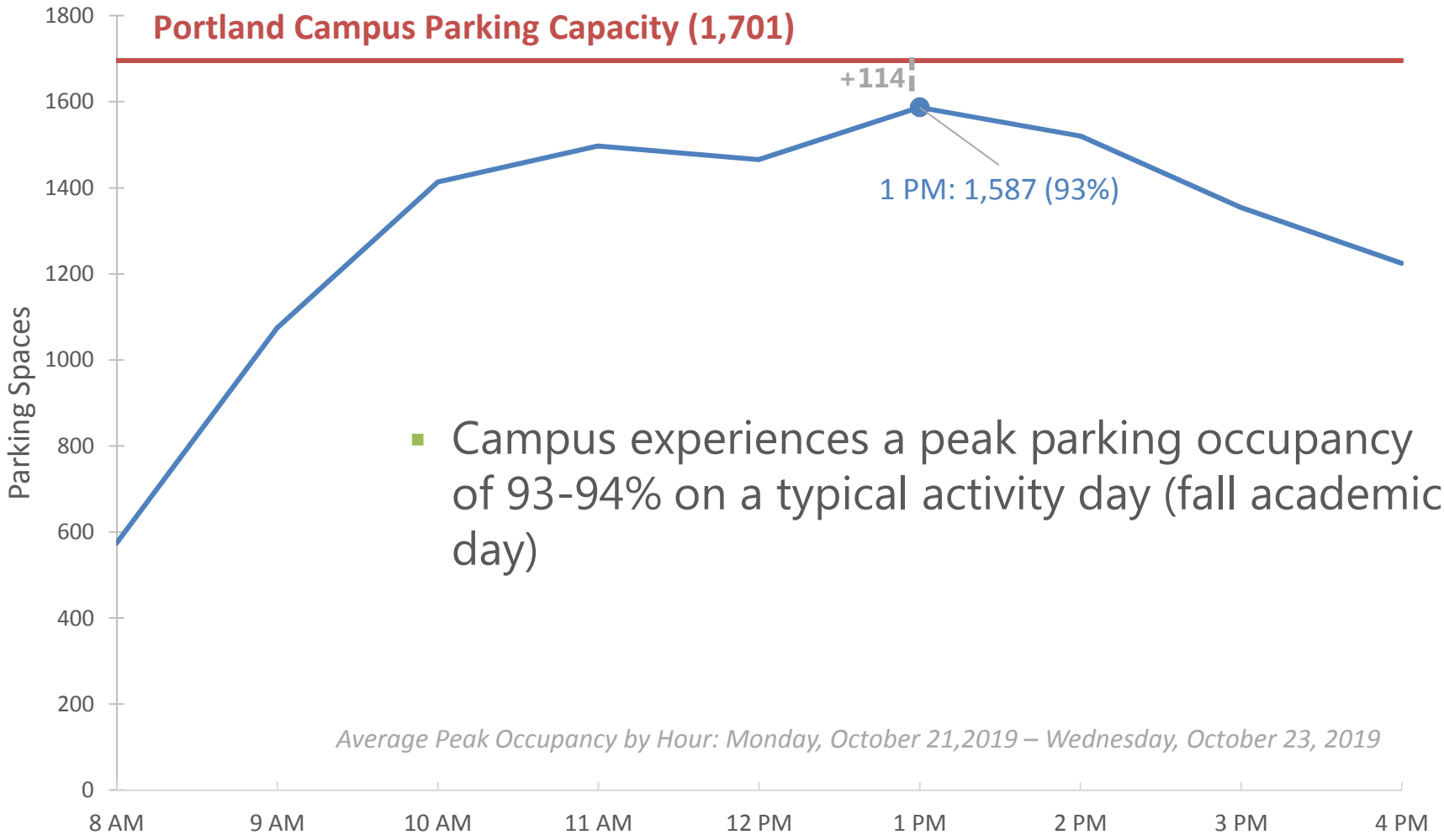
Key milestones include:

- 2022 – completion of student center & residence hall, including loss of Woodbury parking lot (P2)
- 2025 & 2030

Current Parking Supply

- 10 Surface Lots, 1 Garage
- 1,701 Parking Spaces
- Two key user groups:
  - Commuting Students
  - Staff & Faculty

Current Parking Demand

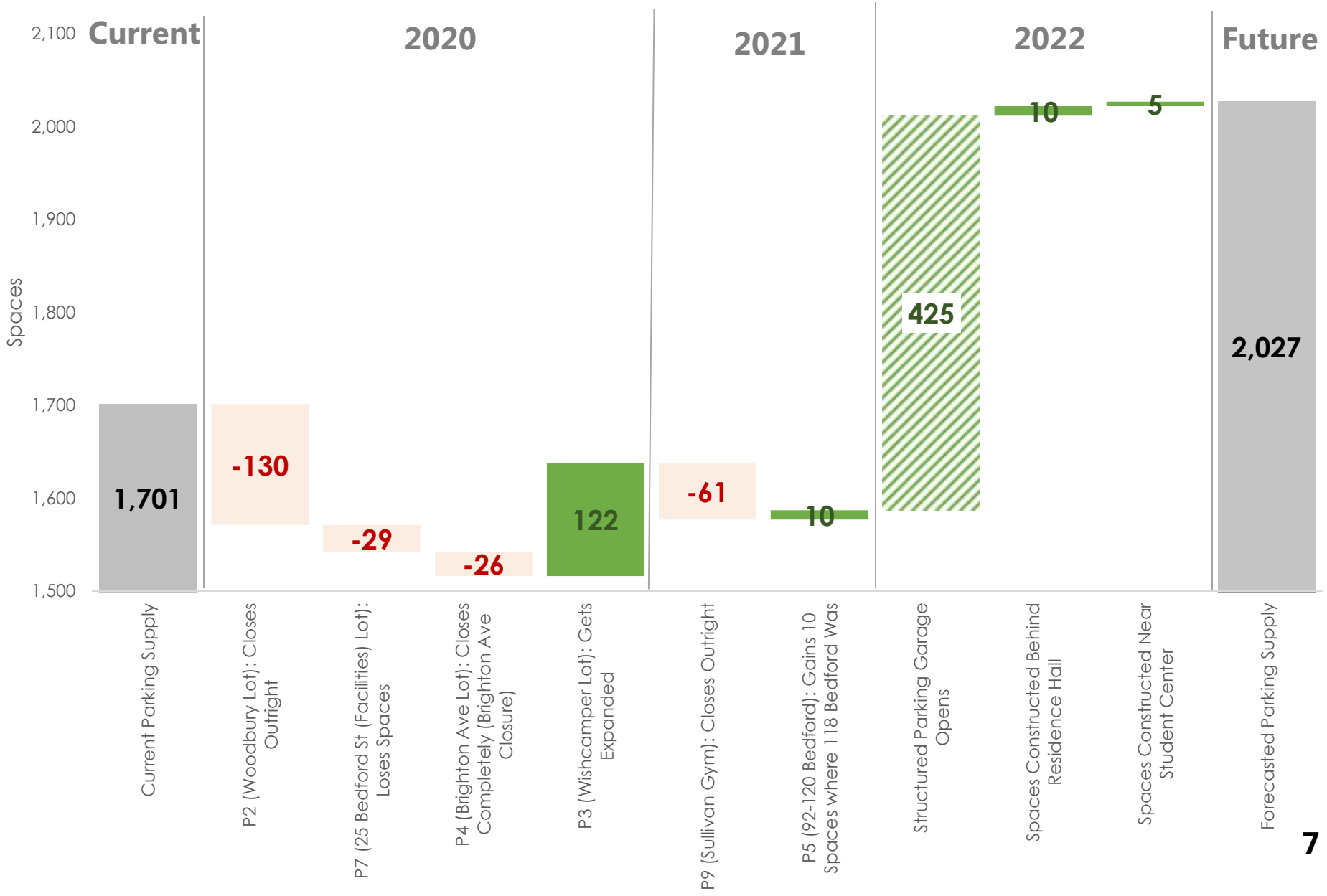


- Campus experiences a peak parking occupancy of 93-94% on a typical activity day (fall academic day)

Current Parking Demand

- Current Parking Peak Hour occurs at 1 PM
- Campus is currently at 93% occupancy during peak, typical activity day
- 5 of 11 lots noted occupancy beyond capacity (see details in appendix) including:
  - P2 Campus Center (Woodbury Parking Lot)
  - P3 Wishcamper Center/Library
  - P4 Off Brighton Ave
  - P5 92-120 Bedford
  - P10 Payson Smith

Future Parking Supply



Future Parking Supply

On-Campus	2019	2020	2021	2022	Milestone Notes (from USM)
Parking Garage	1155	1155	1155	1155	
P1 Luther Bonney & Masterton Halls	37	37	37	37	
P2 Campus Center (Woodbury Parking Lot)	130	0	0	0	Lose all of Woodbury parking lot permanently
P3 Wishcamper Center/Library	91	213	213	213	Wishcamper parking lot will be temporarily lost for the summer 2020 Gain 122 spots in new Wishcamper surface lot by September 2020
P4 Off Brighton Ave	26	0	0	0	Lose Brighton Ave extension parking lot by May 2020
P5 92-120 Bedford	6	6	16	16	May gain 10 spots if new Bedford Street lot is built where 118 Bedford was
P6 Law Building	114	114	114	114	
P7 Facilities Building	41	12	12	12	*May lose 29 spots in Facilities parking lot permanently by May, 2020 (subject to change)
P8 Physical Plant	21	21	21	21	
P9 Sullivan Recreation	61	61	0	0	
P10 Payson Smith	19	19	19	19	
Structured parking	0	0	0	425	Parking garage with 425 spaces
Residence Hall	0	0	0	10	Gain 10 spots in the back of the Residence Hall
Student Center	0	0	0	5	Gain 5 spots adjacent to the Student Center
Total	**1,701**	**1,638**	**1,587**	**2,027**	

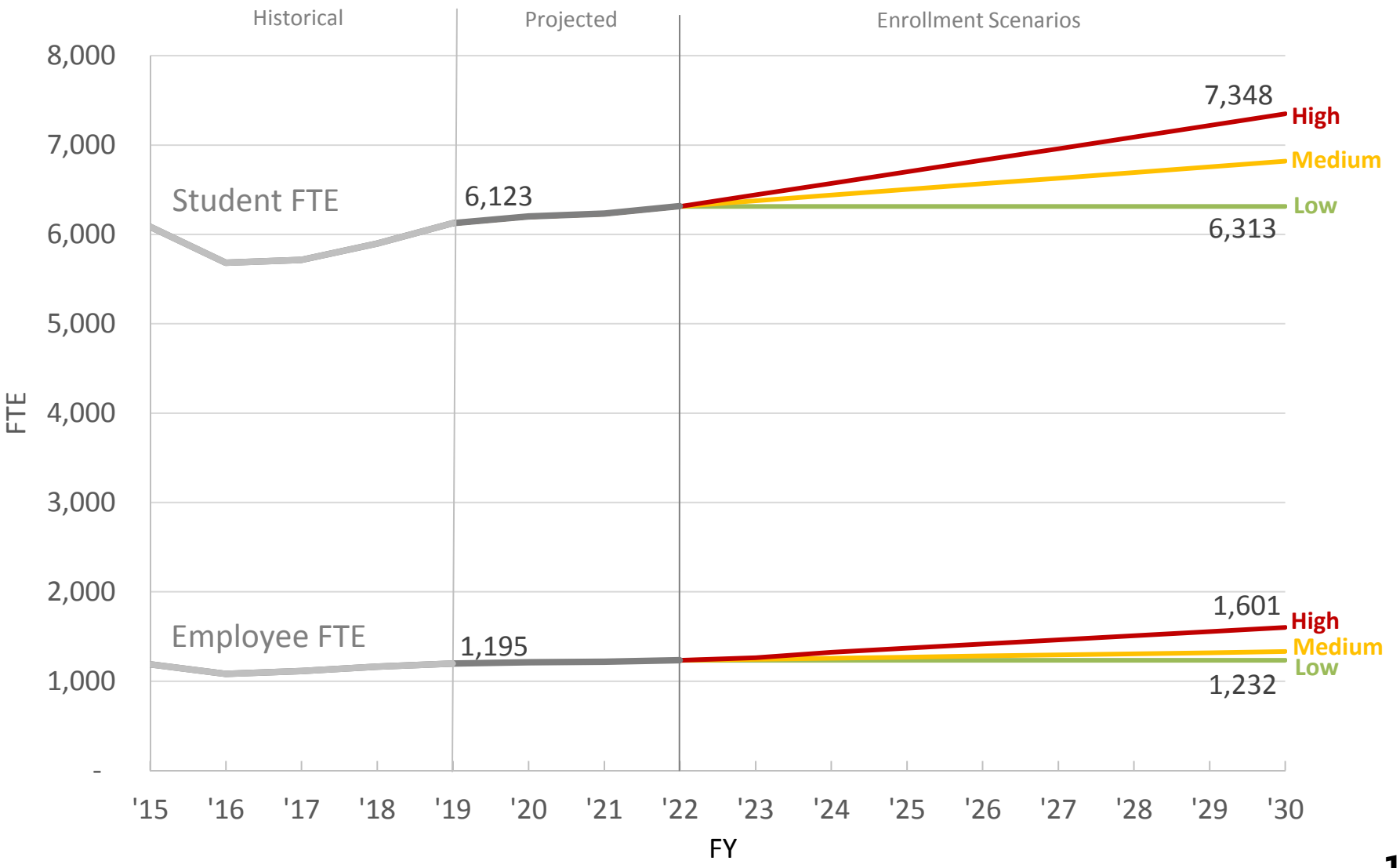
Enrollment Forecast Methodology

- What we know:
  - 2019 Student and Employee FTE
    - Student FTE: 6,123
    - Employee FTE: 1,195
  - Projected Student Growth Through 2022
    - 2020 Student FTE: 6,199
    - 2021 Student FTE: 6,230
    - 2022 Student FTE: 6,313
- What we don't know:
  - 2020 – 2022 Employee FTE
    - Employee FTE was grown proportionally to student enrollment using 2019 ratios for 2020 – 2022; could have a different growth rate
  - How USM will grow beyond 2022

Enrollment Forecast Methodology

- To determine demand beyond 2022 three scenarios were determined:
  - **Low:** Student enrollment and employment remains flat beyond 2022
    - Average Annual Growth Rate: 0%
  - **Mid:** Student enrollment continues to grows steadily based on growth from 2019 to 2022. Employment grows proportionally to student enrollment.
    - Average Annual Growth Rate: 1%
  - **High:** Student enrollment and employment grows back to peak enrollment, 2006 levels.
    - Average Annual Growth Rate: 2%

Student and Employee FTE Projections



Translating Enrollment to Parking Demand

- What we know:
  - Portland Campus Parking Demand
    - Peak hour demand: 1,587 (93%)
  - USM Portland Campus Headcount vs Total USM Enrollment
    - From Master Plan: Portland has 64% of total USM student headcount
  - Employee vs. Student Parking Demand
    - From parking count, 44% of Portland campus permits are from employees whereas 56% are from students
  - Residential Student Parking Permit Demand
    - From Master Plan 1,200 beds in Gorham and 815 registered permits from permit data = 0.68 parking space/bed.
    - Based on demographic of expected student population, a higher 0.75 parking space/bed rate was used.

Translating Enrollment to Parking Demand

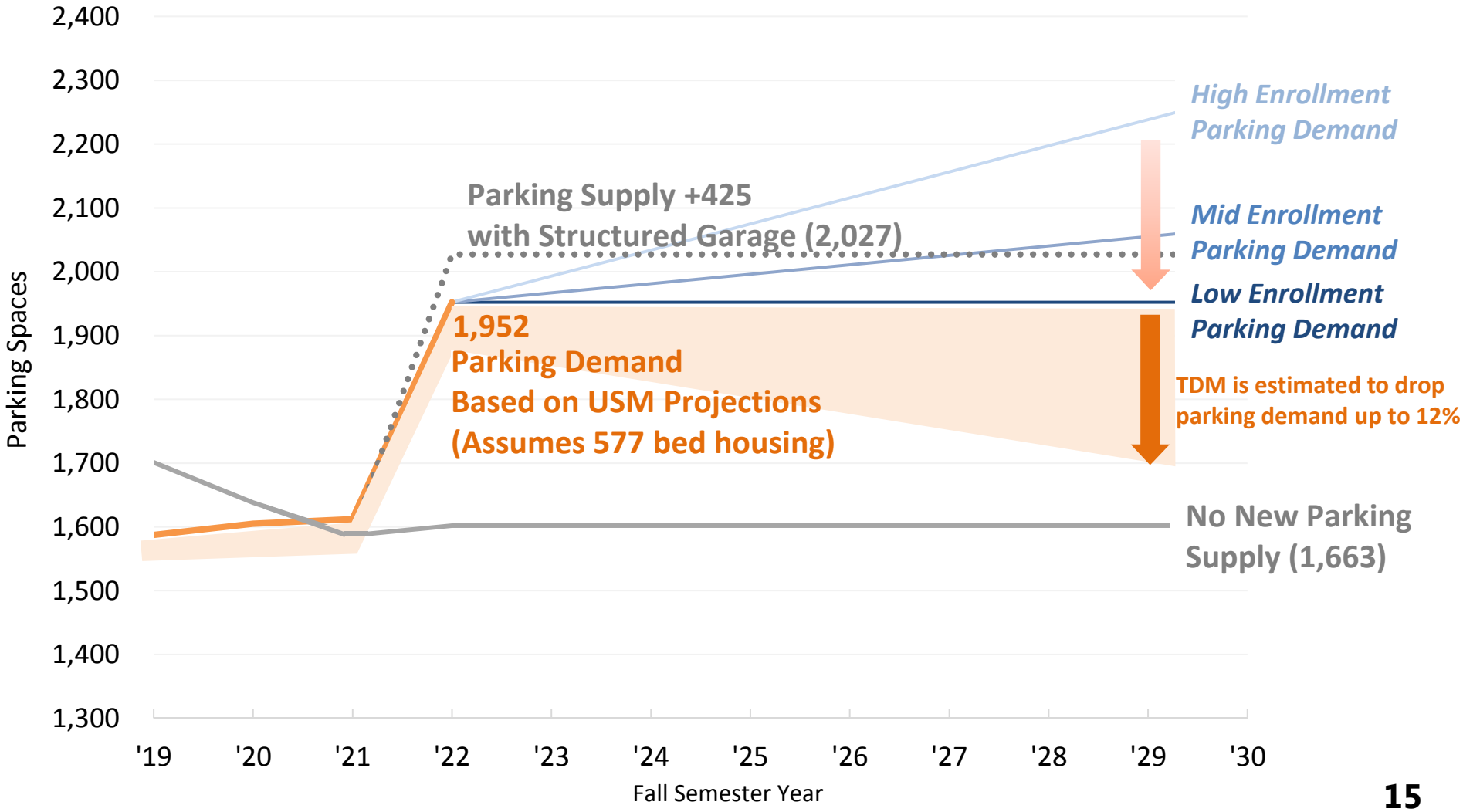
- To Calculate Parking Demand:
  1. USM Student Enrollment was translated to Portland Campus Student Enrollment
  2. For each forecasted year Portland student enrollment was split into two categories: Commuter student vs Residential student
     - 577 on-residents assumed on-campus from 2022 into the future.
     - Commuter students equal to total Portland headcount minus on-campus students
  3. Commuter student, residential student, employee, OLLI, and conference attendee parking rates were calculated:
     - Commuter student, employee, OLLI, and conference parking rates were calculated using existing permit demand data ratios
     - Residential student rates were calculated based on Gorham bed counts and resident student permits registered
  4. Calculated parking rates were multiplied by expected population for each year to determine final parking demand by group
  5. Final commuter student, residential student, and employee parking demand were summed to determine total parking demand

Calculating TDM Reduction

- To Calculate the impacts of a TDM program on USM:
  1. A laundry list of appropriate TDM strategies were chosen for USM based the peer review and the assessment of existing transportation conditions.
  2. Impact vs. cost of individual strategies were determined based on USM permit data sales and the transportation survey.
  3. USM narrowed laundry list from step 1 based on political and financial feasibility.
  4. VHB took final package of strategies and simulated potential mode split based on USM permit data and transportation survey.
  5. Mode split was translated to parking reduction based on existing mode split vs. parking demand patterns.
- A list of proposed TDM Strategies are contained in the appendix.

Future Parking Supply vs. Demand

5.1



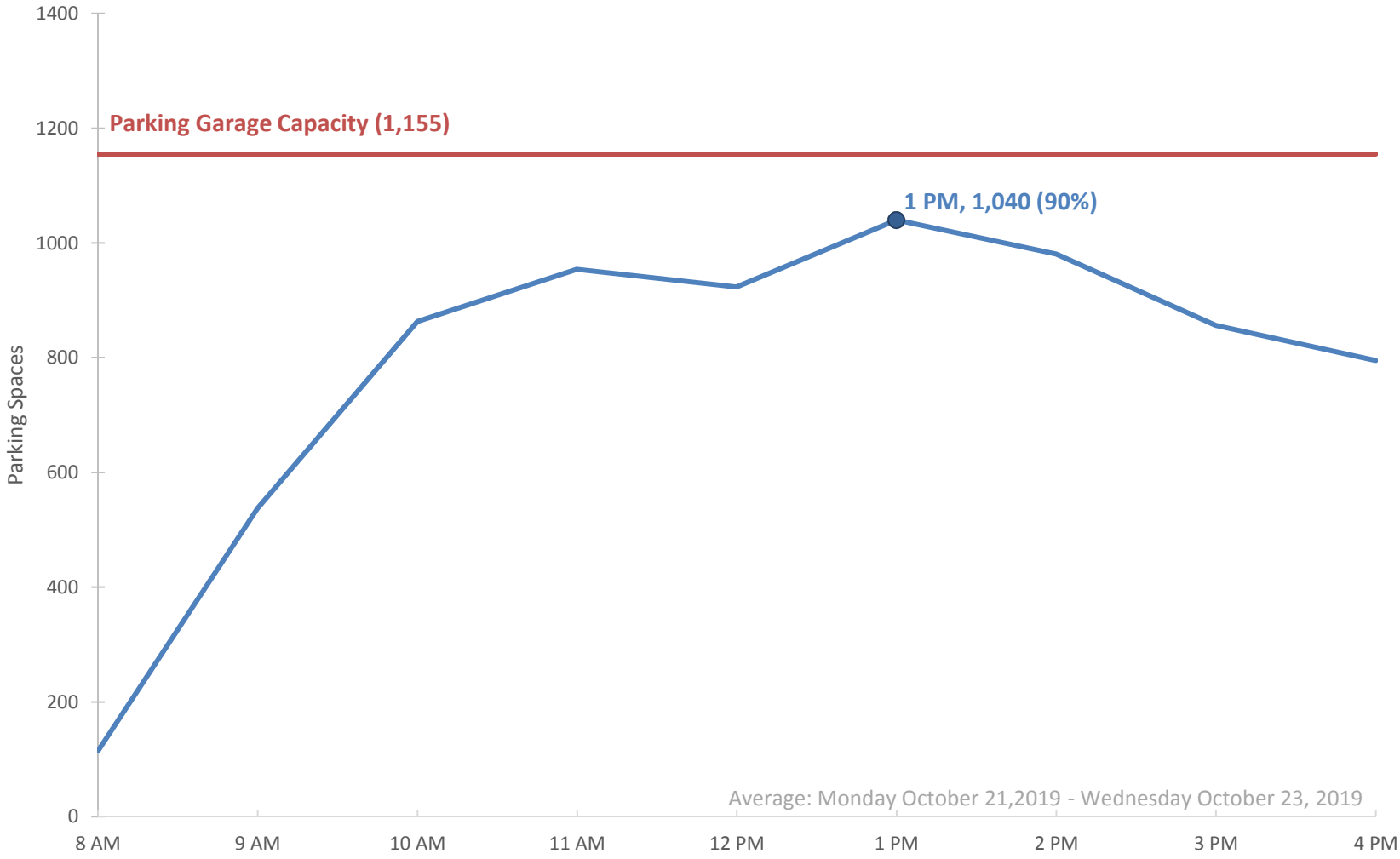
15

Takeaways

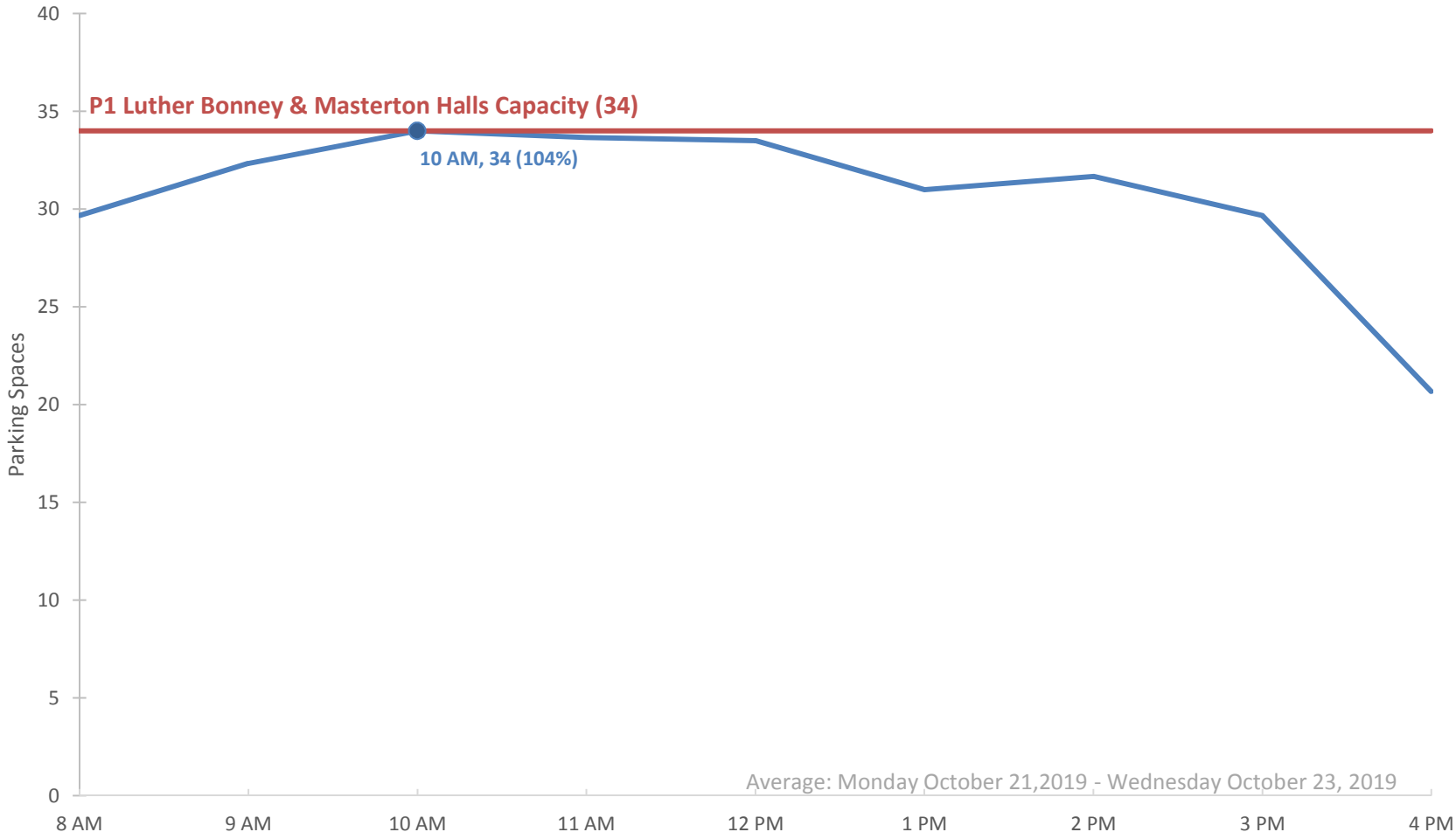
- With construction of a new residence hall and student center, new parking capacity is needed and/or parking demand needs to decrease
  - A moderately aggressive TDM program of strategies, including parking pricing and policy changes, could result in demand reductions of up to about 12 percent for USM
- Depending on enrollment projections, parking supply may not be adequate. USM would have to consider building more parking supply or further reducing parking demand
  - Not anticipated to be an issue until at least 2026 (under a modest 1 percent annual growth in student enrollment and without TDM implementation)
- Enrollment growth may not always directly contribute to growth during the peak demand hour:
  - E.g. Evening classes, distribution of classes among campuses, use of campus for conferences and at-large community events

Appendix: Hourly Demand Charts by Parking Facility

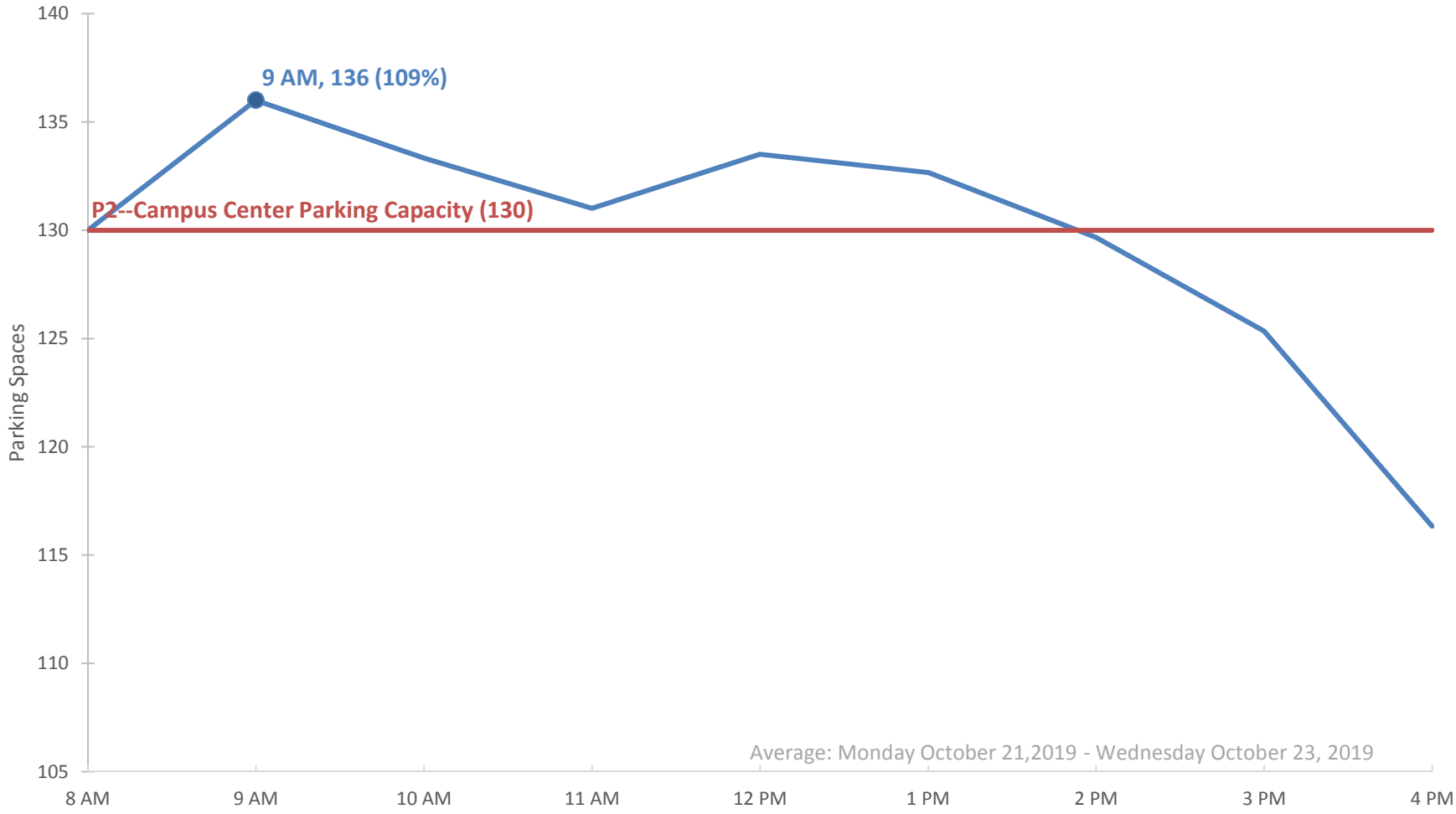
Parking Garage Demand



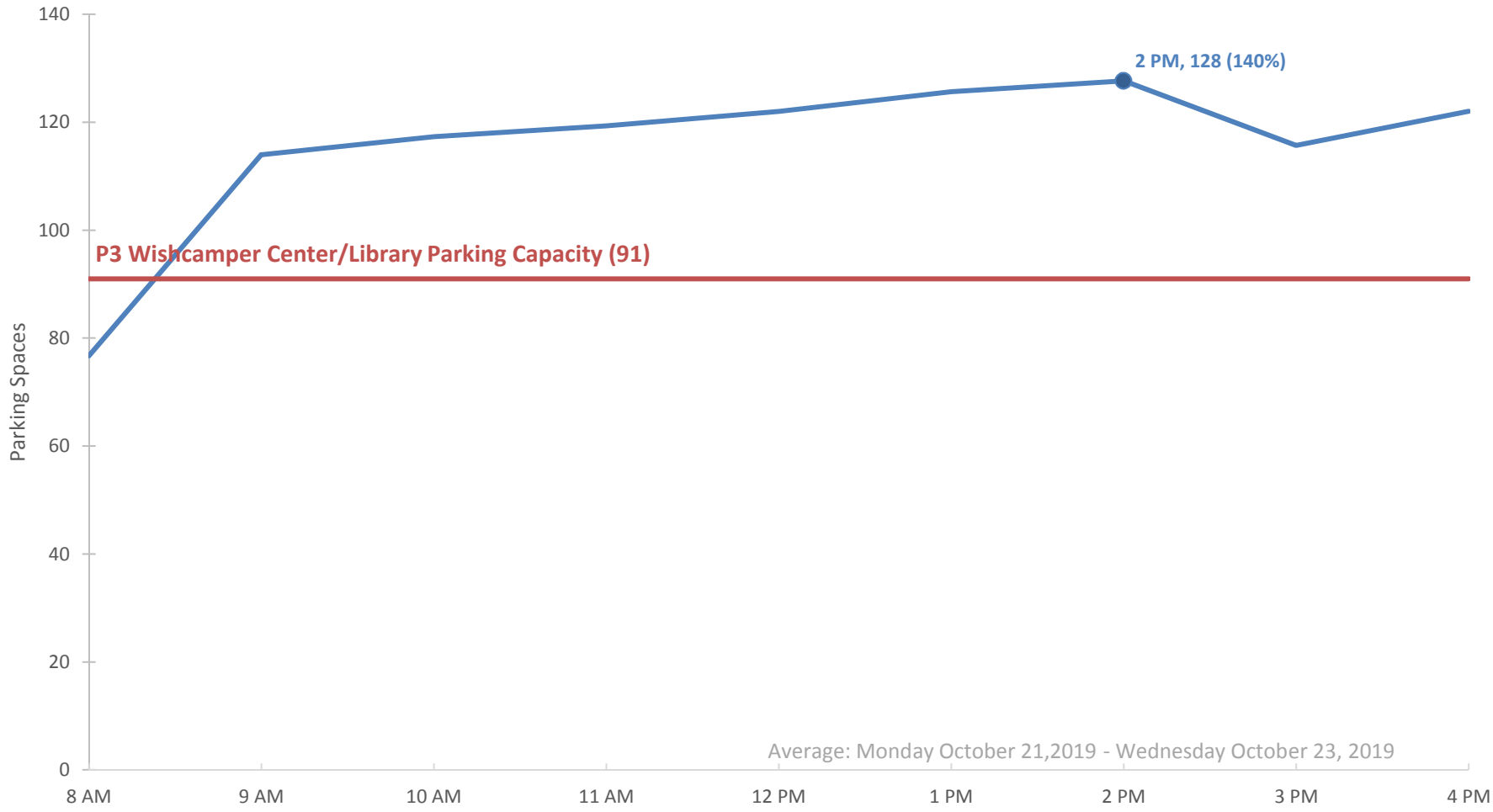
P1 Luther Bonney & Masterton Halls Parking Demand



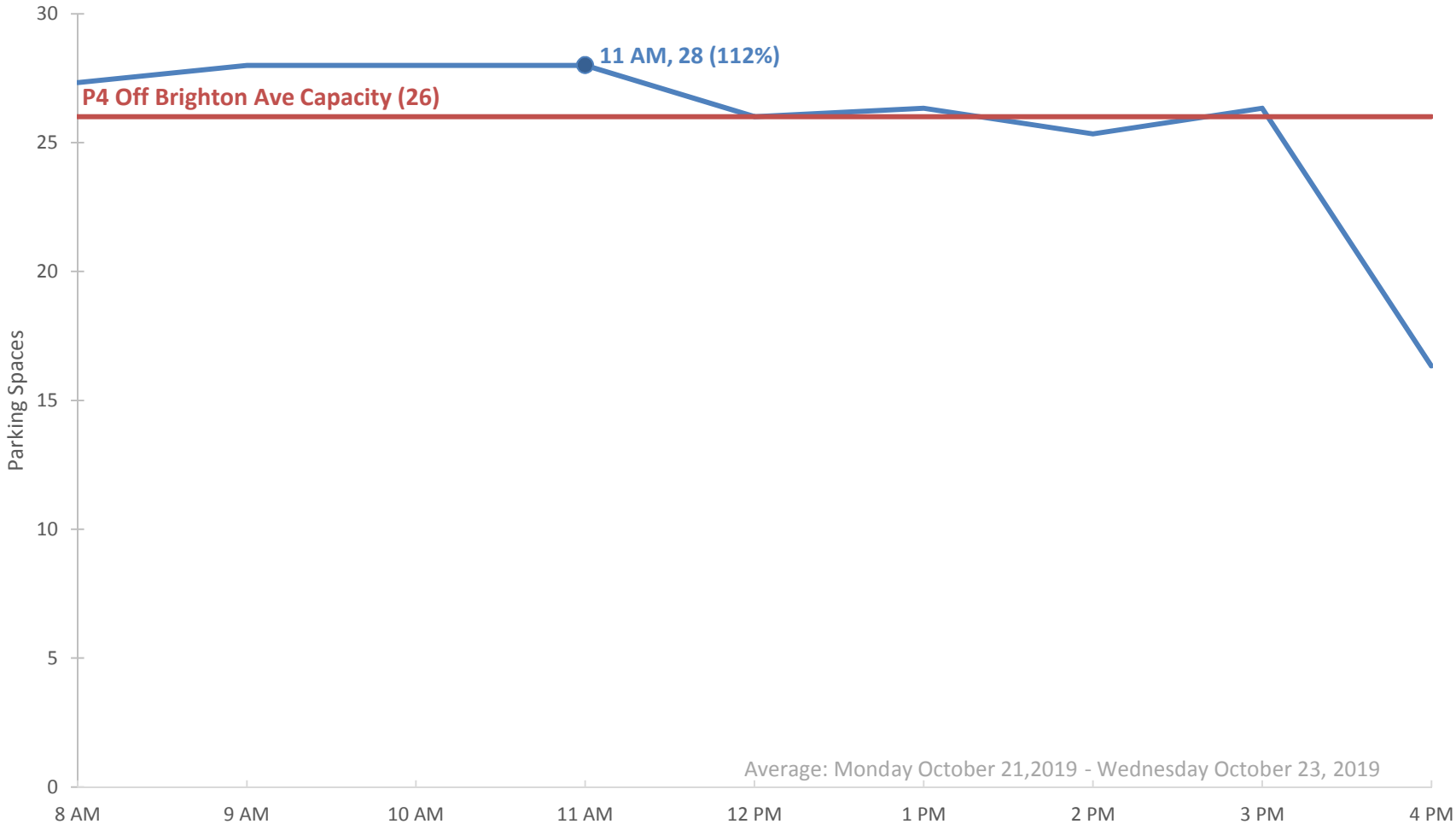
P2 Campus Center (Woodbury Parking Lot)



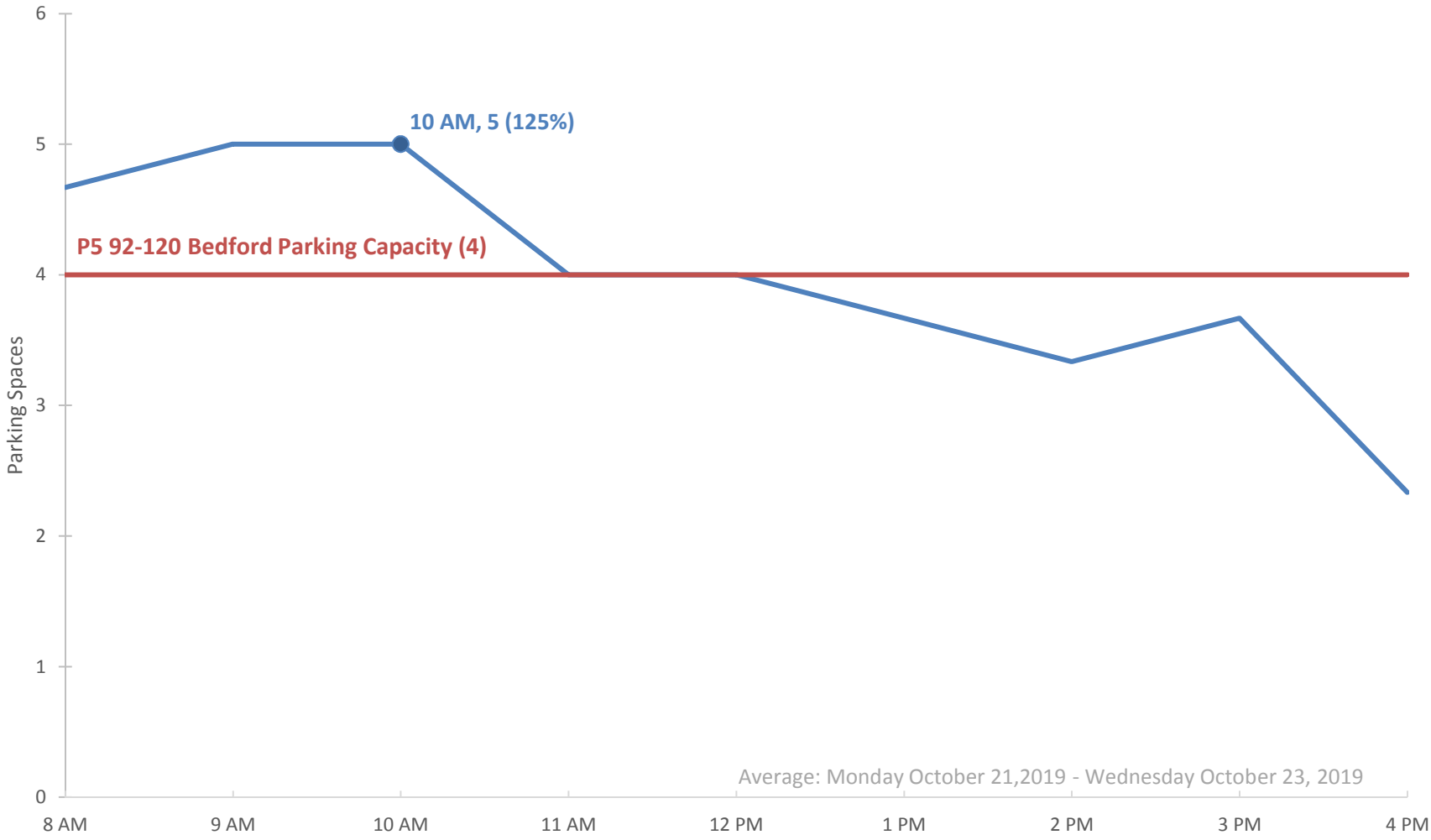
P3 Wishcamper Center/Library Parking Demand



P4 Off Brighton Ave Parking Demand

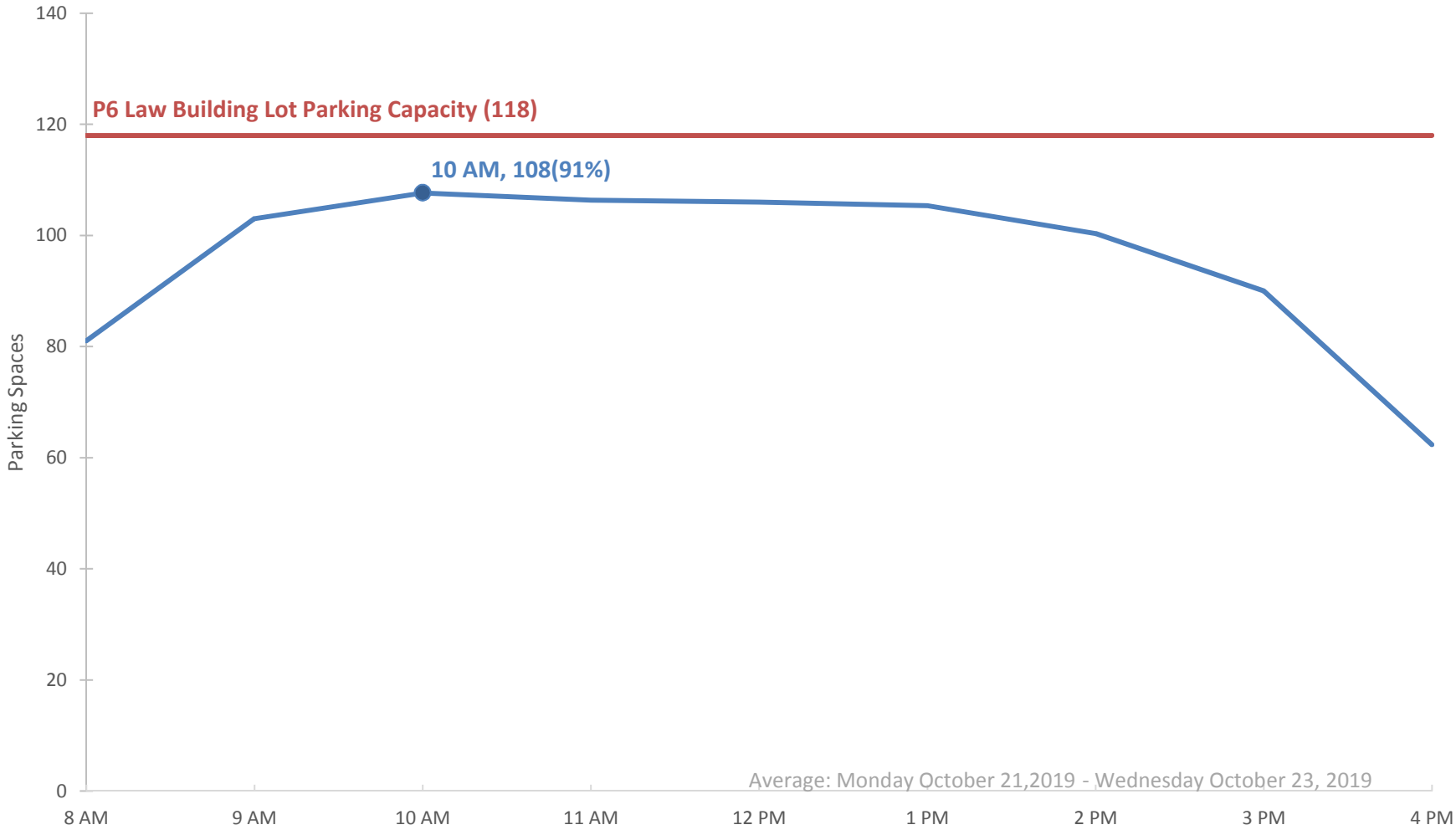


P5 92-120 Bedford Parking Demand

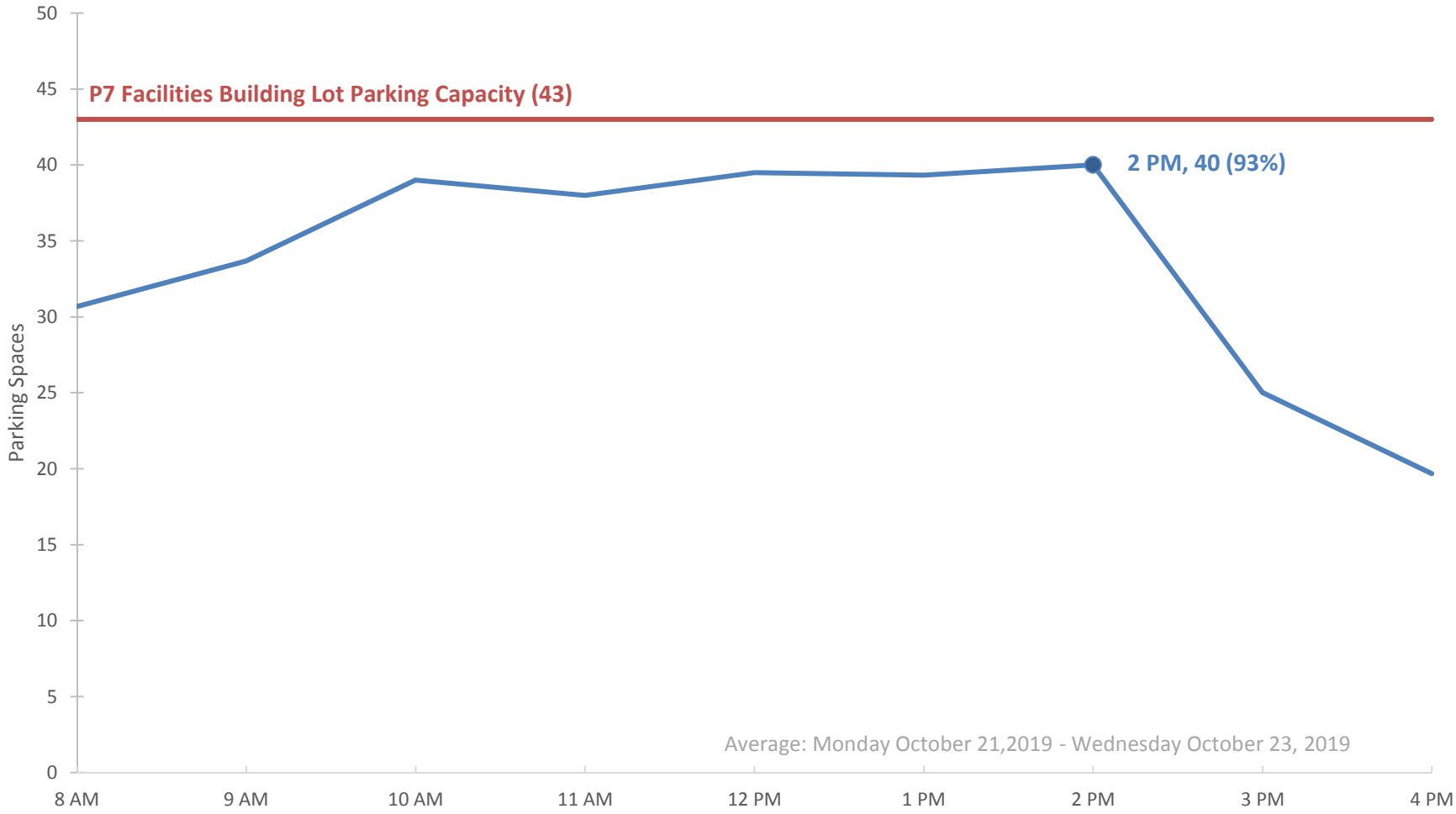


23

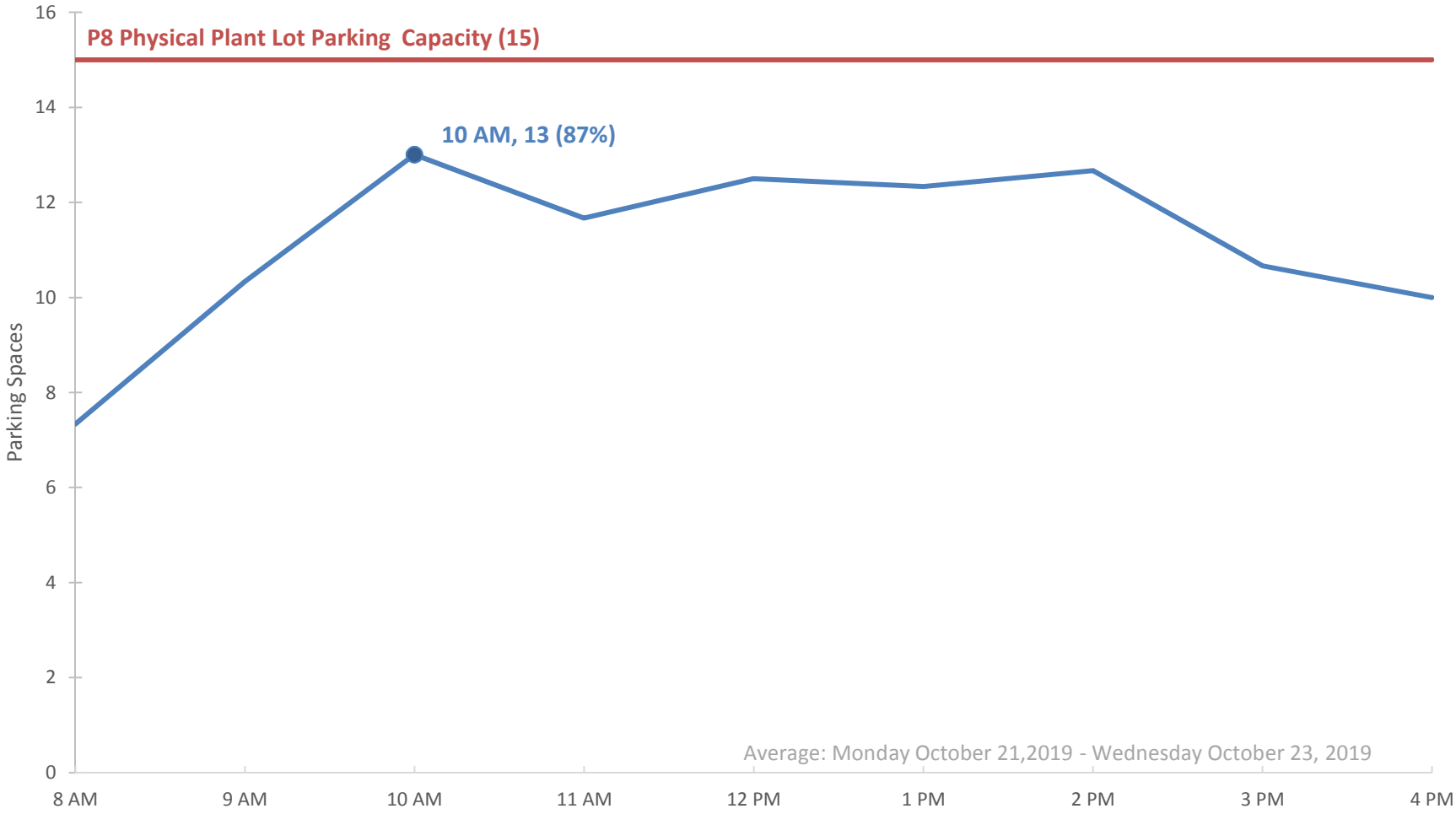
P6 Law Building Lot Parking Demand



P7 Facilities Building Lot Parking Demand

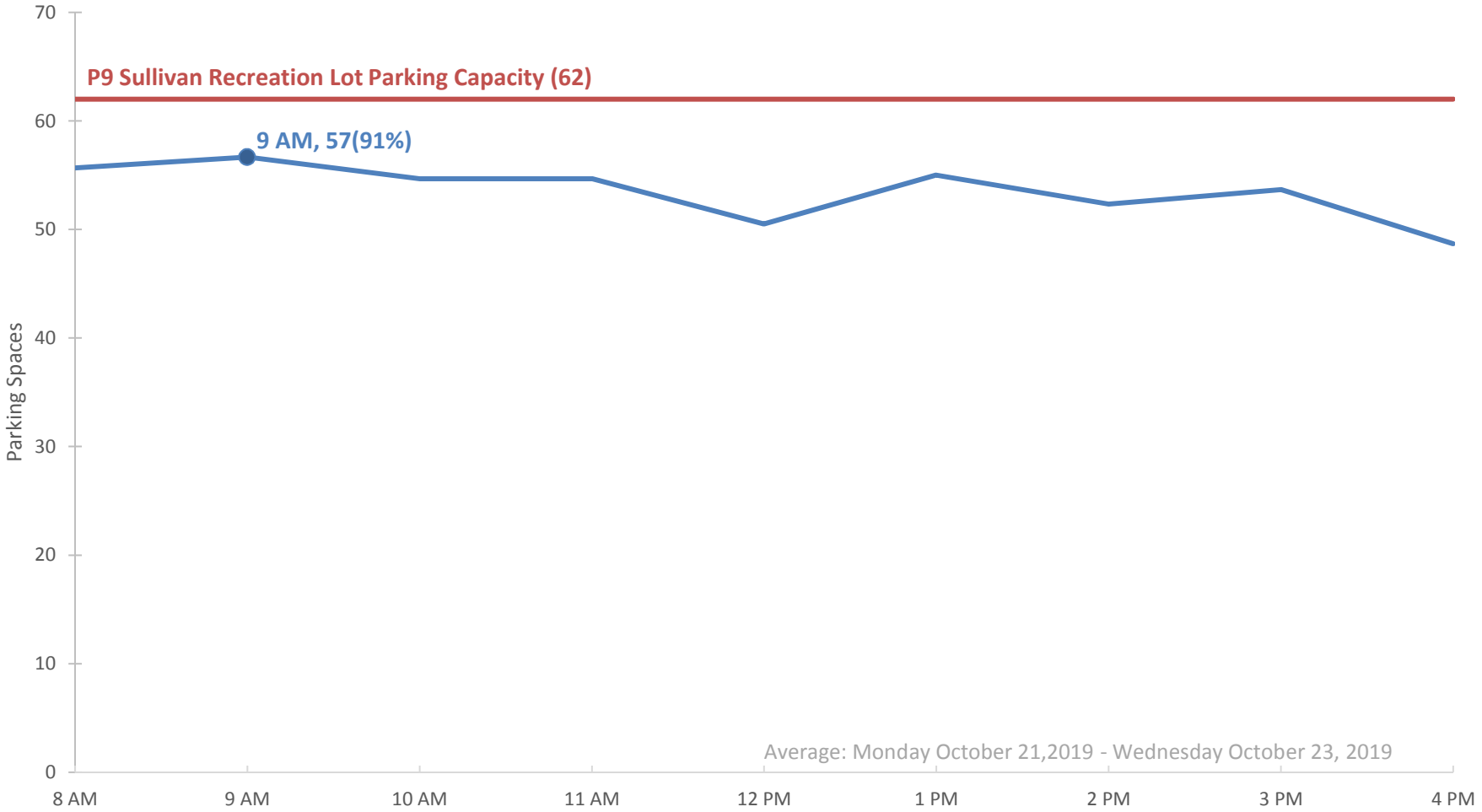


P8 Physical Plant Lot Parking Demand

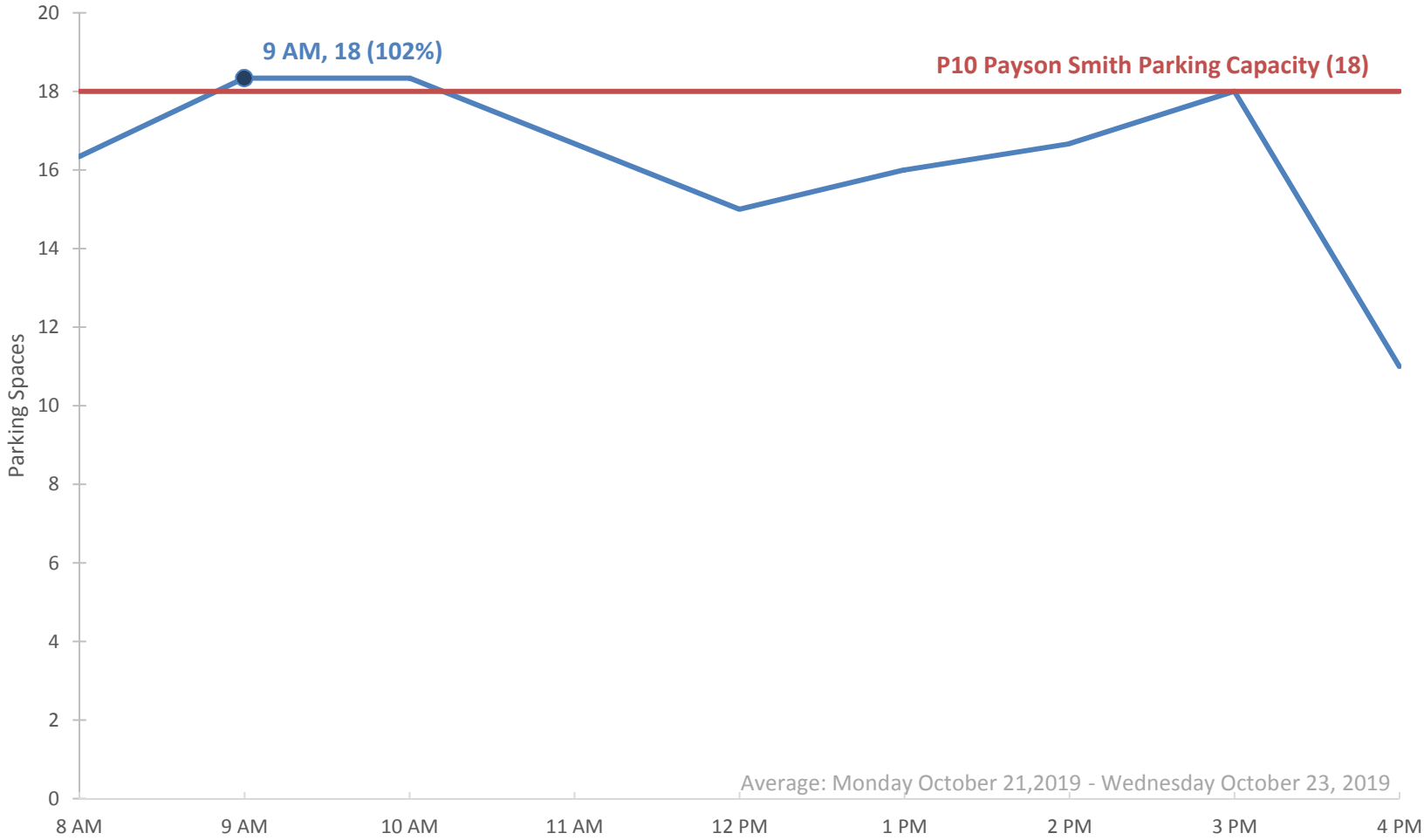


26

P9 Sullivan Recreation Lot Parking Demand



P10 Payson Smith Parking Demand



Appendix:
USM TDM Strategies

USM TDM Strategy – Walking/Biking

	Strategy	Description	Infrastructure	Incentives	Education	Timeline Years	
						Short-Term (0–2 Years)	Long-Term (2–5 Years)
Walk/Bike	**City Bikeshare**	USM will advocate and encourage the development of a citywide Bikeshare system	X			Full Launch	Monitor + Adjust
Walk/Bike	**Bicycle Repair Station**	USM will install a new bike repair station (or shop) in a central part of their campus	X			Full Launch	Monitor + Adjust
Walk/Bike	**Promote Local Bicycling Activities**	Promote the participation in (and facilitation of) local bike activities such as the Portland Slow Ride, Smart Cycling Traffic Skills 101, and Cycling Savvy Events			X	Full Launch	Monitor + Adjust
Walk/Bike	**Discounted Bicycle Supplies**	Provide discount sales for bike supplies through the Bicycle Coalition of Maine		X		Full Launch	Monitor + Adjust
Walk/Bike	**Improve Bicycling Infrastructure w/ City of Portland**	Collaborate with the City of Portland on identifying improvements to bicycling infrastructure along corridors traveled by USM commuters	X			Full Launch	Monitor + Adjust

USM TDM Strategy - Transit

	Strategy	Description	Infrastructure	Incentives	Education	Timeline Years	
						Short-Term (0–2 Years)	Long-Term (2–5 Years)
Transit	**Husky Line Bus Service Improvements**	Research the possibility of increasing the frequency of the Husky Line to 15 minutes	X			Planning + Testing	Soft Launch
Transit	**Transit Screen Installation**	Install real-time transit screens at high profile locations on campus as part of the new campus student center	X			Planning + Testing	Full Launch
Transit	**Additional Services: On-Demand Route and/or Increasing METRO Bus Frequencies**	Research the possibility of launching a local on-demand bus shuttle connecting downtown Portland to USM and/or increasing service frequency on METRO routes that connect downtown Portland to USM	X			Planning + Testing	Full Launch

USM TDM Strategy - Carpool

	Strategy	Description	Infrastructure	Incentives	Education	Timeline Years	
						Short-Term (0–2 Years)	Long-Term (2–5 Years)
Carpool	**Vanpool Vehicles**	Pilot a program to lease vanpool vehicles and initiate vanpools in high commuter corridors		X		Soft Launch	Monitor + Adjust
	Reserved Carpool/ Vanpool Spaces	Designate reserved parking spaces for carpools and vanpools in prime parking locations	X			Full Launch	Monitor + Adjust
	Develop rideshare matching platform	Develop rideshare matching platform or meet & greet series to pair potential carpool participants				Soft Launch	Full Launch

USM TDM Strategy – Parking Strategies and Time of Day Demand Shifts

	Strategy	Description	Infrastructure	Incentives	Education	Timeline Years	
						Short-Term (0–2 Years)	Long-Term (2–5 Years)
Parking	**Parking Buyout Program**	Launch a parking buyout program to incentivize employees to forgo the purchase of a parking permit		X		Planning + Testing	Soft Launch
Parking	**Student Permit Unbundling**	Unbundle parking permit fee from the registration fee and require a separate action for registering for parking permit	X			Full Launch	Monitor + Adjust
Parking	**EV Charing Stations**	Install additional EV charging stations at select parking locations	X			Planning + Testing	Full Launch
Parking	**Parking Pricing Increase**	Increase parking pricing for faculty/staff for greater parity (compared to student rates)		X		Soft Launch	Monitor + Adjust
Time of Day Demand	**Class Schedule Review**	Conduct course catalog review to spread out courses (by time & location)	X			Full Launch	Monitor + Adjust
Time of Day Demand	**Promote Telework and Flexwork**	Promote and encourage use of telework & flexwork policies for employees			X	Full Launch	Monitor + Adjust

USM TDM Strategy – Communications and Marketing

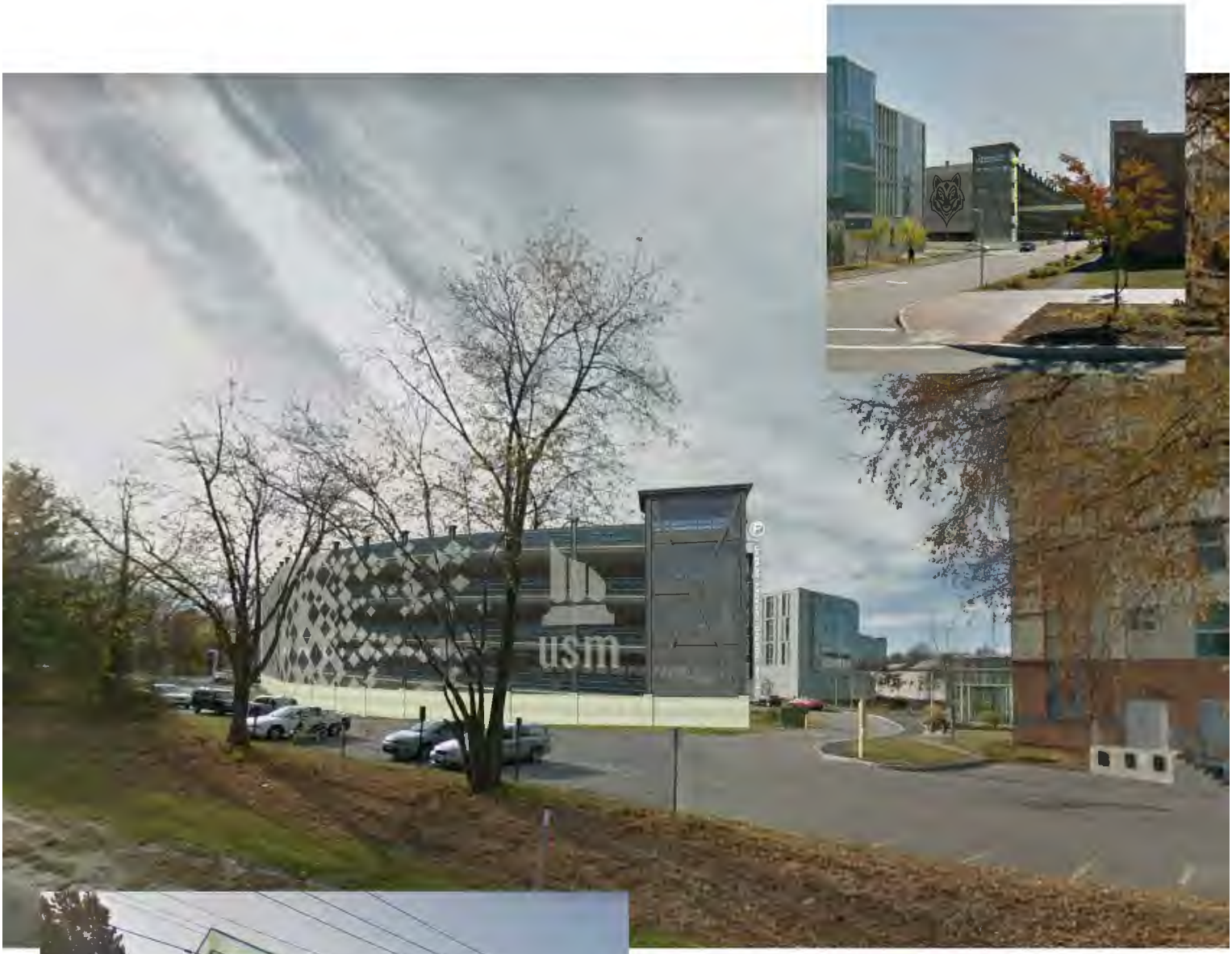
5.1

	Strategy	Description	Infrastructure	Incentives	Education	Timeline Years	
						Short-Term (0–2 Years)	Long-Term (2–5 Years)
Communications and Marketing	**New Student and New Employee Orientation**	Build upon current student and employee orientation to include transportation review and commute assistance			X	Full Launch	Monitor + Adjust
	Transportation Website	Build upon current website (launched last May), by adding new or expanded transportation options and benefits, and performing ongoing maintenance and updates			X	Full Launch	Monitor + Adjust
	Access Guide	Develop a “slick sheet” access guide summarizing ways to travel to campus and nearby destinations			X	Full Launch	Monitor + Adjust
	Guaranteed Ride Home	Promote GoMaine’s Guaranteed Ride Home Program to complement alternative mode use			X	Full Launch	Monitor + Adjust

Parking Feasibility Study

University of Southern Maine
68 Falmouth Street & 88 Bedford/Surrenden Streets
Portland, ME

5.2



PLATZ ASSOCIATES
Since 1980
Architects • Engineers
Construction Managers

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Table of Contents

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Exhibits:

TOC

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Executive Summary

Introduction

Platz Associates was contracted by the University of Southern Maine to conduct a site evaluation and Parking Feasibility Study in support of the growing parking demands at the Portland campus. The scope of this feasibility study is to understand the impact and cost implications for constructing a single or multi-level parking structure with possible vertical and/or lateral expansions at the selected sites located at 68 Falmouth Street and 88 Bedford / Surrenden Streets, Portland, Maine.

The following items are included in the study:

1. Review of the Owner's Development Objectives (communicated via 2019 USM Master Plan).
2. Identify constraints and opportunities for the selected site(s) and adjacent parcels.
3. Site evaluation, including but not limited to: onsite observations, assessing physical characteristics of the site(s), assessing codes, ordinances, and regulations, assessing available utilities, assessing access, circulation, and parking potential.
4. Identify environmental impact requirements/opportunities for site(s).
5. Conceptual Designs for level-deck and ramped multi-deck parking structures, including expansion schemes.
6. Estimate of Project Timeline and Cost of Work for each site.

Background

The site at 68 Falmouth Street is 2 acres +/- and was identified as a future development site per the 2019 USM Facilities Master Plan (see attached Exhibit A). The site at 88 Bedford/ Surrenden Streets is approximately 1.5 acres +/- and was identified as a future parking structure expansion site due to the adjacency to the existing parking garage. Both sites currently function as surface parking lots with fairly level topography across the site(s) and existing stormwater drainage and site lighting utilities. The Facilities Master Plan involves the infill development of surface parking and open spaces, affecting parking by both the displacement of current parking and by creating additional parking demand with new buildings and increased population. The Facilities Master Plan accounts for 1,000 parking spaces, 400 displaced and 600 new spaces. In 2017 the USM Portland campus had a headcount of 5,277 students, most all of whom are commuters.

Development Objectives

The most important considerations of the project are to adhere to the President's Goals and the CMPSC Guiding Principles set forth in the USM Facilities Master Plan and the consideration of the upcoming facilities being considered by the University for the adjacent parcels. While fluid in nature, this forecasting of future construction sequencing could provide for opportunities in efficiency and increase the quality of design while lowering the financial investment or impacts to construction schedules.

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

CMPSC Guiding Principles (via 2019 USM Facilities Master Plan):

- *Student Experience*- improving the student's academic, co-curricular and living experience.
- *Inclusiveness*- fostering the ability for all to feel safe and participating members of the USM community.
- *Net-Zero Building Policy*- prioritizes capital renewal of existing facilities.
- *Public Safety*- provide the safest campus environment.
- *Mobility*- supporting robust pedestrian, bicycle, shuttle bus, ride share and metro regional public transit systems.
- *Sustainability*- supporting sustainability policies of the University.
- *Neighbors*- establish campus community that are positive members of the neighborhood.
- *Aesthetics*- create an environment that meets the visual quality that meets the mission and goals of the University.

The Portland Plan of the 2019 Facilities Master Plan envisions a transformational future for the campus, with a flexible and dynamic framework. A new campus heart lined by buildings and including significant landscape improvements would seek to capitalize on long views and gateway entry locations.

Process Methodology

First, an understanding of the project goals was established with an initial project kick-off meeting that included designated members from USM. With this consideration of the goals and vision for the project, our design team then visited the selected site(s) and performed a thorough existing conditions review of the available historic data maps, City archive information, available surveys, and visual observations.

For this feasibility study, our first task was to provide a preliminary assessment of the Owner's Development Objectives and identify constraints and opportunities for each site that will impact them. Next, we conducted site evaluations for the parcels that included: (1) on-site observations; (2) assessing the physical characteristics of the site; (3) assessing codes, ordinances and regulations that impact the Owner's Development Objectives; (4) assessing utilities available to the site; and (5) assessing the access, circulation, and parking potentials. Task 3 was identifying the environmental requirements that may apply to the Owner's Development Objectives for the site, such as the need for environmental impact statements, assessments, documentation, testing, or monitoring. A site context description provided for each location that identifies the physical characteristics of the areas immediately surrounding the sites, including land use patterns and potential expansion concepts and assess the impact of the Owner's Development Objectives on the surrounding sites and community. Our analysis also includes concept designs for each parking feasibility study drawn to City of Portland Zoning Code requirements, design budgets, and proposed project timelines for the selected concept designs. After preparing a draft report of the initial findings, meetings were conducted with designated members from USM to review the findings and offer insights and feedback for the preparation of this final report.

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Relevant Design Considerations: Parking Feasibility Study for 68 Falmouth Street

After evaluating the identified site, the following options were developed for consideration by the University. Option 1 includes surface level parking with a level deck above and no circulation between the two levels. Option 2 includes surface level parking, two intermediate level decks, and a top level deck, with circulation between the levels. Option 3 includes surface level parking with a level deck above, and lateral expansion into the community garden site, with circulation. Option 4 includes surface level parking and vertical expansion with multiple level decks above in a design that is convertible into future classroom or flexible assembly-type galleries or lecture halls situated along Falmouth Street.

All of the proposed options provide highly efficient parking layouts at approximately 300 square feet per space, indicating the dimensional parameters of the proposed site strongly support parking structure development. Additionally, all options offer multiple direct vehicular and pedestrian access points from existing curb cuts and sidewalk systems at all corners of the site, and integrate well with the existing topography which will minimize costs and site disruption. None of the layouts would require any special City of Portland Planning Board relief or zoning variances.

Chief considerations in selecting the preferred option, or sequential combination of options, include; number of parking spaces desired by phase(s), impact to future building development, and parking displacement for future expansion(s). After review with University Staff, Option 4 was selected for additional massing development to test the conversion aesthetics from the perspective of both the residential neighborhood and the classroom spaces in the adjacent Science Building.

The design parameters for Option 4 include:

- *Initial 4-Level parking garage consisting of 80-space ground level with entrances to North and South, two mid-levels of 114 spaces, and a top level of 117 spaces for a total of 425 spaces.*
- *Level-bay construction along Falmouth Street for possible conversion of parking decks into Office/Classroom space, softening the aesthetic offered to the residential neighborhood.*
- *38 parking spaces may be converted to 11,000 sf gross (8,350 sf net) Office/Classroom spaces, which is possible on a per-floor basis.*
- *Vehicular and pedestrian connections are possible in all directions, including the existing sidewalk system and driveways/lots at Falmouth, Bedford, and Durham Streets.*

For the development of the massing and façade studies, three levels of parking was converted resulting in 33,000 sf gross (25,050 sf net) office/classroom space and an adjacent 323 space parking field. This design maximizes the grade-level sidewalk connections and biases the façade development to the pedestrian realm, leaving the top deck of parking to reduce the building's massing along Falmouth Street and the impacts to the views from within the Science Building.

Relevant Design Considerations: Parking Feasibility Study for 88 Bedford/ Surrenden Streets

After evaluating the identified site, the following options were developed for consideration by the University. Option 1 includes an arcing garage form that responds to the lot line along I-295 with internal circulation ramp connecting all levels of parking and providing site relief and view corridors towards the proposed future graduate center location adjacent to the Library/Osher Map buildings. Option 2 includes a rectangular multi-level garage with internal circulation ramp connecting all levels of parking and skybridge connection to the existing garage at the second level. Option 3 includes a level-deck expansion scenario to the existing garage with independent access to each level and radial internal circulation ramp providing site relief and view corridors towards the proposed future graduate center location adjacent to the Library/Osher Map buildings.

All of the proposed options provide highly efficient parking layouts at approximately 315 square feet per space, indicating the dimensional parameters of the proposed site strongly support parking structure development. Additionally, all options offer multiple direct vehicular and pedestrian access points from existing curb cuts and sidewalk systems at all corners of the site, and integrate well with the existing topography which will minimize costs and site disruption. None of the layouts would require any special City of Portland Planning Board relief or zoning variances.

Chief considerations in selecting the preferred option, or sequential combination of options, include; number of parking spaces desired, site and viewshed impacts to the future graduate center site, and financial impact(s) from modifying the existing garage structure. After review with University Staff, Option 1 was selected for additional massing development to test the conversion aesthetics from the perspective of both the I-295 highway corridor and the access drive adjacent to the Wishcamper Center.

The design parameters for Option 1 include:

- *5-Level parking garage consisting of 110-space ground level with entrances to North and West, three mid-levels of 161 spaces, and a top level of 173 spaces for a total of 766 spaces.*
- *Sculptural arcing form referencing the I-295 corridor and the adjacent cloverleaf highway on/off ramps provides a large marketing opportunity for integration into the façade elements.*
- Relief provided at the future graduate center building site, allowing for exposure and views between the campus and downtown.
- *Vehicular and pedestrian connections are possible in all directions to the existing sidewalk system and Bedford Street.*

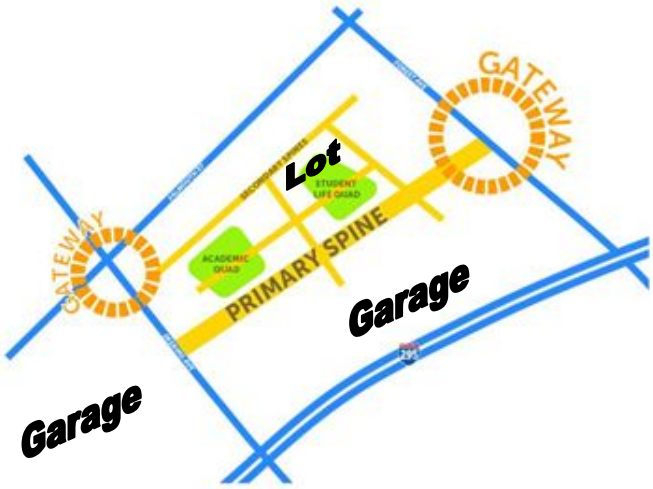
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Part 1 : Parking Feasibility Study of 68 Falmouth Street Lot

Preliminary Assessment of Owner's Development Objectives

The 2019 Facilities Master Plan seeks to establish a new residential quad in place of the existing surface parking lot to connect to and pair with the adjacent academic quad. Liner buildings would reinforce the quad enclosure and the parking structures provided for students, faculty and visitors would be concentrated at the perimeter of the campus.



A concern with this approach is it does not provide a convenient parking adjacency to the buildings being served by the parking fields, the prime factor in the utility of a parking structure. Winter weather and the wide Right-of-way width of the Bedford Street arterial drive serving as the campus gateway combine with a long travel distance as significant barriers to the effective utilization of the existing parking garage.

The Design Team suggests incorporating a flexible, expandable, and interconnected parking armature, located within the campus bounds as defined by the perimeter arterial roadways, establishing a new landscaped residential quad for the campus that preserves open space and long views to Downtown Portland while simultaneously providing a highly effective, safe and available parking solution.

Integration of the parking structures directly with the building(s) they serve could provide opportunities to merge "back-of-house" activities for increased efficiency and utility while preserving development flexibility for the site. The visibility and way-finding provided for the parking structures from the arterial connections should be considered carefully in the campus master planning to ensure the highest levels of convenience and utility.

Site Evaluation

Utilities

All utilities including but not limited to electric, water, sewer, storm drainage and gas service appear available to the site directly from Falmouth Street, pending confirmation of available capacity by each utility. Of these major utilities serving adjacent buildings/lots, only a storm drainage line and a sewer line appear to cross the site and may need adjustment in coordination with the parking structure development. Additionally, a See Appendix D for additional information.

Topography

The site topography varies throughout the campus, but is generally descending in grade from West to East. The site's existing surface parking lot and related site improvements provide the opportunity to connect at-grade on the East edge and adjacent grades slope up approximately 10 feet to the West edge, an advantage for parking structure development that allows the potential for direct connection to upper levels, reducing the impact of internal and external circulation and "couching" the lower level of parking to reduce visual impact from the campus core. See Appendix E for additional information.

Parking

The site is currently used as a surface parking lot consisting of 62 total parking spaces, 4 of which are dedicated to handicap accessibility. The parking lot is for USM faculty and staff and denoted as Lot P9. The only point of vehicle access is from the North corner of the parking lot from Falmouth Street.

Pedestrian Access

There is a path that borders the South East portion of the parking lot which connects to the Sullivan Recreation and Fitness Complex, the Science Building, and other campus pathways. The pathway is accessible from a set of stairs located in the South corner of the parking lot or the open area located in front of the Sullivan Recreation and Fitness Complex. All parking options provide direct connectivity to the pedestrian circulation system, requiring varied levels of off-site disturbance depending on desired access points. See Appendix B for additional information.

Building Height

The proposed height of the parking structures in all of the options vary, however; each option is below the allowable height of 75' per the zoning ordinance. For the purpose of this feasibility study, the Design Team has developed layouts that are limited in height to 38 feet to correspond with and support the view opportunities from the upper levels of the adjacent Science Building. See Appendix C for additional information.

Building Setbacks

All proposed parking structures are within the setbacks set forth in the zoning ordinance. The only setback that is applicable to this study is the setback along Falmouth Street, which is 20'. See Appendix C for additional information.

Pedestrian Access

Pedestrian access and connectivity is maintained largely "as-is" in each of the parking options. The nature of efficient parking garage design supports pedestrian circulation nodes at the corners where vehicular parking is unavailable. Each parking option anticipates vertical circulation stair towers at these corners, and aligns these pedestrian elements with the existing sidewalk system and away from vehicular drives to provide a high degree of visibility, comfort, and safety.

Vehicle Access

All parking options would maintain the current access point on Falmouth Street, while some would potentially add access points from the central campus parking lot access drive or from Durham Street through the existing Central Heat Station parking lot. These options may not be favorable for long-term implementation, but may be designed to be convertible into pedestrian-focused elements if alternate vehicular access points are provided in a parking garage expansion.

Delivery/Loading Access

The existing loading dock at the surface lot to the Science Building is to be maintained, and importantly, will be expanded with a dedicated entry to reduce traffic backup conditions and to provide additional capacity for future needs. Additional service vehicle or university maintenance parking could be incorporated within this loading zone.

Identification of Environmental Requirements

Due to the highly variable disposition of silty and sandy soils across the Back Bay basin generally, and extending specifically to the surrounding sites at the existing parking structure at Surrenden Street, it is recommended that a geotechnical engineer be brought on-board early in the schematic design process to provide soil analysis and identify the soil improvements necessary to support the preliminary foundation design.

Beyond this soils composition assessment, there are no known needs for environmental impact statements, additional environmental assessments, or testing/monitoring with respect to the materials reviewed as part of this parking feasibility investigation.

Generally, the proposed parking options provide close integration with the existing grades and take advantage of adjacent elevations to reduce the impact of sitework and potential exposure to the import/export of soils. Additionally, the lighter weight of a steel garage structure would support the use of either spread footings or geopiers, granting the Design Team flexibility to tailor a structural solution with the lowest level of environmental impact.

Site and Neighborhood Context Description

Campus

The University was founded in 1878 with Corthell Hall being the first university building in Gorham, Maine. The Portland campus is located downtown and bordered by highly trafficked roads including, Interstate Highway 295, Forrest Avenue, Deering Avenue, Falmouth Street, and Bedford Street. The campus buildings are a variety of materials including but not limited to brick, glass curtain wall, panelized systems, and concrete.

Neighborhood

A completely developed urban neighborhood. The adjacent land consists of Interstate Highway 295 on the South, commercial uses on the North and residential uses on the west and south. The largest adjacent land use is the Oakhurst Dairy distribution center between the campus and Forest Ave. The adjacent residential areas provide housing for some of USM's students but are generally a set of very solid and cohesive neighborhoods.

Zoning

The campus is located in Zone R5 in the City of Portland, with an overlay zone type of "USM" for the University of Southern Maine. This zone has a strict set of rules designed to create a quality and cohesive campus environment while integrating with and respecting the residential character of surrounding neighborhoods.

USM Campus Design Principles and Standards (*Adopted May 23, 200)*

STANDARD A-1: Campus Edges Parking lots and structures, blank walls, or backs of buildings shall not be sited in a manner that forms a boundary to neighborhoods and the city.

STANDARD A-5: Views and Landmarks. View corridors and terminations to landmarks such as campus buildings, city buildings, and natural resources, shall be highlighted with design elements such as significant architectural features, quality materials, landscaping, public art or other visual amenities. View corridors and termination points shall include the view up Bedford Street and west across Deering Ave., and other important views as may be identified during campus planning and the City's development review process.

STANDARD B-3: Multi-modality. New development shall relate to a campus circulation system that serves pedestrians/bicyclists, autos, public transportation, service vehicles, and emergency vehicles. New development along transit corridors shall provide convenient and accessible routes from the building to the nearest transit stop.

STANDARD B-4: Traffic-calming. Circulation improvements internal to the campus shall be designed to create a pedestrian-oriented environment and to discourage speed. Appropriate traffic calming measures may include gateway treatments that signal arrival into the campus environment, corner neck-downs, narrowed travel lanes, roundabouts, speed tables, and other devices. Development along public streets shall be designed with traffic calming measures to the extent allowed by City and State policies and requirements at a minimum.

PRINCIPLE C: Parking, Loading and Service Areas. Parking structures shall be designed and located so as to present an attractive façade to neighboring uses in order to minimize the impact along streets and residential areas. Surface parking lots shall be sited and designed to minimize their visual presence on the campus.

STANDARDS C-1: Structures. Parking structures shall be compatible with adjacent uses and architecture in form, bulk, massing, articulation, and materials. Parking structures shall incorporate architectural design elements in order to achieve visual interest on street frontage facades, and along major pedestrian ways, for the full height of the structure, that serve to enhance the pedestrian experience. STANDARD C-2: Active Uses: Parking structures shall incorporate liner buildings or enclosed active uses on the first floor along all primary frontages (excluding frontage dedicated to entrances, lobbies, and stair towers). Such space shall be provided with a minimum of 9-foot floor to ceiling clearance height and a 25-foot depth (measured from the exterior building wall). Alternatively, the parking structures may be set back at least 35 feet from the primary street right of way and that space shall not be occupied by surface parking or access lanes and shall be designated for future development. The setback space shall be provided with all stubbed utilities and other provisions needed to accommodate further development.

STANDARD C-3: Decks and Ramps. Parking structures shall have horizontal decks on all levels where the decks are visible from the public rights of way. Ramps and no horizontal parking decks shall be screened from all visible angles and shall not be permitted 4 on facades located along or within 45 feet of a public street (Note: such space would allow for the construction of a liner building and a ten-foot separation).

STANDARD C-4: Surface Lots. Parking lots shall be located behind buildings or to the side of existing or future buildings, but shall not occupy more than 64 feet of public street frontage within 45 feet of the street right of way (to allow for a future building). The areas devoted to surface parking shall be screened from streets, walkways, and significant views through the use of design elements such as plantings, fencing, grade changes, and/or walls.

Site Implications (from Owner-provided campus utility plans)

Water Items:

- 4" Water pipe adjacent to the Eastern side of the lot – located at the James V. Sullivan Recreation & Fitness Complex
- 6" Water pipe adjacent to the Northern side of the lot – located under Falmouth Street
- Fire Hydrant adjacent to the Northern side of the lot – located on the opposite side of Falmouth Street

Gas Items:

- 2" Gas line adjacent to the Eastern side of the lot – located at the James V. Sullivan Recreation & Fitness Complex
- 6" Gas line adjacent to the Northern side of the site – located under Falmouth Street

Tele/Data Items:

- 2 Conduits located at the Northern part of the lot cross from East to West

Electrical Items:

- Conduit(s) located at the Northern part of the lot cross from East to West

Current Traffic Patterns

Forest Avenue serves as the primary arrival point to the USM Portland campus. The secondary arrival point to the campus is at the intersection of Deering, Brighton, and Falmouth Streets. The third arrival point to the campus is Bedford Street, which bisects the campus providing access to most of the parking supply for the campus.

Future Traffic Pattern Considerations

Closure of the Brighton Avenue Extension and installation of a roundabout at the intersection of Brighton, Deering, and Falmouth streets. After which, the remaining extension of Brighton Avenue will be given to USM by the city of Portland.

Alternate Means of Transportation

As identified in the Facility Master Plan, USM supports robust pedestrian, bicycle, shuttle bus, ride share and metro regional public transit systems that look beyond private vehicular parking to meet the transportation needs of the campus community. This could have a potential impact on the parking requirements for the Portland campus.

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Conceptual Drawings

Design Considerations

The practical parking capacity is an important design consideration due to the fact that no garage can operate at 100% efficiency. The industry accepted efficiency is between 85-95%. This allows for variations in parking activity, loss of parking due to mis-parked vehicles, construction, snow piling, and other unforeseen factors. This efficiency rate also takes into account traffic flow problems related to parkers trying searching for available spaces when the garage is at or near its maximum capacity.

Level of Service

The recommended Level-Of-Service (LOS) for visitor parking is LOS "A" or "B" which provides greater dimensions and ease of use for the parking garage, but for regular monthly parkers an LOS of "C" could be utilized to maximize the number of parking spaces and thereby increasing the efficiency of the design and providing a higher return on investment. LOS "D" is an extremely compact garage design that is mostly reserved for underground parking structures or extremely high-density urban designs.

LOS "B" provides a parking stall that is 8'-9" in width and 17'-9" in length, but this study utilizes a 9'-0" wide and 18'-0" long standard stall, and up to 20% compact spacing per City of Portland Design Standards at 8'-0" wide and 15'-0" long. The drive aisles will be sized at 24' in overall width.

Project Overview

Capacity, expansion, aesthetics and size of the parking structure were taken into consideration for four options developed as part of the programming effort so the design features of each could be evaluated. It is also the understanding that a large structure could have an undesirable impact on the site by restricting view corridors and clashing with the architectural character of the surrounding buildings, with the goal to maintain views from the upper levels of the Science Building towards the city skyline. All of the concept designs therefore top-off at 38'-0" above the existing surface lot to allow for these views from the Science Building.

The Parking Options include:

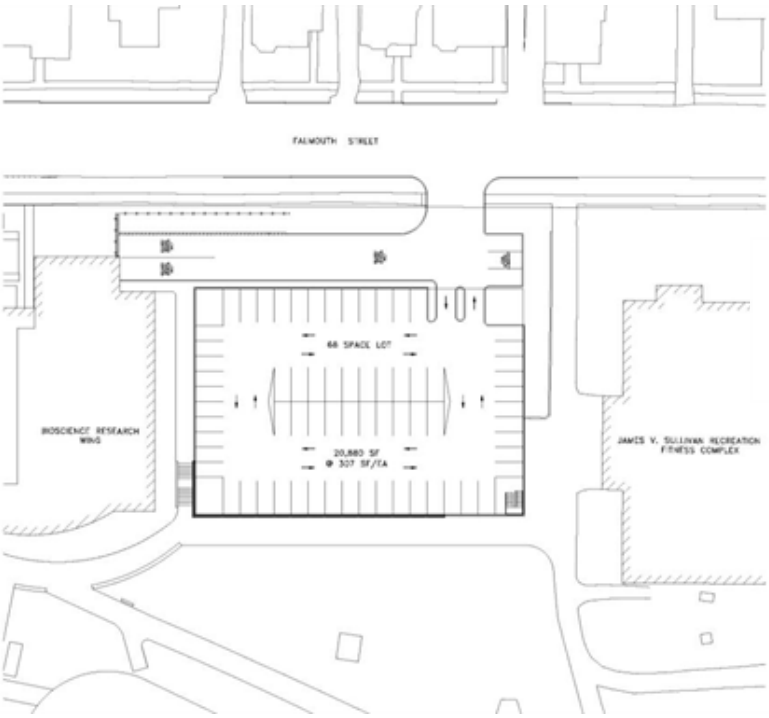
1. Single elevated level-deck parking scenario without internal ramping and providing independent access to two parking levels
2. Ramped multi-level garage with internal circulation ramp connecting all levels of parking.
3. Lateral expansion scenario with independent access to each level (to be combined with Option 2).
4. Level-deck scenario along Falmouth Street convertible to Office/Classroom Space with internal ramped-deck circulation connecting all levels of parking.

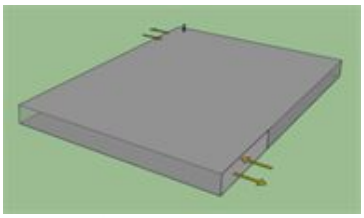
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2

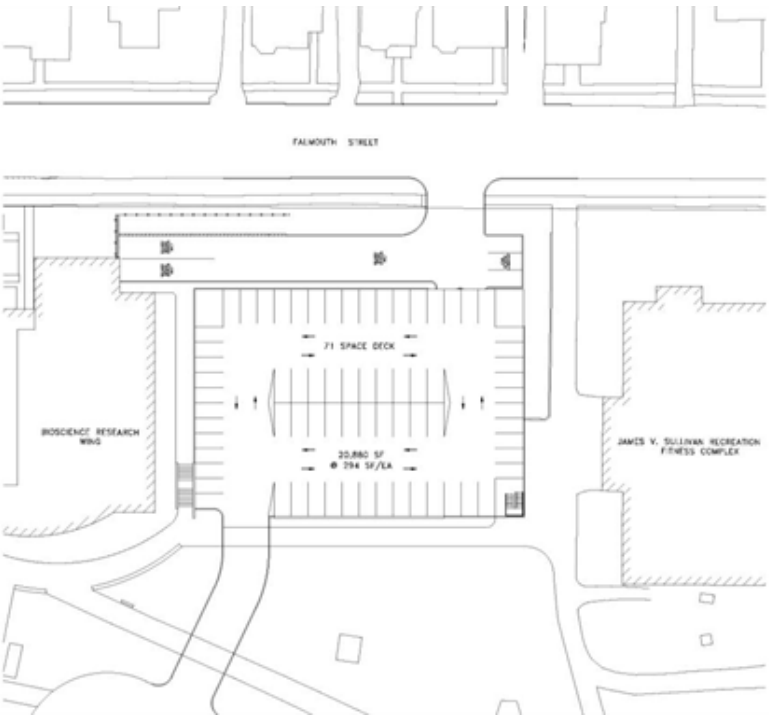
Parking Design Option 1: Single elevated level-deck parking scenario without internal ramping and providing independent access to two parking levels





SECOND ~ 20,880 SF @ 294 SF/EA (71 SPACES)
FIRST ~ 20,880 SF @ 307 SF/EA (68 SPACES)
TOTAL ~ 41,760 SF @ 301 SF/EA (139 SPACES)

Level 1



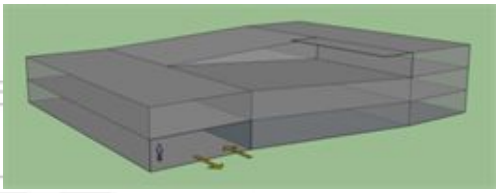
Level 2

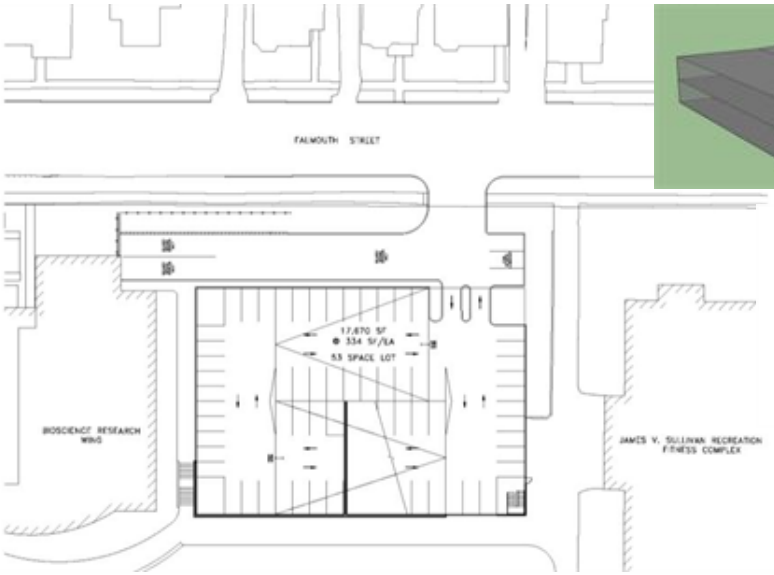
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2

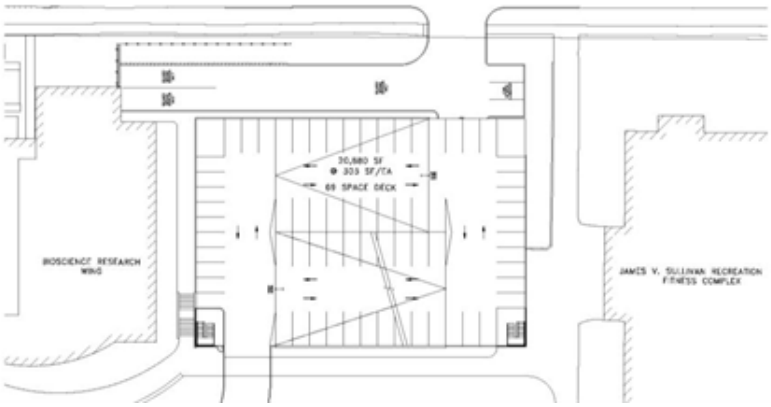
Parking Design Option 2: Ramped multi-level garage with internal circulation ramp connecting all levels of parking



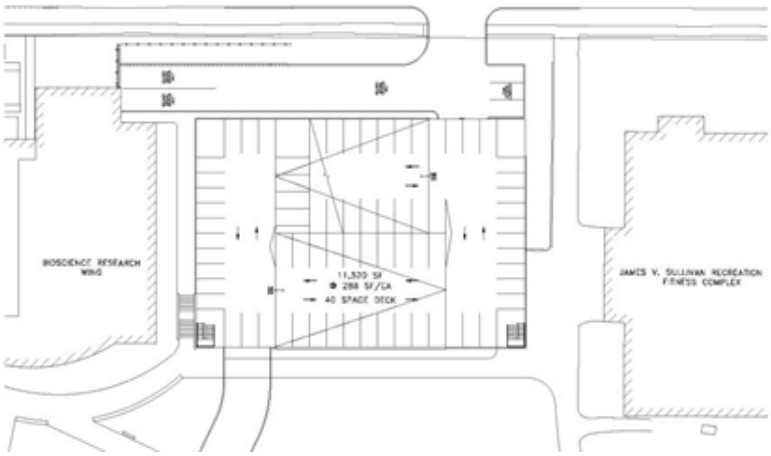


FOURTH ~ 11,520 SF @ 288 SF/EA (40 SPACES)
THIRD ~ 20,880 SF @ 290 SF/EA (72 SPACES)
SECOND ~ 20,880 SF @ 303 SF/EA (69 SPACES)
FIRST ~ 17,670 SF @ 334 SF/EA (53 SPACES)
TOTAL ~ 70,950 SF @ 300 SF/EA (304 SPACES)

Level 1



Level 2

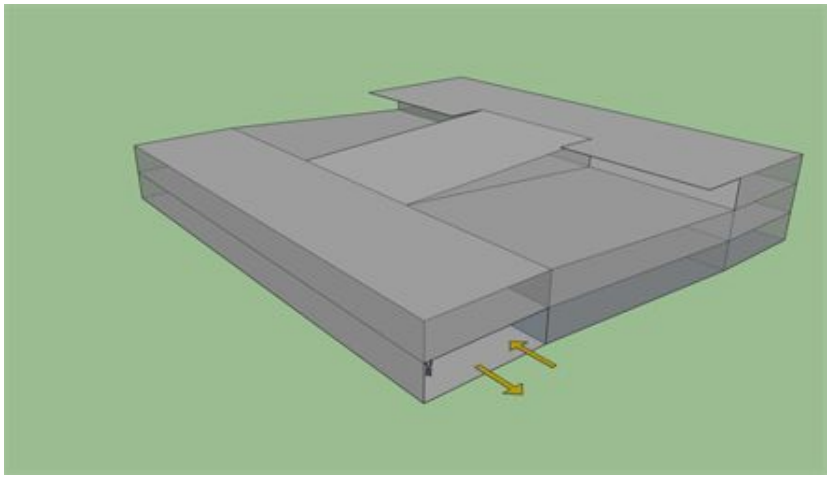


Level 3

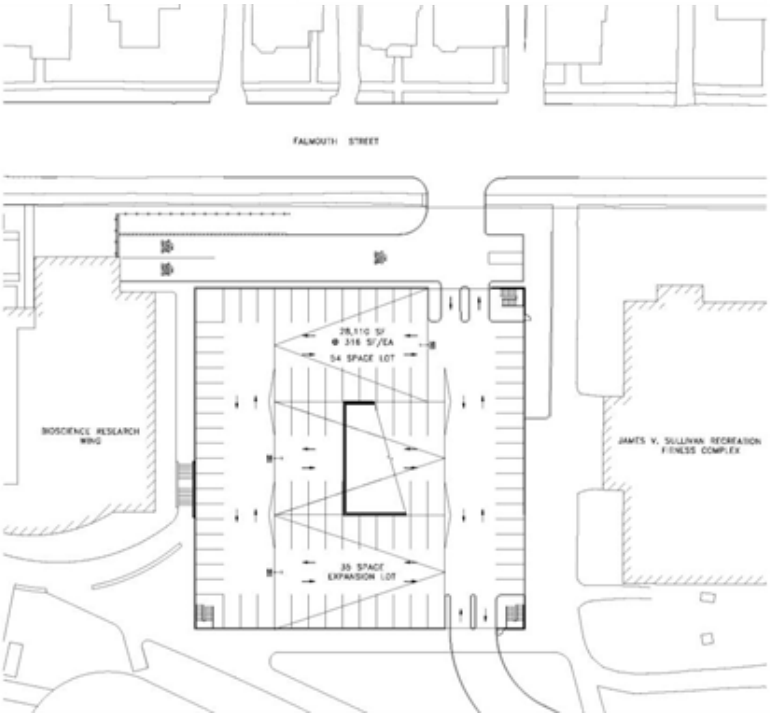
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Parking Design Option 3: Level-deck expansion scenario with independent access to each level (to be combined with Option 2)



FOURTH ~ 21,960 SF @ 282 SF/EA (78 SPACES)
THIRD ~ 31,320 SF @ 290 SF/EA (108 SPACES)
SECOND ~ 31,320 SF @ 290 SF/EA (108 SPACES)
FIRST ~ 28,110 SF @ 316 SF/EA (89 SPACES)
TOTAL ~ 112,710 SF @ 295 SF/EA (383 SPACES)

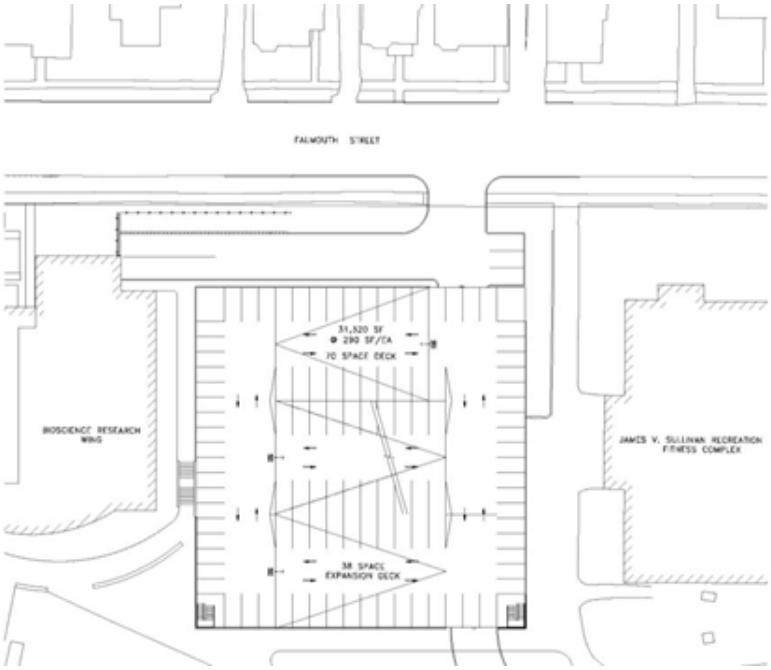


Level 1

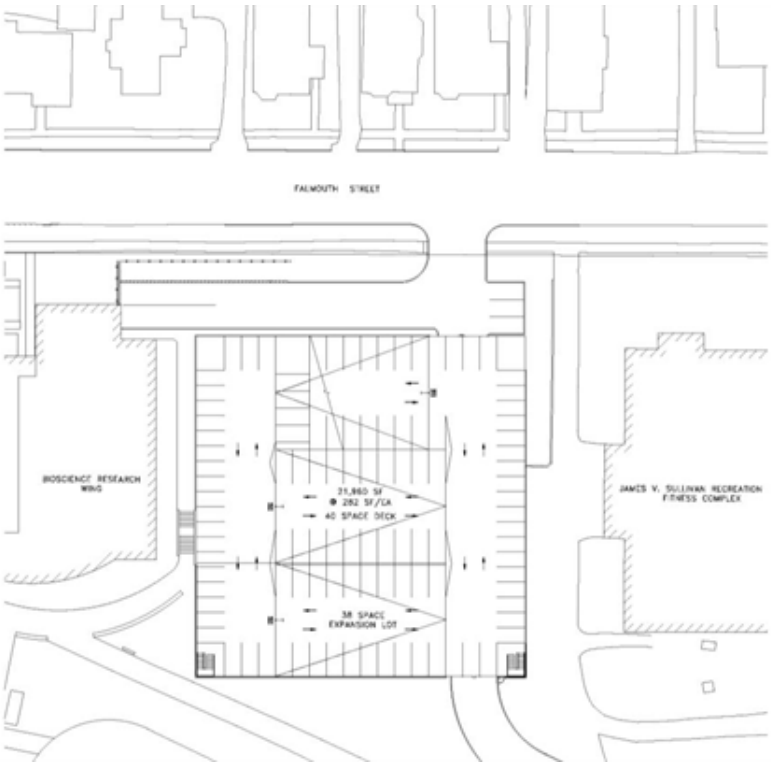
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2



Level 2

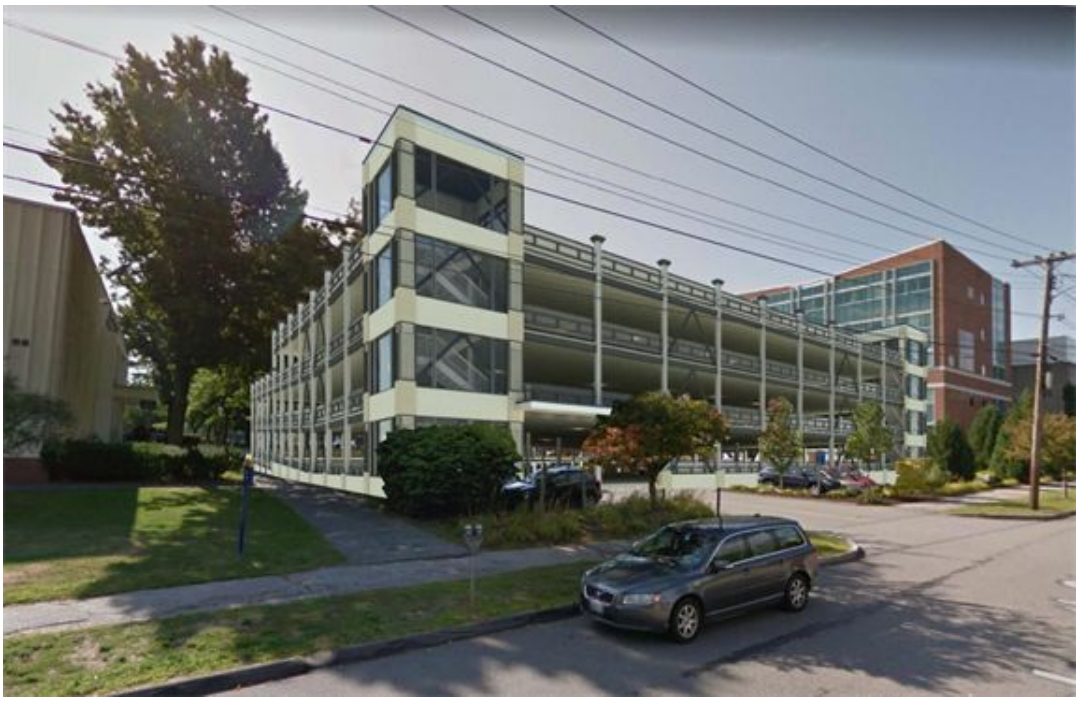


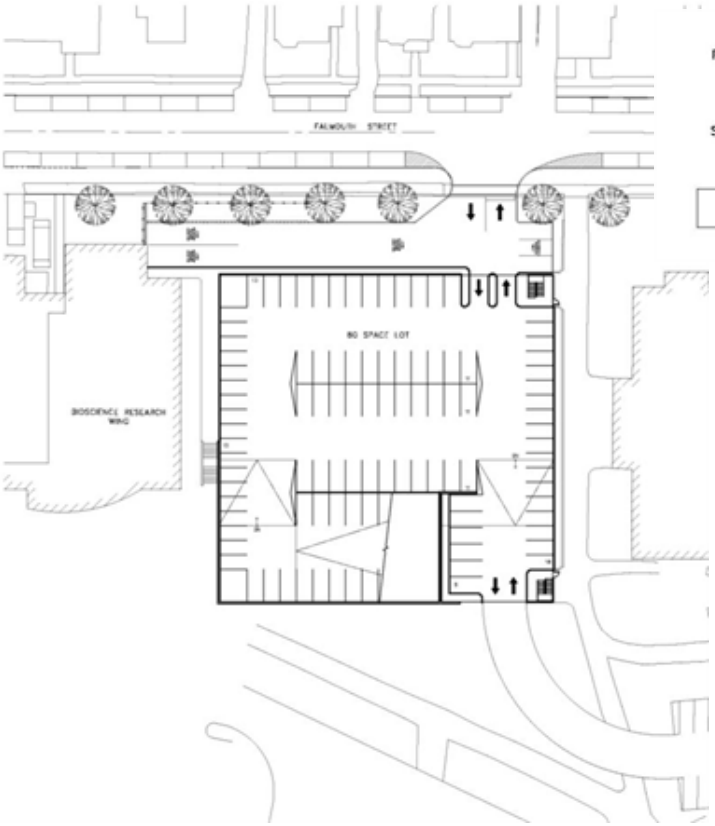
Level 3

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Parking Design Option 4A: Level-deck scenario along Falmouth Street convertible to Office/Classroom Space with internal ramped-deck circulation connecting all levels of parking.





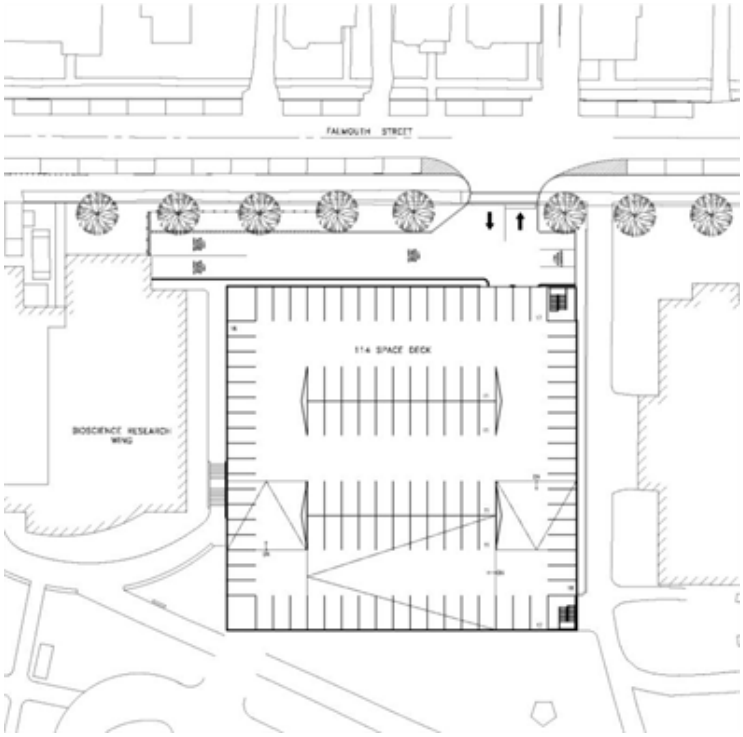
FOURTH ~ 33,750 SF @ 288 SF/EA (117 SPACES)
THIRD ~ 33,000 SF @ 289 SF/EA (114 SPACES)
SECOND ~ 33,000 SF @ 289 SF/EA (114 SPACES)
FIRST ~ 25,000 SF @ 313 SF/EA (80 SPACES)
TOTAL ~ 124,750 SF @ 294 SF/EA (425 SPACES)

Level 1

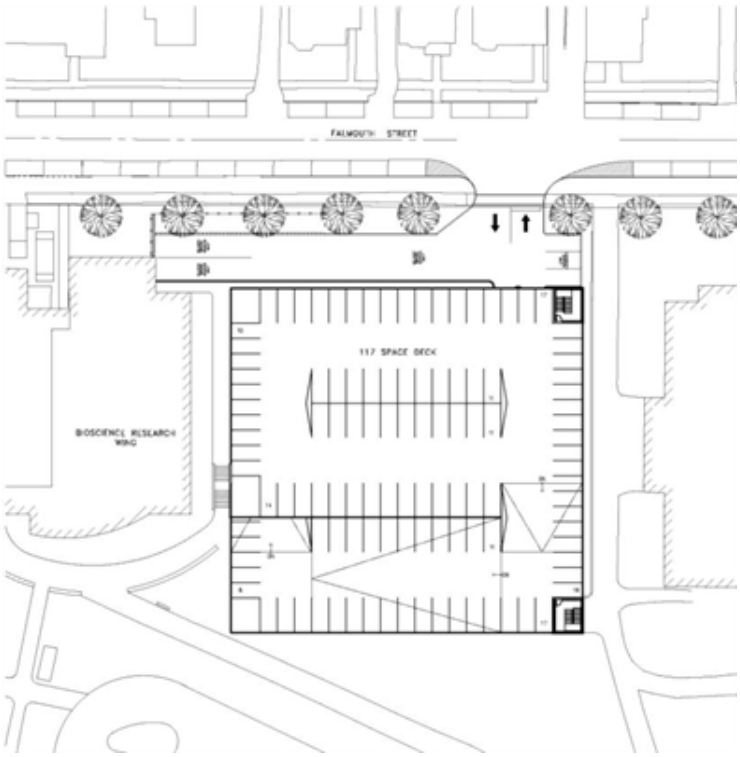
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2



Level 2 & 3



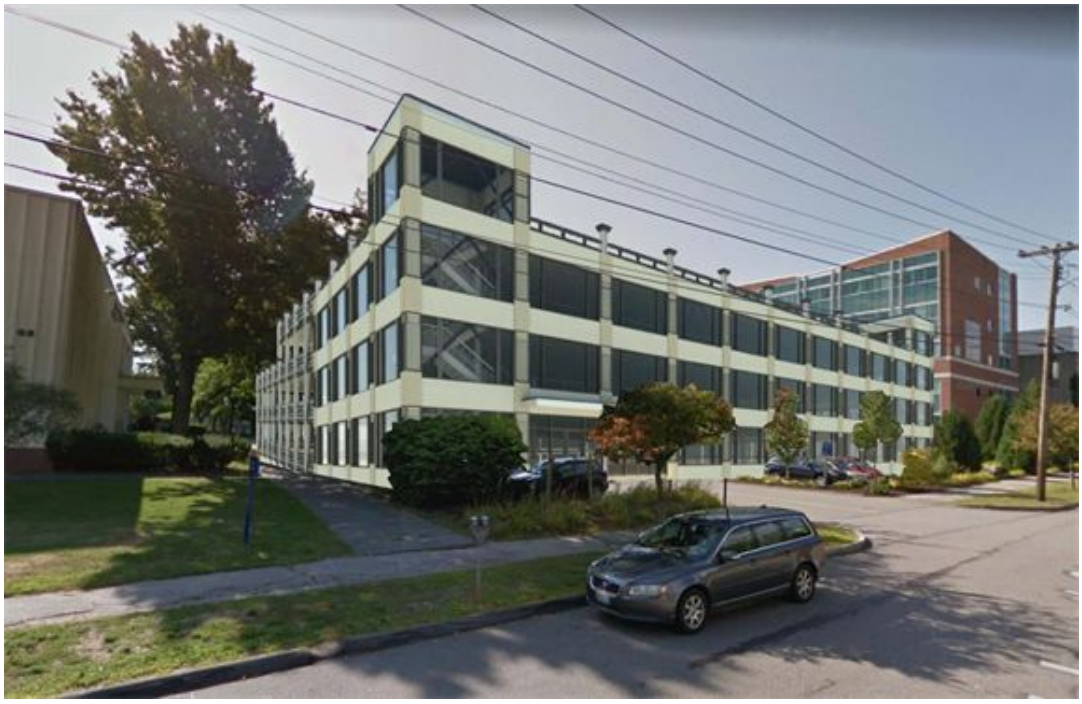
Level 4

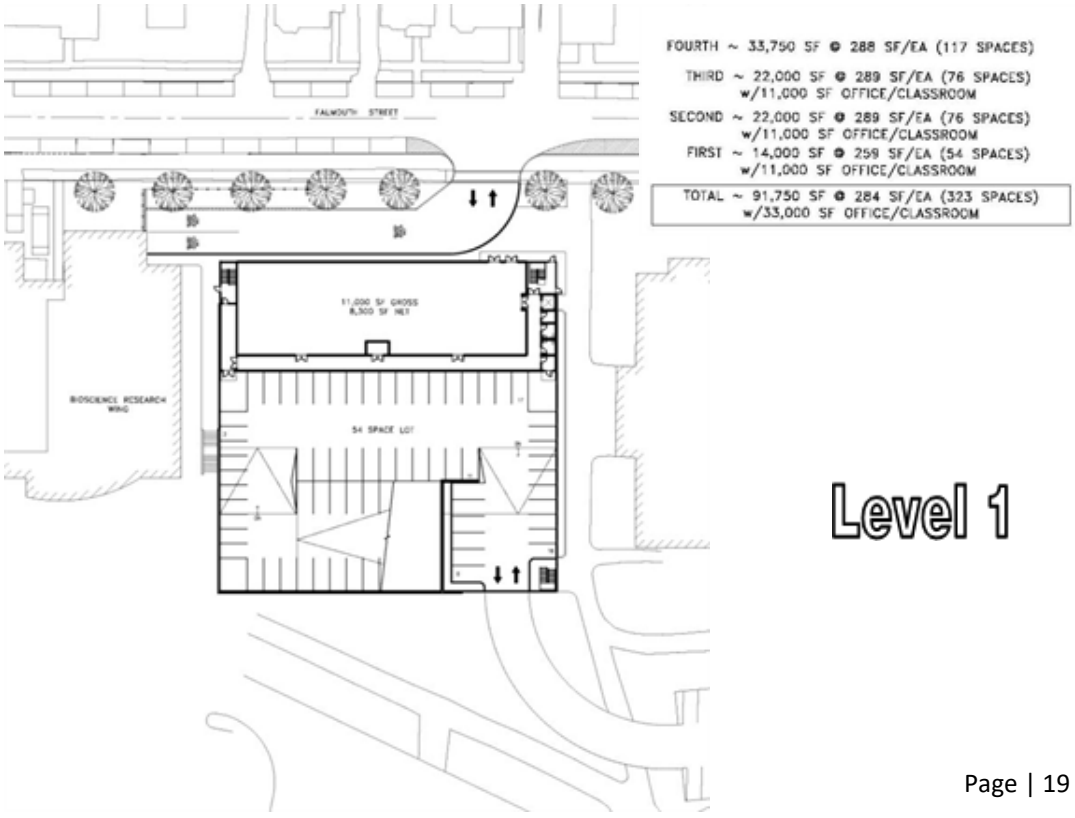
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2

Parking Design Option 4B: Conversion to Office/Classroom Space (33,000 SF gross) with internal ramped-deck circulation connecting all levels of parking behind and above.

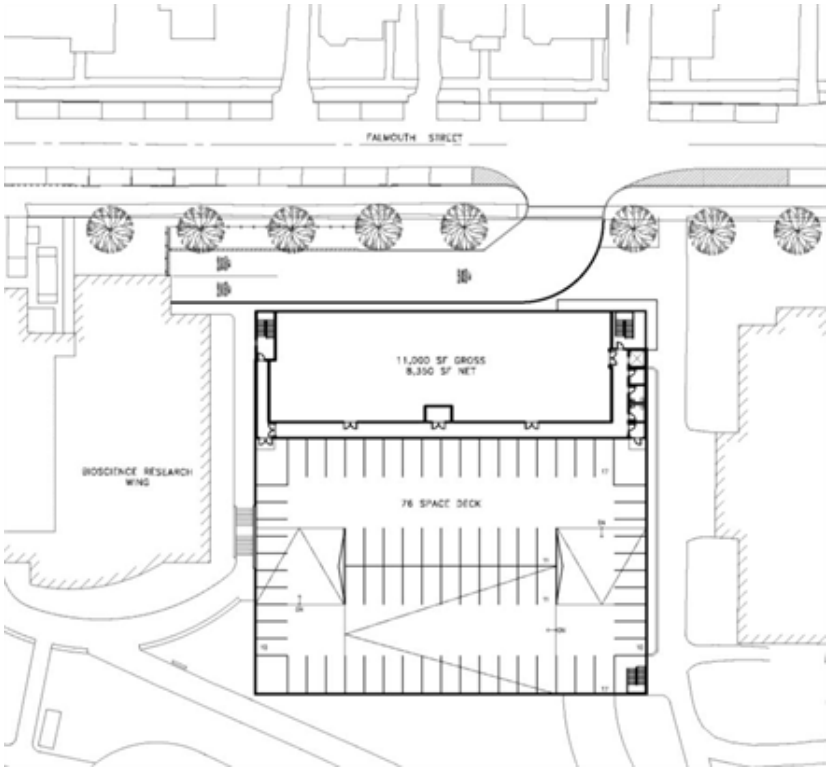




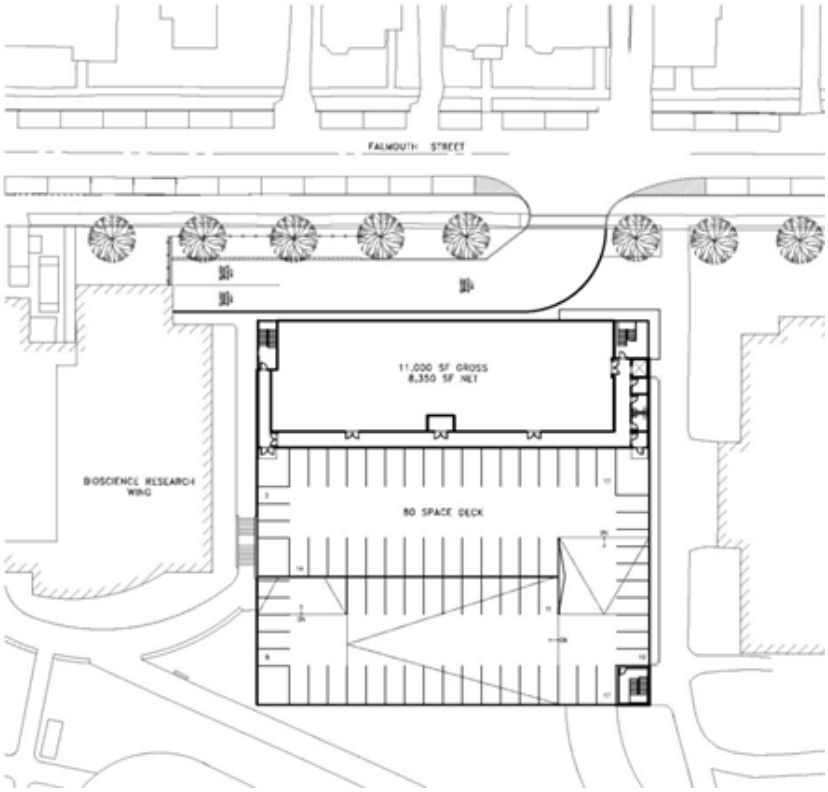
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2



Level 2

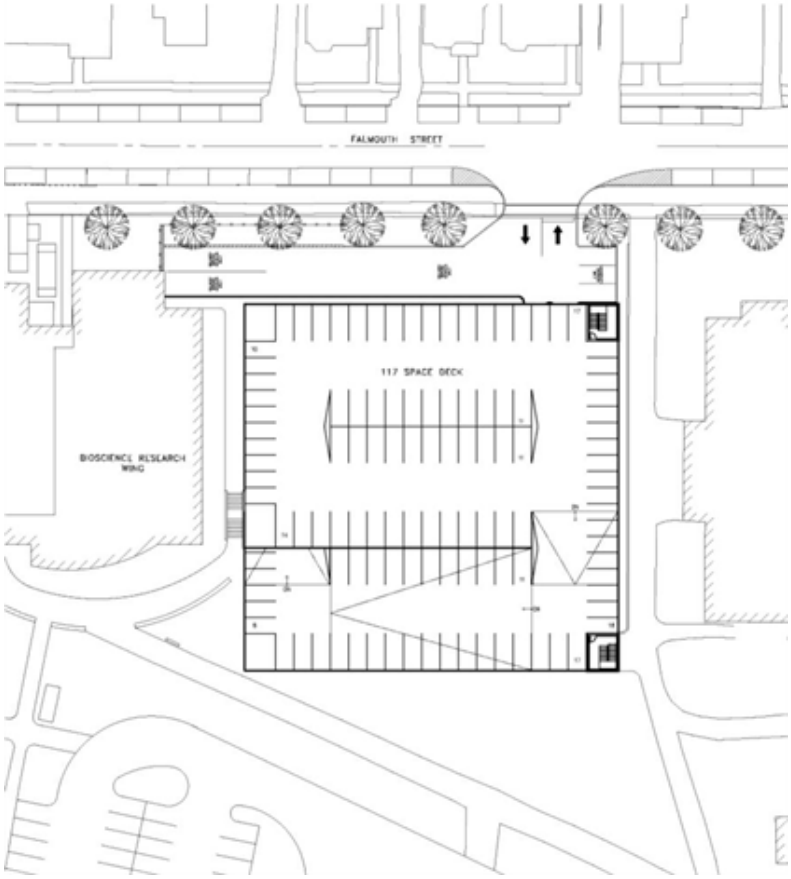


Level 3

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2



Level 4

Proposed view from Science Building

Structural System

The study assumes that a steel structure is used due to cost and the accelerated construction time versus cast in place concrete or pre-cast concrete structures. A footing design of spread footings or rammed aggregate piers is assumed, with cast-in-place composite decks protected with a vehicular traffic coating.

Perhaps most important to the long-term success of the garage design is the patron's feelings of comfort, safety and security while using the facility. Structural steel offers a much thinner structural profile, with small columns, long spans and braced frames rather than massive shear walls, giving the interior of the garage a bright openness with few obstructions for a sense of safety and visual security. Steel framed parking structures can also accommodate any type of façade system, and the building's aesthetics are custom designed to meet the specific requirements of the site or the character of the district surroundings, versus selecting a design from a concrete manufacturer's limited catalogue of standard finishes.

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Design Budget and Proposed Project Timelines

Costs of Steel Structural System

Based on our experience in parking garage design for a number of clients in Maine, we feel that a steel parking structure offers many advantages over a concrete structure and will be a better long-term investment from not only the initial cost and long term maintenance operations perspectives, but also providing more design flexibility and a much more aesthetically-pleasing contributor to the district's architectural fabric.

Initial investment costs are lower for steel-framed parking garages than concrete framing systems, typically quoted 10-15% less, which is partially due to the lighter structural weight and reduced site impacts. Also, the local labor force is far more comfortable with installing a more traditional steel-framed structure versus a concrete structure. The contractors here in Maine will provide a more competitive bid for a steel frame over a concrete system that may force sourcing qualified labor from out-of-state at a higher rate.

The complaint about steel garages in the past is that they have been more expensive to maintain, but we have not found this to be true. Quoted as up to 30% less to maintain than comparative concrete structures by structural engineer examinations, with regular maintenance of the high-performance paint system and elastomeric deck topping, we have found that maintenance costs are very manageable and typically only require spot-patching and paint touch-up, versus the much more extensive deck joint replacements required at regular periodic intervals with precast garages.

Additionally, with the pressures that maintenance budgets endure over the lifespan of a building, the exposed nature of steel-framed design allows for direct visual examination and inspection to assist developing deferred-action maintenance programs to head-off serious issues even during lean times. When concrete structural systems begin to show failure, it is often well past the point of patch and repair, instead requiring the complete and immediate replacement of the overall system which will require a large maintenance capital reserve carried for the life of the garage

Steel frame structures can be easily customized to conform to the particulars of irregular sites, an important consideration in tight urban contexts looking to capitalize on every inch, and may also be expanded in any direction, often planned ahead with the bolt holes pre-drilled. The ease of construction of both the building and the foundation systems capitalize on the efficiencies of shop fabrication, shortening erection schedules and allowing for winter construction. Steel-framed garages typically weigh 20% less than a corresponding concrete structure, which reduces foundation costs and permits a wider range of soil conditions to simplify design.

For all of these reasons, it has been our experience that a steel parking structure would be the most appealing, economical, and flexible garage, offering a maximum return on investment for the University of Southern Maine.

Design Budget

With the Design-Bid-Build project delivery method, the actual costs of the project are not known with certainty until the bid opening, and are also affected by seasonal availability, the state of the current bid environment, and the complexity of the design as it relates to the available pool of responding contractors. That being said, there are a number of factors that can be used to gauge the pricing performance of the garage design relative to the resultant parking efficiency and the number of special features required for the project.

The current 2019 Means Construction Data pricing guide identifies the average cost of a surface parking space is in the $2,500-$3,000 range, structured parking with elevated decks and an open design in the $18,000-$22,000 range, structured parking with elevated decks in a closed design in the $20,000-$24,000 range, and underground parking with a closed design in the $30,000-$35,000 range. The range of these baseline costs should be considered primarily against the backdrop of the resultant parking efficiency on a square-foot basis, but also the specific project program requirements, such as; vehicular entry, ramping, enclosure, ventilation, and pedestrian access. Due to the highly-efficient nature of the options developed in this parking feasibility study, at approximately 300 sf per space, the average square foot cost of around $45 per square foot for a typical steel-framed parking structure would result in a per-space cost of $13,500.

Proposed Project Timeline

Due to the highly variable impact of the City of Portland design review process, in addition to the review and approval procedure timeline for the University's Capital Improvements process, just to name a couple of possible schedule impacts, the exact project timeline is difficult to determine and some degree of flexibility should be considered when forecasting the project approvals timeline. Also figuring into the early project timeline is the project budget pricing requirements, and the design development gaps afforded to these pricing efforts during design. To accelerate the construction schedule, fast-track techniques, performing parts of the construction effort under winter conditions, and possibly selecting a deck system that does not require a traffic topping may be considered.

The schedule requirements for the major design segments and project approvals would be as follows:

- Preliminary Garage Design and Civil Design Document Preparation……. 2 month duration
- City of Portland Planning Board Approval Process……. 3 month duration
- Design Development and Construction Document Preparation……. 3 month duration
- Project Bid and Contractor Award……. 1.5 month duration
- State Fire Marshal and Local Permit Approvals …….. 2 month duration
- Site and Building Construction ……. 8-10 month duration

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

A general timeline for a steel-framed parking garage design and construction that would take best advantage of the traditional construction season with a Spring ground-breaking would be as follows:

- Preliminary Garage Design and Civil Design Document Preparation…….. Nov-Dec 2019
- City of Portland Planning Board Approval Process…….. Nov 2019-Jan 2020
- Design Development and Construction Document Preparation……. Dec 2019-Feb 2020
- Project Bid and Contractor Award……. Feb 2020-March 2020
- State Fire Marshal and Local Permit Approvals ……. March 2020-April 2020
- Structural Steel Shop Drawing Prep and Fabrication…… March 2020-June 2020
- Site and Building Construction …….. April 2020- Dec 2020

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

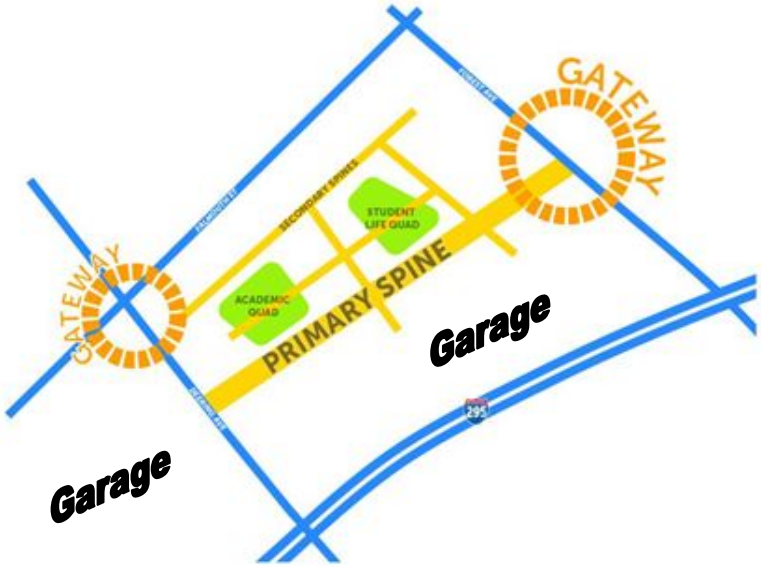
PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2

Part 2 : Parking Study of 88 Bedford/Surrenden Street Lot

Preliminary Assessment of Owner's Development Objectives

The 2019 Facilities Master Plan proposes a parking garage expansion in place of the existing surface parking lot to service the adjacent proposed graduate center and existing liner buildings along Bedford Street. The parking structure, provided for students, faculty and visitors, would then be concentrated at the perimeter of the campus with multiple direct connections to several high-population campus buildings.



With the parking structure located behind liner buildings along the arterial drive, the visibility of way-finding signage is critically important to ensure utilization and convenience. Concentrating the parking field adjacent to existing buildings and proposed future developments provides opportunities for either direct connections through pedestrian skybridges or short outdoor transitions through foul weather.

The site has been prepared for a parking structure expansion in this location, with water, sprinkler, and storm drainage lines stubbed to the site at the Northern access drive. Access has also been prepared for both vehicles and pedestrians, with little adjustment required to these site improvements to make way for construction of the new garage building.

Site Evaluation

Utilities

All utilities including but not limited to electric, water, sewer, storm drainage and gas service appear available either directly to the site or from the local arterial connection to Bedford Street, pending confirmation of available capacity by each utility. Of these major utilities, stubs to the site for future buildings include water for domestic and sprinkler service and storm drainage. They appear to cross the site at a convenient point, but may need adjustment in coordination with the parking structure development. Additionally, a See Appendix D for additional information.

Topography

The site's existing surface parking lot and related site improvements provide the opportunity to connect at-grade on all sides of the proposed parking structure, limited only by the potential internal ramp locations within the garage itself. See Appendix E for additional information.

Parking

The site is currently used as a surface parking lot consisting of 40 total parking spaces, 8 of which are dedicated to handicap accessibility. The parking lot is for USM faculty and staff with some accessible parking serving the adjacent Wishcamper Center, and denoted on the campus map as Lot P3. The only point of vehicle access is from a collector drive at the Northwest corner of the parking lot from Bedford Street.

Pedestrian Access

The Bedford Street arterial drive has a wide pedestrian esplanade that provides opportunities to access the site from the Northwest and Northeast corners. All parking options provide direct connectivity to the pedestrian circulation system, possibly including pedestrian skybridge connections to the adjacent existing parking garage and Wishcamper Center, along possibly with the future graduate center proposed between the Wishcamper and Library/Osher Map Buildings. See Appendix B for additional information.

Building Height

The proposed height of the parking structure in all of the options is 55 feet, however; each option is below the allowable height of 85 feet per the zoning ordinance. For the purpose of this feasibility study, the Design Team has developed layouts that are limited in height to five levels of parking to correspond with the adjacent parking garage and Wishcamper Center building heights. See Appendix C for additional information.

Building Setbacks

All proposed parking structures are within the setbacks set forth in the zoning ordinance. The only setback that is applicable to this study is the setback along the I-295 highway corridor, which is 10'. See Appendix C for additional information.

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Pedestrian Access

Pedestrian access and connectivity is maintained largely "as-is" in each of the parking options. The nature of efficient parking garage design supports pedestrian circulation nodes at the corners where vehicular parking is unavailable. Each parking option anticipates vertical circulation stair towers at these corners, and aligns these pedestrian elements with the existing sidewalk system and away from vehicular drives to provide a high degree of visibility, comfort, and safety.

Vehicle Access

All parking options would maintain the current access point on Bedford Street, aligning the main entrance with the existing adjacent garage for ideal integration with existing parking patterns and equipment. A access drive would be maintained all-around the proposed structure to allow for maintenance and security, loading or staging areas, and/or snow removal.

Delivery/Loading Access

The two existing single-bay loading zones along the perimeter drive around the site are maintained in all options, with the possibility of incorporating additional service vehicle or university maintenance parking within this loading zone.

Identification of Environmental Requirements

Due to the highly variable disposition of silty and sandy soils across the Back Bay basin generally, and extending specifically to the surrounding sites at the existing parking structure at Surrenden Street, it is recommended that a geotechnical engineer be brought on-board early in the schematic design process to provide soil analysis and identify the soil improvements necessary to support the preliminary foundation design. Generally, the use of a steel-framed structure for the proposed parking garage would reduce the structural pier requirements from those provided for the adjacent precast garage of the same height, providing some assurance that the soils will support the proposed building scenarios.

Beyond this soils composition assessment, there are no known needs for environmental impact statements, additional environmental assessments, or testing/monitoring with respect to the materials reviewed as part of this parking feasibility investigation.

Generally, the proposed parking options provide close integration with the existing level site grades and take advantage of stubbed utilities to reduce the impact of sitework and potential exposure to the import/export of soils. Additionally, the lighter weight of a steel garage structure would support the use of geopiers, granting the Design Team flexibility to tailor a structural solution with the lowest level of environmental and financial impact.

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Site and Neighborhood Context Description

Campus

The University was founded in 1878 with Corthell Hall being the first university building in Gorham, Maine. The Portland campus is located downtown and bordered by highly trafficked roads including, Interstate Highway 295, Forrest Avenue, Deering Avenue, Falmouth Street, and Bedford Street. The campus buildings are a variety of materials including but not limited to brick, glass curtain wall, panelized systems, and concrete.

Neighborhood

A completely developed urban neighborhood, the adjacent land consists of Interstate Highway 295 on the South, University buildings to the North and East, and the existing parking garage to the West. The largest adjacent land use is the parking garage, which is accessed from Surrenden Street. The adjacent university structures are generally a set of very solid and consistant building blocks, within which the proposed garage options would cohesively connect, with circulation view corridors that offer relief to the massing.

Zoning

The campus is located in Zone R5 in the City of Portland, with an overlay zone type of “USM” for the University of Southern Maine. This zone has a strict set of rules designed to create a quality and cohesive campus environment while integrating with and respecting the residential character of surrounding neighborhoods.

Site Implications (from Owner-provided campus utility plans)

Water Items:

- 6” Water pipe stubbed to the North side of the lot – located at Conant Street
- 8” Water pipe for a possible sprinkler system stubbed to the North side of the lot – located at Conant Street
- Fire Hydrant at the Northwest corner of the lot – located on the site side of the access drive

Gas Items:

- 8” Gas line to the North of the site is available for connection down the access drive – located under Bedford Street

Tele/Data Items:

- Two 4” conduits are located at the Northern part of the site cross from the existing parking garage to the Wishcamper Center.

Electrical Items:

- Conduits are located at all sides of the site, with some lines that might serve a future building needing verification.

Current Traffic Patterns

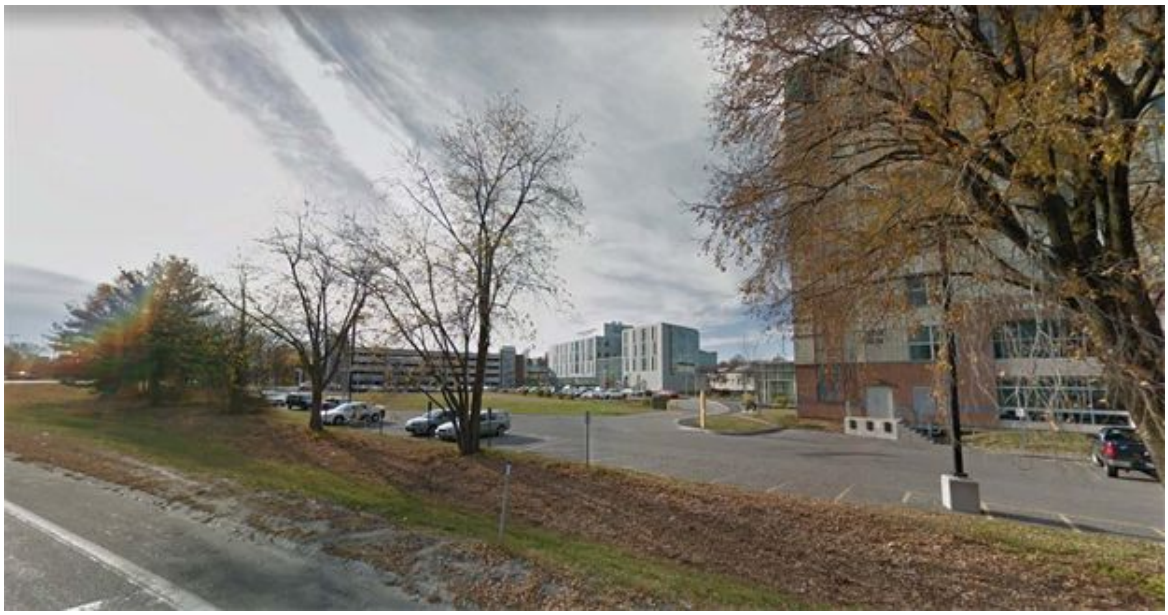
Forest Avenue serves as the primary arrival point to the USM Portland campus. The secondary arrival point to the campus is at the intersection of Deering, Brighton, and Falmouth Streets. The third arrival point to the campus is Bedford Street, which bisects the campus providing access to most of the parking supply for the campus.

Future Traffic Pattern Considerations

Closure of the Brighton Avenue Extension and installation of a roundabout at the intersection of Brighton, Deering, and Falmouth streets. After which, the remaining extension of Brighton Avenue will be given to USM by the city of Portland. The proposed parking garage would connect to the Bedford Street arterial drive, adjacent to the existing garage exit, which the Design Team suggests could be adjusted to allow incoming traffic in addition to the exit pattern.

Alternate Means of Transportation

As identified in the Facility Master Plan, USM supports robust pedestrian, bicycle, shuttle bus, ride share and metro regional public transit systems that look beyond private vehicular parking to meet the transportation needs of the campus community. This could have a potential impact on the parking requirements for the Portland campus. Areas within and around the proposed parking garage may be outfitted with ride share signage or bicycle racks to encourage and support alternate transportation modes.



PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Conceptual Drawings

Design Considerations

The practical parking capacity is an important design consideration due to the fact that no garage can operate at 100% efficiency. The industry accepted efficiency is between 85-95%. This allows for variations in parking activity, loss of parking due to mis-parked vehicles, construction, snow piling, and other unforeseen factors. This efficiency rate also takes into account traffic flow problems related to parkers trying searching for available spaces when the garage is at or near its maximum capacity.

Level of Service

The recommended Level-Of-Service (LOS) for visitor parking is LOS "A" or "B" which provides greater dimensions and ease of use for the parking garage, but for regular monthly parkers an LOS of "C" could be utilized to maximize the number of parking spaces and thereby increasing the efficiency of the design and providing a higher return on investment. LOS "D" is an extremely compact garage design that is mostly reserved for underground parking structures or extremely high-density urban designs.

LOS "B" provides a parking stall that is 8'-9" in width and 17'-9" in length, but this study utilizes a 9'-0" wide and 18'-0" long standard stall, and up to 20% compact spacing per City of Portland Design Standards at 8'-0" wide and 15'-0" long. The drive aisles will be sized at 24' in overall width.

Project Overview

Capacity, expansion, aesthetics and size of the parking structure were taken into consideration for three options developed as part of the programming effort so the design features of each could be evaluated. It is also the understanding that a larger structure could have an undesirable impact on the site by restricting view corridors and clashing with the scale and architectural character of the surrounding buildings. All of the concept designs therefore top-off at 55'-0" above the existing surface lot to match with the scale and massing of the adjacent buildings.

The Parking Options include:

1. Arcing garage form that responds to the lot line along I-295 with internal circulation ramp connecting all levels of parking and providing site relief and view corridors towards the proposed future graduate center location adjacent to the Library/Osher Map buildings.

2. Rectangular multi-level garage with internal circulation ramp connecting all levels of parking and skybridge connection to the existing garage at the second level.

3. Level-deck expansion scenario to the existing garage with independent access to each level and radial internal circulation ramp providing site relief and view corridors towards the proposed future graduate center location adjacent to the Library/Osher Map buildings.

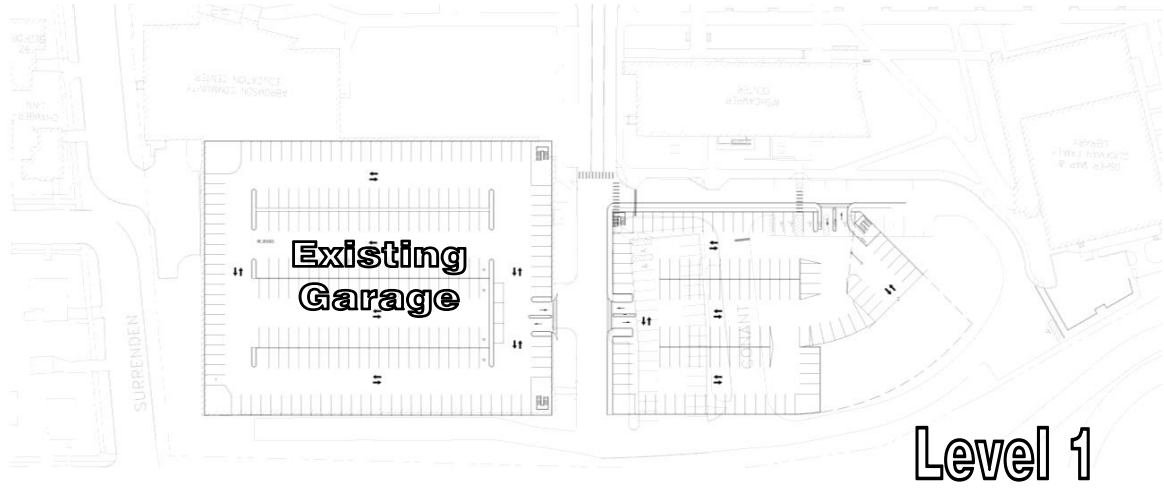
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2

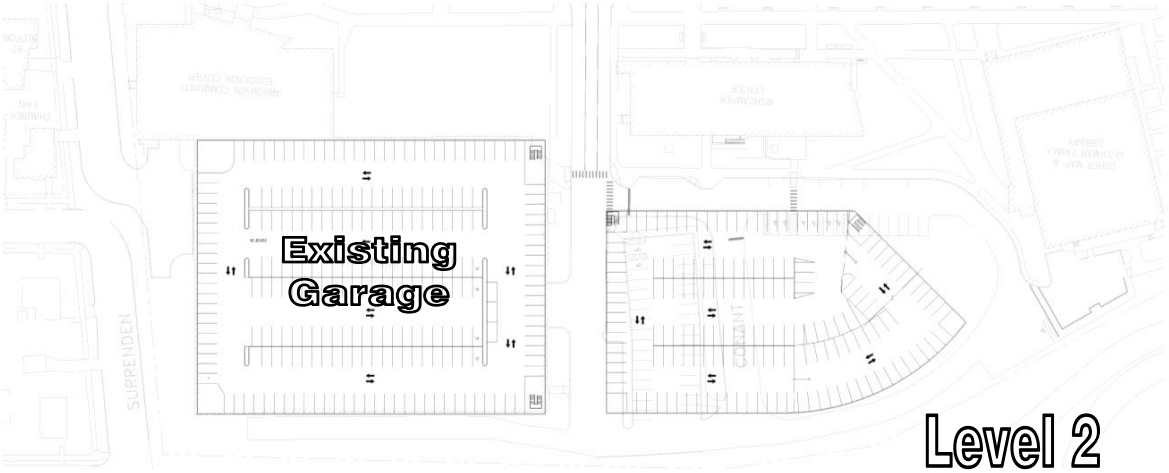
Parking Design Option 1: Arcing garage form that responds to the lot line along I-295 with internal circulation ramp connecting all levels of parking

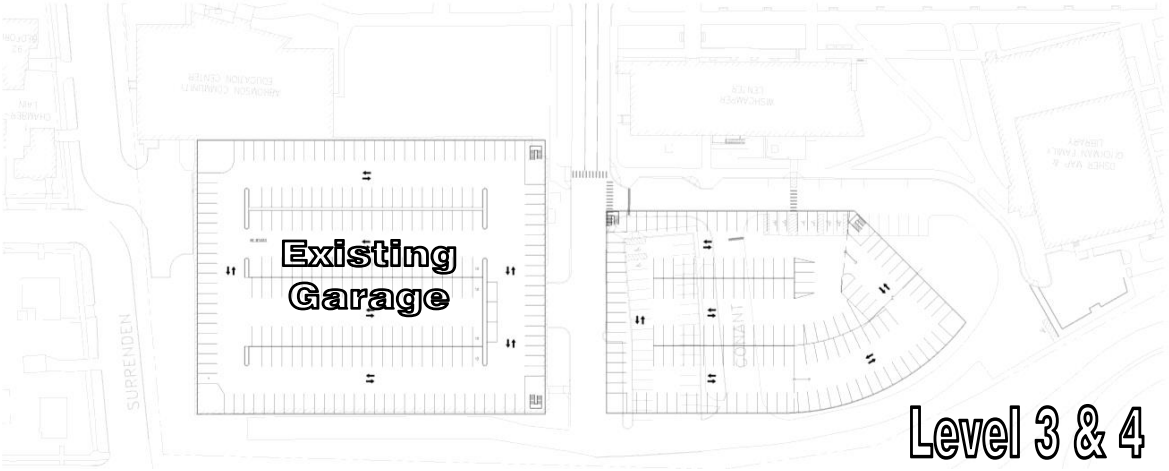
FIFTH ~ 53,315 SF @ 308 SF/EA (173 SPACES)
FOURTH ~ 49,715 SF @ 309 SF/EA (161 SPACES)
THIRD ~ 49,715 SF @ 309 SF/EA (161 SPACES)
SECOND ~ 49,715 SF @ 309 SF/EA (161 SPACES)
FIRST ~ 37,560 SF @ 341 SF/EA (110 SPACES)
TOTAL ~ 240,020 SF @ 313 SF/EA (766 SPACES)

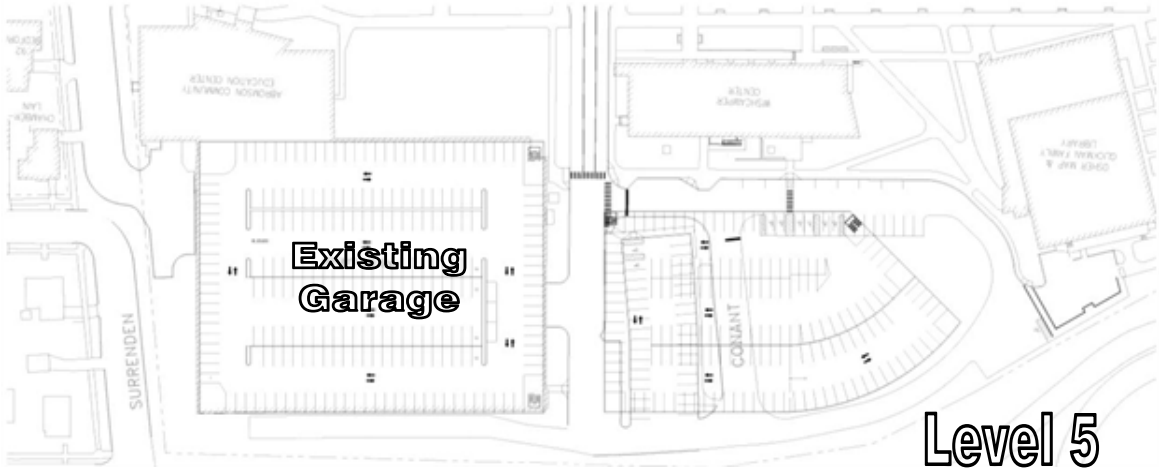


Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com





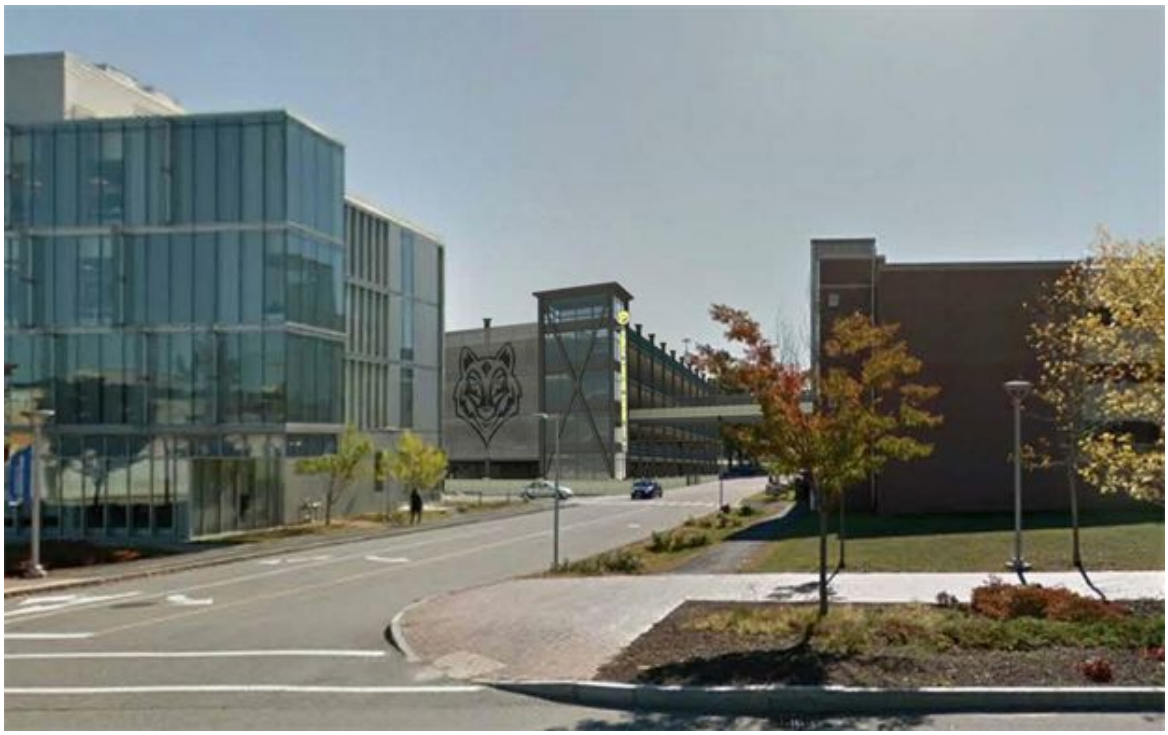


Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

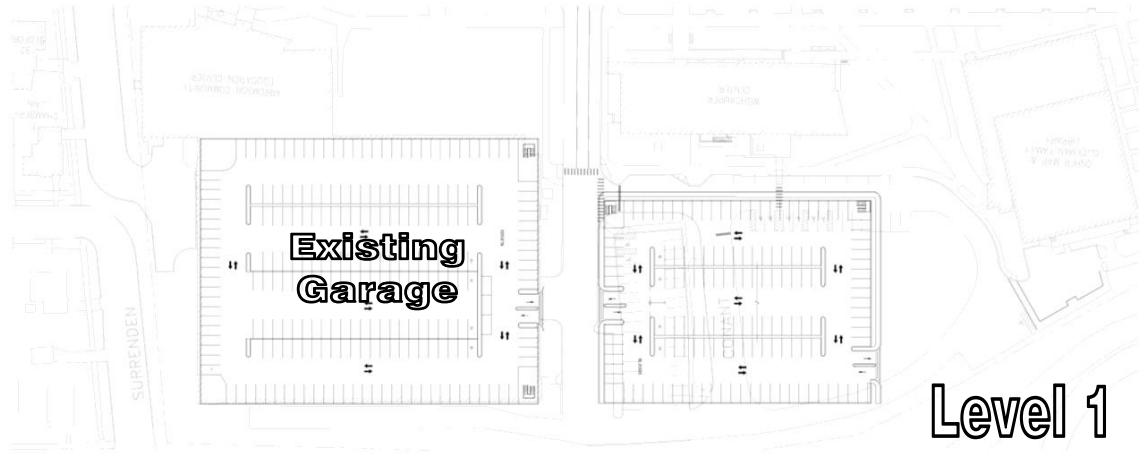
PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2

Parking Design Option 2: Rectangular multi-level garage with internal circulation ramp connecting all levels of parking and skybridge connection to the existing garage at the second level.

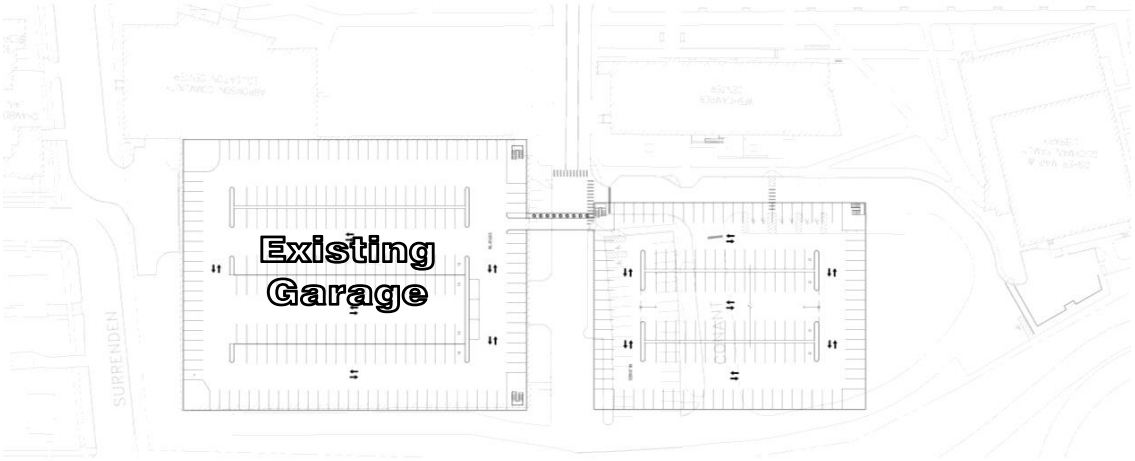


FIFTH ~ 47,575 SF @ 311 SF/EA (153 SPACES)
FOURTH ~ 46,475 SF @ 318 SF/EA (146 SPACES)
THIRD ~ 46,475 SF @ 318 SF/EA (146 SPACES)
SECOND ~ 46,475 SF @ 318 SF/EA (146 SPACES)
FIRST ~ 46,475 SF @ 334 SF/EA (139 SPACES)
TOTAL ~ 233,475 SF @ 320 SF/EA (730 SPACES)

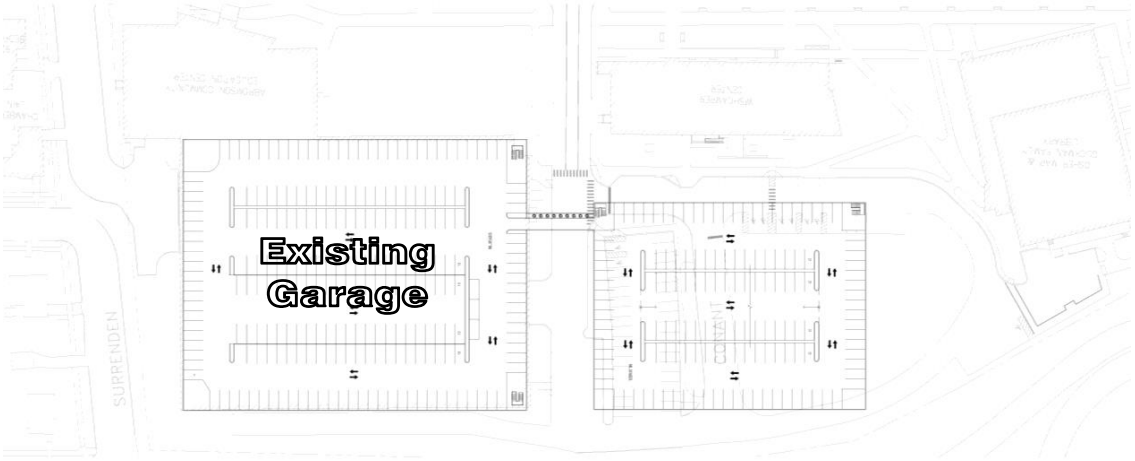


Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com



Level 2 - 4



Level 5

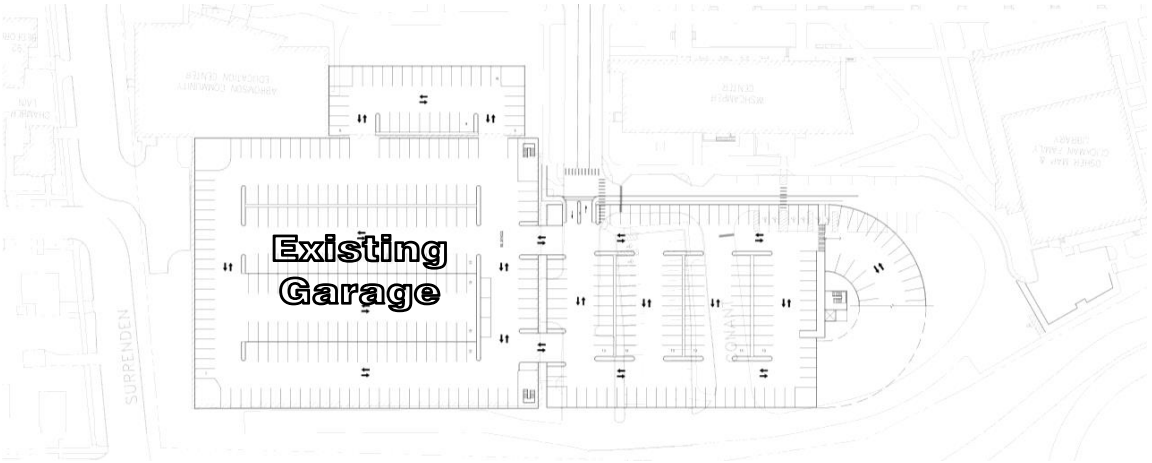
Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

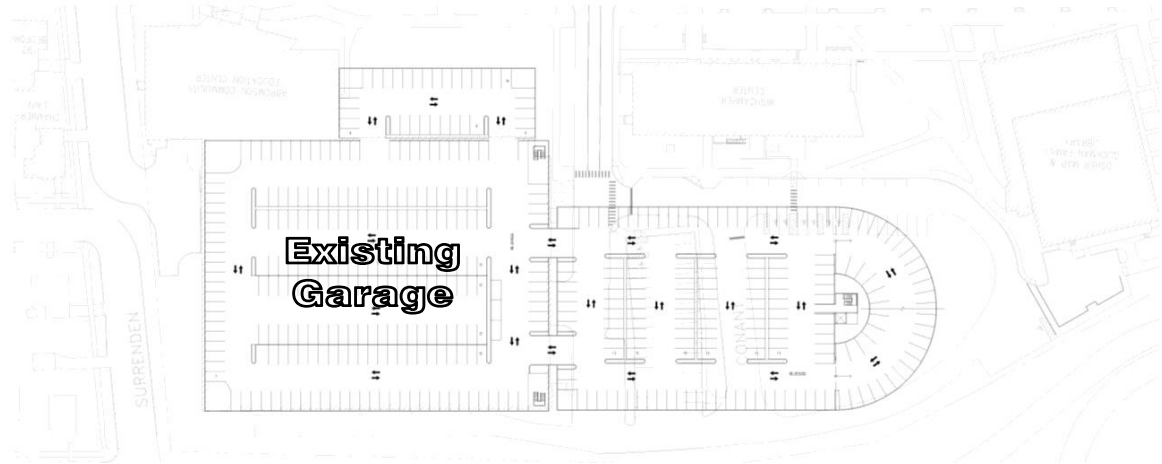
5.2

Parking Design Option 3: Level-deck expansion scenario to the existing garage with independent access to each level and radial internal circulation ramp

FIFTH ~ 53,315 SF @ 308 SF/EA (173 SPACES)
FOURTH ~ 49,715 SF @ 309 SF/EA (161 SPACES)
THIRD ~ 49,715 SF @ 309 SF/EA (161 SPACES)
SECOND ~ 49,715 SF @ 309 SF/EA (161 SPACES)
FIRST ~ 37,560 SF @ 341 SF/EA (110 SPACES)
TOTAL ~ 240,020 SF @ 313 SF/EA (766 SPACES)



Level 1



Level 3-5

Design Budget and Proposed Project Timelines

Costs of Modifying Precast Structural System

Parking Design Option 3 investigates the modification of the existing precast parking structure to expand the parking field with level parking decks and two drive aisles. While a steel-framed parking garage is easily modified post-construction, that is not the case with precast structures. Every element of a precast garage is performing a structural task that would need to be replaced in some form, and due to the heavy loads that precast garages produce, this task is potentially expensive. Cutting into shear walls or even spandrel façade elements might require moment frames and/or removal of the precast tees for a lighter steel-framed system in the area(s) affected. Additionally, the structural piers have been designed for a certain loading, so additional loads would likely need to be carried by separate adjacent footings/piers.

Design Budget

With the Design-Bid-Build project delivery method, the actual costs of the project are not known with certainty until the bid opening, and are also affected by seasonal availability, the state of the current bid environment, and the complexity of the design as it relates to the available pool of responding contractors. That being said, there are a number of factors that can be used to gauge the pricing performance of the garage design relative to the resultant parking efficiency and the number of special features required for the project.

The current 2019 Means Construction Data pricing guide identifies the average cost of a surface parking space is in the $2,500-$3,000 range, structured parking with elevated decks and an open design in the $18,000-$22,000 range, structured parking with elevated decks in a closed design in the $20,000-$24,000 range, and underground parking with a closed design in the $30,000-$35,000 range. The range of these baseline costs should be considered primarily against the backdrop of the resultant parking efficiency on a square-foot basis, but also the specific project program requirements, such as; vehicular entry, ramping, enclosure, ventilation, and pedestrian access. Due to the highly-efficient nature of the options developed in this parking feasibility study, at approximately 315 sf per space, the average square foot cost of around $45 per square foot for a typical steel-framed parking structure would result in a per-space cost of $14,200.

Proposed Project Timeline

Due to the highly variable impact of the City of Portland design review process, in addition to the review and approval procedure timeline for the University's Capital Improvements process, just to name a couple of possible schedule impacts, the exact project timeline is difficult to determine and some degree of flexibility should be considered when forecasting the project approvals timeline. Also figuring into the early project timeline is the project budget pricing requirements, and the design development gaps afforded to these pricing efforts during design. To accelerate the construction schedule, fast-track techniques, performing parts of the construction effort under winter conditions, and possibly selecting a deck system that does not require a traffic topping may be considered.

The schedule requirements for the major design segments and project approvals would be as follows:

- Preliminary Garage Design and Civil Design Document Preparation……. 2 month duration
- City of Portland Planning Board Approval Process……. 3 month duration
- Design Development and Construction Document Preparation……. 3 month duration
- Project Bid and Contractor Award……. 1.5 month duration
- State Fire Marshal and Local Permit Approvals …….. 2 month duration
- Site and Building Construction ……. 8-10 month duration

A general timeline for a steel-framed parking garage design and construction that would take best advantage of the traditional construction season with a Spring ground-breaking would be as follows:

- Preliminary Garage Design and Civil Design Document Preparation…….. Aug-Sept 2019
- City of Portland Planning Board Approval Process……. Aug-Oct 2019
- Design Development and Construction Document Preparation……. Sept 2019-Nov 2019
- Project Bid and Contractor Award……. Dec 2019-Jan 2020
- State Fire Marshal and Local Permit Approvals …… Dec 2019-Jan 2020
- Structural Steel Shop Drawing Prep and Fabrication…… Feb 2020-May 2020
- Site and Building Construction …… March 2020- Nov 2020

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

5.2

Exhibit A. 2019 University Of Southern Maine Facilities Master Plan

UNIVERSITY OF SOUTHERN MAINE | FACILITIES MASTER PLAN

400,000 GSF | *Site available for academic, housing, parking or athletic growth beyond current program*

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

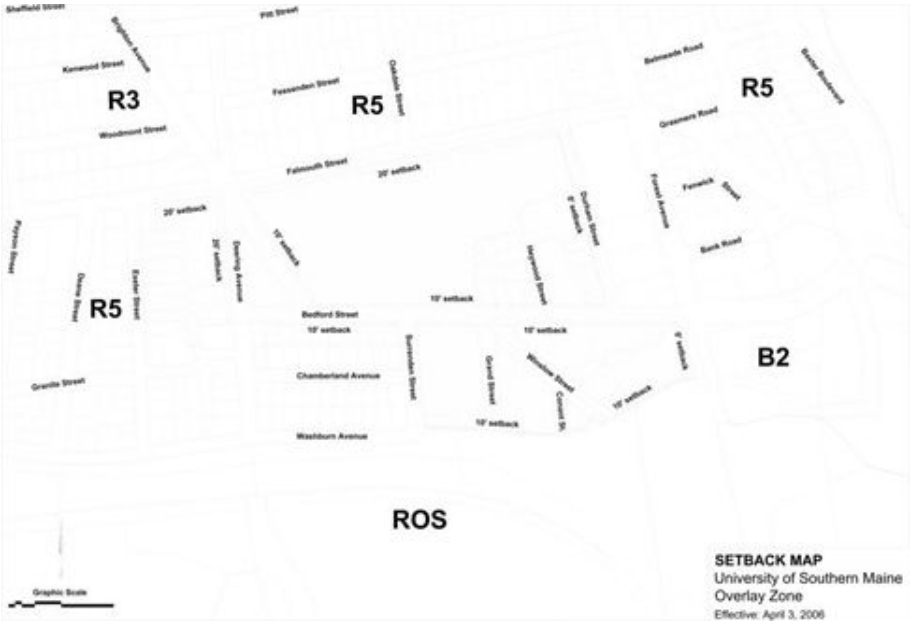
PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

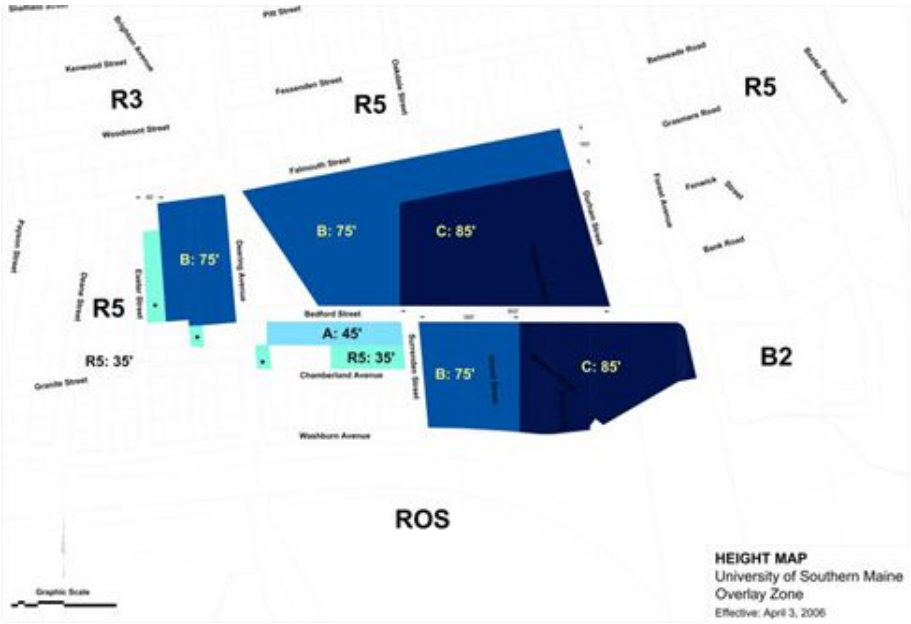
Exhibit B. 2018 University Of Southern Maine Aerial Photo

Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Exhibit C. University Of Southern Maine Zoning Overlay Plan

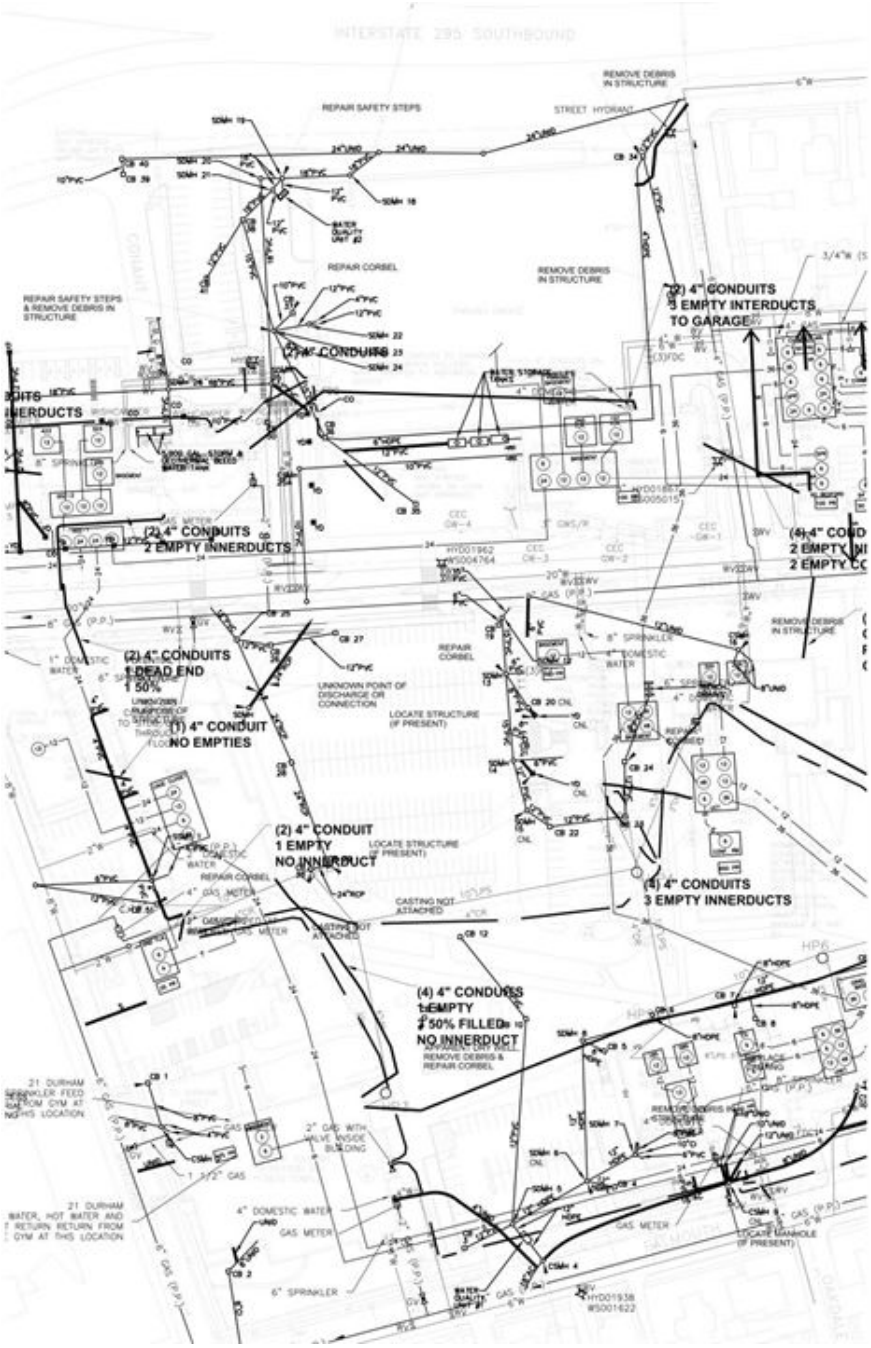




Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

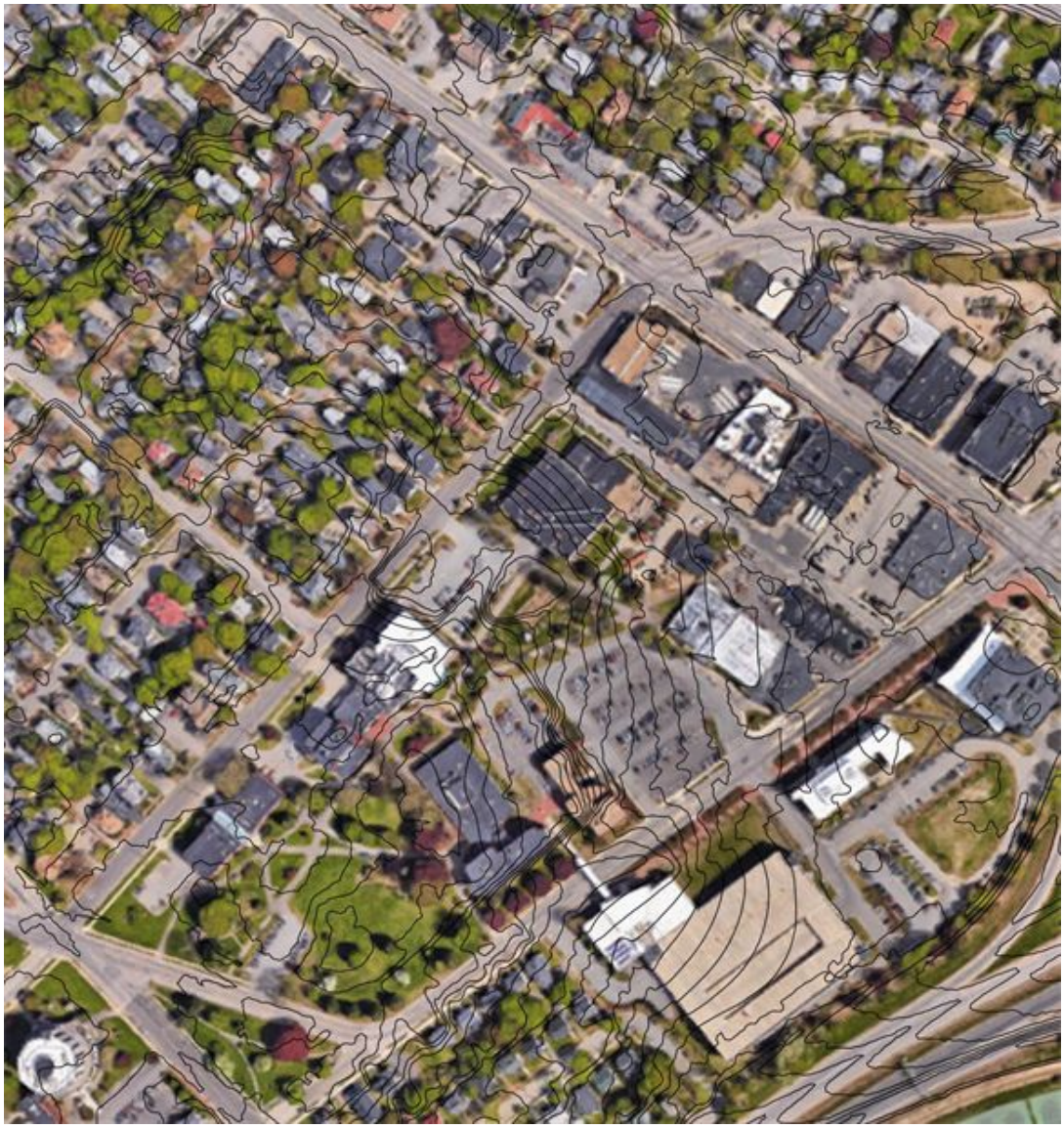
Exhibit D. University Of Southern Maine Utilities Overlay Plan



Parking Feasibility Study
University of Southern Maine
68 Falmouth St & 88 Bedford/Surrenden St, Portland, ME

PLATZ ASSOCIATES
Architects • Engineers
Construction Managers
Two Great Falls Plaza, Auburn, Maine 04210
www.platzassociates.com

Exhibit E. University Of Southern Maine Topography Overlay Plan



5.3

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Wishcamper Center Parking Lot Expansion, USM

2. INITIATED BY: Dannel P. Malloy, Chancellor

3. BOARD INFORMATION: **BOARD ACTION: X**

4. OUTCOME:
Improve Student Success and Completion
Increase Enrollment

BOARD POLICY:
701 – Budgets-Operating & Capital

10

5. BACKGROUND:

The University of Maine System acting through the University of Southern Maine (USM) requests authorization to expend up to $1.71 million to expand the current surface parking area behind the Wishcamper Center on the Portland campus at the University of Southern Maine to compensate for parking being removed from service elsewhere on campus. Funding for this project will come from a combination of Campus E&G funds and University Capital Reserve funds.

This request is pursuant to Board of Trustees Policy 701, which requires projects with a total cost of more than $500,000 to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. In this case, the Finance, Facilities and Technology Committee voted to advance the project to the full Board of Trustees for consideration.

USM has several transportation projects in progress to address the demand for parking on the Portland campus. USM has engaged with Vanasse Hangen Brustlin, Inc., or VHB, a multidisciplinary American civil engineering consulting and design firm, to assist with this work. A recent assessment by VHB estimates that if USM could gain, after losses and increases, a net of approximately 300 to 400 spaces from current levels to a new total parking availability of approximately 2,000 to 2,100 spaces, that capacity would meet the University's needs for most and possibly all of the coming decade.

USM, in short, intends to offset current anticipated losses of parking and to meet the future demand for parking by expanding the Wishcamper surface lot, building a structured parking facility shortly thereafter and reducing demand via a transportation demand management effort. That VHB assessment is included in the materials for this meeting, and UMS's plans are further detailed in this agenda information sheet.
For background, the existing parking capacity at USM of approximately 1,700 spaces is heavily utilized but demand does not exceed capacity. VHB found that parking demand at USM peaks at approximately 93 percent of capacity across the entire campus, meaning more than 100 spaces remain available even at peak times. Certain lots are more popular than others but overall VHB

estimates that capacity exceeds demand. There are rare exceptions when a special event or circumstance has seen demand exceeded capacity, but these instances are anecdotal and unusual.

First, USM is seeking to expand a surface parking area. The request to do so is prompted by a reduction of 26 spaces which will be removed from service at the Brighton Avenue lot, 130 spaces which will be removed from service at the Bedford Street lot and an estimated 29 that will be lost at a facilities building. That is an estimated total of approximately 185 spaces that ultimately, if not simultaneously, will be removed from service. Parking capacity would be sufficiently maintained and these losses sufficiently off-set by expanding the Wishcamper surface lot by a proposed 122 spaces as USM works to approximate the status quo during this interim period of construction.

In detail, the Brighton Avenue lot will go off line when the City of Portland initiates construction on the Brighton Avenue roundabout project. That project was advertised for bids in December 2019 and could begin as soon as March 2020. The spaces in the Bedford Street lot would be lost to a staging area for the construction of the new Residence Hall and Student Success Center. The Bedford Street spaces would ultimately become the new University quad when construction is completed. The facilities building spaces would be displaced by the new construction. The proposed expansion at Wishcamper would bring that area to a new total of 213 spaces.

USM is taking a number of additional steps beyond proposing this expansion of a surface parking area.

For example, as part of a transportation demand management effort, USM has: increased public transportation access to and between its Portland and Gorham campus via the Metro Husky Line and the remainder of the Metro service area; is altering the scheduling of classes beginning in fall 2020 to level out the use of campus parking and academic facilities by distributing courses more evenly across days and hours which will reduce the current peak parking demand levels; is appointing a Transportation Demand Management coordinator and formalizing its transportation demand management plan to pursue numerous additional initiatives, all intended to reduce the need for single occupant vehicle parking spaces on campus.

The Wischcamper expansion and traffic demand management alone will not be enough to meet the parking needs of the campus.

Next, to reach a new total capacity of 2,000 to 2,100 spaces as indicated by the VHB assessment, USM intends to ask to construct an approximately 425-space parking facility. Parking demand estimates and feasibility studies have been done, along with initial conceptual design, for such a structure.

It is currently estimated that such a project would provide USM with a parking capacity on the Portland campus of approximately 2,000 to 2,100 spaces in 2022 depending on exactly how many spaces are lost to construction and whether minor additions are possible as events unfold.

Trustees will be asked at their next meeting to consider action on this structured parking facility portion of the USM plan. That project would be expected to open in the summer of 2022, contemporaneously with the proposed residence hall and student success center at the Portland campus.

Assuming a construction cost of $20,000 per structured space and a total of 425 spaces, the project would have a total preliminarily estimated budget of $11.9 million, including not only

construction, but also design, site work, permitting, contingency, certain and other associated budget items. The $20,000 construction cost estimate is within but at the low end of the range provided by RS Means' industry estimating benchmarks. Taken together, this results in the total preliminary project budget of $11.9 million ($12.7 inclusive of financing), or approximately $29,000 per space.

Funding is expected to come from a University of Maine System revenue bond. USM would support debt service on that bond through a combination of user fees and university resources.

Two initial locations have been considered for the potential new structure at this time. One location is adjacent to Sullivan Gym and one is adjacent to the existing parking structure, which itself is connected to the Abromson Center. A final location will be determined as design proceeds.

Conceptual drawings are included in the attached Platz feasibility materials for both of the described locations. Platz Associates is a multidiscipline design firm with the experience and expertise to provide design and development services for educational, governmental, commercial, industrial, medical, retail, and residential projects. As design continues, optimizing the proposed investment to expand the surface parking at Wishcamper will be a consideration and it may be a point of consideration which favors locating the new proposed structured parking adjacent to the Sullivan gym. The location determination will be made as design proceeds and any project also will be subject to local public planning and permitting process.

Design and permitting for the Wishcamper surface parking area expansion, which is the matter that is the subject of the resolution today, are currently in progress. If authorized, construction would start following commencement in May. Completion of the project would be anticipated in time for the start of the fall 2020 semester. No additional operational expenses are expected because of this expansion.

6. TEXT OF PROPOSED RESOLUTION:

That the University of Maine System Board of Trustees approves the recommendation of the Finance, Facilities and Technology Committee and authorizes the University of Maine System acting through the University of Southern Maine to expend up to $1.71 million for the expansion of the Wishcamper Center surface parking lot on the Portland campus with funding from E&G, University Capital Reserve, and Financing with final funding to be determined by campus Chief Business Officer and University Treasurer.

Attachments:
Wishcamper Surface Lot Expansion Images
USM Parking Assessment
Parking Feasibility Study

1/17/2020

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

6

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Bond Financing, Internal Loan and Project Authorization

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION: X**

4. OUTCOME: **BOARD POLICY:**
Primary Outcomes: 712 – Debt Policy
Increase enrollment
Improve student success and completion
Enhance fiscal positioning

5. BACKGROUND:

The University of Maine System (UMS) proposes to issue revenue bonds to finance substantially all or a portion of the following University of Southern Maine (USM) projects, all on the Portland campus, and as more fully described in materials presented today and previously to the Finance, Facilities and Technology Committee and to the Board of Trustees. The January 26-27, 2020 Board of Trustees meeting Agenda Item Summary titled *P3 Residence Hall and CSSC Award Authorization, USM*, provides a summary of milestones related to these projects and has been included with these materials for reference.

Revenue bonding is being requested to:

- Finance substantially all project costs, including capitalized interest and financing costs, of the design and construction of:
  - An approximate 580 bed student residence hall totaling approximately $65 million, and
  - An approximate 425 space parking structure totaling approximately $13 million.

- Finance a portion of project costs, including financing costs, of an approximate 60,000 square foot Career and Student Success Center with total costs of approximately $31 million. This project has mixed source funding which includes:
  - An allocated $19 million from the State of Maine's *2018 Facilities and Infrastructure Improvement Bonds*.
  - Gift funds that USM has and will continue to raise.
  - Revenue bonds to bridge any gap in funding with the total amount estimated not to exceed $11 million.

Revised – 2/19/2020

A Financing and Project Authorization resolution related to the proposed revenue bond issuance is enclosed for Board review and approval. As stated in that resolution, the revenue bond issuance shall not exceed $95 million. Such maximum amount allows for any applicable capitalized interest, reserves, costs of issuance, any changes in interest rates or use of taxable bonds, as well as contingency to enable finalization of design and related construction costs. Debt service for the revenue bonding is to be funded by USM.

The UMS legal debt amount currently outstanding is approximately $121 million as of March 1, 2020 and, with this issuance, will remain below the statutory ceiling for UMS debt of $350 million.

This resolution also enables USM to enter into an internal loan with UMS to cover costs associated with executing the Predevelopment Agreement with Capstone for Student Housing related costs. USM will incur expenses related to siting, architect and engineering fees, permitting, and other predevelopment work. USM requests an internal loan estimated at approximately $4 million to fund those costs that will be reimbursed upon issuance of revenue bonds.

Additionally, UMS continues to assess estimated project cash flows for the above projects and the financing needs of other UMS campuses to determine the most efficient number and appropriate timing of revenue bonding. At this time, UMS anticipates two revenue bond issuances over two years to fund the above projects and others and to avoid unnecessary financing costs.

6. TEXT OF PROPOSED RESOLUTION:

That the Finance, Facilities and Technology Committee forwards this item to the March 15-16, 2020 Board of Trustees meeting for approval of the following resolution:

> That the Board of Trustees accepts the recommendation of the Finance, Facilities, & Technology Committee and approves the Financing and Project Authorization resolution related to the issuance of revenue bonds not to exceed $95 million for the purpose of financing three University of Southern Maine projects on the Portland campus including substantially all of the design and construction of an approximate 580 bed student residential facility and an approximate 425 space parking structure, and financing a portion of an approximate 60,000 square foot Career and Student Success Center. Additionally, that the Board of Trustees approves issuance of an internal University of Maine System loan to the University of Southern Maine for up to $4 million, as determined by the Treasurer, for the purposes of funding predevelopment work related to a student residential hall on the Portland campus.

Resolution

FINANCING AND PROJECT AUTHORIZATION

WHEREAS, the Board of Trustees (the "Board") of the University of Maine System (the "System") desires to authorize the System to finance all or a portion of the costs of, and to undertake, the projects which are more particularly described in the Addendum attached hereto and incorporated herein by reference and any other capital improvement for the benefit of the System which has been or is hereafter approved by the Board and each of which is hereby or will be determined by the Board to be a "project" within the meaning of 20-A MRSA §10951(6) (the "Projects"); and

WHEREAS, the Board desires to authorize the issuance of University of Maine System Revenue Bonds (the "Bonds") and the sale of the Bonds for the purposes of financing all or a portion of the costs of the Projects and providing for any necessary capitalized interest, reserves and costs of issuance; and

WHEREAS, the Board desires to authorize the issuance and sale of University of Maine System Notes or other evidences of indebtedness in anticipation of Bonds (the "Notes"); and

WHEREAS, the Board may also authorize the payment of certain costs of the Projects from certain System funds which will not be reimbursed with proceeds of the Bonds (the "Equity Contribution"), and the Institution desires to treat the Equity Contribution as "qualified equity" (within the meaning of the United States Treasury Regulations §1.141-6(b)); and

WHEREAS, the System is authorized to issue the Bonds pursuant to the provisions of 20-A MRSA §§10952, 10953 and 10959 and other provisions of the Maine Revised Statutes Annotated, Chapters 411 and 412, as amended (the "Act"); and

WHEREAS, the Board finds that the financing of all or a portion of the costs of the Projects constitute "assured revenue financing transactions" pursuant to the provisions of 20-A MRSA §10953, as amended; and

WHEREAS, pursuant to 20-A MRSA §10952(8), as amended, the System, as authorized by the Board, is authorized to make, enter into, execute, deliver and amend any and all contracts, agreements, leases, instruments and documents and perform all acts and do all things necessary or convenient to acquire, construct, reconstruct, improve, equip, finance, maintain and operate projects and to carry out the powers granted pursuant to the Act, or reasonably implied from those powers;

NOW, THEREFORE, be it hereby voted and resolved by the Board as follows:

RESOLVED, That pursuant to the provisions of 20-A MRSA §§10952, 10953, 10955 and 10959, as amended, and all other authority thereto enabling, and to provide funds for (a) the planning, design, acquisition, construction, reconstruction, improvement, renovation, rehabilitation and equipping of the Projects, (b) paying and discharging any Notes, or Notes in renewal thereof, issued for authorized purposes, up to an aggregate amount not to exceed $95,000,000, (c) any capitalized interest on, reserves for and costs of issuance of the Bonds and (d) any other purpose authorized by law, the Treasurer of the System (the "Treasurer") is hereby authorized and empowered from time to time and in the name and on behalf of the System to borrow an aggregate amount not to exceed $95,000,000 and the Treasurer be and is hereby authorized and empowered, in the name of and on behalf of the System, to execute and deliver such loan agreements, indentures, pledge agreements, bond purchase contracts, preliminary official statements, official statements, continuing disclosure agreements, remarketing agreements, reimbursement agreements, investment agreements, financial advisory agreements, investment advisory agreements, auction agency agreements, market agent agreements, dealer agreements, standby bond purchase or other liquidity facility agreements, agreements with one or more underwriters, agreements with bond counsel and other agreements, documents and instruments as the Treasurer may deem necessary or convenient or desirable with respect to such borrowing. Such agreements, documents and instruments may (a) contain such terms and provisions, not contrary to the general tenor hereof, as the Treasurer may approve, his approval to be conclusively evidenced by his execution thereof, (b) be delivered under the seal of the System and (c) be attested by the System's Clerk or General Counsel; and further

RESOLVED, That pursuant to the provisions of 20-A MRSA §10955(3), as amended, and all other authority thereto enabling, and to provide funds for the purposes approved above, the Board hereby approves and authorizes, as evidence of the borrowing approved above, the issuance, sale and delivery of the Bonds in the aggregate principal amount not to exceed $95,000,000, in one or more series as the Treasurer shall determine, the Bonds to mature and be payable at such times and in such amounts, to bear interest at such rates, and to contain such other terms and provisions, not inconsistent herewith, as may be approved by the Treasurer, provided that none of the Bonds shall (i) bear interest at a rate in excess of 6% per annum or (ii) mature after December 31, 2062; the Bonds to be denominated by such denomination of an issue as may be selected by the Treasurer; to be manually signed by the Treasurer, sealed with the seal of the System and attested by its Clerk or General Counsel; and to be in such form and contain such other terms and provisions as the Treasurer may approve, his approval to be conclusively evidenced by his execution thereof; and further

RESOLVED, That the Treasurer is authorized on behalf of the System, from time to time, to acquire, purchase, sell, redeem, liquidate, terminate or transfer securities or other instruments constituting investments of the proceeds of the Bonds and to negotiate, enter into, execute in the name of the System and deliver on behalf of the System all investment, banking, brokerage, financial advisory, investment advisory and other agreements and instruments as are necessary or convenient to

investment and financial management of the proceeds of the Bonds, all on such terms and conditions as the Treasurer determines are necessary or convenient for financing of the Projects, such determination to be conclusively evidenced by execution or acquisition of such agreements and instruments by the Treasurer; and further

RESOLVED, That the Chancellor of the System, the Treasurer, and, with the express written approval of the Treasurer, the Clerk, the Controller, the General Counsel, or any one of them, be and hereby are, authorized and empowered in its name and on its behalf, to do or cause to be done any act or thing, and to negotiate, enter into, execute in the name of the System, deliver on behalf of the System, assign, transfer, modify or terminate any agreement or instrument, which any such officer may determine to be necessary or convenient or desirable with respect to the Bonds, the planning, design, acquisition, construction, reconstruction, improvement, renovation, rehabilitation and equipping of the Projects and the expenditure, investment and management of the proceeds of the Bonds and that all acts and things done by the Treasurer in furtherance of the purposes of this Resolution prior to the date hereof are hereby ratified and confirmed; and further

RESOLVED, That the carrying out of the Projects is hereby approved; and further

RESOLVED, The System covenants that it will, so long as any Bonds are outstanding, establish, impose and collect tuition, fees and charges for its educational services, its auxiliary enterprises, including dormitory housing, food service and sale of textbooks, for use of its plant and for all other services and goods provided by the System, which tuition, fees and charges, together with other available moneys, in each fiscal year of the System, will be sufficient to permit the performance of all the covenants in, and requirements of the System under, the Bonds, including the prompt payment of principal of and interest on the Bonds as and when due, the prompt payment of principal of and interest on all outstanding System bonds as and when due and the prompt payment and performance of all other obligations as and when due.

RESOLVED, That the Bonds shall be secured by such assignments, pledges or commitments of funds or revenues, other than appropriations from the State of Maine, as may be approved by the Treasurer; and further

RESOLVED, That the Treasurer be and is hereby authorized to covenant on behalf of the System and for the benefit of the holders of the Bonds that, except as hereafter authorized in this Resolution and in accordance with 20-A MRSA §10952(10), the System will take whatever steps, and refrain from taking any action, that may be necessary or appropriate to assure that the interest on the Bonds will remain exempt from federal and applicable state income taxes; and further

RESOLVED, That the Treasurer be and is hereby authorized in accordance with 20-A MRSA §10952(10) to agree and consent to the inclusion of interest on any of the Bonds, under the United States Internal Revenue Code of 1986 or any subsequent corresponding internal revenue law of the United States, in the gross income of

the holders of any such Bonds to the same extent and in the same manner that the interest on bills, bonds, notes or other obligations of the United States is includable in the gross income of the holders of such bills, bonds, notes or other obligations under the United States Internal Revenue Code or any such subsequent law (the "Taxable Bonds"); and further

RESOLVED, That the System covenants and certifies that, except with respect any of the Taxable Bonds, no part of the proceeds of the issuance and sale of the Bonds shall be used, directly or indirectly, to acquire any securities or obligations, the acquisition of which will cause the Bonds to be arbitrage bonds within the meaning of Section 148 of the Internal Revenue Code of 1986, as amended; and further

RESOLVED, That the Resolution of the Trustees of the University of Maine System entitled Reimbursement of Project Expenditures attached hereto as an Addendum is hereby approved and adopted; and further

RESOLVED, That the Bonds shall provide that, in accordance with 20-A MRSA §10964, no trustee of the System, while acting within the scope of the authority of the Maine Revised Statutes Annotated, Chapter 412, as amended, may be subject to any personal liability resulting from the exercise or carrying out of any of the System's purposes or powers.

This Resolution shall take effect immediately.

ADOPTED: (March 16, 2020)

ADDENDUM

RESOLUTION OF THE TRUSTEES OF THE UNIVERSITY OF MAINE SYSTEM

REIMBURSEMENT OF PROJECT EXPENDITURES

Be it resolved that, for purposes of U.S. Treasury Regulation §1.150-2, the University of Maine System (the "System") reasonably expects (1) to incur debt to reimburse expenditures (including expenditures made within the last 60 days) (A) temporarily advanced from funds currently held in the Plant Fund or (B) made by another person pursuant to an agreement between the System and such person, such expenditures to be made to pay the cost, or a portion of the cost, of planning, design, acquisition, construction, reconstruction, improvement, renovation, rehabilitation and equipping of the projects described below (the "Projects") and (2) that the maximum principal amount of debt to be issued by the System for the Projects is Ninety Five Million Dollars ($95,000,000).

PROJECTS

University of Southern Maine (Portland Campus):

(1) A residence hall which is currently expected to provide approximately 580 student beds, (2) a career and student success center which is currently expected to have an area of approximately 60,000 square feet and (3) a vehicle parking structure which is currently expected to provide approximately 425 spaces.

This Resolution shall take effect immediately.

ADOPTED: (March 16, 2020)

6.2

AGENDA ITEM SUMMARY

1. NAME OF ITEM: P3 Residence Hall and CSSC Award Authorization, USM

2. INITIATED BY: Dannel P. Malloy, Chancellor

3. BOARD INFORMATION: **BOARD ACTION:** X

4. OUTCOME:
Increase Enrollment
Improve Student Success and Completion

BOARD POLICY:
701 – Budgets-Operating & Capital

5. BACKGROUND:

The University of Maine System acting through the University of Southern Maine (USM) requests authority to enter into an agreement with Capstone Development Partners resulting from a public, competitive process for the preliminary development of a Public Private Partnership (P3) contract to design, construct and operate a new student residence hall and Career and Student Success Center on the Portland campus.

In brief, the requested authorization is part of a several component plan, consistent with USM's master plan accepted by Trustees in January, 2019, to construct two new facilities on the Portland campus for students as well as to construct additional parking capacity to meet current and future demand.

This particular request for authorization would be for a preliminary agreement to allow design and associated services and expenses up to $5.7 million in connection with the P3 residence hall and Career and Student Success Center. USM would be responsible for these costs should a final contract agreement not be reached to proceed with the construction of the facilities. If the project advances to construction and occupancy, these costs would be incorporated into the long-term P3 agreement for the residence hall and the financing arrangement for the CSSC.

P3 projects also are being explored for other projects across the System as a means to generate investment in the University's infrastructure that would not otherwise be possible, among other benefits. A white paper about P3 projects in higher education is included with the materials for this agenda sheet for general information about P3's.

This request is pursuant to Board Policy 701, which requires projects with a total cost of more than $500,000 to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. In this case, the Finance, Facilities and Technology Committee voted to advance the project to the full Board of Trustees for consideration. This request is also pursuant to Trustee policy prohibiting increases in space without Trustee authorization. USM currently plans to off-set much of the new space through the

demolition of existing space making this potentially a largely renovation through replacement project, but at least temporary increases in total space are possible.

Additional Trustee policies may ultimately also be relevant, such as those governing leases or other types of real estate agreements. This project also is connected with distinct parking proposals that also are subject to Trustee consideration.

The overall current schedule of Trustee consideration of these projects is:

January 2020:
Consideration by the respective committees and the Board of Trustees of approval for a $1.7 million expansion of surface parking for construction in summer 2020; an information briefing about a subsequently planned $11.9 million, 425 space structured parking facility; and approval of a preliminary agreement for as much as $5.7 million to continue design and development of the P3 residence hall and Career and Student Success Center.

February-March 2020:
An informational update regarding the $1.7 million expansion of surface parking for construction in summer 2020; approval of up to an anticipated $1.5 million for design and development of 425 space structured parking facility; an informational update for the P3 residence hall and Career and Student Success Center; and a potential request for revenue bonding authority for the residence hall and Career and Student Success Center pursuant to Policy.

April-May:
Informational updates about all projects: surface parking expansion; structured parking; design and development; and, the P3 residence hall and Career and Student Success Center.

June-July-August-September:
Informational update about the surface parking expansion which is planned to enter service at this time; approval of increased project budget to allow for bidding for the construction of a 425 space structured parking facility, currently estimated to have a project cost of $11.9 million; and, further requests for the additional agreements that will be needed to proceed to P3 residence hall and Career and Student Success Center construction. Those additional details will result from the design, development and discussions between now and then.

September 2020-July 2022:
Construction of and informational updates at each FFT meeting and full Trustee meetings as directed by the FFT or otherwise warranted regarding the parking structure and the P3 residence hall and Career and Student Success Center.

August-September 2022:
Occupancy of the new facilities.

The P3 subject to this agenda item has resulted from two public, competitive processes and has been subject to other Trustee discussion and related actions.

Selected milestones include:

- June 2017: USM begins its facilities master planning process.
- December 5, 2018: Brailsford and Dunlavey, Inc., is awarded a consulting contract as a result of RFP 2019-021, which was advertised on October 1, 2018, for P3 or Alternative Approach for Constructing Residential Housing.
- Fall 2018: USM completes its facilities master plan.
- November 2018: Voters approve a general obligation bond including funds to support USM student career and success center.
- January, 2019: Trustees accept the USM master facilities plan which among its top recommendations calls for the career and student success center as well as student housing to be created on the Portland campus.
- January, 2019: Trustees approve UMS expending up to $1 million to begin the Schematic Design of the Career and Student Success Center.
- June, 2019: Brailsford and Dunlavey present the findings of the Market Demand Report which support proceeding with the project and USM provides an update on the Career & Student Center and Residence Hall Project to the FFT Committee.
- August 7, 2019: RFP2020-011 for –Public Private Partnership for Portland Campus Student Housing and Student Center is released and advertised.
- November 19, 2019: Capstone Development Partners is selected as a result of RFP2020-011 for the project, contingent on Trustee approval.
- January 10, Pre-application meeting and discussion with City of Portland.
- January 2020: Trustees are asked to authorize proceeding with an initial agreement with Capstone.

The Project will be funded using both private funds, existing funds from the 2018 Facilities and Infrastructure Improvement Bonds and potentially additional financing mechanisms. USM allocated $19 million from the 2018 Facilities and Infrastructure Improvement Bonds to build a new Career and Student Success Center on the Portland Campus.

The next step in this P3 transaction is for USM/UMS and the developer to enter a pre-development agreement (PDA) to establish the parameters of the relationship between the parties and their respective obligations. Upon completion of the PDA, USM/UMS would begin working with Capstone Development Partners to complete Preliminary Development Phase Services of the project and would also begin subsequent contract negotiations. It is the authority to proceed with that agreement which is the specific item being requested at this time.

This will be the first residential facility on the Portland campus. The current intended scope of the project includes:

- Residence hall(s) with approximately 577 beds, 550 of them revenue generating,
- Approximately 60,000 square foot Career & Student Success Center
- Green space

6. TEXT OF PROPOSED RESOLUTION:

That the University of Maine System Board of Trustees approves the recommendation of the Finance, Facilities and Technology Committee and authorizes the University of

Maine System acting through the University of Southern Maine to enter a pre-development agreement and to begin contract negotiations with Capstone Development Partners regarding the Career & Student Success Center and Residence Halls Project; and to expend or obligate the University to expend up to $5.7 million, pursuant to that initial agreement, with funding to be determined by the campus Chief Business Officer and University Treasurer and the final terms and conditions of the agreement subject to review and approval by University Counsel and the Vice Chancellor for Finance and Administration and Treasurer.

Attachments:
USM P3 Presentation to the Board of Trustees
USM P3 Residence Hall Student Center Recommendation
Capstone Presentation to USM – redacted
Capstone Proposal – redacted
Guide to Higher Ed Public-Private Partnerships

REVISED - 1/24/2020

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Lease Authorization, University of Maine Museum of Art, UM

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION: X**

4. OUTCOME:
Support Maine through Research and Economic Development

BOARD POLICY:
801 – Acquisition of Real Property
also GSF Increase

5. BACKGROUND:

The University of Maine System acting through the University of Maine (UM) requests authority to enter into a lease for an initial term of 16 years and a cost of approximately $18,837 per year (or a total of $301,392), for 1,638 square feet of space located at 40 Harlow Street in Bangor, Maine to provide improved sidewalk-level visibility and additional galleries for the University of Maine Museum of Art's collections and changing exhibitions. Expenses related to this lease will be covered for the term of the lease by gift funds.

This request is pursuant to Board Policy 801, which requires leases with a total cost of more than $100,000 or a term greater than five years to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. In this case, the request is to forward the recommendation to the Consent Agenda of the full Board for approval. No further future action by the Board is anticipated on this item at this time. The request is also pursuant Policy 703 regarding the naming of physical facilities and pursuant to Trustee policy prohibiting net increases in space without Trustee authorization.

The current proposed lease would provide the Museum with sidewalk-level exhibition space at its existing location and address the museum's greatest barrier to success – visibility. The lease includes 1,638 square feet of space at a per square foot rate that is nearly $2 less than other similar, nearby space (including heating, cooling and electricity). The proposed 16-year term for the new galleries, with options for extensions up to a further 5 years, allows this lease to align with the expiration date of the current, primary lease in place for the Museum. Upon entering into the new lease agreement the University would undertake renovations to the space to transform it into exhibition quality space. The cost of these renovations is well below board approval threshold.

2/18/2020

The 16-year lease and related improvements are made possible and are fully funded by a $1.3 million gift from Linda and Donald Zillman. No University E&G funds would be utilized as the Zillman gift would cover operating and staffing costs for the new galleries for the 16-year lease period.

The University would name the entity that is the Museum, but not the building or structure in which it is housed, for the Zillmans in acknowledgment of their gift. The name would be the Linda G. and Donald N. Zillman Art Museum - University of Maine, or in short the Zillman Art Museum-University of Maine. The name is intended to follow the museum in the event it ever relocated. This naming does not fit tidily under any particular Board Policy but, understanding the name would be placed on signage outside of the facility and could give the appearance of named facility, the University, out of an abundance of caution, is seeking Trustee approval for the naming.

Dr. Donald Zillman has been a leader in the University of Maine System for thirty years. Dr. Zillman served as the fourth Dean of Maine Law, from 1991-98. He served as Interim Provost and Academic Vice President of the University of Maine from 1999-2000, and as Interim President of the University of Maine at Fort Kent in 2001-2002. He became President at the Presque Isle campus in 2006. He returned to Maine Law as the Edward S. Godfrey Professor of Law in January 2014.

Together with Linda, his wife, an Art Historian, the Zillmans were instrumental in moving the University of Maine Museum of Art from the Orono campus to its current location in downtown Bangor. They are members of the University of Maine Foundation's Stillwater Society and have remained engaged and generous over the years, funding several key museum projects, including a vibrant new sculptural sign erected in the fall of 2019 to welcome visitors.

The University of Maine relocated the Museum of Art (UMMA) from the Orono campus to 40 Harlow Street in 2001 and opened to the public in December 2002. The new location expanded the Museum's cultural engagement capacity and was a cornerstone of downtown Bangor's revitalization efforts. The University currently leases 14,167 square feet (the entire first floor and portion of third) for the Museum of Art's galleries, fine art collections vault, classroom, offices and exhibit preparation. The Museum of Art's current primary lease agreement was previously approved by Trustees and provides for extension options through 2041.

UMMA had more than 14,000 annual visitors in calendar year 2019, which is an increase from the fewer than 4,000 visitors it experienced in 2007, several years after relocating. From 2001 to the present the University has invested approximately $1.6 million in renovations and improvements to include the initial build-out and construction of a state-of-the-art fine art storage vault, installation of surveillance system and a variety of other upgrades.

The Museum of Art advances the University's land grant mission of service to citizens through its cultural engagement activities that include changing exhibitions, permanent collection and educational programs for all ages. Additionally, the Museum provides University workforce engagement through paid internship programs which offer in-depth experience for students to learn about museum collections management and curatorial practice.

Studies have confirmed the Museum's positive economic impact on the local area which would likely see an increase with the improved visibility of the Museum.

The Museum of Art serves faculty and students through class visits, lectures and workshops (at the Museum and on campus), panel discussions including university researchers in various disciplines, collaborations with units such as the McGillicuddy Humanities Center and paid curatorial internships for students.

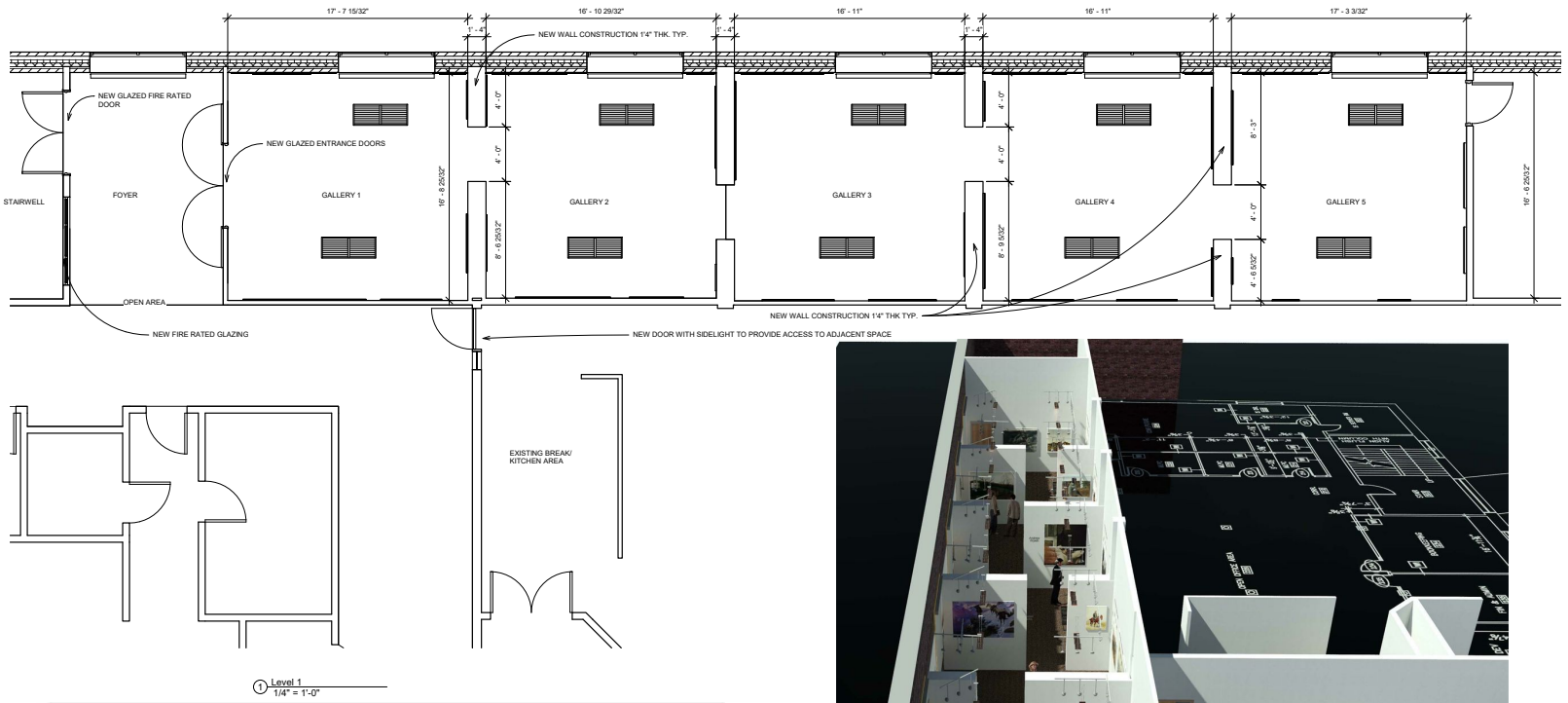
Supplemental information is included about this request, including more information about the volume of visitors and other information about the museum, as well as a drawing regarding the proposed space.

6. TEXT OF PROPOSED RESOLUTION:

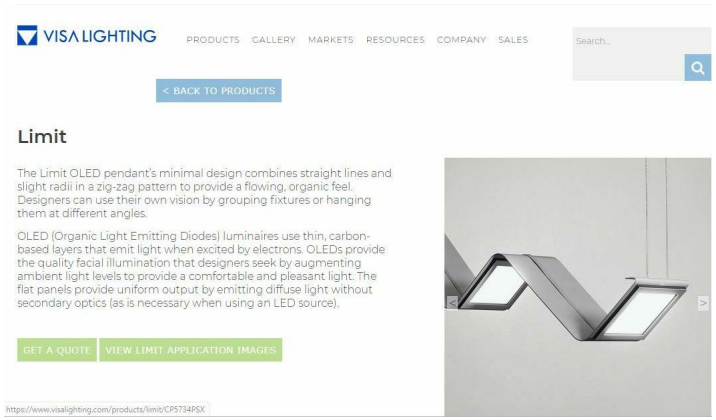
That the Finance, Facilities and Technology Committee forwards this item to the Consent Agenda at the March 15 & 16, 2020 Board of Trustees meeting for approval of the following resolution:

> That the Board of Trustees accepts the recommendation of the Finance, Facilities and Technology Committee and a.) authorizes the University of Maine System acting through the University of Maine to enter into a lease agreement for up to 1,638 additional square feet of space at 40 Harlow Street, Bangor Maine; b.) for up to 21 years and at a cost of up to $302,000 for the initial 16-year period to be funded with private donations, with all final terms and conditions subject to review and approval of the University of Maine System Treasurer and General Counsel; and, c.) to name the museum entity the Linda G. and Donald N. Zillman Art Museum - University of Maine, or in short the Zillman Art Museum - University of Maine.

7.1



1 Level 1
1/4" = 1'-0"



3 AERIAL VIEW 1_1
12" = 1'-0"

THE UNIVERSITY OF MAINE
https://umaine.edu/

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

No.	Description	Date

UMAINE
MUSEUM OF ART
FLOOR PLAN/ PERSPECTIVE

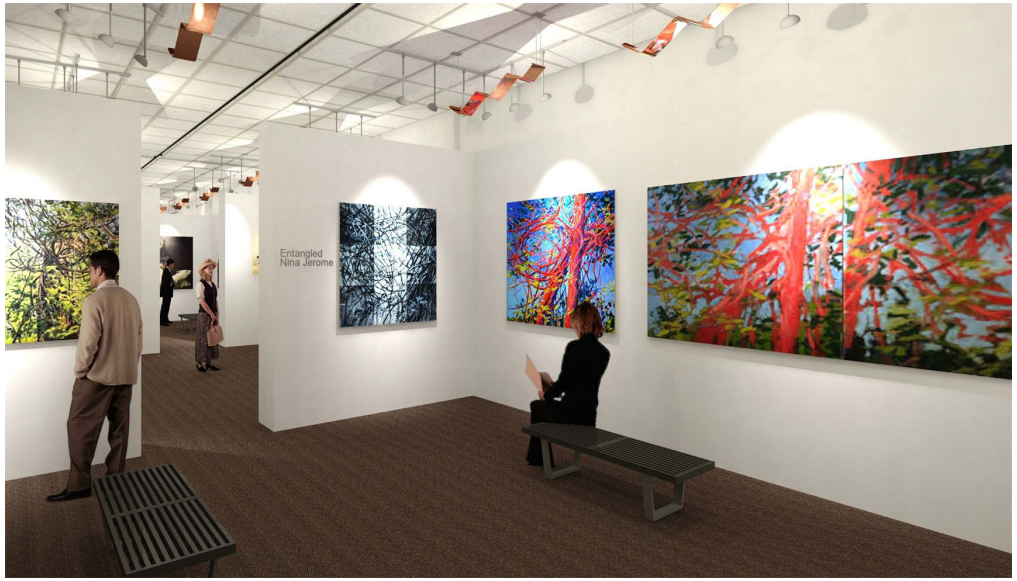
Project number	Project Number
Date	Issue Date
Drawn by	Author
Checked by	Checker

A101

Scale	As indicated

11/25/2019 11:06:12 AM

7.1



1 JEROME - POD 1_1
12" = 1'-0"

2 GALLERY 1B
12" = 1'-0"

THE UNIVERSITY OF MAINE

https://umaine.edu/

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

No.	Description	Date

UMAINE

MUSEUM OF ART

GALLERY 1
PERSPECTIVE

Project number	Project Number
Date	Issue Date
Drawn by	Author
Checked by	Checker

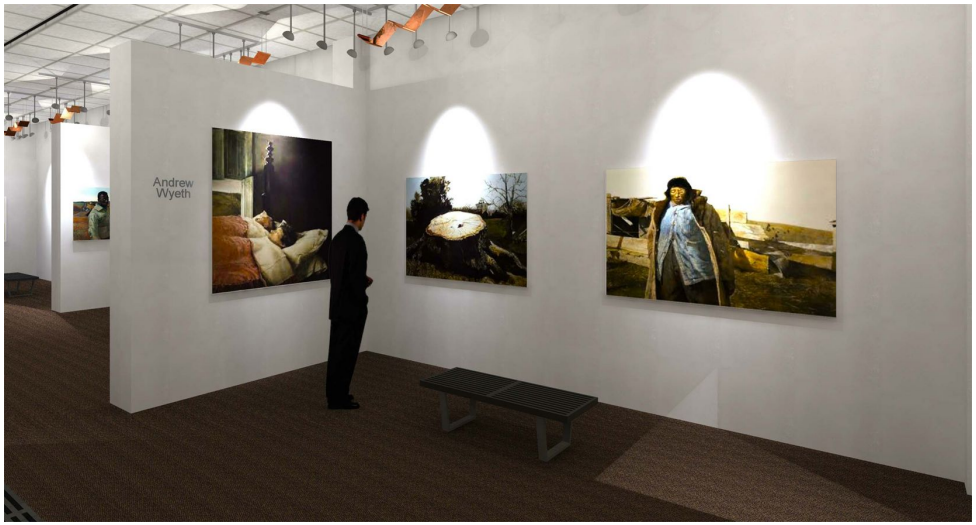
A102

Scale	12" = 1'-0"

11/25/2019 11:06:25 AM

7.1

3 PERSPECTIVE LARGE DISPLAY
12" = 1'-0"



2 PERSPECTIVE 1-LARGE GALLERY
12" = 1'-0"

1 GALLERY 2
12" = 1'-0"

THE UNIVERSITY OF MAINE

https://umaine.edu/

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

Consultant
Address
Address
Phone
Fax
e-mail

No.	Description	Date

UMAINE
MUSEUM OF ART
GALLERY 2-3-4

Project number	Project Number
Date	Issue Date
Drawn by	Author
Checked by	Checker

A103

Scale	12" = 1'-0"

11/25/2019 11:08:37 AM

The University of Maine Museum of Art

Overview

The University of Maine Museum of Art (UMMA) is Maine's only collecting art institution solely devoted to presenting modern and contemporary art. With its focus mission, UMMA is known throughout New England as a destination for experiencing the "art of our time." The Museum organizes a dynamic series of changing exhibitions (approx. 12 annually) featuring the finest artists working throughout the U.S. The guiding principle of the Museum's curatorial program is to create unique and engaging visual arts experiences and inspire a greater understanding of contemporary art practice through original exhibitions. UMMA's exhibitions are developed in-house and evolve through a prolonged collaboration with artists who work in an array of media and stylistic approaches. UMMA welcomes over 14,000 visitors annually.

In 2002, with support from private donors and the City of Bangor, the University of Maine relocated the Museum of Art from the Orono campus. The objective was to extend the University's reach into the community, more easily share its cultural resources with Maine citizens, and take part in downtown Bangor's revitalization efforts. The Museum's former location on campus in Carnegie Hall did not have the necessary environmental controls and security required of art museums and the renovated downtown location allowed for considerable upgrades. The Museum presently occupies 14,167 sq. feet of the 40 Harlow Street building (1st and 3rd floors).

Museum Collection

The Museum's collection consists of over 4,000 works by artists of national and international note. UMMA's holdings include paintings, photography, original prints, sculptures and drawings. The majority of works in the collection were created since 1945. Significant artists represented are Pablo Picasso, Andy Warhol, Berenice Abbott, Andrew Wyeth, John Marin, among many others.

The most significant works in UMMA's collection are part of the Robert Venn Carr, Jr. Collection. Carr was an alumnus of the University of Maine and resident of North Palm Beach, Florida and Torrington, Connecticut. Over an eleven year period, beginning in 1986, he gave 161 works of art to the Museum which was the largest gift in the Museum's history. An additional 144 works were given to the Museum as part of Carr's estate in 2000. The collection consists of primarily modern and contemporary prints and features works by artists such as Georg Baselitz, Francesco Clemente, David Hockey, Roy Lichtenstein, Frank Stella, and Andy Warhol.

UMMA's facility features a state-of-the-art collections vault, proper environmental controls and security systems for excellent stewardship of the works of art. The Museum also oversees a secondary collection of over 3,000 non-accessioned works of art

Education and Community Engagement

UMMA is a center for community engagement and, as the only art museum in the region, is an important institution through which the general public experiences the cultural resources of the University of Maine. Education is central to UMMA's mission and the Museum offers an array of educational programs for all ages including tours for school-age children, adult studio programs, lectures and panel discussions, hands-on activities for families, art camps, teen offerings, *Young Curators* program, etc. Visitors and members learn from important artists and experts in the art world through UMMA's *Leonard Lecture Series*.

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Engineering Education & Design Center Update and Naming, UM

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION: X**

4. OUTCOME:
Increase Enrollment
Enhance Fiscal Positioning

BOARD POLICY:
701 – Budgets-Operating & Capital
803 – Naming of Physical Facilities
GSF Increase

5. BACKGROUND:

The University of Maine System acting through the University of Maine (UM) requests authorization to expend up to an additional $63 million to proceed with construction of the Ferland Engineering Education and Design Center (EEDC), bringing the total authorization to $72 million. Additionally, this agenda serves as a request for final approval of the naming for the building as originally brought forth and approved in March of 2018.

Funding will be provided through University revenue bonds supported with State debt service funding approved by the Legislature in late 2017, privately raised funds and other resources as identified by the University of Maine Chief Business Officer and University System Treasurer.

This request is pursuant to Board of Trustees Policy 701, which requires projects with a total cost of more than $500,000 to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. Additionally Policy 803 reserves to Trustees the authority to name physical facilities. Finally, the request is also pursuant to Trustee policy prohibiting net increases in space without Trustee authorization. For all three items, the request is to approve and to forward this matter to the Consent Agenda for the March 15-16, 2020 Board of Trustees meeting.

With regard to the naming, in March, 2018 the naming of the facility was brought to the Board for consideration based on the receipt of a $10 million gift. At the time, the donor wished to remain anonymous until a later date. As such, the Board approved the naming pursuant to Policy 803 with final approval of the exact name to be submitted at a later date when timely and in collaboration with the donor.

2/18/2020

In September of 2019, the donors Eileen and James Ferland were publicly recognized by the University as the generous donors and naming beneficiaries for the facility. The proposed name of the new facility is: "E. James and Eileen K. Ferland Engineering Education and Design Center", with common reference as "Ferland Engineering Education and Design Center". This request seeks to finalize that naming.

With regard to portion of the current request related to construction, an initial request of $1 million was approved for early design services of the building in September of 2017. In May of 2018 an additional $8 million (for a total of $9 million) was authorized to complete building design and preliminary relocation and related work tied to the new building and its site. From this funding the North Engineering Annex was designed, built, and occupied in time for the spring 2020 semester and as a first step toward demolition of the existing Machine Tool Lab at the site of the new building.

Design for the building has progressed and bidding for construction is scheduled to begin in the Spring of 2020. In preparation for this, the university is requesting to increase the spending authority of the project to a total of $72 million. This is expected to cover costs of construction of the facility with an additional approval anticipated in approximately one year to finalize the expenses related to final fit out such as furniture, equipment and IT fixtures in the building. The total final project budget is currently projected to be approximately $78-$80 million.

The project has now reached the final design stage and the building is approximately 108,000 gross square feet. The building includes: three collaborative classrooms; two seminar rooms; 14 student meeting rooms; Mechanical Engineering and Biomedical Engineering department offices, faculty offices, teaching laboratories and research laboratories; machine tool lab; a Campus welcome and STEM outreach center; a student commons with food service; and the best student project design suite in the Northeast!

The project cost will be funded largely by University revenue bonds supported with State debt service funding, as well as by privately raised funds and other resources as identified by the University. Through fundraising, more than $19 million - more than has ever been privately raised for a capital project in the history of the University of Maine System, has been raised and efforts continue in earnest. This current request is for approval to expend the amount necessary to enter into a construction contract for the construction of the facility and related site work.

The net increase in square footage resulting from this project is approximately 101,000 gross square feet (gsf) including the offset of space for demolition of the Machine Tool Lab (12,800gsf) and the added square footage for the North Engineering Annex (5,900gsf). While not necessarily in direct connection with this project, the need for which was based on increased enrollment and Maine's need for more engineers as is further described below, the campus is actively planning for additional square footage reductions.

Increased enrollment is a goal of the Ferland EECD. The building will give the university the capacity to add 1,000 undergraduate and graduate engineering students. As of January 24, 2020, the number of students accepted into the College of Engineering was up 16 percent over the same date in 2019. The capacity provided by the Ferland EEDC is essential to allowing engineering student enrollment to continue to grow.

Moreover, the demand for UMaine engineering graduates is at record levels. According to Burning Glass Technologies, there were more than 1,500 job postings for engineers in Maine in 2019. As a result of this demand, there were a record 170 companies at the October 2019 Engineering Job Fair and the most recent placement rate for UMaine engineering graduates was 99.9 percent.

The Ferland EEDC is essential to providing the workforce that Maine's economy demands, both in terms of skills and numbers. Looking inside the institution, the growth in enrollment will increase revenue from tuition, thus enhancing fiscal positioning, and supporting economic growth in Maine. Biomedical engineering research labs comprise roughly half of the third floor. Biomedical engineering is a growing sector of Maine's economy that must be supported by robust research and economic development. This will be directly supported by the Ferland EEDC.

The added annual costs for operation of this building are estimated to be approximately $750,000 and will be borne by campus E&G beginning in FY 2023.

Additional supplemental information and prior Trustee agenda information sheets about the EEDC are included in today's materials for reference.

6. TEXT OF PROPOSED RESOLUTION:

That the Finance, Facilities and Technology Committee forwards this item to the Consent Agenda at the March 15-16, 2020 Board of Trustees meeting for approval of the following resolution:

> That the Board of Trustees accepts the recommendation of the Finance, Facility and Technology Committee and authorizes the University of Maine System acting through the University of Maine a. to increase the project authorization of the Engineering Education and Design Center by $63 million, bringing the total authorization to expend up to $72 million, funding for which will come from a combination of State debt service, University Revenue bonds and private giving; b. to increase square footage by approximately 101,000 gross square feet; c. to finalize the name of the facility as the "E. James and Eileen K. Ferland Engineering Education and Design Center" with common reference as "Ferland Engineering Education and Design Center."

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

8.1

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Naming Authorization for University of Maine Facility

2. INITIATED BY: James H. Page, Chancellor

3. BOARD INFORMATION: **BOARD ACTION:** X

4. OUTCOME: **BOARD POLICY**:
803 Naming of Physical Facilities

5. BACKGROUND:

This is a request pursuant to Board of Trustee Policy 803 to name a planned physical facility at the University of Maine in Orono contingent upon and in acknowledgement of a $10 million gift, which would be the single largest non-estate gift ever received by the University of Maine.

Policy 803 reserves to Trustees the authority to name physical facilities. The policy is attached.

The facility to be named in this instance would be the planned Engineering Education and Design Center expected to be built at the University of Maine's Orono campus. In November 2017 the Board approved up to $1 million for preliminary design work for the planned facility. The working cost estimate for the total project is $80 million, subject to further review and approval by Trustees.

Policy 803 provides that facilities may be named for, or on the recommendation of, a major contributor to the cost of the facility. The policy suggests (but does not require) that, to qualify as a naming gift, the amount of the gift contributed be equivalent to at least 25 percent of the project cost of constructing the facility.

The anticipated gift is $10 million. This gift would be the single largest non-estate gift ever received by the University of Maine and indisputably would be a major contributor to the cost of the project. With this gift and previously approved State of Maine support to cover debt service for up to $50 million earmarked for the project, approximately $60 million, or 75 percent, of the estimated necessary resources for the project's expected total cost will have been identified. The $10 million gift would constitute approximately one-third of the total non-State of Maine financed portion of the expected total project cost.

Trustees must yet consider granting further approval for the project to proceed to full design and then ultimately to construction. Trustee approval also will be required

specifically associated with the issuance of various financing mechanisms for the project. A timeline of these and other selected key milestones is attached.

The donor wishes to remain anonymous at this time. Notwithstanding that anonymity, the anticipated and requested name of the facility would be the name of the donor(s). For example: The John Q. Jones Engineering Education and Design Center or the Jones Family Engineering Education and Design Center. The exact name will be submitted to Trustees for final approval when timely and in collaboration with the donor.

The current timeline calls for the next Trustee action in this matter, apart from the naming, to come as soon as May 2018. Assuming ongoing Trustee approval, construction would currently be expected to begin in spring of calendar year 2020 and, barring any material delays, complete in calendar year 2022.

6. TEXT OF PROPOSED RESOLUTION:

That the Board of Trustees approves the naming of the Engineering Education and Design Center at the University of Maine in honor of the donor of a $10 million gift to the project, subject to: receipt of the gift; submission of and approval of the actual proposed name by Trustees; and, to such further consideration and approvals as may be required from Trustees for the project itself to proceed to construction and completion.

.

3/2/18

FACILITIES MANAGEMENT & GENERAL SERVICES:
CAPITAL PLANNING & PROJECT MANAGEMENT

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

Engineering Education & Design Center Project Milestones

8.1

Major selected milestones of past 12 months:

- **July 2017**
  Preliminary study indicates a projected cost of $80M
  State of Maine debt service approved by legislature and signed into law by Governor
- **October 2017**
  Design solicitation advertised
- **November 2017**
  BOT approves preliminary $1 million in expenditures focused on initial design
  Design contract awarded
- **January 2018**
  Formal building committee approved and established by President Hunter and Chancellor Page
- **February 2018**
  Visioning and programming sessions with campus and stakeholder communities.

Upcoming selected major milestones:

- **Late Spring 2018**
  Anticipated request for Trustee approval for full design costs of the project to occur as soon as May 2018 meeting of Board of Trustees.
- **Late Summer - Early Fall 2018**
  Targeted completion date for schematic design.
- **Spring 2019**
  Targeted completion date for design development plans and cost estimate
- **Spring/Summer 2019**
  Anticipated request for Trustee consideration of full project budget authorization
  Anticipated request for Trustee approval specific to a Bond Financing and Project Authorization Resolution
- **Fall 2019/Winter 2020**
  Construction bidding
- **Spring 2020**
  Anticipated construction start date
- **Summer 2022**
  Anticipated construction completion date

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

8.1

AGENDA ITEM SUMMARY

1. **NAME OF ITEM**: Schematic Design Engineering Education and Design Center, UM

2. **INITIATED BY**: James H. Page, Chancellor

3. **BOARD INFORMATION**: **BOARD ACTION:** X

4. **OUTCOME:** Improve Student Success & Completion
   BOARD POLICY: 701 – Budgets-Operating & Capital

5. **BACKGROUND:**

12

The University of Maine System acting through the University of Maine requests authorization to expend up to a preliminary $1 million to perform Schematic Design and related services for a new building expected to be known as the Engineering Education and Design Center (EEDC) on the Orono campus of the University of Maine.

This request is pursuant to Board policy 701, which requires projects with a total cost of more than $500,000 to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. The request is also pursuant to Trustee policy prohibiting net increases in space without Trustee authorization. In this case, the request is to approve and to forward this matter to the Consent Agenda of the Board of Trustees.

Early estimates indicate the project may cost approximately $80 million. The cost is expected to be funded largely by University revenue bonds, supported with $5 million in annual debt-service funding recently approved by the Legislature (P.L. 2017, c. 284). Other funding sources will include privately raised funds and other potential resources as may be identified by the University of Maine Chief Business Officer and University System Treasurer. This current request is for approval to expend only the amount necessary to begin formal design and bid preparation work.

The engineering program at the University of Maine has been growing for the last fifteen years, increasing 71 percent from 2001 to 2015. Employment of engineers in the State has also been growing and the need for engineers is greater than the available supply. In the last two years, the UMaine College of Engineering has needed to restrict enrollment in select programs due to the lack of sufficient facilities and faculty. The new facility will give UMaine the capacity to increase enrollment in engineering to 3,000 students. The current capacity is 2,000 students.

9/7/17

The College of Engineering was identified as one of UMaine's Signature Areas of Excellence in 2014 and since then the new EEDC has increasingly been a focal point for planning in the College of Engineering and UMaine. This project was identified in the campus long-term capital plan. Funding had not been secured prior to FY2018 for this project so it was not included in the FY2018 capital plan.

The exact size, design, programming, timeline, operating costs and other details of the new facility remain to be determined. Also, the specific location of the new building on the Orono campus has not been finalized. However, the building will be the center of undergraduate engineering education, so it is essential that it be located in the heart of the engineering district. The particular location of the building will be among the details to be determined as part of the Schematic Design process.

8.1

The EEDC will be the heart of undergraduate engineering education at the University of Maine. The focal point is expected to be hands-on, team-based laboratories for senior capstone design projects bringing students from multiple engineering disciplines together to collaborate. Moreover, the intent is to have reconfigurable labs to allow use by several engineering departments and flexible classrooms to enable group learning. There will be informal collaboration spaces for students to work together on projects and assignments as well as specialized classrooms for engineering demonstrations and distance learning. The latter will allow select engineering courses originating at UMaine to be used across the System.

12

The new building will likely house the Department of Mechanical Engineering and the bioengineering portion of the Department of Chemical and Biological Engineering allowing them the space needed to expand their programs. These two programs currently occupy space in Boardman and Jenness Halls. The future of the space they vacate will be assessed for re-utilization.

The University may use a traditional design/bid/build construction method for this project but so-called alternative delivery methods are permitted under University practices and will be considered.

The funding for this phase of the work will come from resources to be identified by the University Treasurer and University of Maine Chief Business Officer.

The Finance, Facilities and Technology Committee approved this recommendation to be forwarded to the Consent Agenda for Board of Trustee approval at the September 17-18, 2017 Board meeting.

5. TEXT OF PROPOSED RESOLUTION:

That the Board of Trustees approves the recommendation of the Finance, Facilities and Technology Committee to expend up to $1 million to begin the Schematic Design of the Engineering Education and Design Center at the University of Maine with funding to be identified by the University Treasurer.

9/7/17

UNIVERSITY OF MAINE SYSTEM
Policy Manual

FACILITIES
Section 803 Naming of Physical Facilities
Effective: 04/10/70
Last Revised: 03/18/02; 05/17/99
Responsible Office: Facilities

8.1

Policy Statement:

1. A physical facility is a structure or assembly of structures enclosing or defining an occupiable space or activity area. For the purposes of this Policy, this definition includes major additions and renovated structures, but does not include individual rooms within buildings, outside areas such as gardens or athletic fields, or physical objects such as fixtures and equipment.

2. The naming of any physical facility in the University of Maine System is reserved to the Board of Trustees. Naming of any other campus area or object is reserved to the President of that University.

3. Facilities may be named for any individual, living or dead, except for current employees or current members of the Board of Trustees. Other acceptable names include, but are not limited to, geographical designations, functions, or University groups.

4. Facilities may be named for, or on the recommendation of, a major contributor to the cost of the facility. A contribution equivalent to at least 25% of the project cost is suggested for a naming gift for a physical facility.

5. Naming gifts may also be made when a donor establishes an endowment whose income is adequate to provide at least 75% of expected annual operating costs (utilities, custodial and maintenance).

6. Recommendations to the Chancellor and Trustees for names of physical facilities shall be made by the President of a University after consultation with such committees as may be established for this purpose. The Chancellor may recommend exceptions to any of these guidelines under unusual circumstances.

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. **NAME OF ITEM**: Full Design, Engineering Education and Design Center, UM

2. **INITIATED BY**: James H. Page, Chancellor

3. **BOARD INFORMATION**: **BOARD ACTION:** **X**

4. **OUTCOME:** Improve Student Success & Completion
   BOARD POLICY: 701 – Budgets-Operating & Capital

5. **BACKGROUND:**

The University of Maine System acting through the University of Maine requests authorization to expend up to an additional $8 million to perform full design, initial relocation and related services for the Engineering Education and Design Center (EEDC) on the Orono campus of the University of Maine.

This request is pursuant to Board Policy 701, requiring Trustee approval for increases to Board approved projects. In this case, the request is to approve and to forward this matter to the Consent Agenda of the Board of Trustees. Trustees approved a preliminary $1 million for early design of the project in September of 2017. The Agenda Item Summary (AIS) is attached for reference.

Estimates continue to indicate the project may cost up to $80 million. The project cost is expected to be funded largely by University revenue bonds supported with State debt-service funding approved by the Legislature in late 2017, by privately raised funds and other potential resources as may be identified by the University of Maine Chief Business Officer and University System Treasurer. Through fundraising, over $10 million has been raised toward this project and efforts continue in earnest. This current request is for approval to expend the amount necessary to complete formal design, bid preparation and related work.

Since the prior approval in September 2017, the building committee was formed, the project design team was selected and commenced conceptual design along with a site selection process. These phases of the design came to a conclusion in April, 2018 with a final site location at the site of the current Machine Tool Laboratory, and with a conceptual design of an approximately 110,000 square foot building, within the $80 million budget.

The funding for this phase of the work will come from resources to be identified by the University Treasurer and University of Maine Chief Business Officer.

The Finance, Facilities and Technology Committee approved this recommendation to be forwarded to the Consent Agenda for Board of Trustee approval at the May 20-21, 2018 Board meeting.

6. TEXT OF PROPOSED RESOLUTION:

That the Board of Trustees approves the recommendation of the Finance, Facilities and Technology Committee for the University of Maine to authorize the expenditure of up to an additional $8 million, bringing the current approved budget to $9 million to complete full design of the Engineering Education and Design Center at the University of Maine with funding to be identified by the University Treasurer.

Attachment:

Full Design Engineering Education

THE UNIVERSITY OF MAINE
College of Engineering

FERLAND ENGINEERING EDUCATION AND DESIGN CENTER

A BUILDING FOR MAINE'S FUTURE

February 2020

E. James Ferland '64 & Eileen Ferland

Dr. Dana N. Humphrey
Dean of Engineering
Saunders Professor of Engineering
Leadership and Management

Outline

engineering.umaine.edu

innovating our economic future

- Context - Why Engineering Education and Design Center is needed

- Ferland Engineering Education & Design Center

8.2

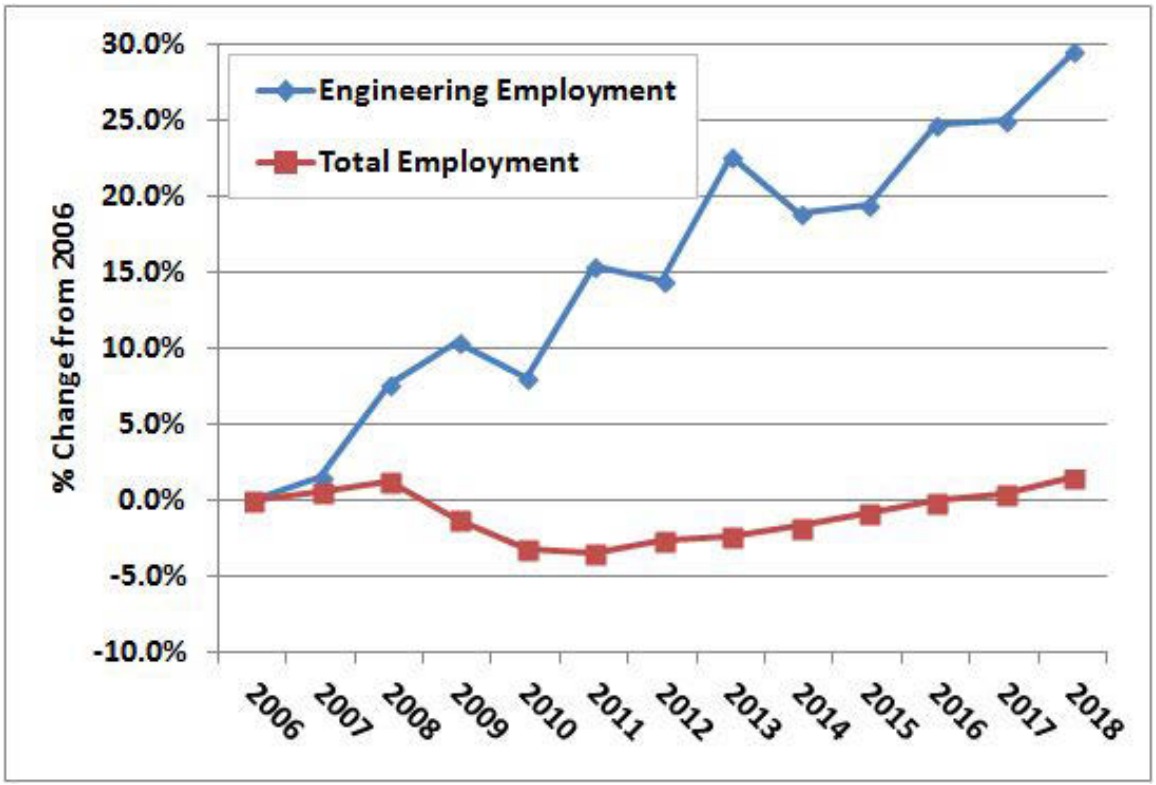
Maine Engineering Employment

engineering.umaine.edu

innovating our economic future

Strong job growth

- 30% increase 2006-2018
- Added 1,510 engineering positions



Data Source: US Dept. of Labor State Occupational Employment and Wage Estimates

Summer intern **Allie Hayford** of Cape Neddick at Pratt & Whitney in North Berwick

Maine's Engineering Workforce is Aging

engineering.umaine.edu

innovating our economic future

8.2

27% of Maine's engineering workforce is age 55+

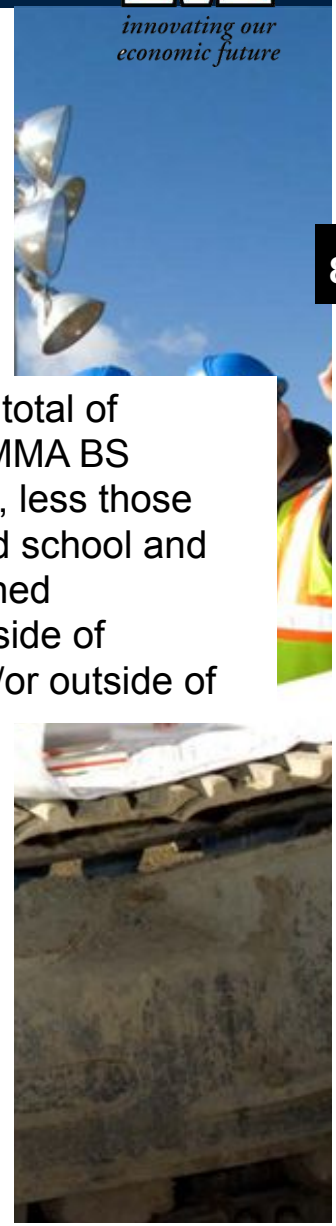
1,840 replacement engineers needed in next decade!

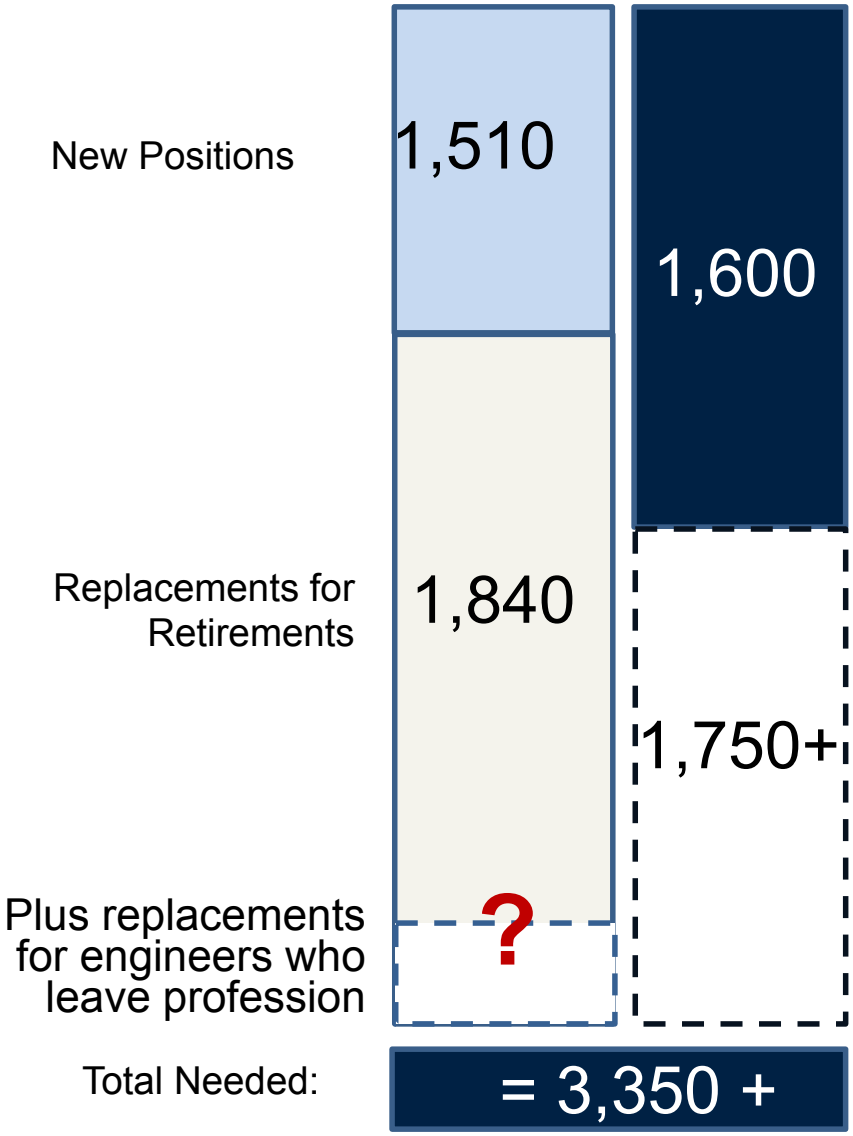
Based on data extracted from http://ledextract.ces.census.gov/ for the third quarter of 2017; the category "Professional, Technical and Scientific" includes engineers, scientists, and related technical professionals; data for engineers alone is not available.

Projected Shortfall of Engineers in Maine through 2029

engineering.umaine.edu

innovating our economic future





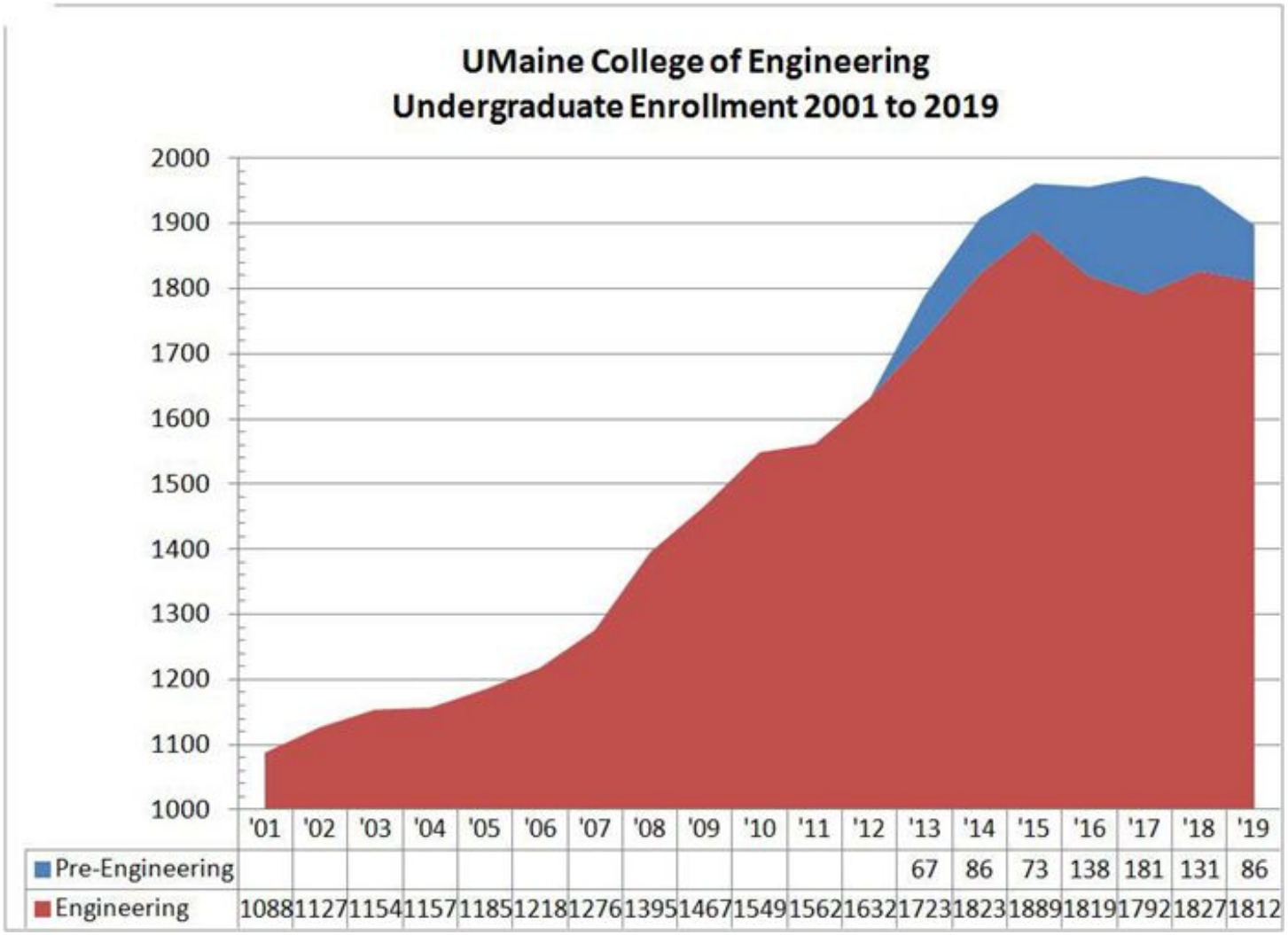
*Projected 10 yr total of UMaine+USM+MMA BS degrees granted, less those who went to grad school and those who obtained employment outside of engineering and/or outside of Maine.

8.2

Significant & Sustained Growth in Engineering Enrollment at UMaine

engineering.umaine.edu

innovating our economic future



Fall'19
500 1st year and transfer students

8.2

Factoid
UMaine grants **93%** of eng. BS degrees & **100%** of eng. graduate degrees in UMS

23 New Faculty in 4 Years

engineering.umaine.edu

ENGINEERING

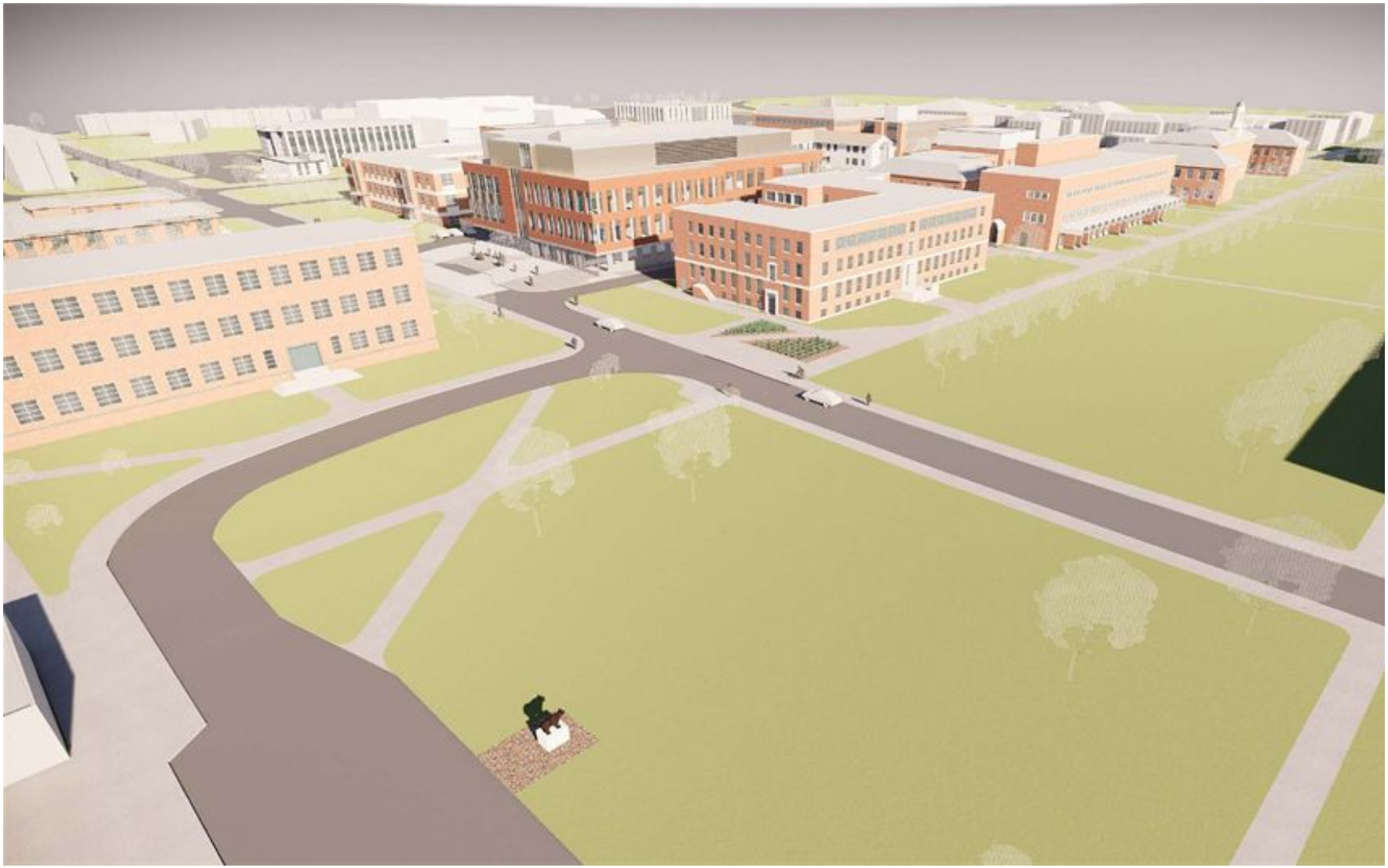
innovating our economic future

Engineering Education and Design Center

engineering.umaine.edu

innovating our economic future

8.2



Engineering Education and Design Center

engineering.umaine.edu

innovating our economic future

8.2

Ferland Engineering Education and Design Center

engineering.umaine.edu

innovating our economic future

8.2

Cloke Plaza Entrance

engineering.umaine.edu

innovating our economic future

8.2

Design Option – Bridge to Boardman

engineering.umaine.edu

innovating our economic future

8.2

PCA Commons

engineering.umaine.edu

innovating our economic future

Team meeting rooms in background; View up to 2nd floor commons.

8.2

PCA Commons from Cloke Plaza Entrance

engineering.umaine.edu

innovating our economic future

WBRC Grand Staircase to the right.

8.2

Maine Street from Long Road Entrance

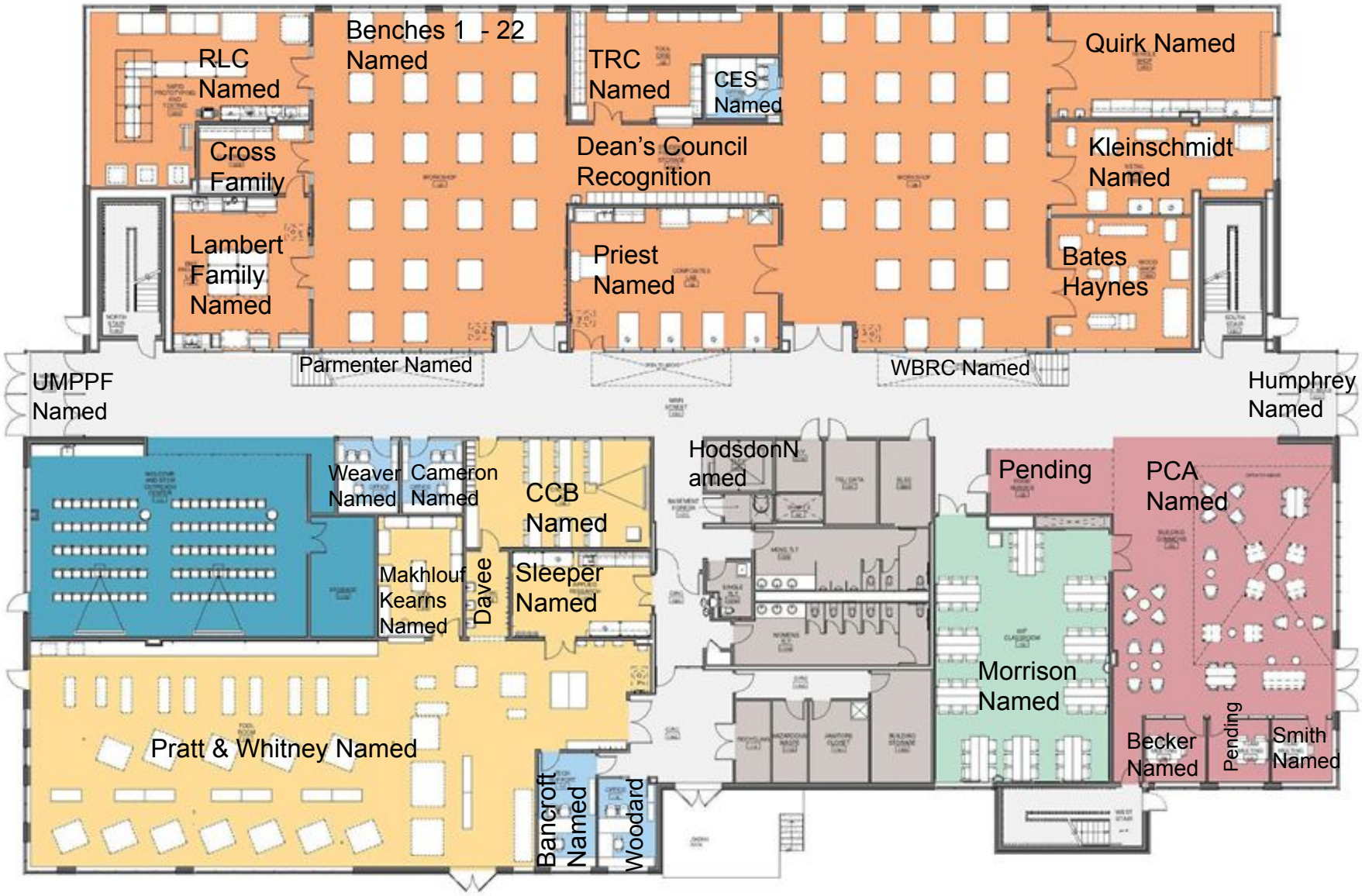
engineering.umaine.edu

innovating our economic future

Campus Welcome and STEM Outreach Center visible to the right.

Level 1 Floor Plan – Student Project Suite
STEM Welcome Center

engineering.umaine.edu



Student Project Design Suite

engineering.umaine.edu

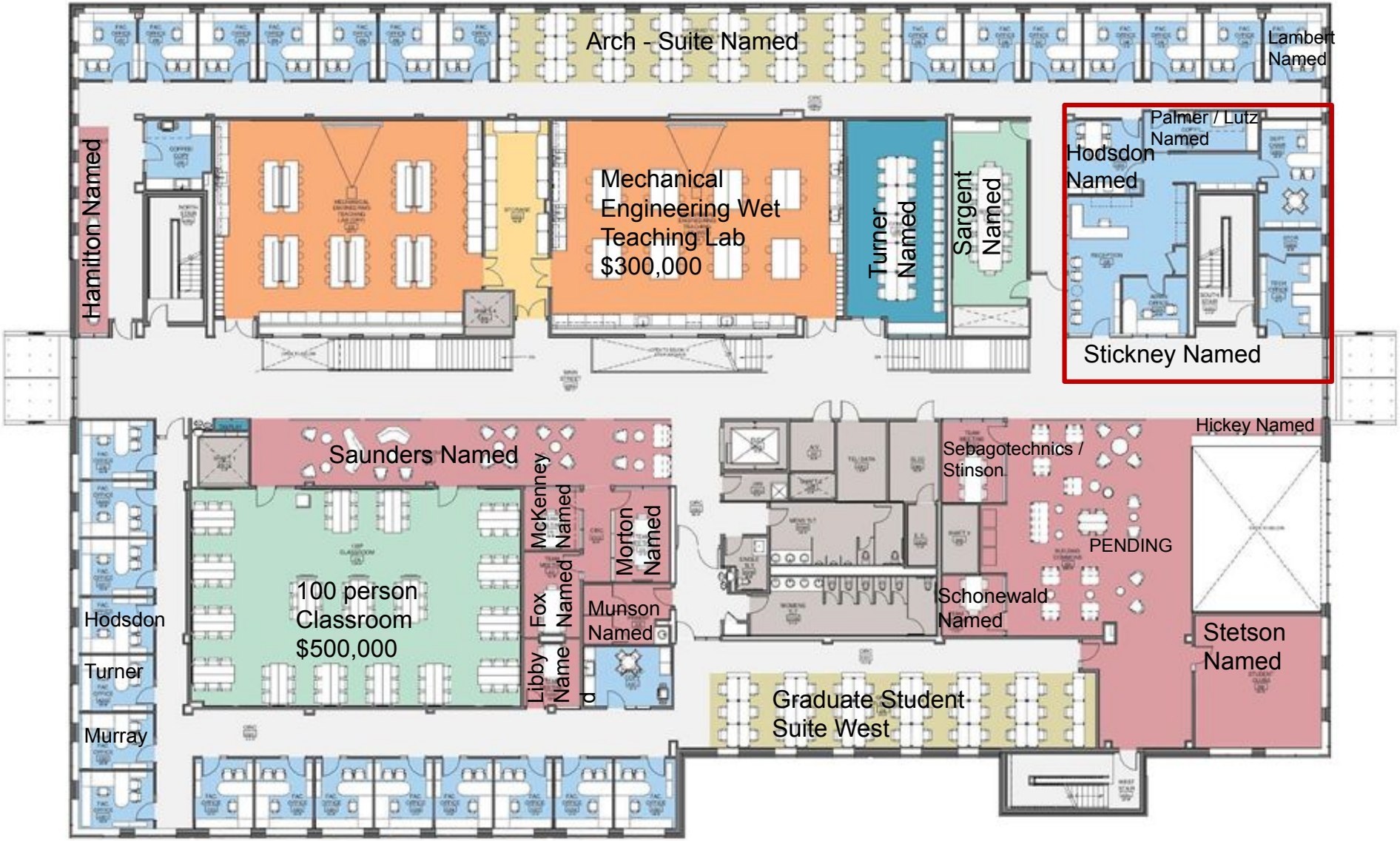
2nd Floor Looking North

engineering.umaine.edu

innovating our economic future

Level 2 Floor Plan
Mechanical Engineering

engineering.umaine.edu



Mechanical Engineering Teaching Lab

engineering.umaine.edu

innovating our economic future

8.2

Collaborative Classroom

engineering.umaine.edu

innovating our economic future

3rd Floor Looking South

engineering.umaine.edu

innovating our economic future

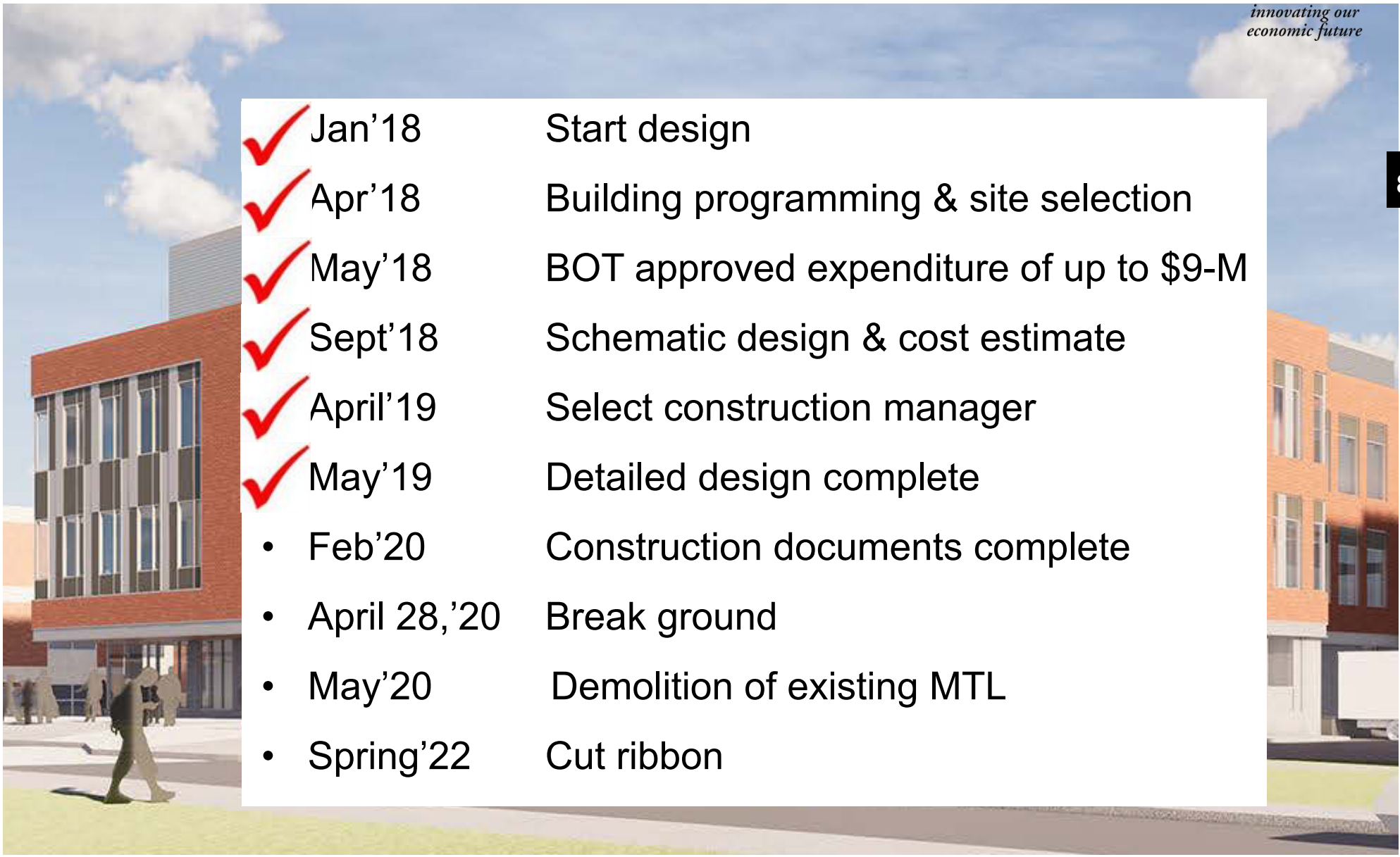
Level 3 Floor Plan
Biomedical Engineering

engineering.umaine.edu

Expected Timeline for Project

engineering.umaine.edu

innovating our economic future



✓	Jan'18	Start design
✓	Apr'18	Building programming & site selection
✓	May'18	BOT approved expenditure of up to $9-M
✓	Sept'18	Schematic design & cost estimate
✓	April'19	Select construction manager
✓	May'19	Detailed design complete
•	Feb'20	Construction documents complete
•	April 28,'20	Break ground
•	May'20	Demolition of existing MTL
•	Spring'22	Cut ribbon

8.2

Funding Commitments

engineering.umaine.edu

innovating our economic future

Source	Amount
$50-M state debt service	$47.8-M
UMaine reserves	$1.0-M
UMaine debt service paid back at $250k/yr for 30 years	$5.2-M
Ferland naming gift	$10.0-M
Packaging Corporation of America gift	$1.0-M
Abbagadassett Foundation	$1.0-M
Gustavus and Louise Pfeiffer Research Foundation	$1.5-M
Pratt & Whitney	$1.0-M
Other private gifts	$4.6-M
Pending gifts	$0.1M
TOTAL TO DATE	$73.2-M

In total, there are more than 495 private donors

Estimated total all-in cost: $78-M

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Enrollment and Advancement Center, UMFK

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION:** X

9

4. OUTCOME:
Increase Enrollment
Enhance Fiscal Positioning

BOARD POLICY:
701 – Budgets-Operating & Capital
GSF change

5. BACKGROUND:

The University of Maine System acting through the University of Maine at Fort Kent (UMFK) requests authority to expend up to $3,249,000 to construct a new Enrollment and Advancement Center. Funding for the project will be $2,990,000 from the 2018 general obligation bond and $259,000 in campus funds.

This request is pursuant to Board Policy 701, which requires projects with a total cost of more than $500,000 to be considered by the Board of Trustees or its Finance, Facilities and Technology Committee. In this case, the request is to forward the recommendation to the Consent Agenda of the full Board for approval.

The request is also pursuant to Trustee policy prohibiting net increases in space without Trustee authorization, although, in this instance, off-setting space reduction also is occurring as described further below resulting actually in a net decrease of space on campus.

The proposed facility fulfills a Renovation through Replacement plan calling for the replacement of some of UMFK's oldest, lowest NAV buildings with a new multi-purpose facility which "would serve as a focal point for all types of visitors including prospective students and their families, alumni, current and prospective donors, guests from other campuses and other community members." It will provide a positive first impression of UMFK thus influencing the enrollment decision by the prospective student.

This concept and need was reinforced by the UMFK Master Plan Report dated March 14, 2017 and accepted by Trustees in July 2017.

Element A of the Master Plan recommended construction of a new Center to create a "campus front door" on Pleasant Street with the purpose of connecting the two sides of campus,

engaging prospective students, increasing density, and eliminating the need for inefficient and aged residential style buildings.

The Enrollment and Advancement Center (EAC) is proposed as a 5,200 square foot facility to be built starting in the summer of 2020 on the corner of Pleasant Street and University Drive. Admissions, Public Relations, Enrollment Management, and the UMFK Foundation/Alumni offices will be housed therein, as well as a reception area and conference room.

As discussed in UMFK's FY2020 and FY2021 Budget Presentations, this building will eliminate the need for the Madawaska and St. David houses, directly allowing UMFK to remove 7,905 square feet and $1,485,413 of deferred maintenance. The Madawaska House already has been removed and the St. David House is scheduled to be removed in spring of 2021. Pursuant to the Master Plan, UMFK also would take the additional step of removing the Cyr House, which is 2,514 square feet with $474,873 of deferred maintenance.

Overall, this proposal provides for a gross reduction of more than 10,000 square feet, a net reduction in footprint of approximately 5,000 square feet, elimination of deferred maintenance and capital renewal needs of $1,960,286, decrease in annual operating costs of $43,000 and an expected increase in campus Net Asset Value from 59 percent to 61 percent pursuant to an estimate prepared for UMFK by Sightlines.

Through a competitive Request for Qualifications process the campus engaged a design firm (Oak Point Associates of Biddeford, ME) during the summer of 2019. Design has progressed through Design Development with completion of construction documents and bidding anticipated in late spring/early summer of 2020. Construction is expected to take approximately 14 months and the goal for building occupancy is summer of 2021.

Trustees would be kept apprised of the project through the capital project status report provided at each Committee and Trustee meeting.

6. TEXT OF PROPOSED RESOLUTION:

That the Finance, Facilities and Technology Committee forwards this item to the Consent Agenda at the March 15 & 16, 2020 Board of Trustees meeting for approval of the following resolution:

> That the Board of Trustees accepts the recommendation of the Finance, Facilities and Technology Committee and authorizes the University of Maine System acting through the University of Maine at Fort Kent to expend up to $3,249,000 for the Enrollment and Advancement Center to be funded with $2,990,000 from general obligation bond resources and $259,000 in campus funds.

Site Plan

OAK POINT ASSOCIATES
architecture
engineering
planning

9.2

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Update to FFT Committee Meeting Protocol, UMS

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION:** X

4. OUTCOME: **BOARD POLICY:**

5. BACKGROUND:

10

In response to Trustees feedback and requests, the University of Maine System is proposing to update the informal and formal protocol for presenting information and action items to the Finance, Facilities and Technology (FFT) Committee of the Board of Trustees.

These proposed changes fall largely in three categories:

a. Introducing a new three-step approval process rather than the current two-step approval process for any project with a value of $5 million or more.
b. Strengthening and elevating the profile of the capital project report currently presented at each committee meeting.
c. Updating the existing agenda information sheet format to be more prescriptive and consistent.

These changes would begin to be implemented with the April-May cycle of the FFT committee and full Trustee meetings.

Regarding (a), the three step approval process: Currently all capital projects presented for consideration by Trustees are first reviewed by the FFT committee. Projects of less than $1 million can be approved by the Committee in single reading. Projects of more than $1 million must get a second reading, currently this typically occurs as part of the consent agenda of the Board of Trustees. The proposal is to change the process for the largest projects of $5 million or more. Those projects would receive two readings before the committee, first an information briefing, then a request for action, before going to the full Board for consideration. So, a three-step process rather than a two-step process. Additionally, those largest projects would no longer be part of the consent agenda but would instead be regular agenda items with a presentation and consideration by Trustees of that particular item at the full Board meeting.

Regarding (b), the capital project report: Currently, Trustees receive this report at every meeting. In the future, the placement of that report will be updated to occur at the outset of the facility portion of the committee meeting rather than the end. The intention being to provide an opportunity for context and a general overview before digging into particular action items, as well as to provide an opportunity to call out any noteworthy

updates about projects previously considered and approved by Trustees which appear on the report.

Regarding (c), the format for capital project Agenda Information Sheets: The proposal is to update the format of AIS documents for projects of more than $1 million to a more prescriptive and consistent format to promote understanding, clarity and ease of review. A sample of the proposed AIS template is attached.

In brief, the new format would include:

a. Trustee strategic outcome advanced: This is already in place and would be continued.
b. Applicable Trustee Policy(ies) explanation: This is already in place and would be continued.
c. Executive summary of the request: A summary is currently provided, typically in the first paragraph of every AIS, but would be explicitly enumerated in the new format.
d. Overall requested budget and funding source: A budget request currently is provided, but would be explicitly enumerated in the new format.
e. More detailed explanation of rationale for project and metrics for success of the project (ROI or other): Would be explicitly enumerated in the new format.
f. Explanation of the scope and substance of the project: This generally provided currently, but would be explicitly and consistently enumerated in the new format.
g. Changes, if any, in net square footage or ongoing operating costs resulting from the project: This generally provided currently, but would be explicitly and consistently enumerated in the new format.
h. Budget for the project, total budgeted contingency and, if needed, further elaboration on funding source and selection. This is generally provided currently, but would be more explicitly, thoroughly and consistently enumerated.
i. Alternatives that were considered: This sometimes provided currently, but would be explicitly and consistently enumerated in the new format.
j. Timeline for start, occupancy and completion: This is already done, but would be strengthened.
k. Timeline for any further consideration or action anticipated by management to be needed by the Board or its committees regarding this project: This is generally provided currently when applicable, but would be more explicitly, thoroughly and consistently enumerated.
l. Text of the proposed resolution: Already in place and would continue.

These changes are primarily changes in administrative practices and procedures. They are within the expectations of existing Trustees Policy 703, and no change to Board policy is required. Nevertheless, this matter is presented as an action item to make clear the Trustees agreement with these changes in its meeting protocols.

6. TEXT OF PROPOSED RESOLUTION:

That the Finance, Facilities and Technology Committee forwards this item to the Consent Agenda at the March 15-16, 2020 Board of Trustees meeting for approval of the following resolution:

> That the Board of Trustees accepts the recommendation of the Finance, Facilities, & Technology Committee and authorizes the University of Maine System to adopt these changes and authorizes the Treasurer and Clerk of the Board to update practices and procedure as necessary.

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

10.1

1. NAME OF ITEM: Update to FFT meeting protocol template for $5M projects

2. INITIATED BY:

3. BOARD INFORMATION: **BOARD ACTION:**

4. OUTCOME: **BOARD POLICY:**

5. BACKGROUND:

a. Summary of the request

b. Overall requested budget and funding source

c. More detailed explanation of rationale for project and metrics for success of the project (ROI or other)

d. Explanation of the scope and substance of the project as needed to supplement (a) and (c) above.

e. Changes, if any, in net square footage or ongoing operating costs resulting from the project

f. Budget for the project and further elaboration on funding source and selection as needed to supplement (b) above)

g. Alternatives that were considered to meet the need being addressed by this project

h. Timeline for start, occupancy and completion

i. Timeline for any further consideration or action anticipated to be needed by the Board or its committees regarding this project if full authority is not being requested from the outset.

j. Additional information that may be useful to consideration of the item.

6. TEXT OF PROPOSED RESOLUTION:

That the Finance, Facilities and Technology Committee forwards this item to the Agenda at the March 15-16, 2020 Board of Trustees meeting for the following resolution:

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Sightlines Annual Facilities Report, UMS

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **X** **BOARD ACTION:**

4. OUTCOME: **BOARD POLICY:**
Enhance Fiscal Positioning

5. BACKGROUND:

Sightlines will present its annual facilities benchmarking and analysis findings regarding the University of Maine System's facilities and facility management operations.

Sightlines will be available to present and discuss the annual report. While the entire updated report is attached for Trustees' information, in the interest of time, only selected slides will be reviewed during the live presentation.

A key metric formally adopted by Trustees – density, as a measure of the intensity or efficiency of the use of our space – has stabilized and started trending upward against an overall, longer-term downward trend. This is illustrated on Slide 10 in the slide numbering sequence. This indicates the Trustee's commitment to constrain space combined with the stabilizing and slightly strengthening user population of students, staff and faculty is making a difference. That commitment to space constraint is continuing in the current fiscal year with a new round of space reductions in process. Combined with a change in Sightlines methodology several years ago which had the effect of lifting UMS's baseline density, UMS has now attained the interim density goal, though UMS remains far less dense than public higher education overall and has a significant way to go to reach the established long term goal.

Beyond density, the Sightlines data continues to reflect a challenging situation in which the condition of the University's facilities as measured by renovation age and net asset value have continued to decline. Half of all University space this year has reached a renovation age of 50 years old or older, and the University is on pace to see that grow to 55 percent by 2024. This is illustrated on Slide 19 in the slide numbering sequence.

The measures of condition or quality of the University's facilities such as renovation age and net asset value are not expected to measurably improve overall until and unless substantially more financial investment is consistently made in existing facilities each year. For more than a decade, the University generally has invested $20 million +/- in its existing facilities each year. The current Sightlines target would have the University investing at least twice that amount annually in existing facilities.

For a visual representation of this challenge, please see slide 48 (using the deck slide numbers) of the Sightlines deck. Corresponding slides showing the campus view of this investment challenge are being included in this year's Fiscal Year 21 budget presentations to illustrate the challenge at each campus.

To help address this, the University has continued its focus on removing space and constraining the growth of space. The University also has been seeking new and novel sources of investment. Revenue bonds, public-private partnerships, potential new state support, energy services company agreements and other revenue sources are all being pursued or are in progress above and beyond more traditional E&G, grant or general obligation bond resources.

Additional slides of potential particular interest may include:

- Slide 8 shows the reduction of space as tracked by Sightlines since FY12.
- Slide 10 shows the slightly increasing and stabilizing density, which has met the Trustees interim goal. UMS remains well below the Public Higher Education average for density.
- Slides 14 and 15 show the continued increase in renovation age of the UMS portfolio, another measure of condition and investment. Half of all UMS facility space now has a renovation age of 50 years old or greater.
- Slides 48 and 49 illustrates the ongoing gap between current investment levels and the levels that would be needed to stabilize and improve the net asset value of existing facilities.
- Slide 54 illustrates the long-term trend of deteriorating facility condition.
- The appendix contains an annual accounting of key performance indicators previously identified by Trustees in this area.

sightlines
a GORDIAN company

The University of Maine System

FY19 Facilities Benchmarking & Analysis Final

February 2020

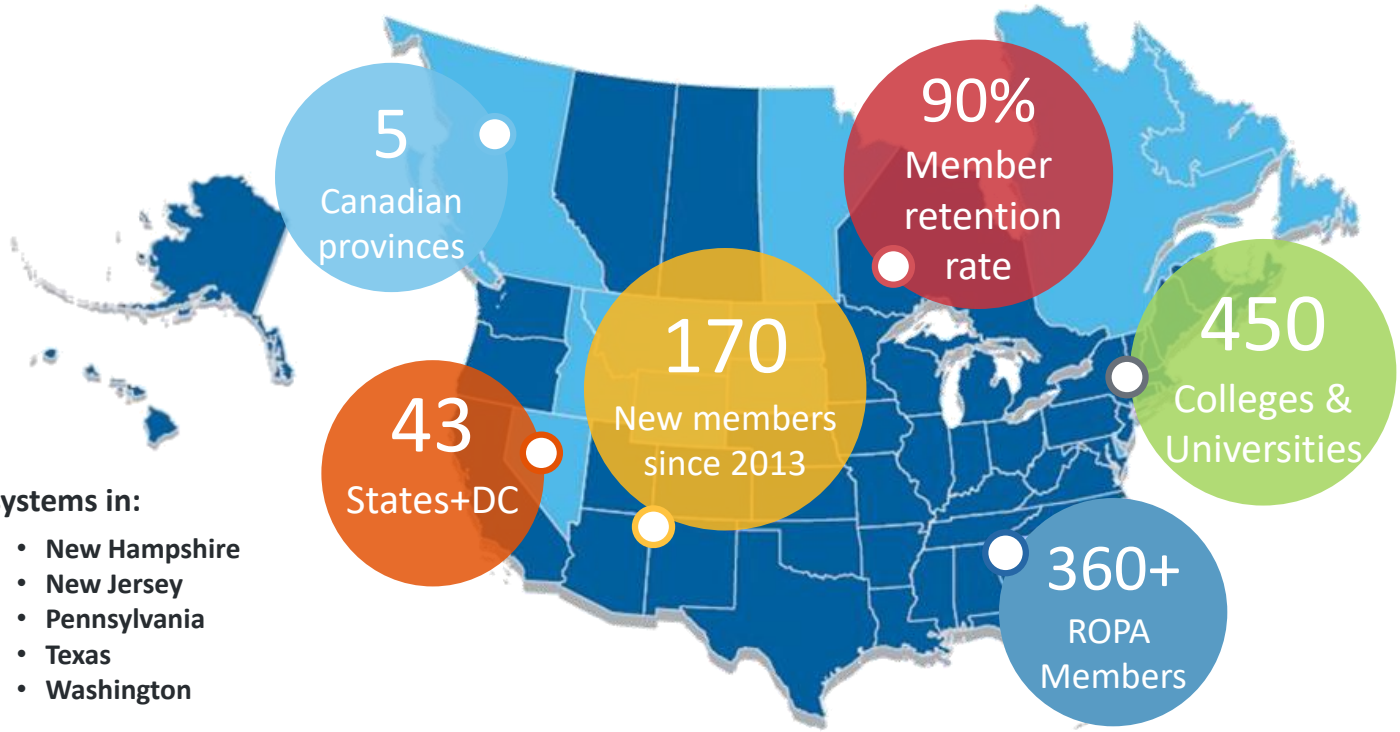
University of the Sciences in Philadelphia
University of Toledo
University of Vermont
University of Washington
University of West Florida
University of Wisconsin - Madison
Vanderbilt University
Virginia Commonwealth University
Wake Forest University
Washburn University
Washington State University
Washington State University - Tri-Cities Campu
Washington State University - Vancouver
Washington University in St. Louis
Wayne State University
Wellesley College
Wesleyan University
West Chester University
West Virginia Health Science Center
West Virginia University
Western Oregon University
Westfield State University
Widener University
Williams College
Worcester Polytechnic Institute

11.1

sightlines
a GORDIAN company

Sightlines by the Numbers

Robust membership includes colleges, universities, consortiums and state systems



Sightlines has advised state systems in:

- Alaska
- California
- Florida
- Hawaii
- Maine
- Massachusetts
- Minnesota
- Mississippi
- Missouri
- Nebraska
- Ohio
- New Hampshire
- New Jersey
- Pennsylvania
- Texas
- Washington

sightlines
a GORDIAN company

2

11.1

Vocabulary for Facilities Measurement, Benchmarking & Analysis

Annual Stewardship

The annual investment needed to ensure buildings will properly perform and reach their useful life.

"Keep-Up Costs".

Asset Reinvestment

The accumulation of repair and modernization needs and the definition of resource capacity to correct them.

"Catch-Up Costs"

Operational Effectiveness

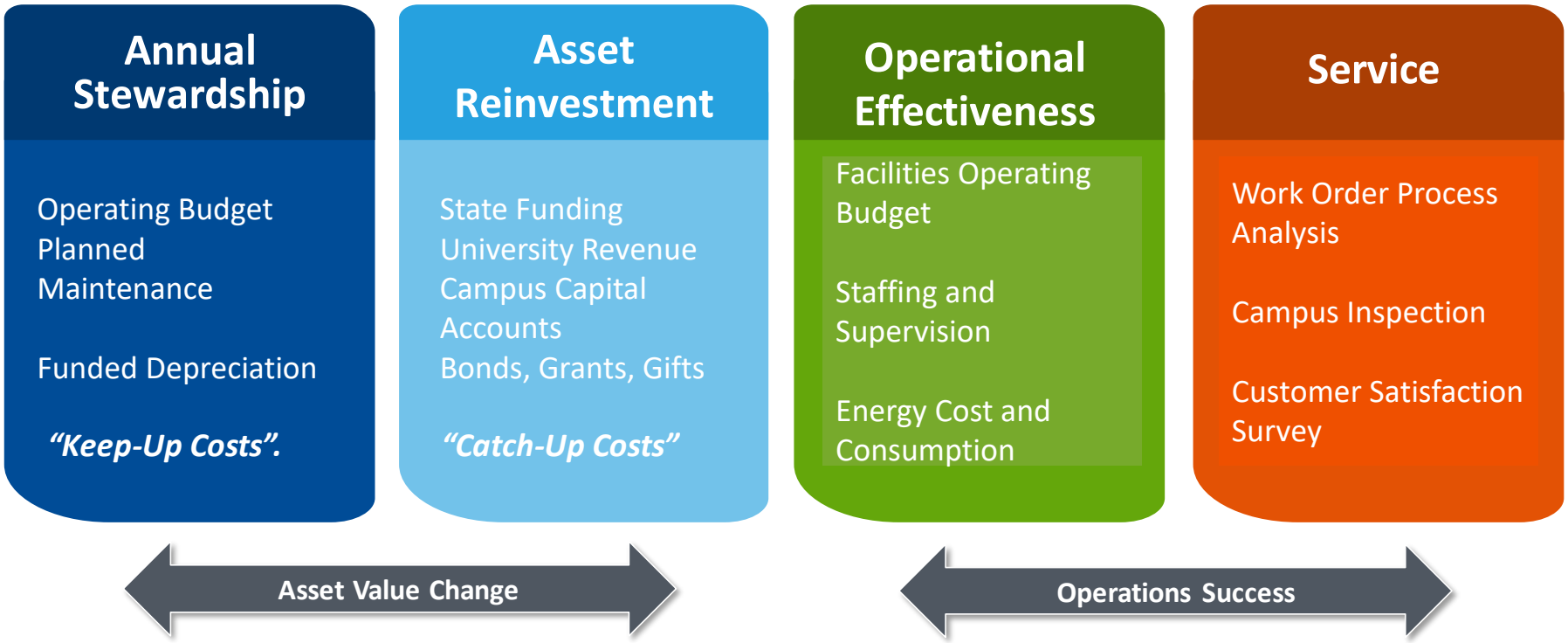
The effectiveness of the facilities operating budget, staffing, supervision, and energy management.

Service

The measure of service process, the maintenance quality of space and systems, and the customers opinion of service delivery.

sightlines
a GORDIAN company

Vocabulary for Facilities Measurement, Benchmarking & Analysis



11.1

sightlines
a GORDIAN company

Peer System Comparisons

State System Comparisons
Massachusetts State Universities
Mississippi Institutions of Higher Learning
Oregon University System
Pennsylvania State System of Higher Education
University of Alaska System
University of Missouri System
University of New Hampshire System

Comparative Considerations

Size, technical complexity, region, geographic location, and setting are all factors included in the selection of peer institutions

Integrated Campus Stewardship

Space: *Understanding your largest asset*

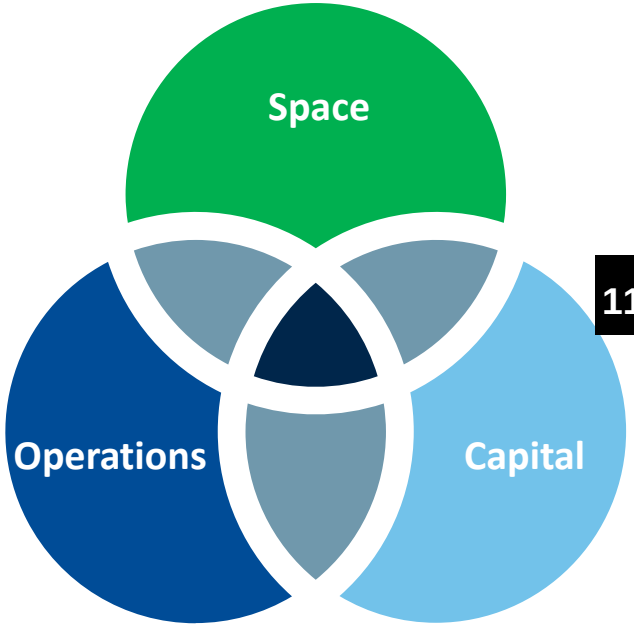
- Density factor increased slightly from FY18 to FY19 due to increased enrollment and no major changes in GSF across the System.
- System GSF remains consistent over a three year period.

Capital: *Investment planning to align mission and risk*

- Total capital investments in FY19 were the second lowest for the analysis, with only FY10 investments being lower.
- Project selection is evenly split between space/programming investments and the higher ROI envelope/mechanical projects in FY19.
- The majority of current and upcoming needs fall into mechanical systems.

Operations: *Improve effectiveness and lower overhead*

- Planned maintenance investments continues to grow at all campuses.
- Energy consumption increases from FY18 to FY19.



11.1

sightlines
a GORDIAN company

sightlines
a GORDIAN company

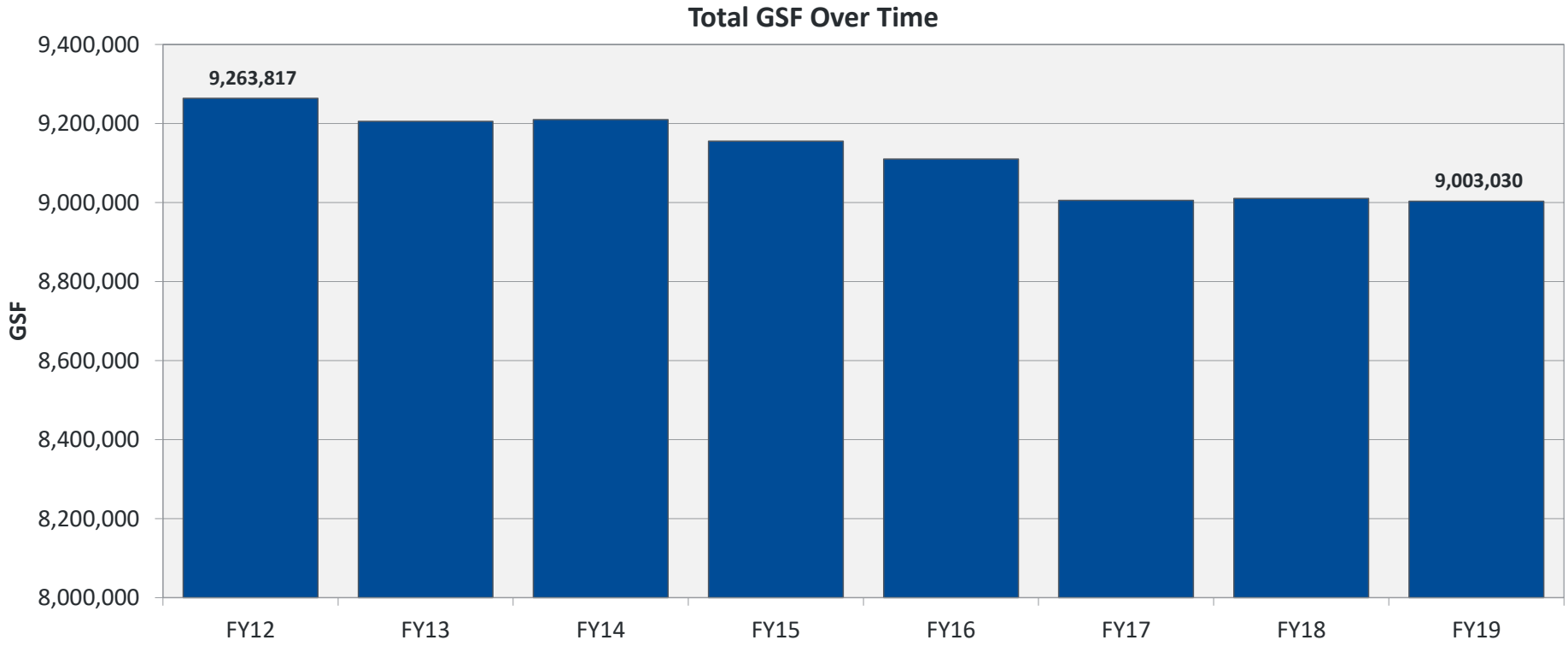
Space Profile

11.1

sightlines
a GORDIAN company

UMS GSF Declined 2.9% Over the Past 8 Years

System GSF decreased by 258K GSF from FY12 to FY19



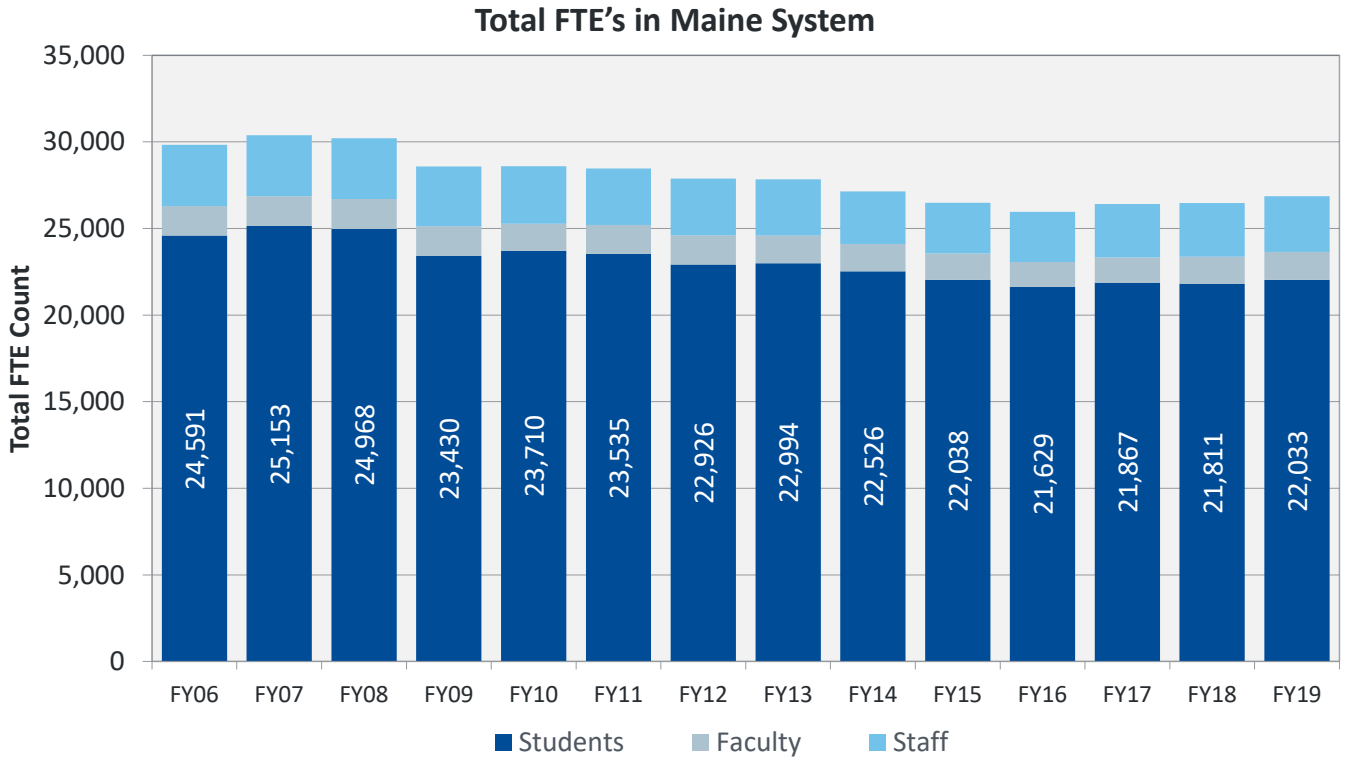
11.1

sightlines
a GORDIAN company

Considerable GSF changes anticipated by Bond and Demolition funding through 2024.

FY19 Student Enrollment is Highest in Last 4 Years

Student enrollment has decreased 12% since FY06



Density: Measures number of users per 100,000 GSF

- Users include all student, faculty, and staff FTEs
- Measures campus building usage on a daily basis

Density Affects:

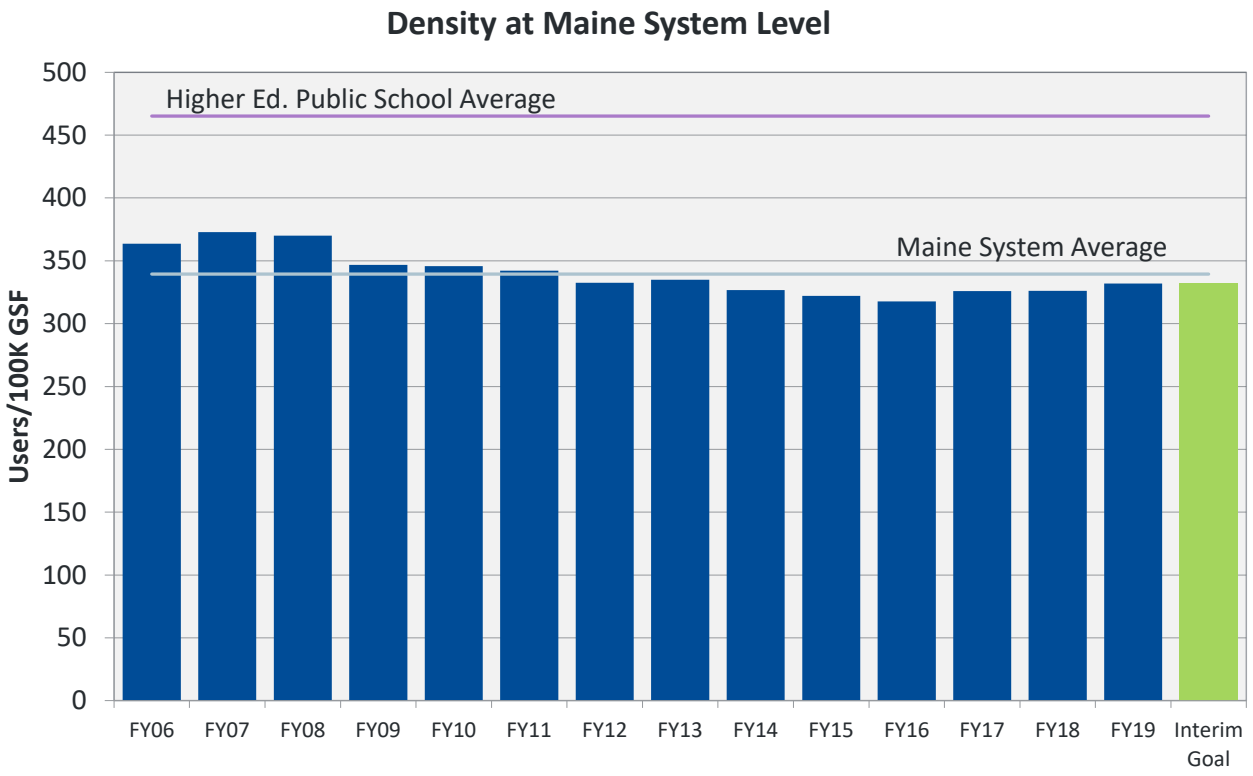
- Capital Investment Need
- Staffing Levels
- Materials and Supplies
- Wear and Tear on Facilities

sightlines a GORDIAN company

Enrollment information comes from the Fall 2019 System Enrollment Report

Maine System Density Meets Interim Goal in FY19

Density has increased to 332 users/100K GSF in FY19



Density: Measures number of users per 100,000 GSF

- Users include all student, faculty, and staff FTEs
- Measures campus building usage on a daily basis

Density Affects:

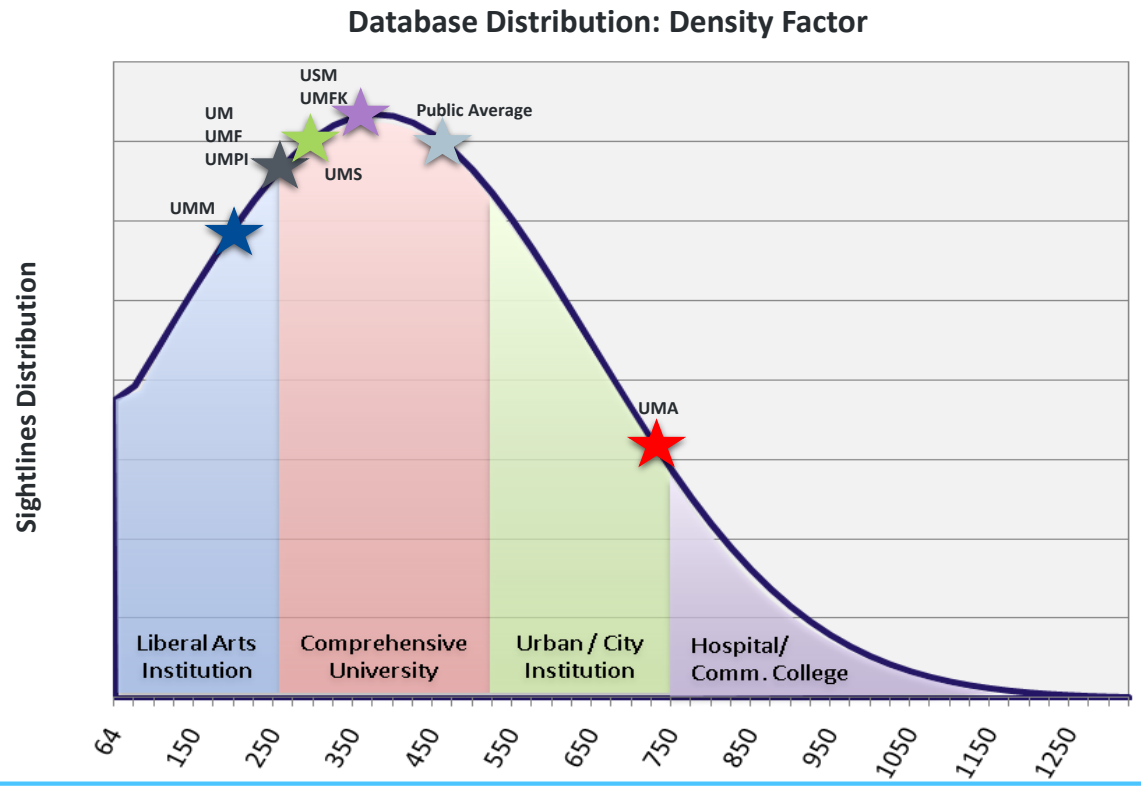
- Capital Investment Need
- Staffing Levels
- Materials and Supplies
- Wear and Tear on Facilities

11.1

sightlines a GORDIAN company

Density Across the System is Variable

UMA is only institution above Sightlines' public school average



Density: Measures number of users per 100,000 GSF

- Users include all student, faculty, and staff FTEs
- Measures campus building usage on a daily basis

Density Affects:

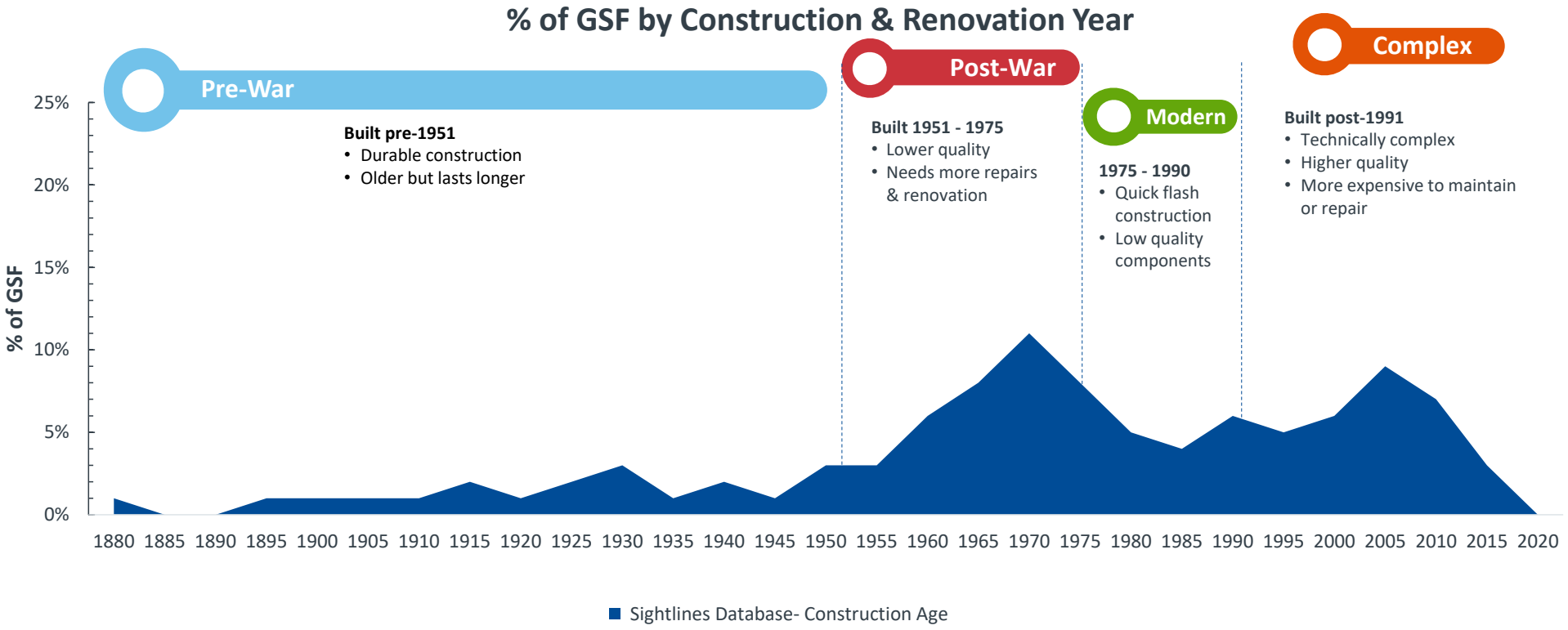
- Capital Investment Need
- Staffing Levels
- Materials and Supplies
- Wear and Tear on Facilities

11.1

sightlines
a GORDIAN company

National Construction Trending in Higher Education

Funding sources should be allocated based on age and condition of the buildings

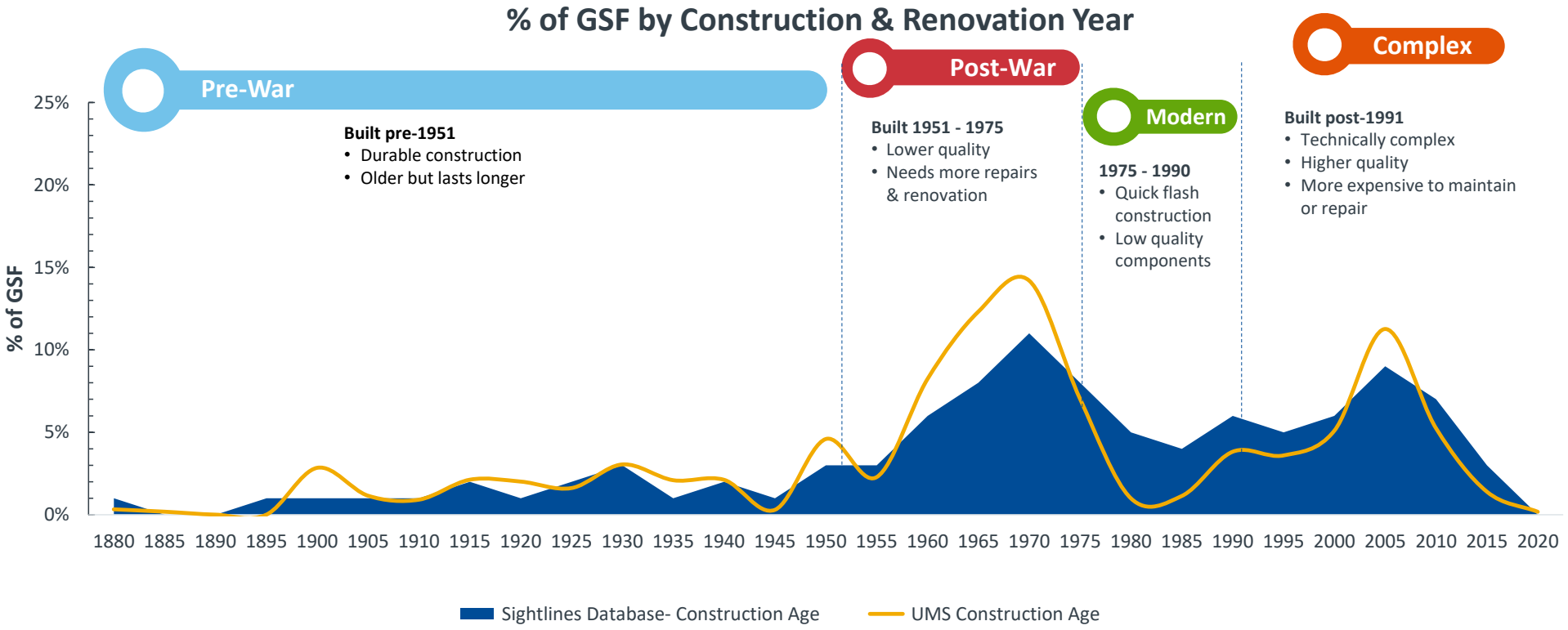


11.1

sightlines
a GORDIAN company

50% of Space Built in Post-War and Modern Eras

Funding sources should be allocated based on age and condition of the buildings

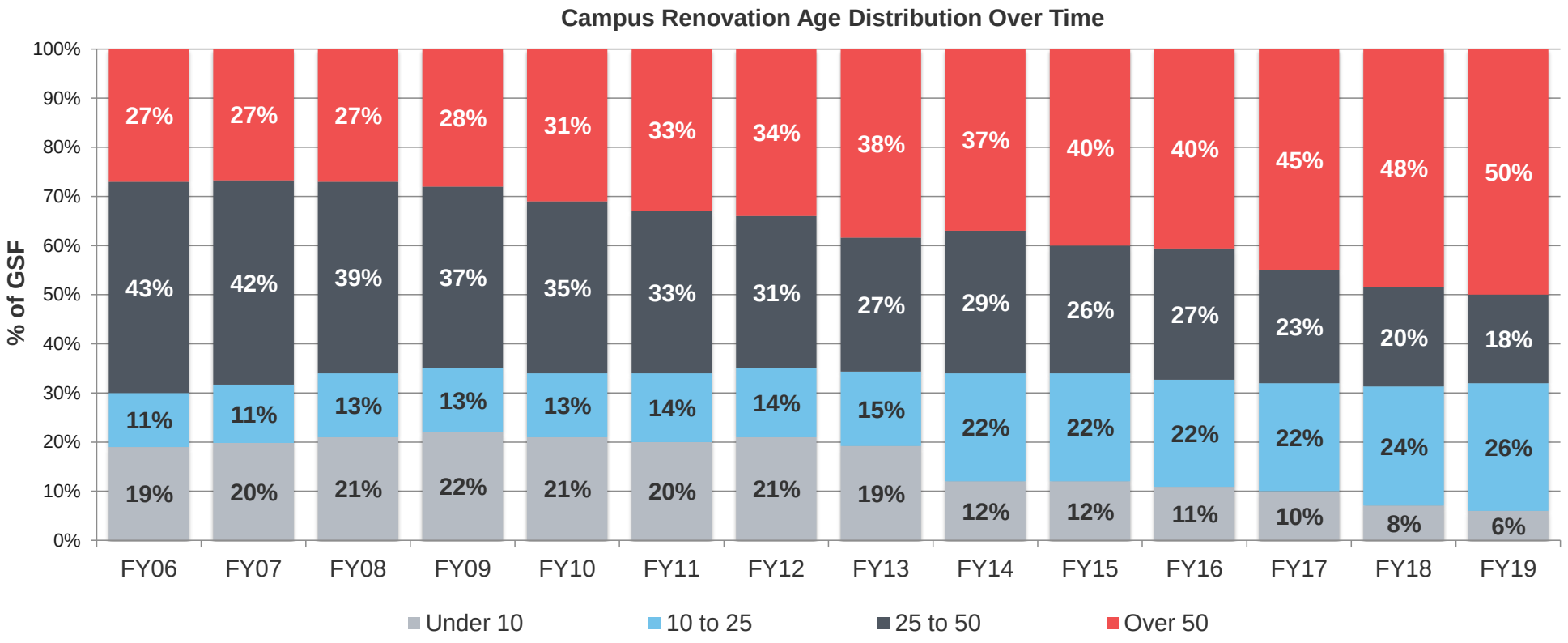


11.1

sightlines
a GORDIAN company

Maine System Continues to Age Over Time

Half of space has reached over 50 years old in FY19

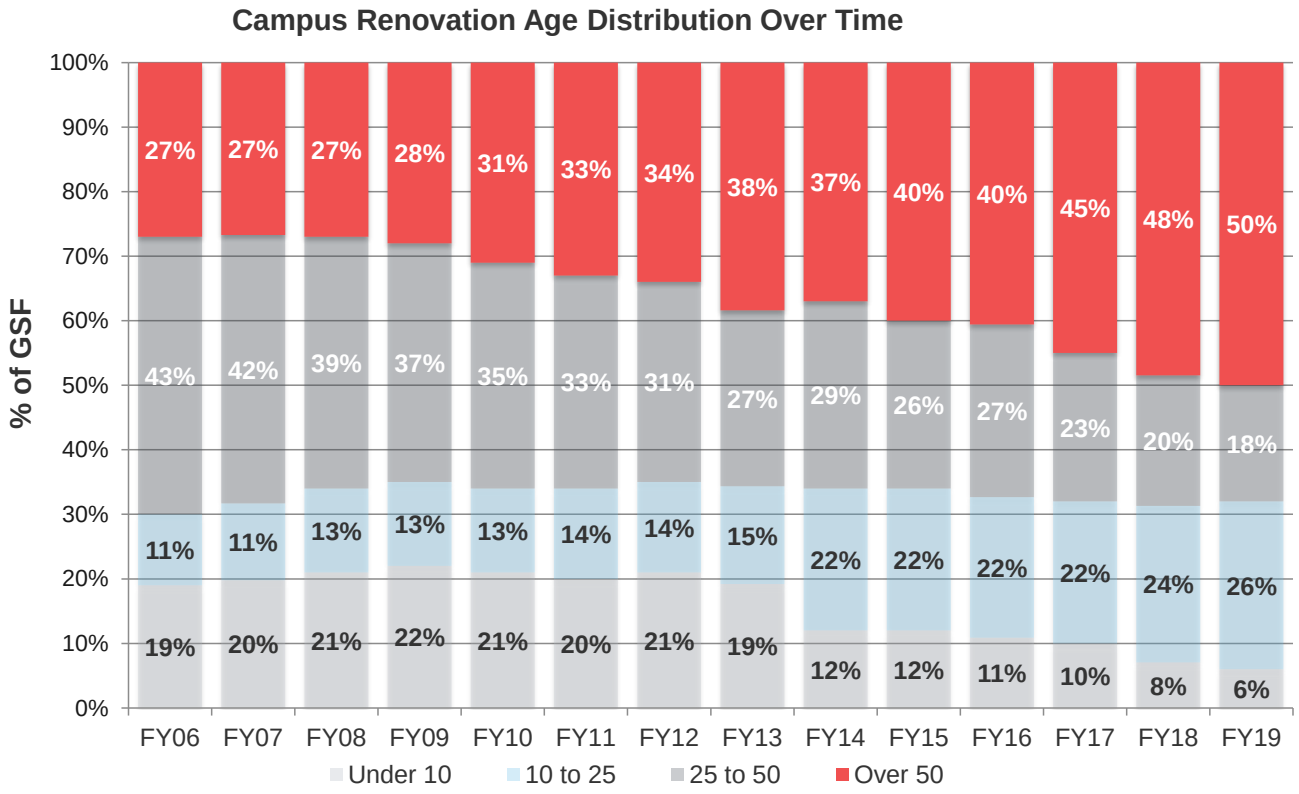


11.1

sightlines
a GORDIAN company

Space Over 50 is Growing

Consistent distribution of high risk space over the years



Buildings Over 50

Life cycles of major building components are past due. Failures are possible. Core modernization cycles are missed.

Highest risk

Buildings 25 to 50

Major envelope and mechanical life cycles come due. Functional obsolescence prevalent.

Higher Risk

Buildings 10 to 25

Short life-cycle needs; primarily space renewal.

Medium Risk

Buildings Under 10

Little work. "Honeymoon" period.

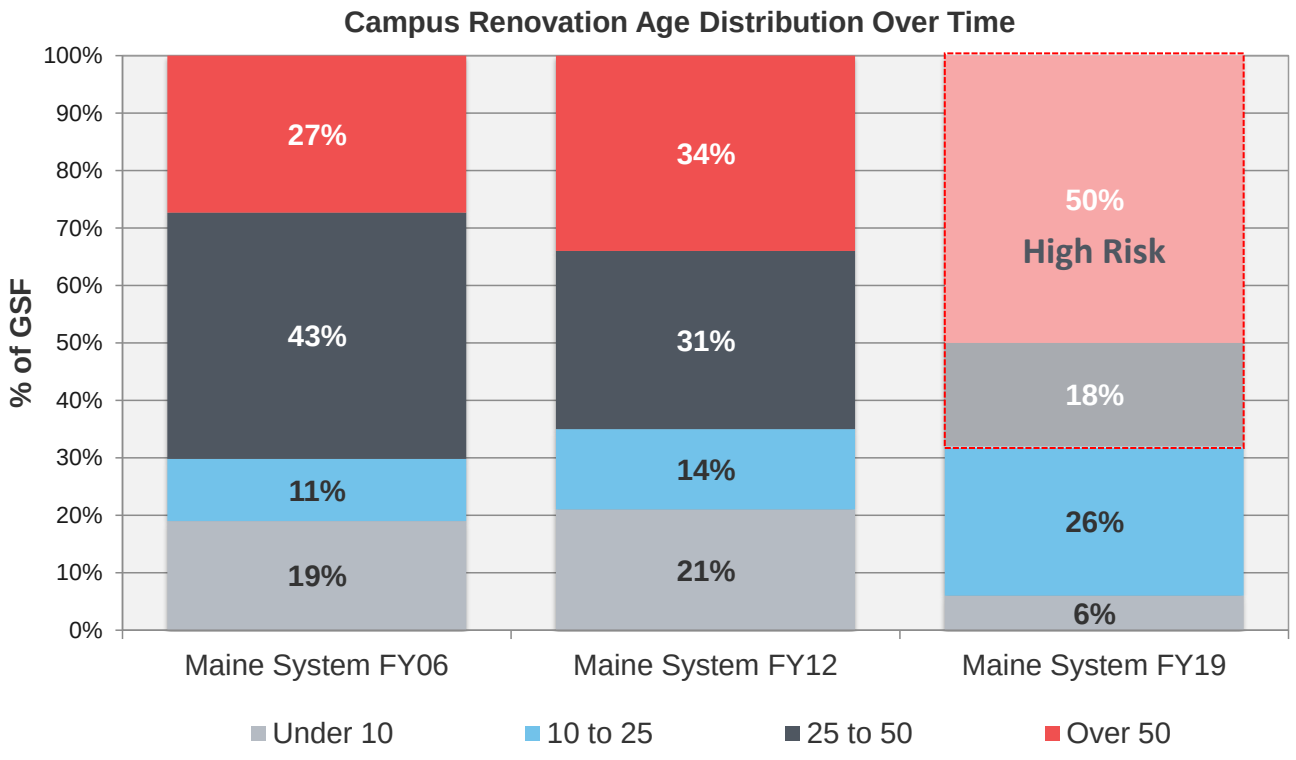
Low Risk

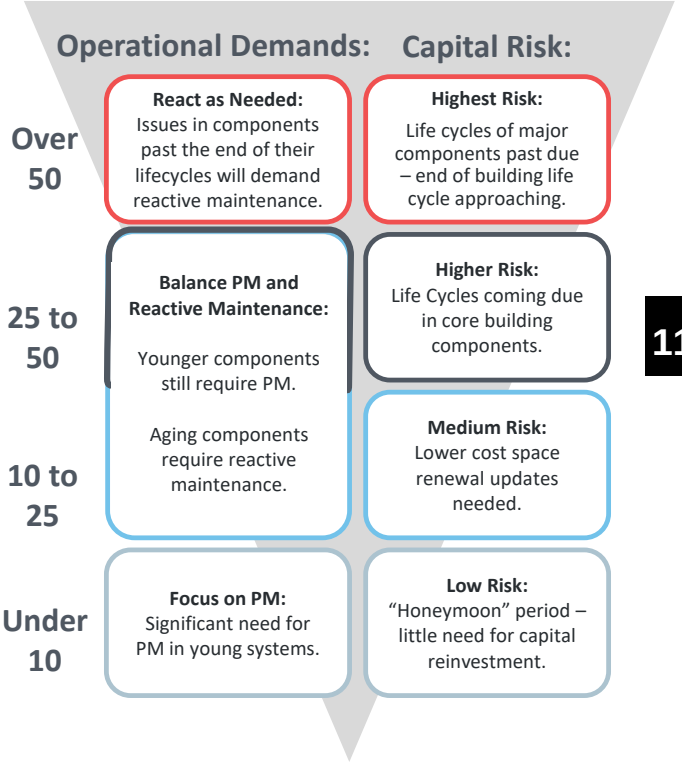
11.1

sightlines
a GORDIAN company

68% of Space Drives Investment Needs at UMS

Buildings over 25 years old require increased capital and operational demands

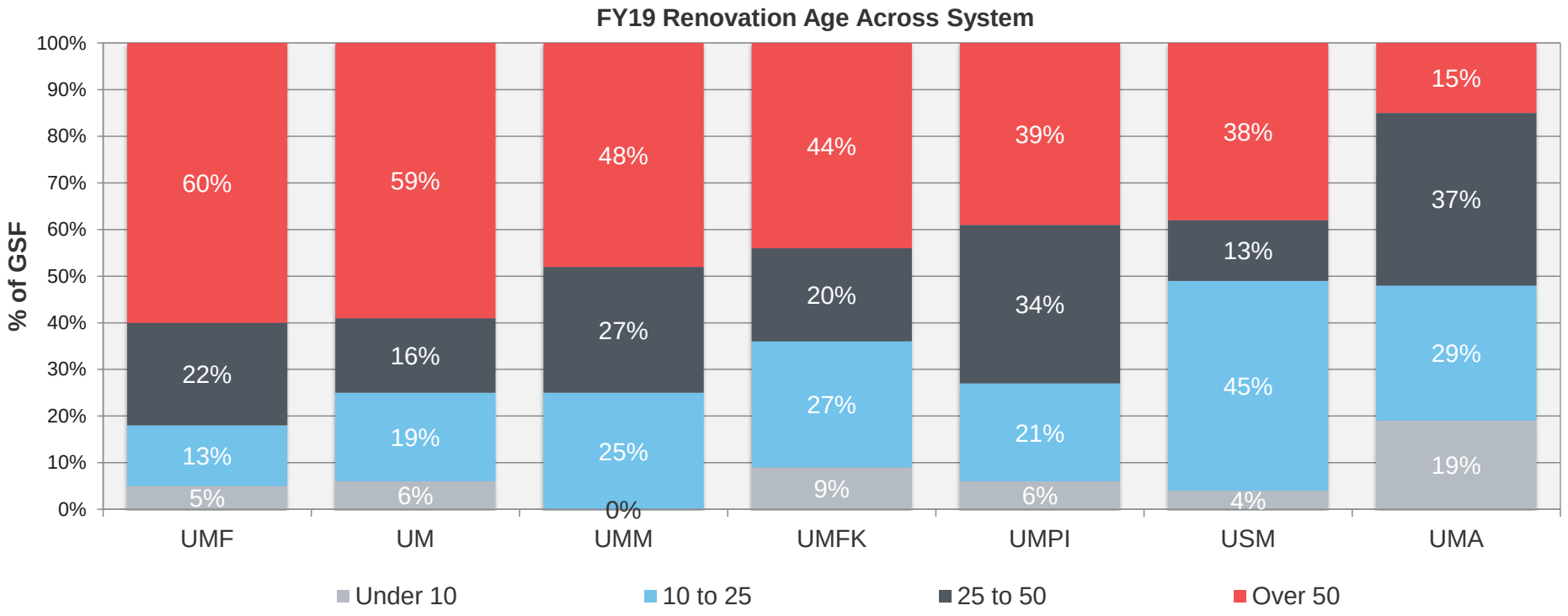




sightlines
a GORDIAN company

High Risk Profile Consistent Across All Campuses

UMPI, UM, UMM, and UMF have the highest risk based on age profile over 25 years old

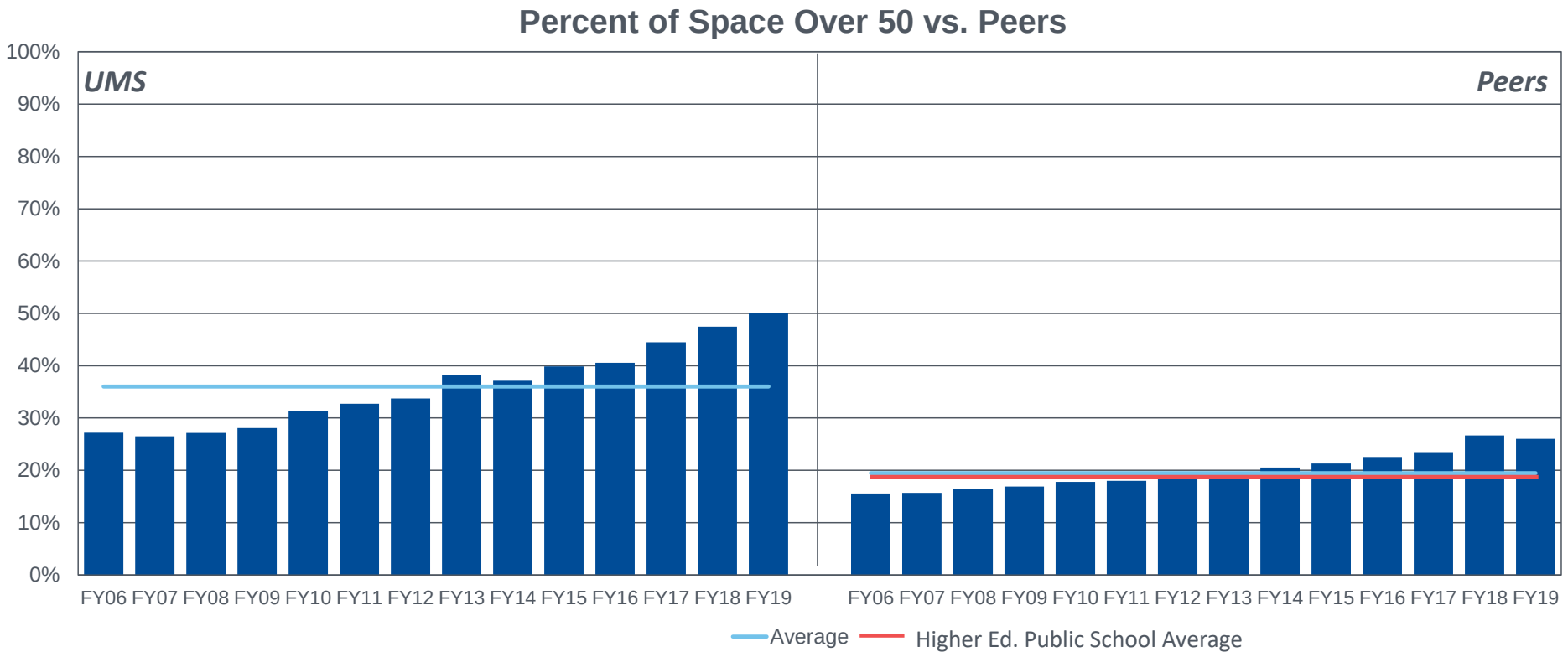


11.1

sightlines
a GORDIAN company

Significant Growth in % of Buildings Over 50 Years Old

Peers in FY18/FY19 have the same % of space over 50 as UMS did in FY06

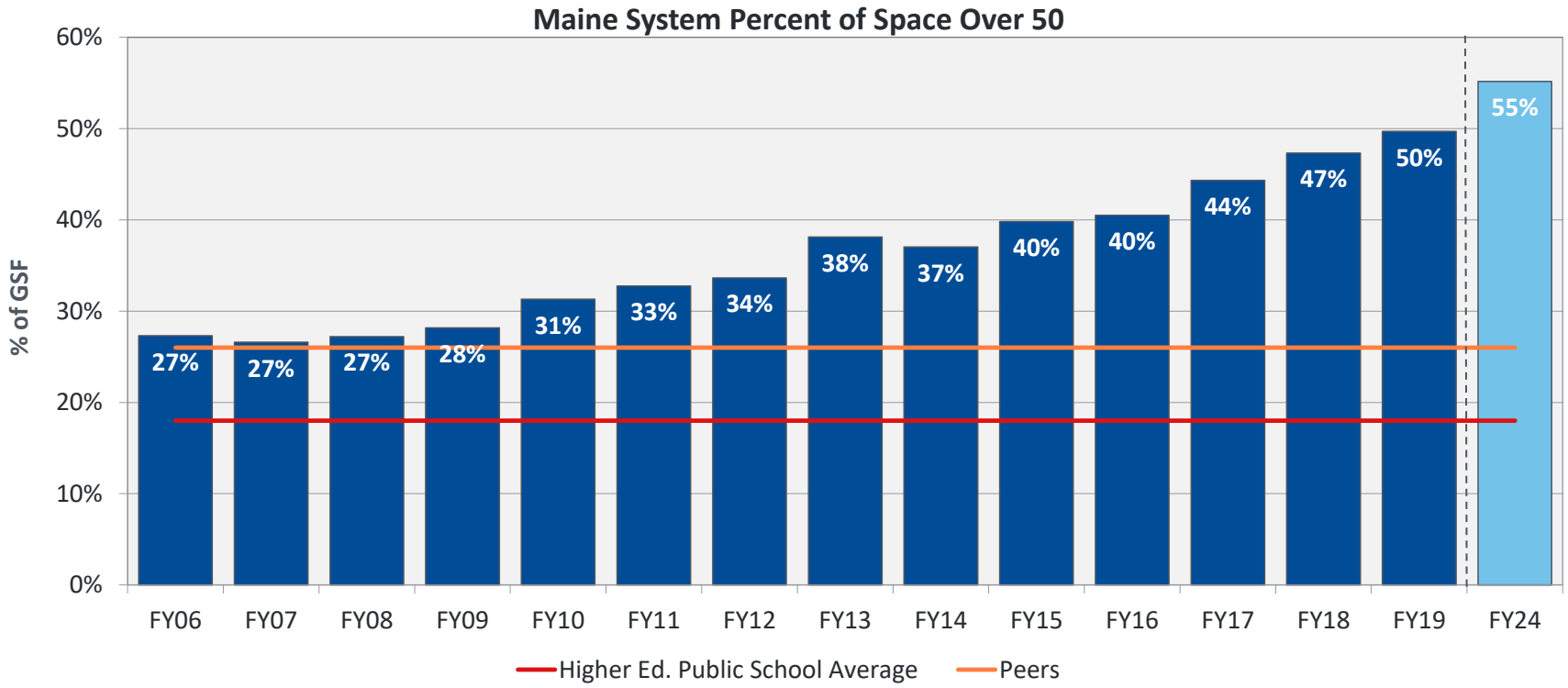


11.1

sightlines
a GORDIAN company

55% of Space Will be Over 50 Years Old by FY24

Plan now for major life cycle replacements in these buildings



*FY24 is calculated as campus is today, with no changes to the space profile

sightlines
a GORDIAN company

Strategies to Reduce % of Space Over 45

Renovations and Removal of Buildings from the Inventory

11.1

sightlines
a GORDIAN company

Over 45 Template Distributed to Every Institution

Sample taken from UMS

Institution Name	Building Name	GSF	Program Use	Historical Registry Listing	Utilization Rate	Condition	Value to Program	Value to Institution's Mission
The University of Maine	Crossland Alumni Center	11,181	Administrative	Yes	3: Low	3: Poor Condition	1: Valuable	2. Aligns with Institution's Mission
The University of Maine	Norman Smith Hall	15,176	Acad/Admin	Yes	2: Moderate	2: Fair Condition	1: Valuable	2. Aligns with Institution's Mission
University of Maine at Augusta	Fitness Center	11,416	Athletics & Recreation	No	2: Moderate	2: Fair Condition	1: Valuable	2. Aligns with Institution's Mission
University of Maine at Fort Kent	Guy House	3,240	Residence House	No	3: Low	3: Poor Condition	1: Valuable	1. Supports Institution's Mission
University of Maine at Machias	Obrien House	5,000	Admissions House	No	2: Moderate	2: Fair Condition	1: Valuable	1. Supports Institution's Mission
University of Southern Maine	Admissions- Phinney House	10,347	Administrative	No	2: Moderate	2: Fair Condition	2: Moderately Valual	2. Aligns with Institution's Mission

11.1

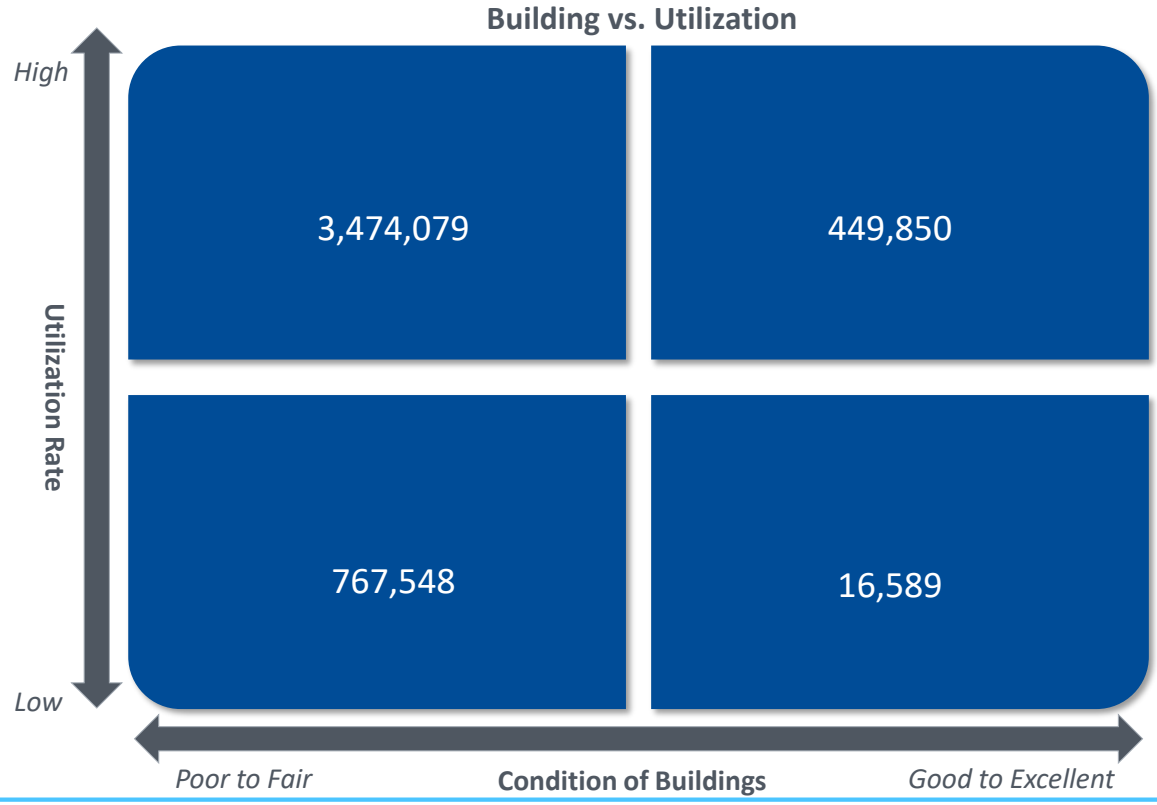
Assessment of Space for all buildings over 45 years old in Renovation Age

- What is the utilization of the space?
- What is the condition?

Determine if the building is a candidate for major renovation or removal from inventory.

Total Maine System Findings

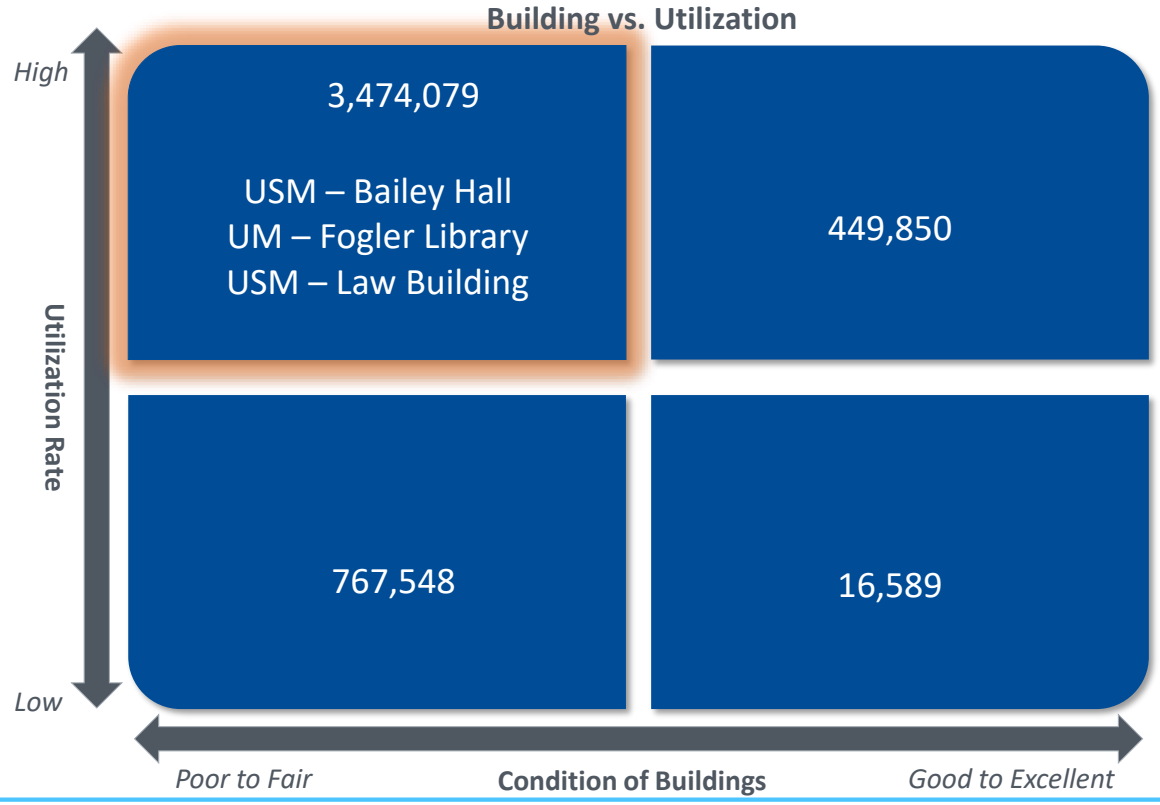
Comparing condition with utilization across the system



11.1

Candidates for Potential Renovation

Comparing condition with utilization across the system

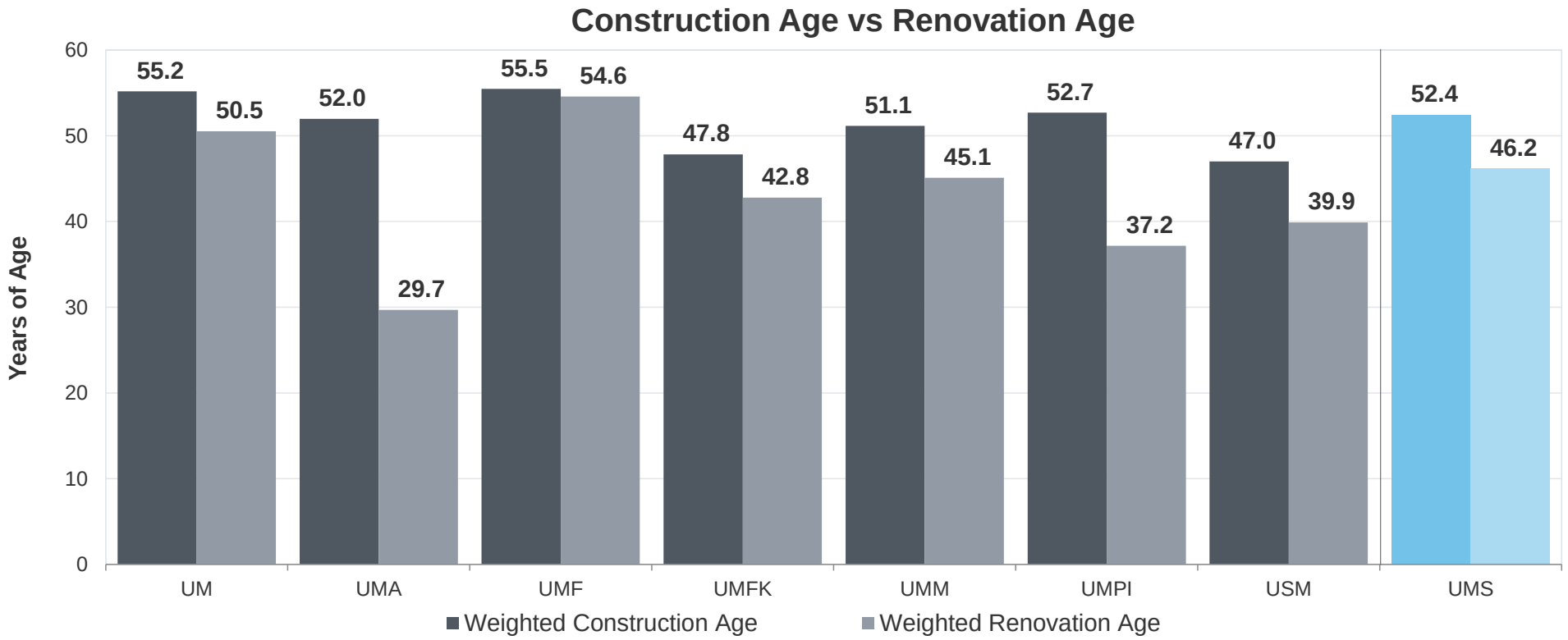


11.1

sightlines
a GORDIAN company

Construction Age vs. Renovation Age by Campus

UMA has offset its age the most through renovations

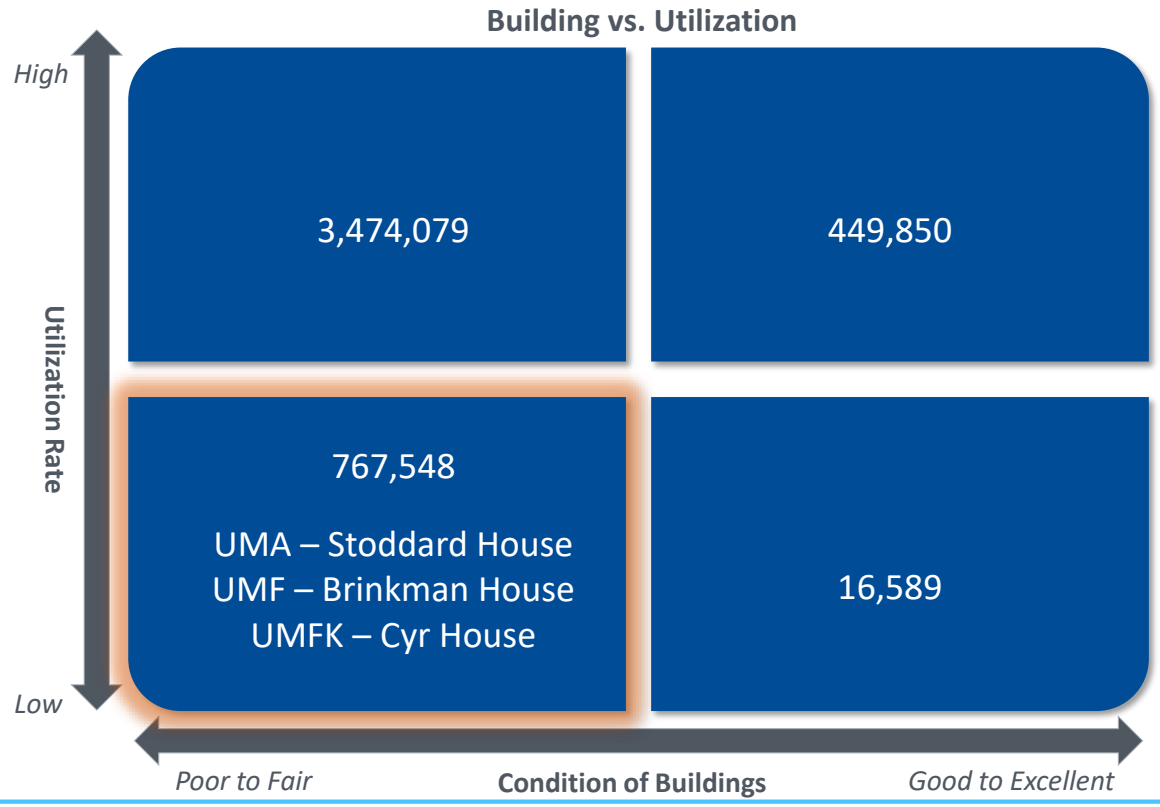


11.1

sightlines
a GORDIAN company

Potential Candidates for Removal

Comparing condition with utilization across the system



11.1

sightlines
a GORDIAN company

Low Utilization and Poor Condition Space

Removing historical buildings and storage structures from the equation

Buildings Over 45 with Poor Condition/Low Utilization	Sum of GSF
The University of Maine	487,631
University of Maine at Augusta	17,851
University of Maine at Farmington	99,969
University of Maine at Fort Kent	19,328
University of Maine at Machias	5,000
University of Maine at Presque Isle	793
University of Southern Maine	136,976
Total	**767,548**

Less Historic Buildings

Buildings Over 45 with Poor Condition/Low Utilization	Sum of GSF
The University of Maine	308,170
University of Maine at Augusta	17,851
University of Maine at Farmington	99,969
University of Maine at Fort Kent	19,328
University of Maine at Machias	5,000
University of Maine at Presque Isle	793
University of Southern Maine	126,448
Total	**577,559**

11.1

Low Utilization and Poor Condition Space

Removing historical buildings and storage structures from the equation

Buildings Over 45 with Poor Condition/Low Utilization	Sum of GSF
The University of Maine	308,170
University of Maine at Augusta	17,851
University of Maine at Farmington	99,969
University of Maine at Fort Kent	19,328
University of Maine at Machias	5,000
University of Maine at Presque Isle	793
University of Southern Maine	126,448
Total	**577,559**

Less Storage

Buildings Over 45 with Poor Condition/Low Utilization	Sum of GSF
The University of Maine	267,940
University of Maine at Augusta	15,576
University of Maine at Farmington	60,465
University of Maine at Fort Kent	15,964
University of Maine at Machias	5,000
University of Southern Maine	409
University of Southern Maine	126,260
Total	**491,614**

11.1

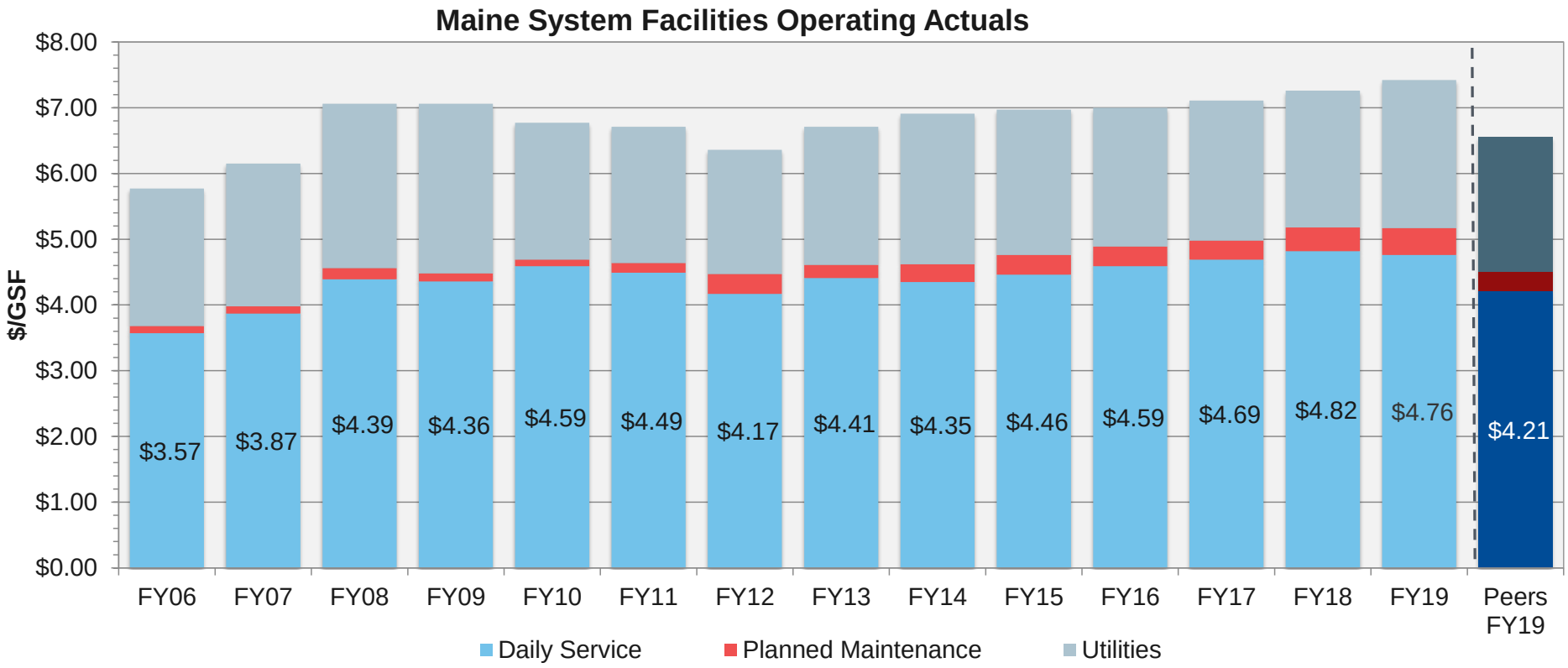
sightlines
a GORDIAN company

Operations Success

11.1

sightlines
a GORDIAN company

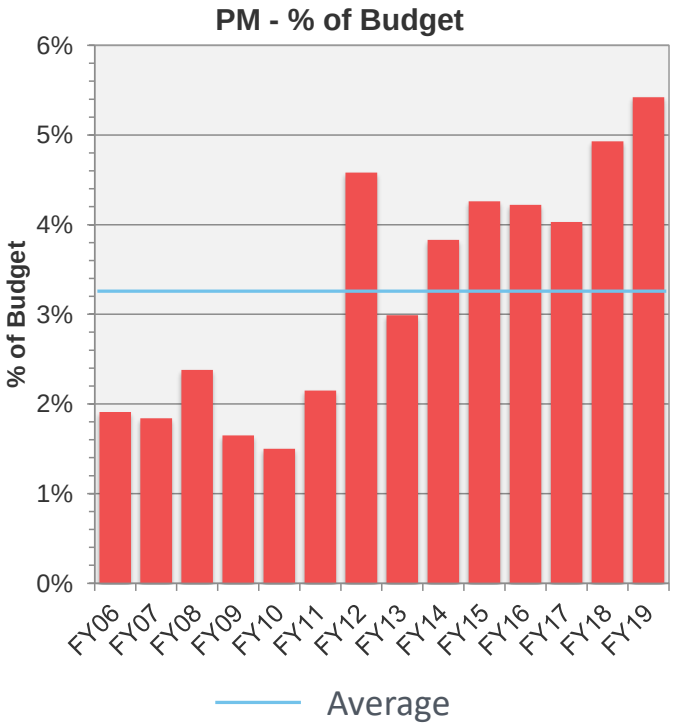
UMS Daily Services Expenditures Decrease in FY19

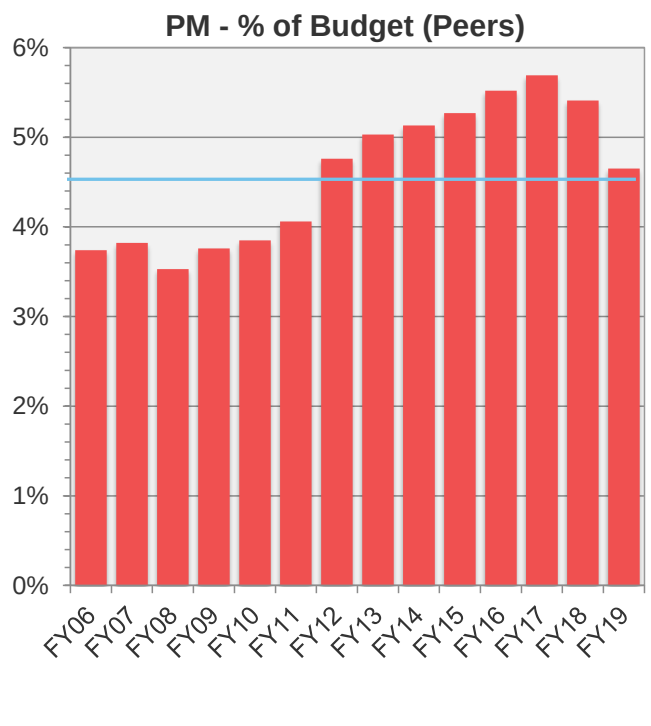


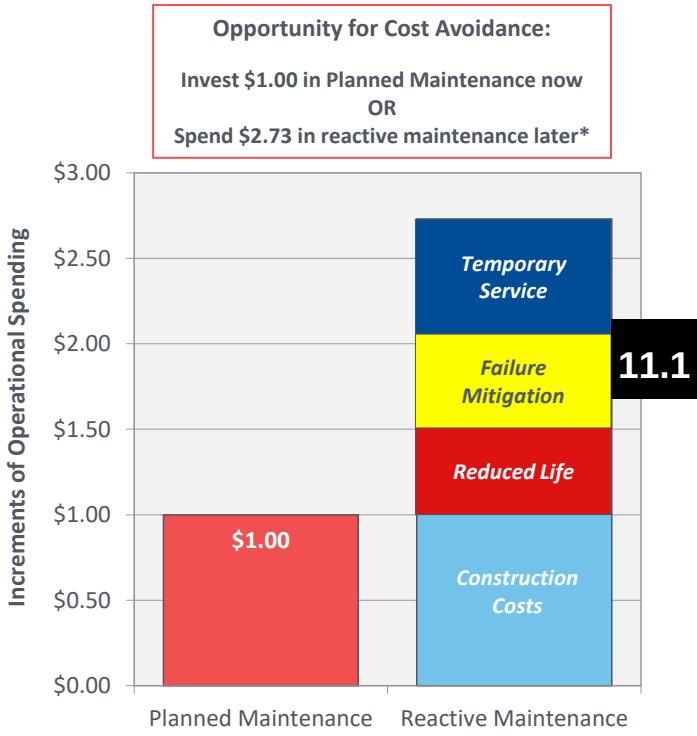
sightlines
a GORDIAN company

UMS Planned Maintenance 5.4% of Budget in FY19

Better tracking & improved PM programs continue to drive investment closer to peer levels







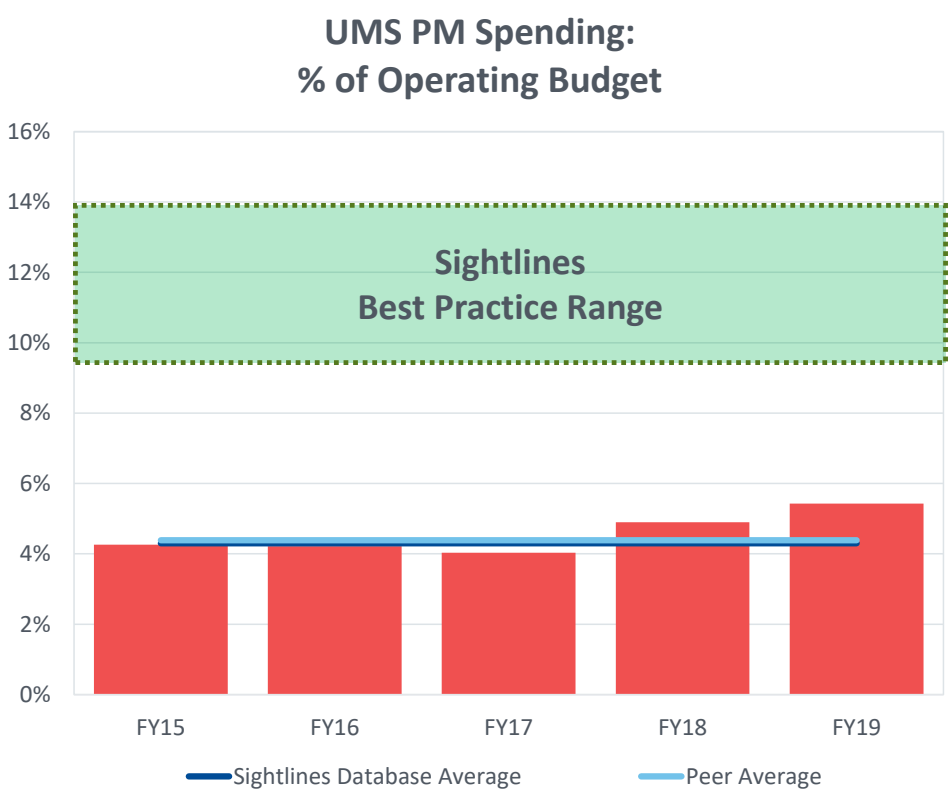
11.1

sightlines
a GORDIAN company

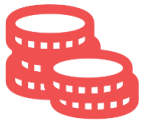
30

**Data from Ozanne Analytics – research of Sightlines database of work orders comparing costs of corrective and emergency work orders to planned and preventative work orders*

Planned Maintenance Strategic Opportunities



THEORY



$1.00 invested in PM now

SAVES $2.78 in reactive maintenance later

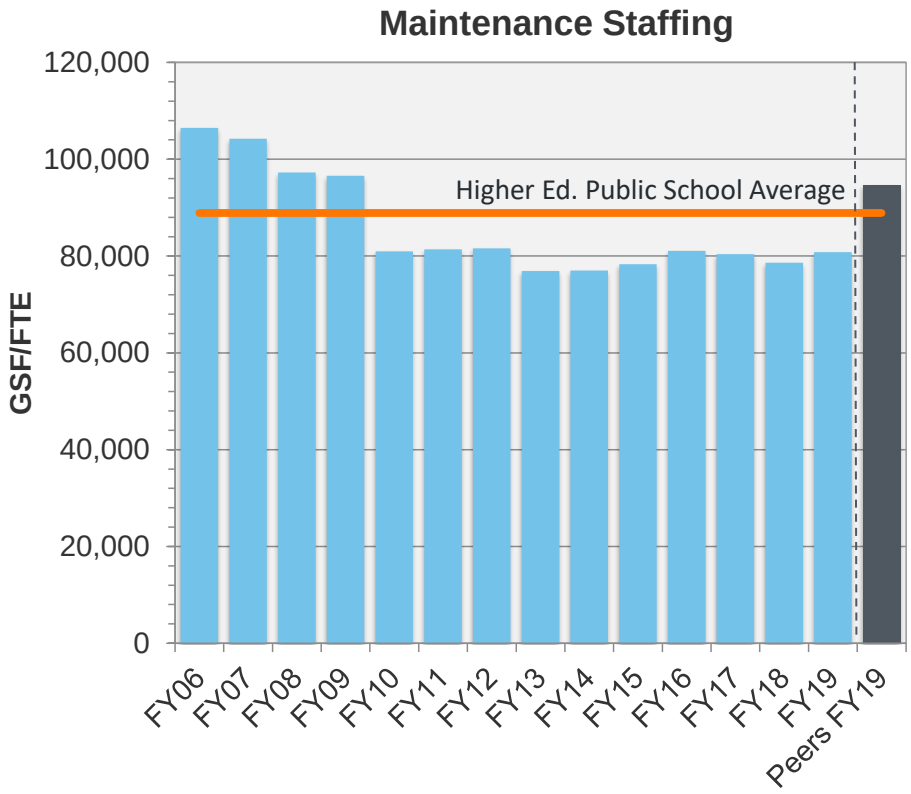
Strategic Deferral of PM

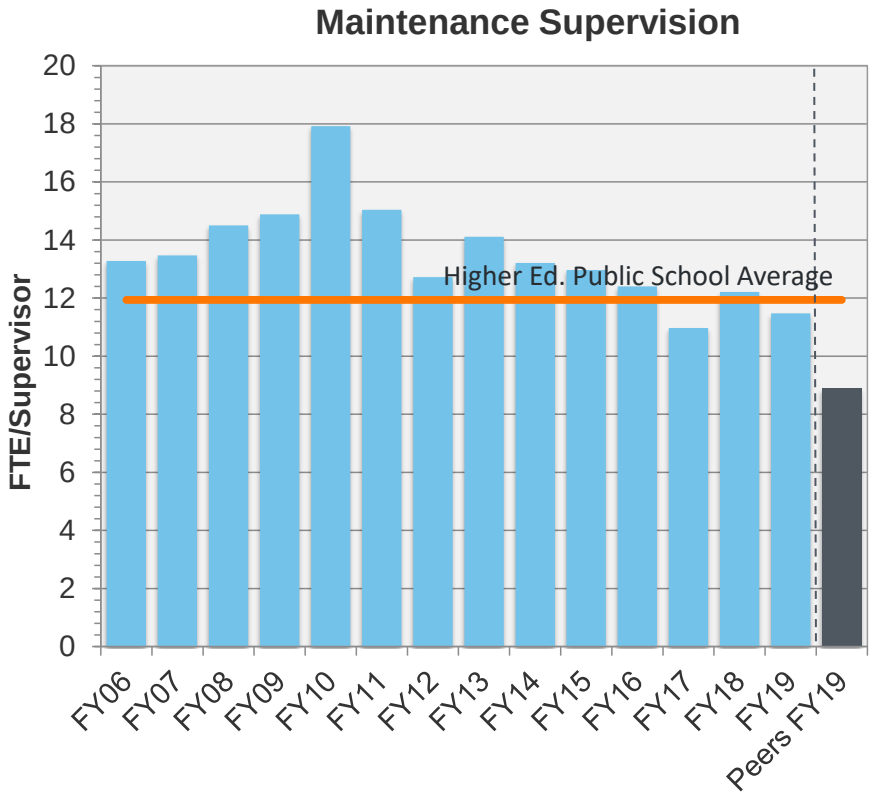
- Usually in buildings/systems over 50 years old targeted for renovation or replacement
- Reallocates resources from the older buildings/systems to younger buildings and systems.
- Use Assessment in coordination with work order reporting to start identifying these opportunities.

sightlines
a GORDIAN company

Maintenance Operations

Staff covered less GSF/FTE, has looser supervision than peers in FY19



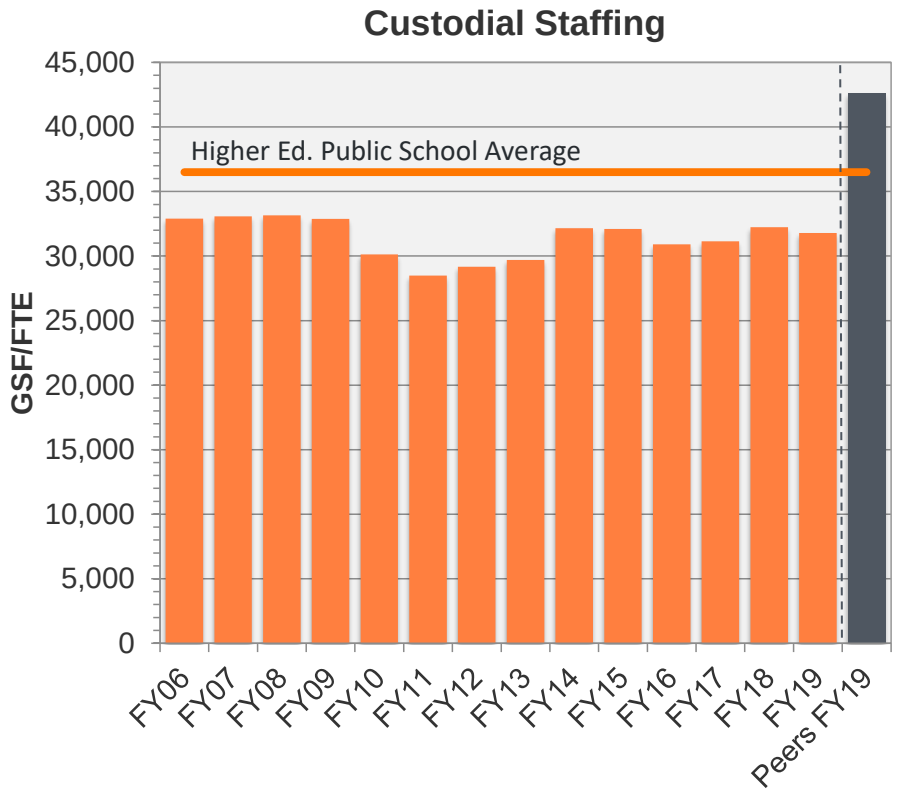


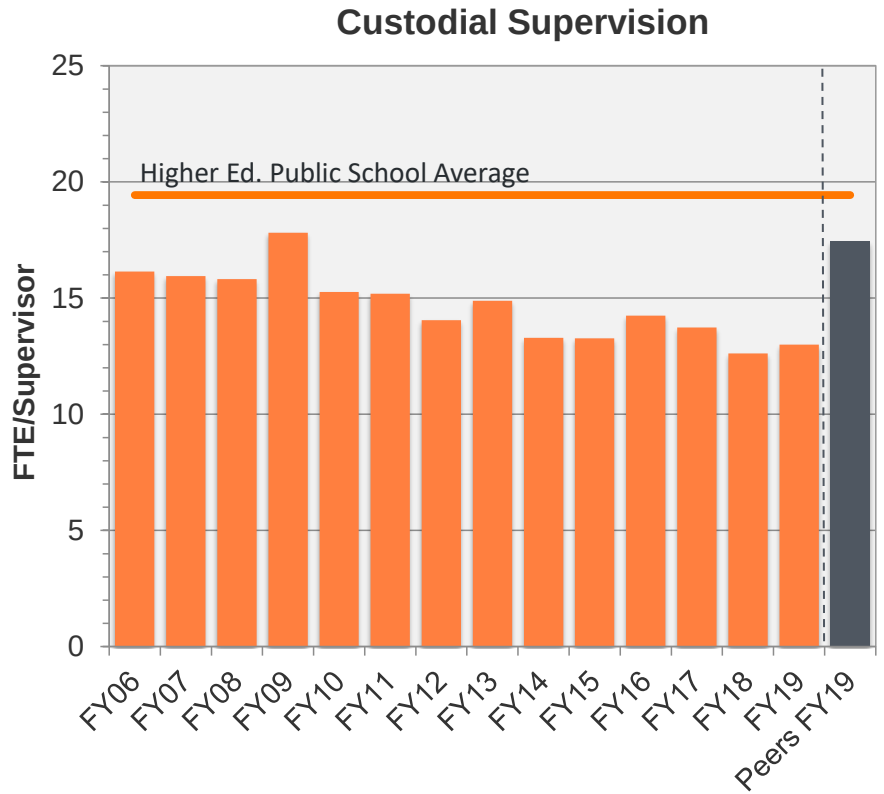
11.1

sightlines
a GORDIAN company

Custodial Operations

UMS has more custodial staff with closer supervision than peers and public school average



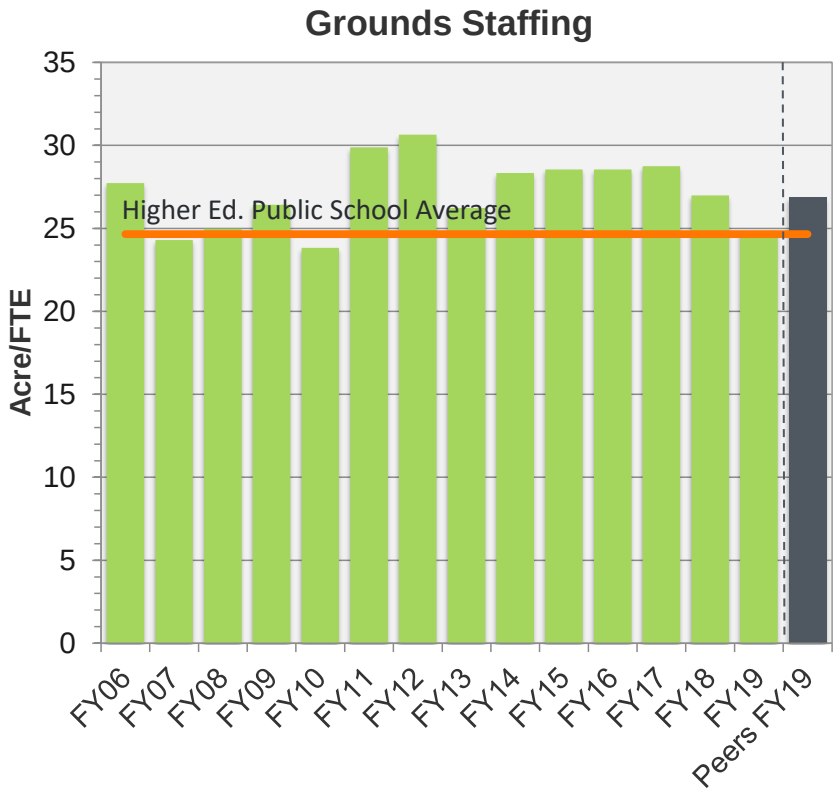


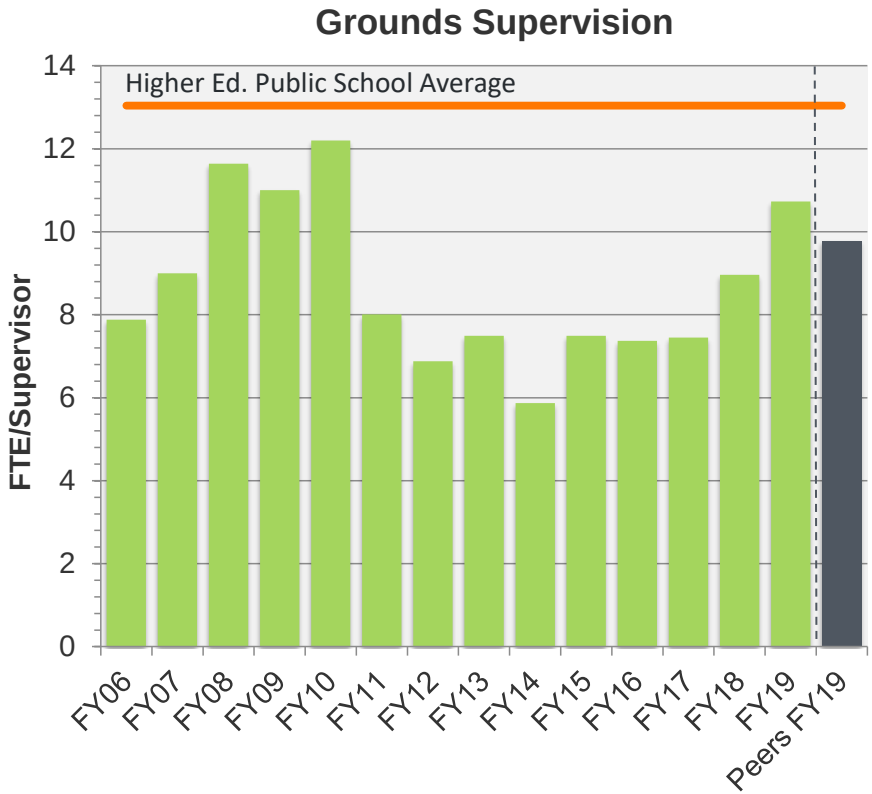
11.1

sightlines
a GORDIAN company

Grounds Operations

Grounds staff responsible for similar acres as peers and public school average

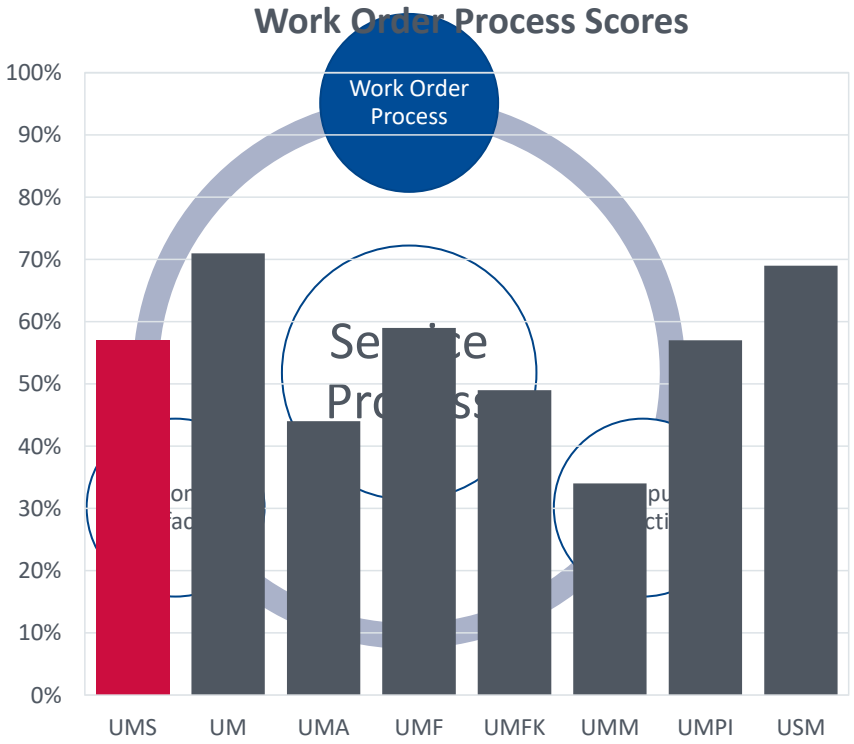




11.1

sightlines
a GORDIAN company

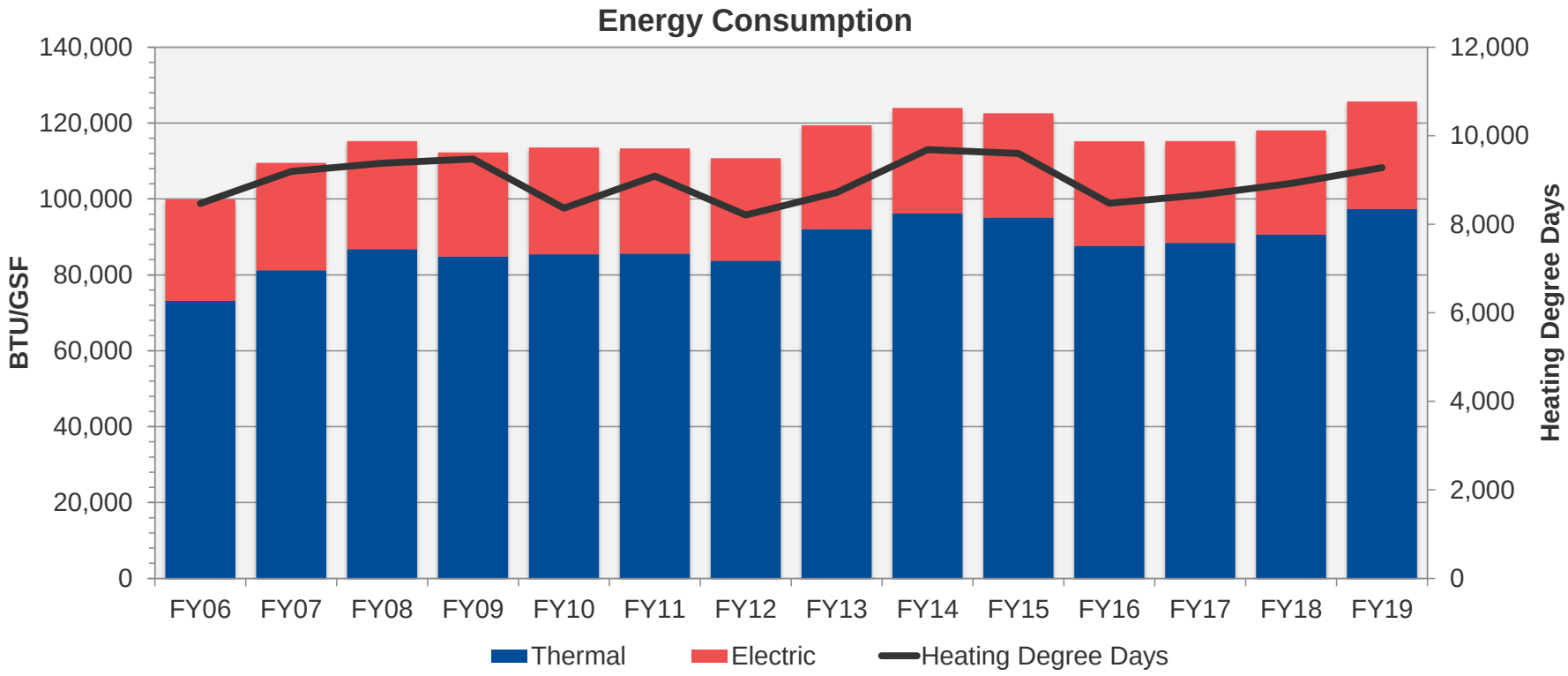
Opportunities Exist for Service Measurement



11.1

Total Energy Consumption Increased in Two Consecutive Years

Consumption increased at same rate as Heating Degree Days from F17 to FY19



11.1

sightlines a GORDIAN company

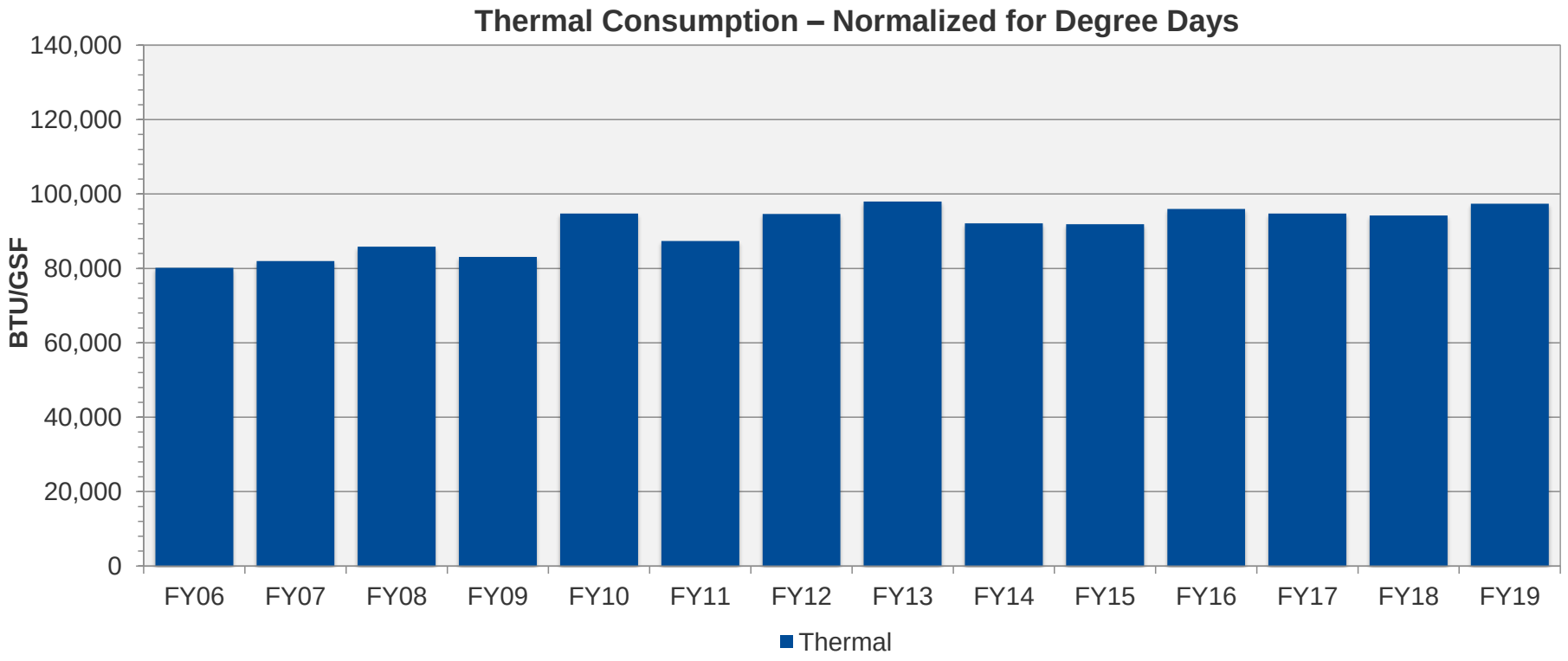
**Degree days noted are based on the Orono, Maine location*

***Thermal contain all heating fuel sources, including alternative fuel sources (ie biomass, wood chips, etc.)*

36

Similar Consumption From FY16-FY19 When Normalized for HDD

Graph shows what the consumption would be if each year experienced FY19 Degree Days



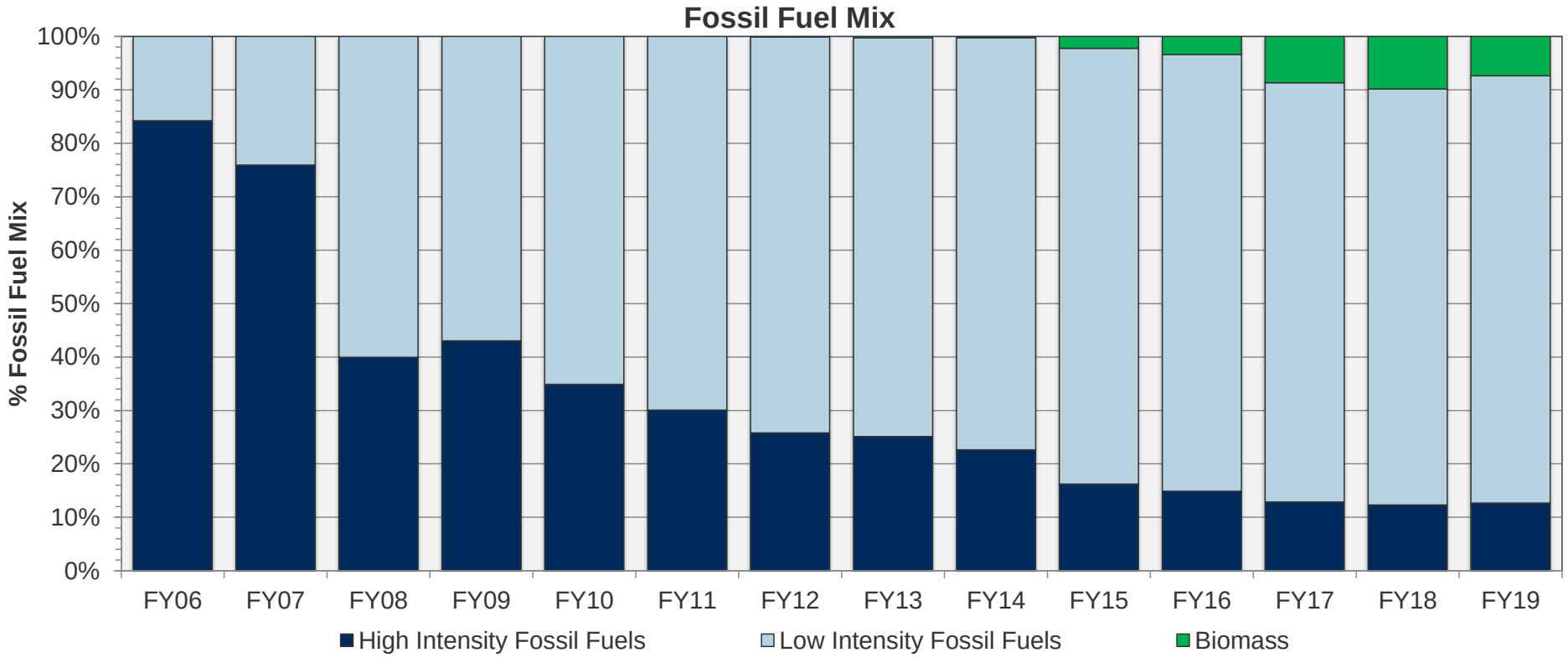
11.1

sightlines a GORDIAN company

**Degree days noted are based on the Orono, Maine location*
***Fossil fuels contain all heating fuel sources, including alternative fuel sources (ie biomass, wood chips, etc.)*

37

Fuel Mix Continues to Trend Towards Emitting Less Carbon



*High intensity fuels include oil #2 and oil #6
**Low intensity fuels include natural gas and propane

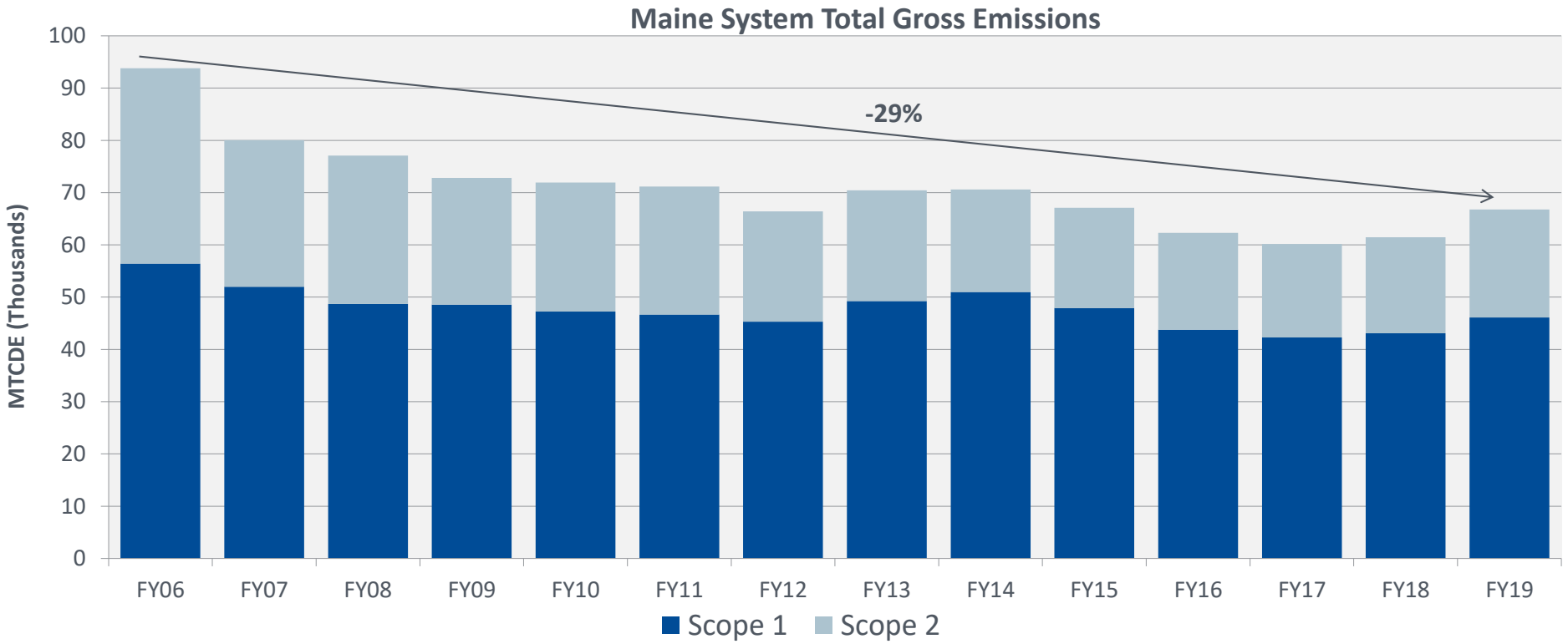
11.1

sightlines
a GORDIAN company

38

Campuses with biomass consumption increased use in FY19; however, overall, as a percent of total consumption for the System the portion allocated to biomass decreased given the increase of other thermal sources.

Fuel Mix and Consumption Drive Higher Emission Rates



MTCDE = Metric Tons of Carbon Dioxide Equivalent

11.1

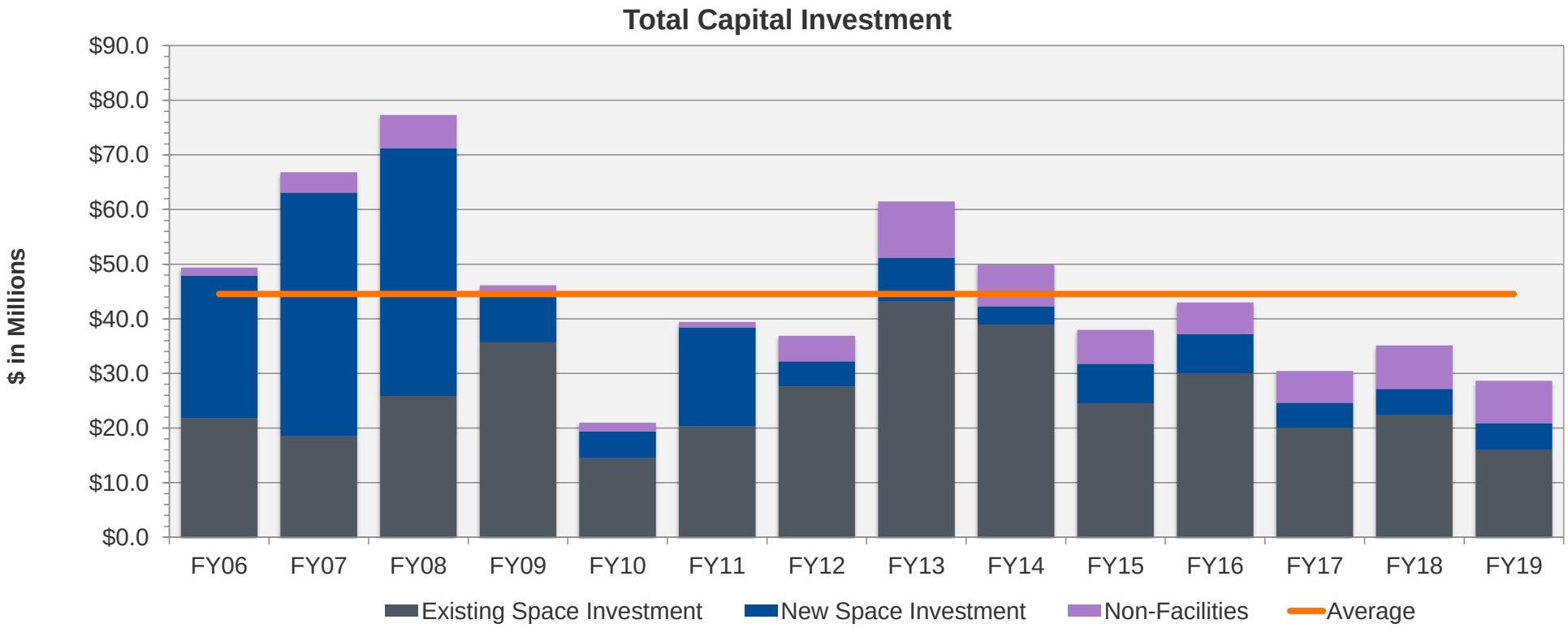
sightlines
a GORDIAN company

sightlines
a GORDIAN company

Asset Value Change

11.1

Total Capital Investment Below FY17 Levels in FY19

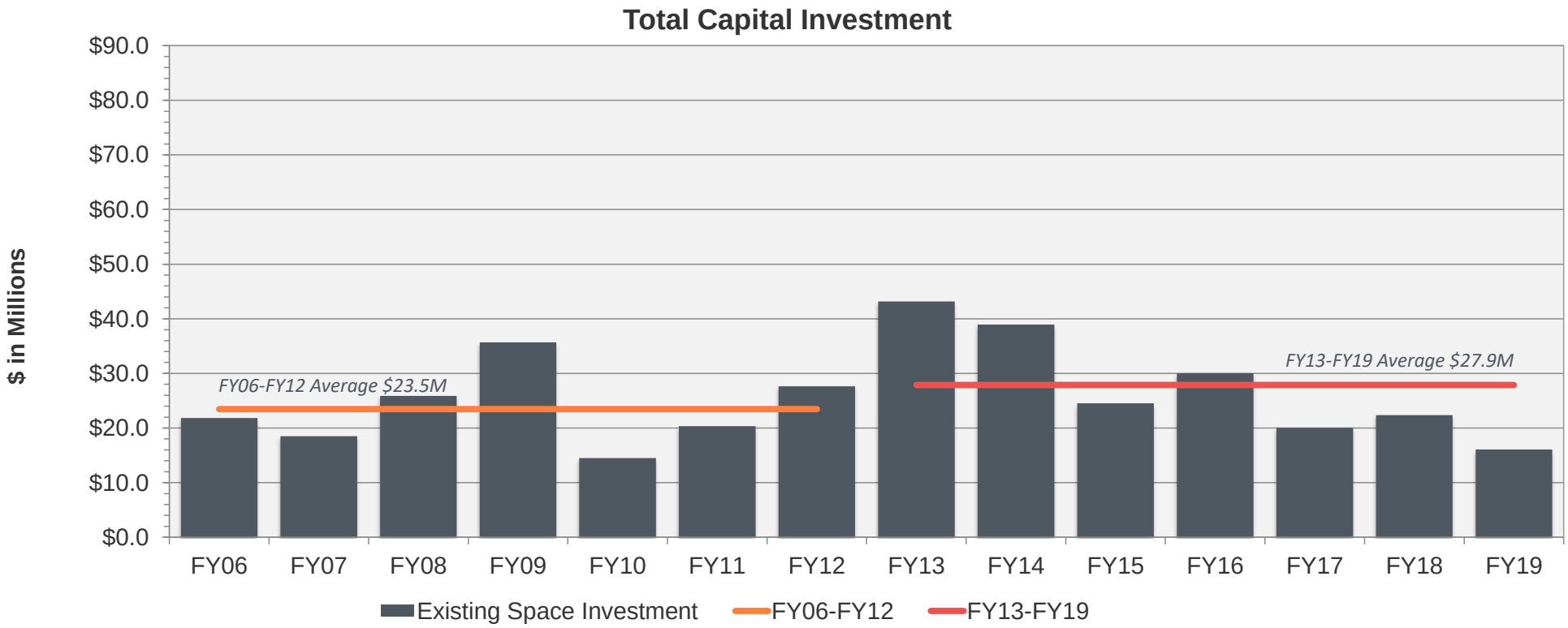


11.1

sightlines a GORDIAN company

Examples of Non-Facilities work include: Study/Design fees, IT work, and demolition costs. These are necessary capital costs for Facilities Operations but do not add value/enhance existing buildings.

Capital Investment Profile Improving Over Time

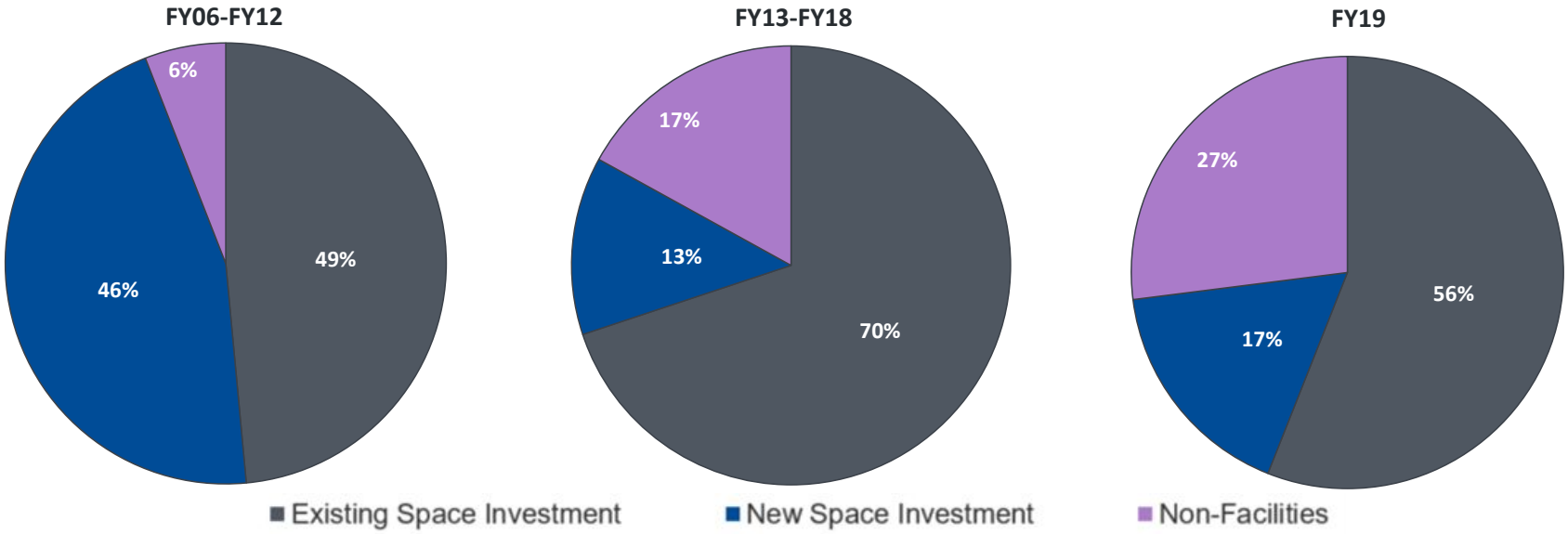


11.1

Examples of Non-Facilities work include: Study/Design fees, IT work, and demolition costs. These are necessary capital costs for Facilities Operations but do not add value/enhance existing buildings.

Investments Focus on Existing Space

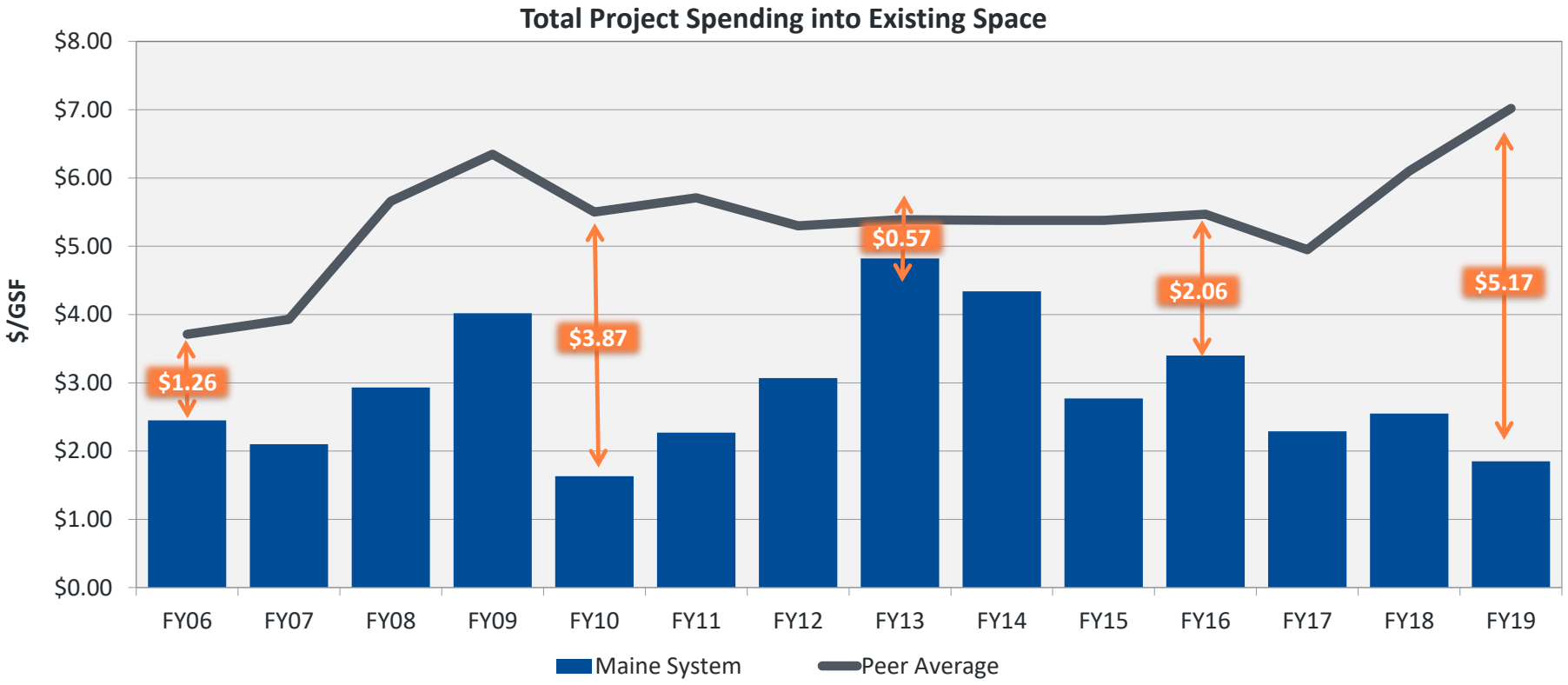
Existing space investments help to slow backlog growth



11.1

Examples of Non-Facilities work include: Study/Design fees, IT work, and demolition costs. These are necessary capital costs for Facilities Operations but do not add value/enhance existing buildings.

Gap In Investment Against Peer Systems Widens

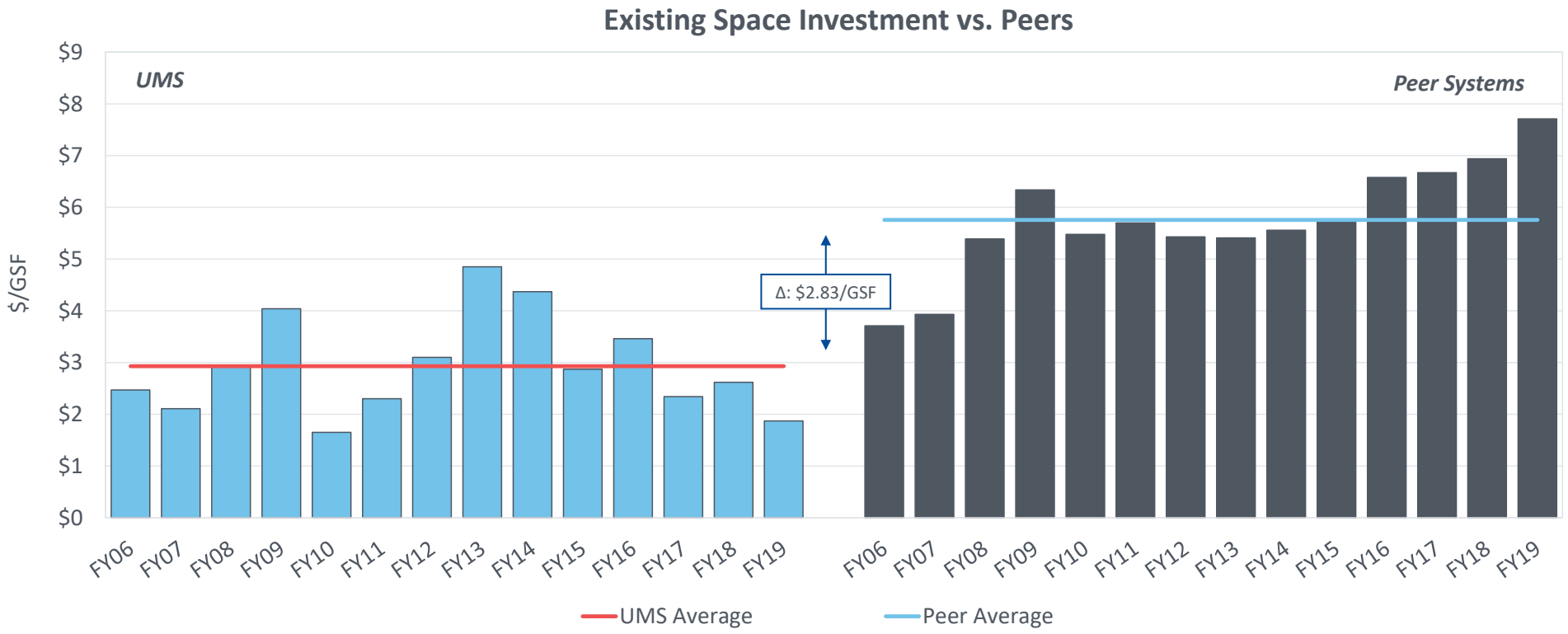


sightlines
a GORDIAN company

11.1

Existing Space Investment vs. Peers

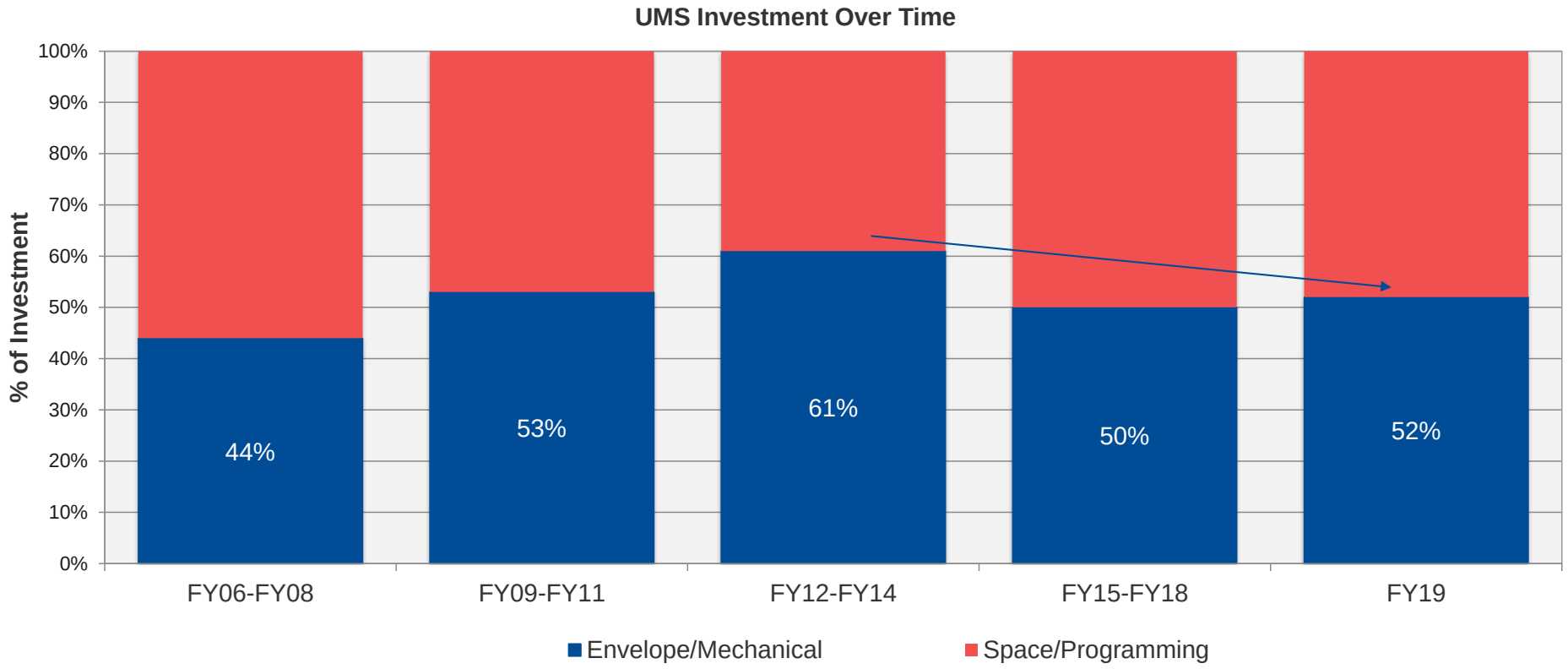
Peers invest an average of $2.83/GSF more than UMS from FY06-FY19



11.1

FY19 Investments Split Between Env/Mech and Space/Prog

ROI is higher in envelope/mechanical investments than space/program

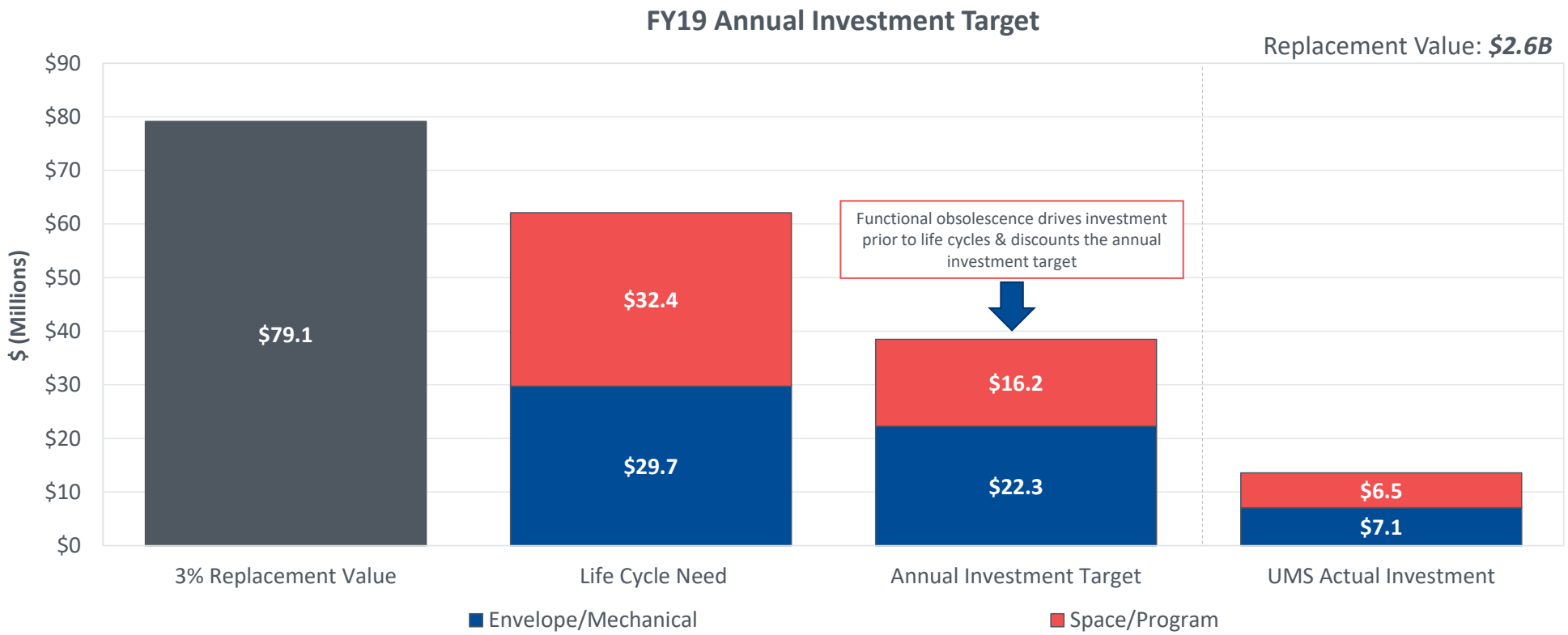


Does not include infrastructure investments.

sightlines a GORDIAN company

11.1

UMS FY19 Annual Investment Target: $38.5M

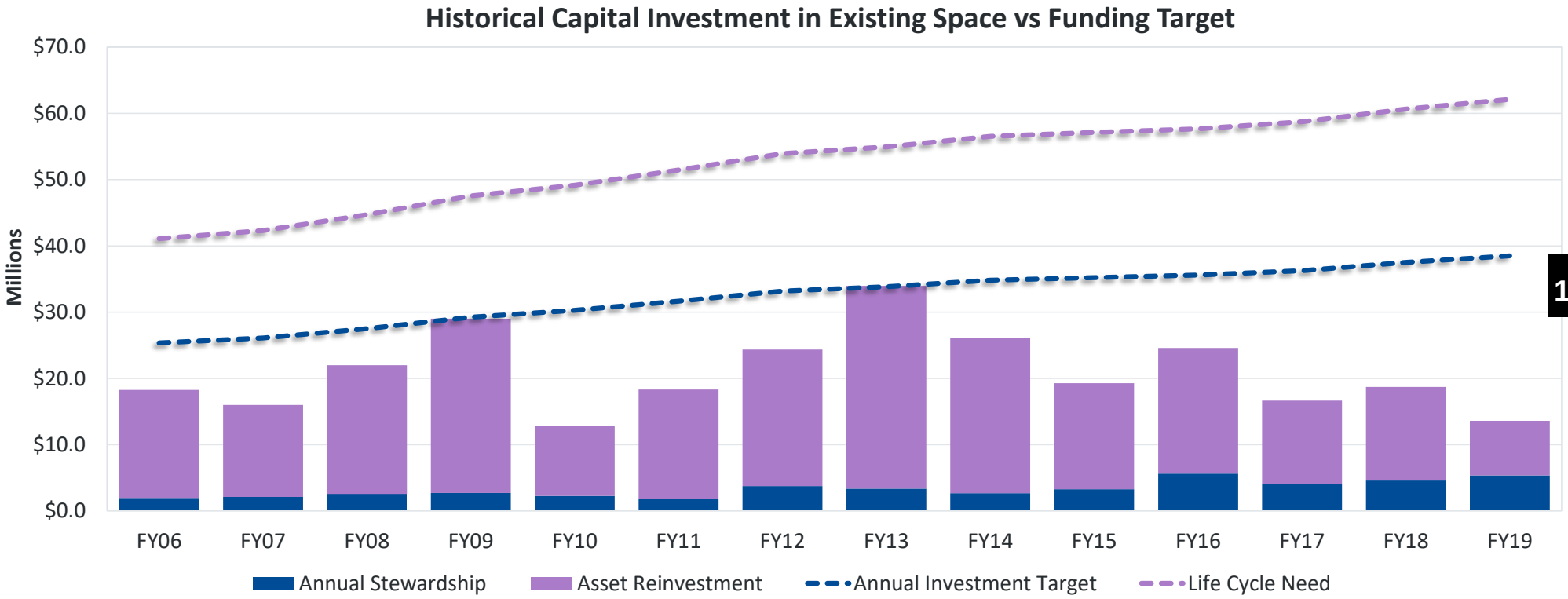


11.1

sightlines
a GORDIAN company

UMS Falls $24.9M Short of Annual Investment Target in FY19

Deferral to Backlog of Need Continues in FY19



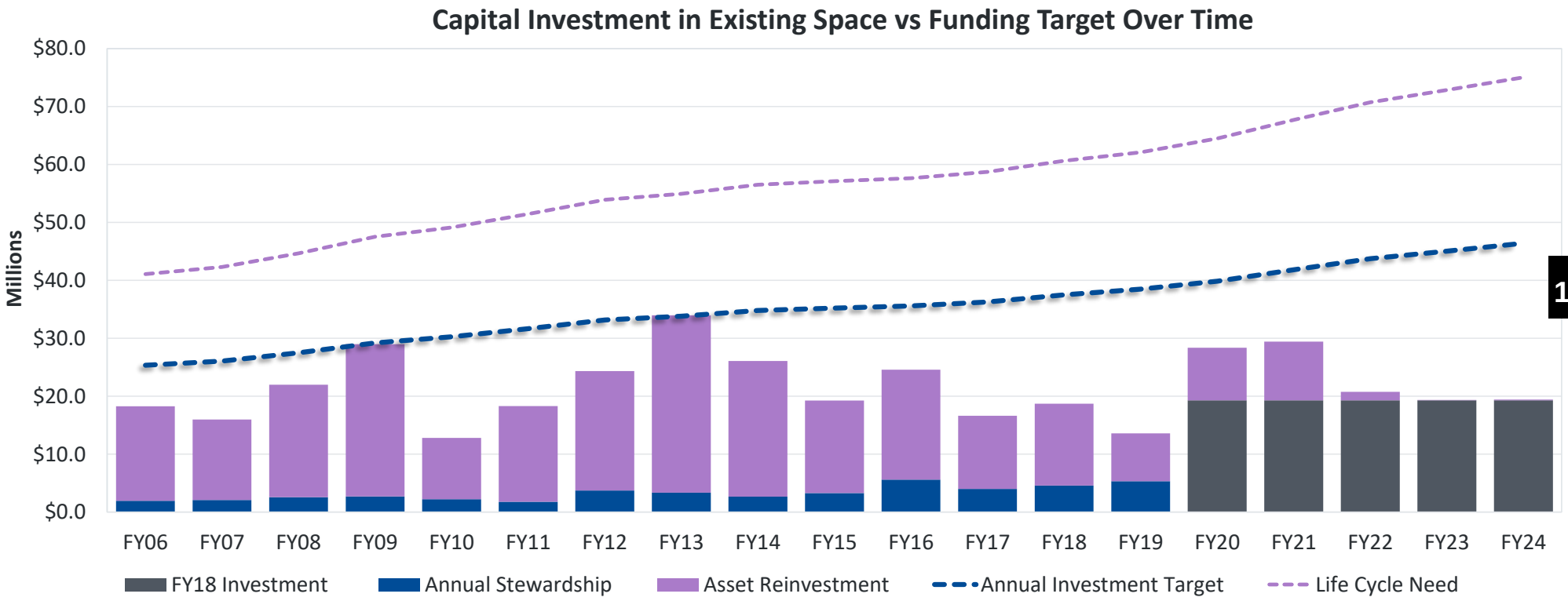
11.1

sightlines
a GORDIAN company

Does not include infrastructure, new space or non-facilities spending

Sightlines' Target Not Met With Existing Space Investment Plans

Graph assumes UMS will fund the campuses at 5-year historic levels, excluding other bonds



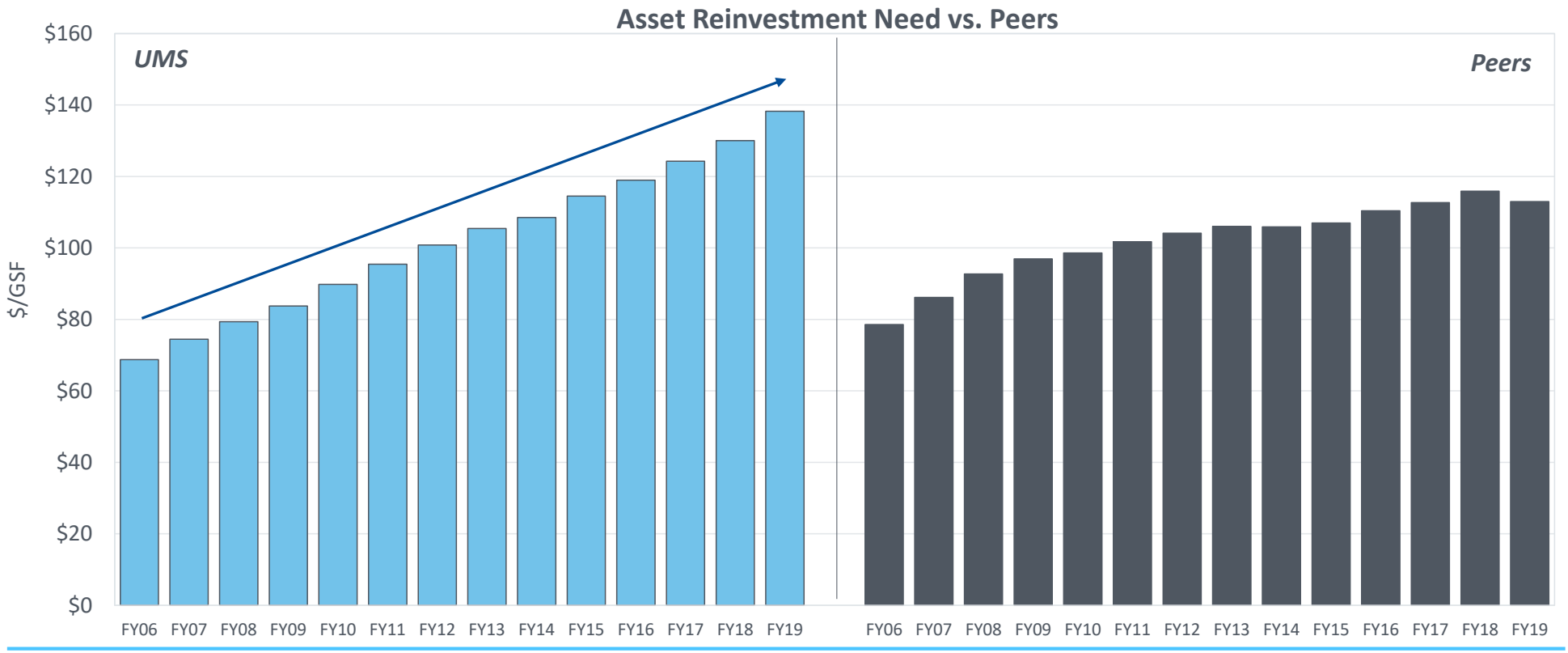
11.1

Does not include infrastructure, new space or non-facilities spending

sightlines
a GORDIAN company

Asset Reinvestment Need Growth is Outpacing Peers

Campuses become reactive when backlog need reaches the $100/GSF threshold

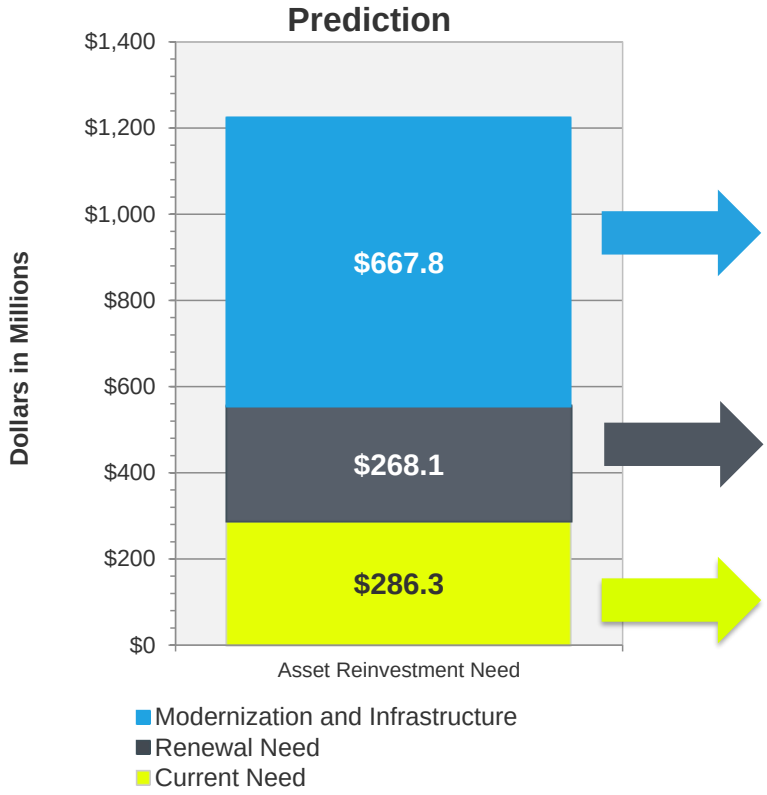


11.1

sightlines
a GORDIAN company

$1.22B of Need at UMS Over the Next 10 Years

Current Need or Deferred Maintenance accounts for 23% of total need, $286.3M



- ✓ Modernization and Infrastructure Needs
- ✓ Estimated using a combination of the Sightlines' database and BPS analyses.

✓ Combination of Funds

- ✓ Life Cycle Needs coming due between FY20 – FY29

✓ "Keep-Up" Funds

- ✓ Deferred Maintenance
- ✓ The subsystem has already failed
- ✓ The subsystem is functioning with substantial degradation of efficiency or performing at increased cost

✓ "Catch-Up" Funds

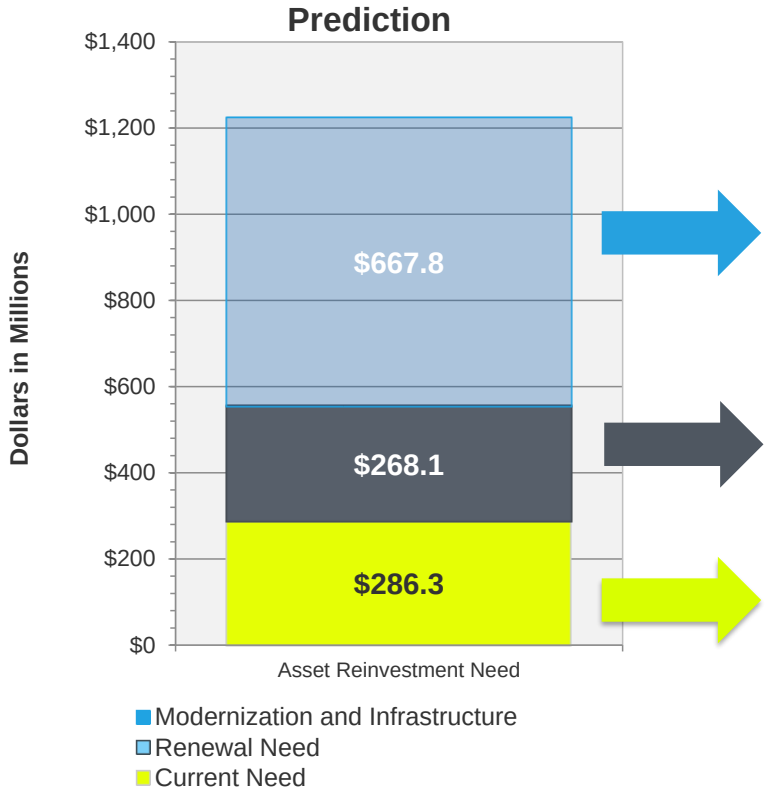
11.1

sightlines
a GORDIAN company

51

$1.22B of Need at UMS Over the Next 10 Years

Current Need or Deferred Maintenance accounts for 23% of total need, $286.3M



- ✓ Modernization and Infrastructure Needs
- ✓ Estimated using a combination of the Sightlines' database and BPS analyses.

✓ Combination of Funds

- ✓ Life Cycle Needs coming due between FY20 – FY29

✓ "Keep-Up" Funds

- ✓ Deferred Maintenance
- ✓ The subsystem has already failed
- ✓ The subsystem is functioning with substantial degradation of efficiency or performing at increased cost

✓ "Catch-Up" Funds

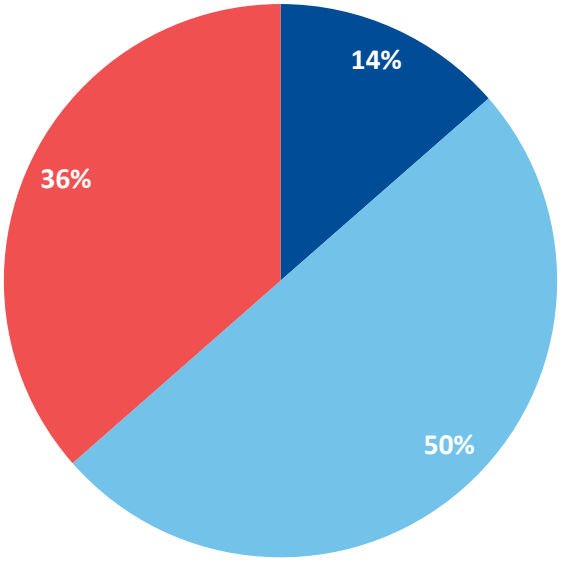
11.1

sightlines
a GORDIAN company

Envelope/Mechanical Requirements Account For 83% of 10 Year Need

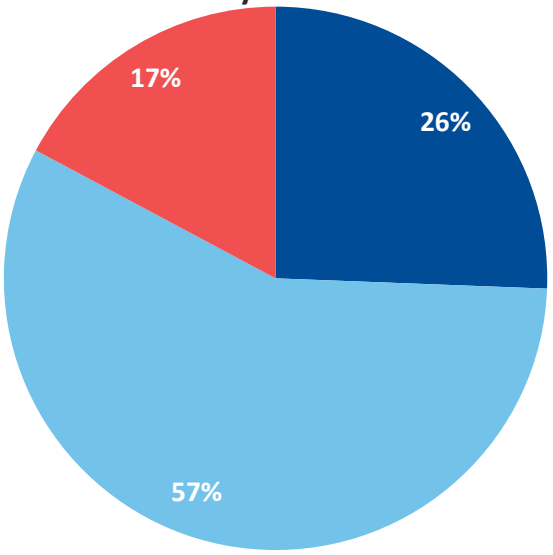
Stronger investment in mechanical and envelope work needed in future years

FY06-FY19 Historical Project Investment



$296M Invested

Distribution of Maine System Need* by System



$554M of Need

Envelope Mechanical Interiors

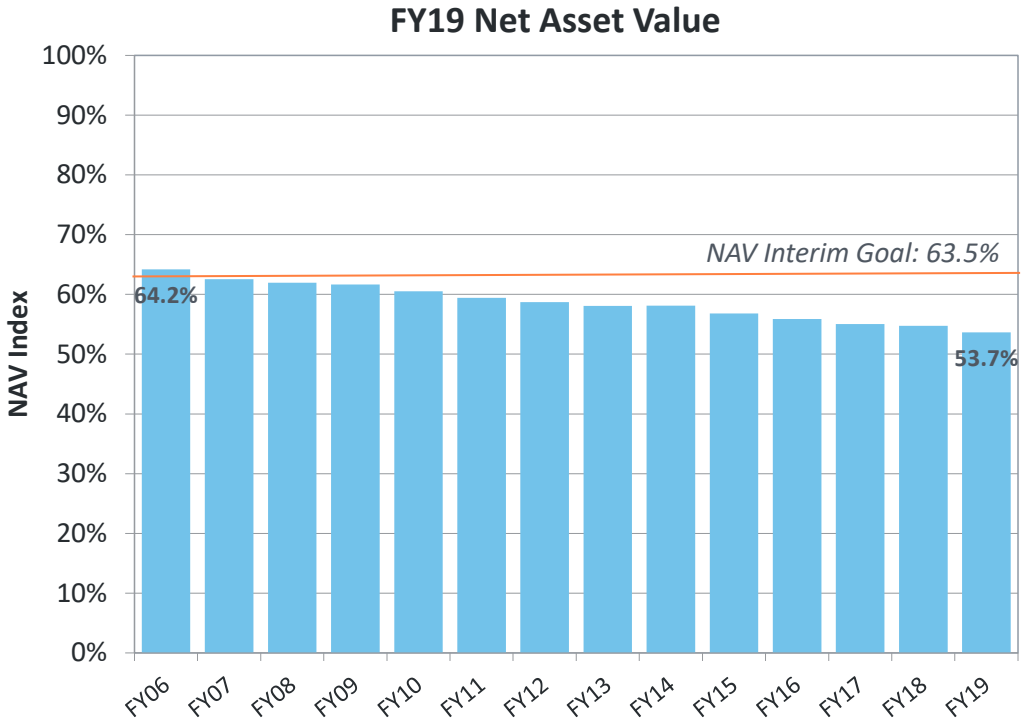
*Need includes backlog and renewal projects, not modernization or infrastructure work

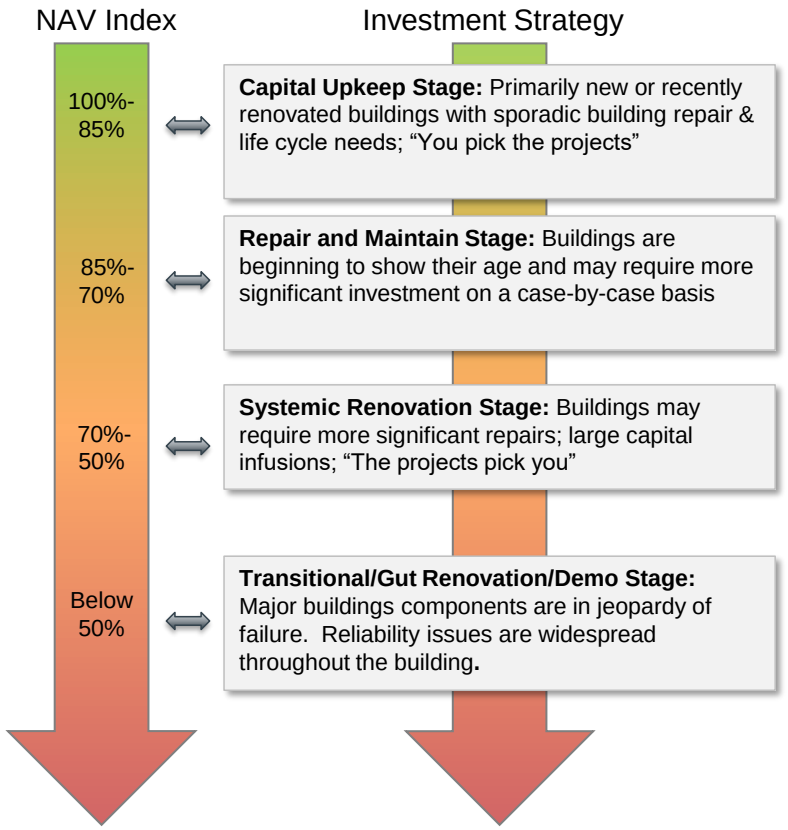
sightlines a GORDIAN company

53

11.1

Rate of Deferral Slows But NAV Continues to Decrease





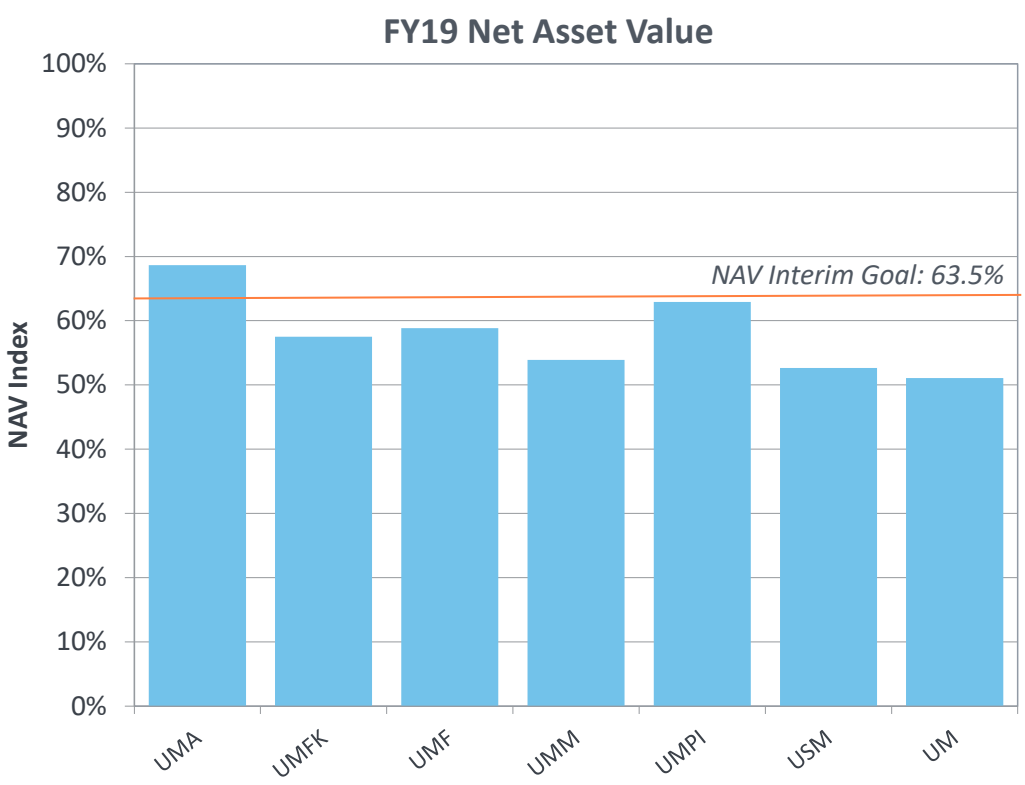
11.1

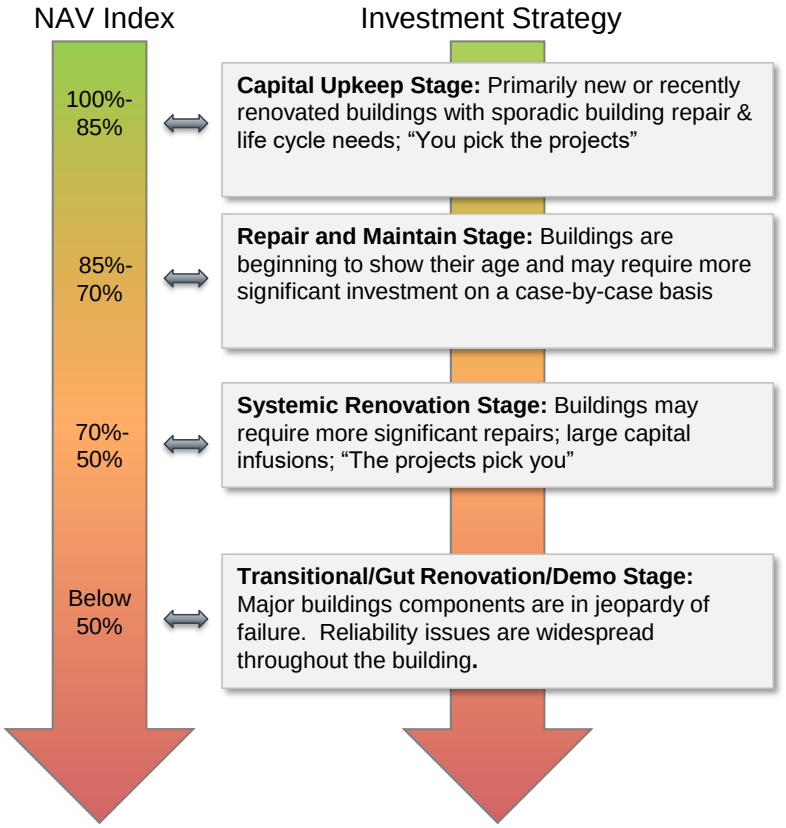
sightlines
a GORDIAN company

54

Net Asset Value = $\frac{\text{Replacement Value – Backlog}}{\text{Replacement Value}}$

FY19 Net Asset Value By Campus





11.1

sightlines
a GORDIAN company

55

Net Asset Value = $\frac{\text{Replacement Value – Backlog}}{\text{Replacement Value}}$

sightlines
a GORDIAN company

Concluding Comments

11.1

sightlines
a GORDIAN company

Key Takeaways

- Space over 50 years old continues to grow, adding potential risk for failure of System assets
- Despite expected growth of capital resources, available dollars will not mitigate the growth of deferred maintenance across the System
- Operations has been put in a reactive position as a result of lack of historical capital resources to keep up with aging facility needs

11.1

sightlines
a GORDIAN company

Recommendations

- Develop building portfolios to understand the intentional allocation of resources to certain assets and avoidance of others.
- Continue to refine the prioritization process of project selection in order to select projects with high return on investment in the mission critical buildings
- Use IWMS as an opportunity to re-boot process consistency and begin tying capital needs to operational costs through the work order system.

11.1

sightlines
a GORDIAN company

sightlines
a GORDIAN company

Questions and Comments

11.1

sightlines
a GORDIAN company

sightlines
a GORDIAN company

Appendix: UMS Key Performance Indicators

Using Sightlines Data to Monitor UMS KPIs

Density: Number of users
•Current UMS measure: 332
•Interim Goal: 332
•Peer/Industry standard: 465
•Long-term System goal: 415

NAV: Net Asset Value
•Current UMS measure: 53.7%
•Interim Goal: 63.5%
•Peer/Industry standard: 75%
•Long-term System goal: 70%

Annual Facilities Operating Expenses: *Maintenance, Custodial, Grounds, & Paid Utilities per GSF*
- Current UMS measure: $7.42
- Peer/Industry standard: $6.13
- Establishment of specific goals to be revisited in FY20

Annual Facilities Operating Expenses: *Maintenance, Custodial, Grounds, & Paid Utilities %CRV*
- Current UMS measure: 2.4%
- Peer/Industry standard: TBD
- Periodic reporting recommended

Capital Expenditures on Existing Space: *%CRV*
•Current UMS measure: .6%
•Peer/Industry standard: <1.5%
•Periodic reporting recommended

Preventative Maintenance/Demand Maintenance, *% Annual Expenditures*
- Current UMS measure: 5.4%
- Peer/Industry standard: in evaluation
- Establishment of specific goals to be revisited in FY20

Annual Facilities Operating Expense: *Maintenance, Custodial, Grounds, & Paid Utilities %GIR*
•Current UMS measure: 8.8%
•At this time, there are no commonly accepted standards in this area. UMS will continue to track, report, & internally benchmark their progress

Coverage: FTE (Maintenance, Custodial, Grounds); *per GSF*
- Continue to monitor GSF/FTE ratios
- Strive to meet or exceed APPA/Sightlines benchmarks, i.e.: Custodial target zone: 29,213 - 37,000 GSF/FTE

Total Cost of Ownership (TCO):
- UMS should formally consider lifetime cost of a facility and other KPIs in planning and decision making, not only one-time construction costs.

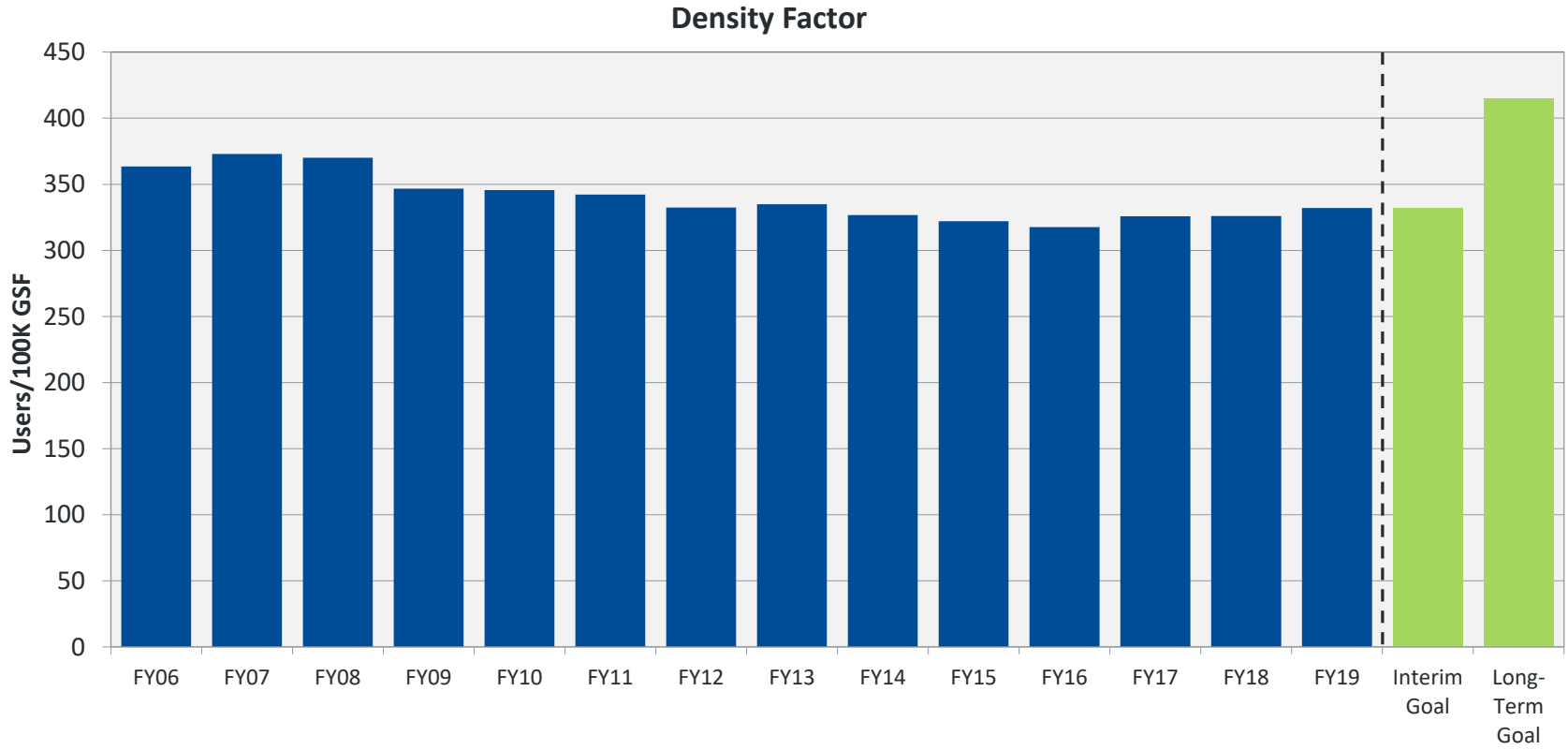
Energy Cost; *per Million BTU's*
- Current UMS measure: $33.01/BTU
- Peer/Industry standard: $27.87
- Periodic reporting recommended

Energy Cost: *per GSF*
- Current UMS measure: $2.25
- Peer/Industry standard: $2.19
- Periodic reporting recommended

Energy BTU's; *per GSF*
- Current UMS measure: 125,667 BTU/GSF
- Peer/Industry standard: 149,521 BTU/GSF
- Continue to meet/exceed peer/industry standards, strive to improve existing UMS performance, & establish specific goals for FY20

Density Factor

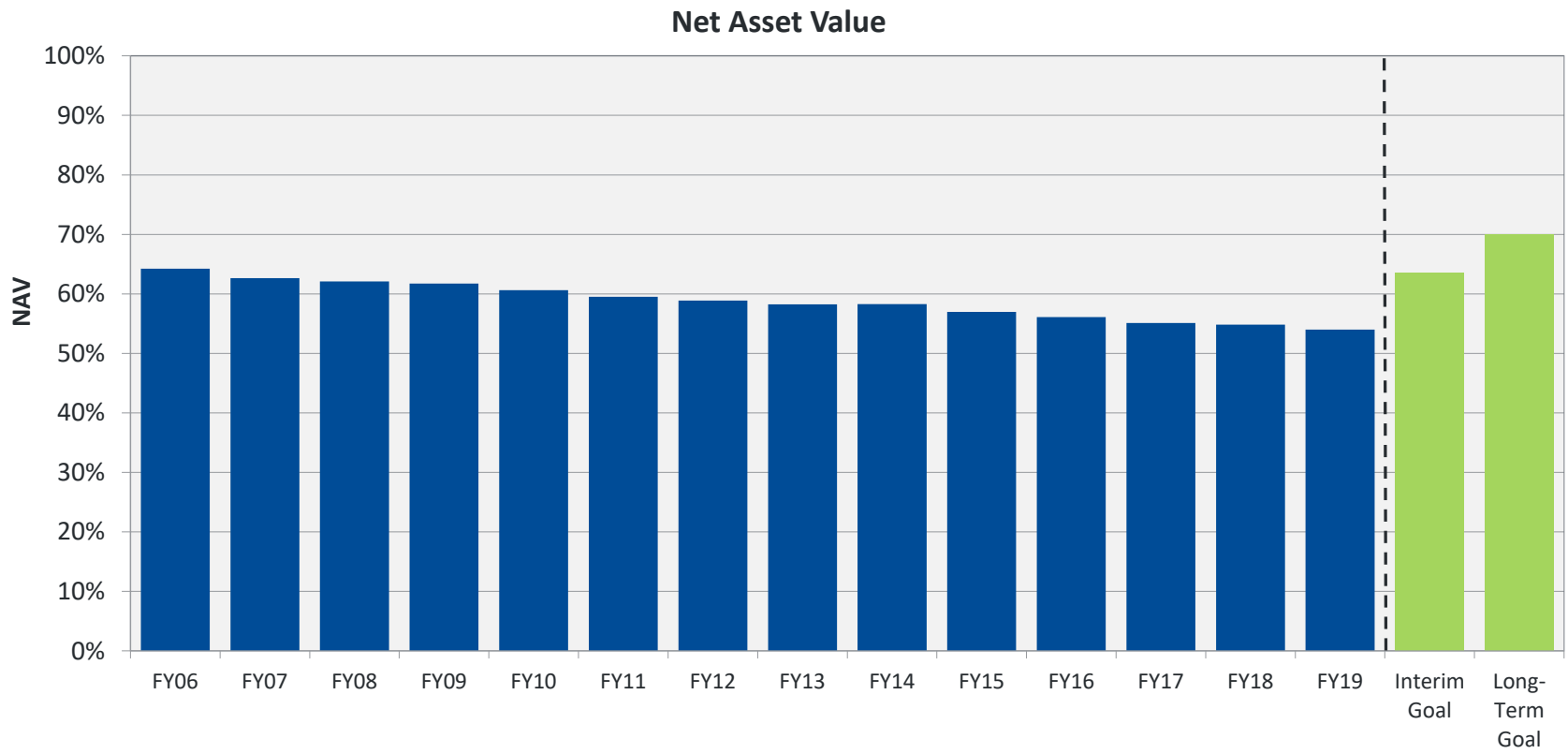
Density: Measures number of users per 100,000 GSF



11.1

sightlines
a GORDIAN company

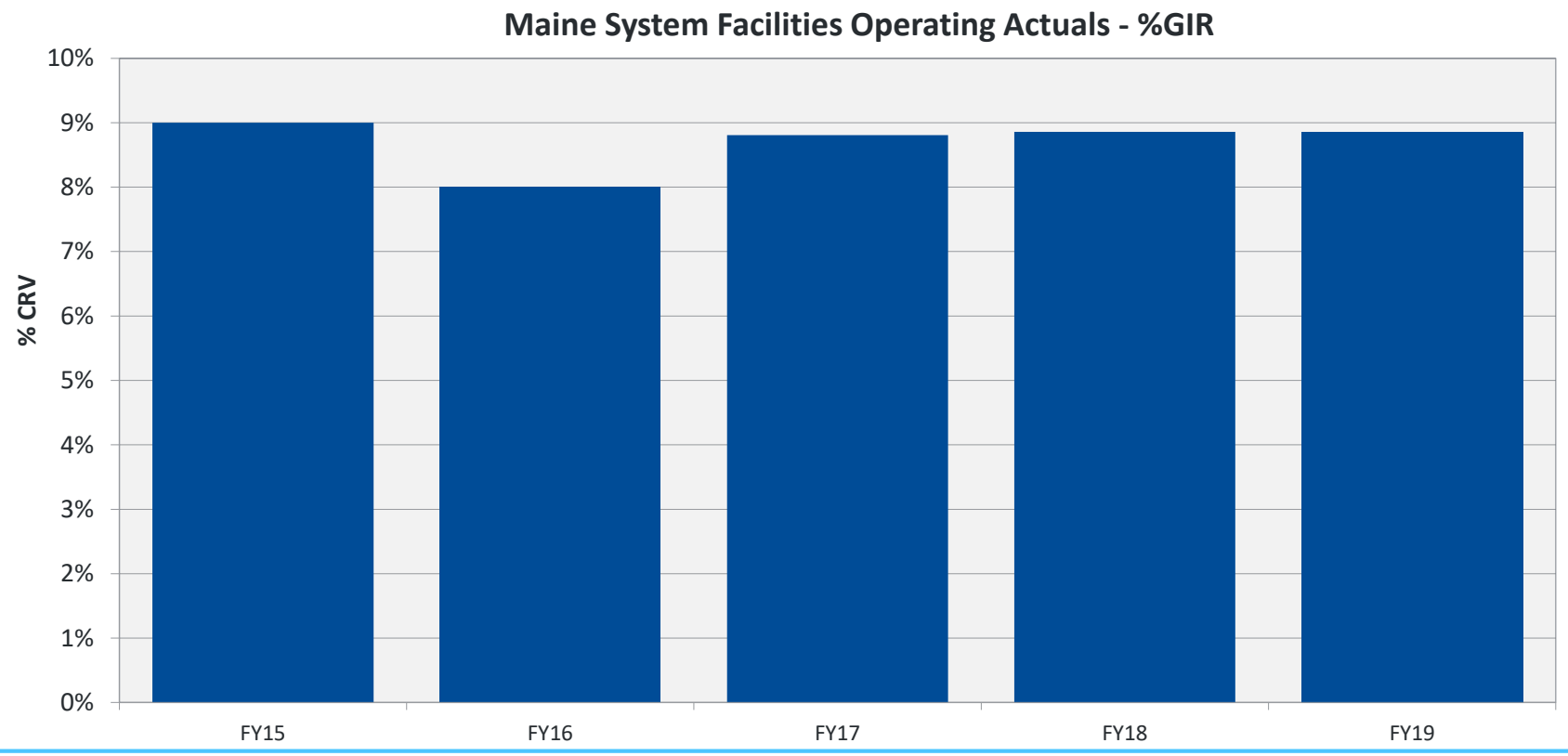
Net Asset Value



11.1

sightlines
a GORDIAN company

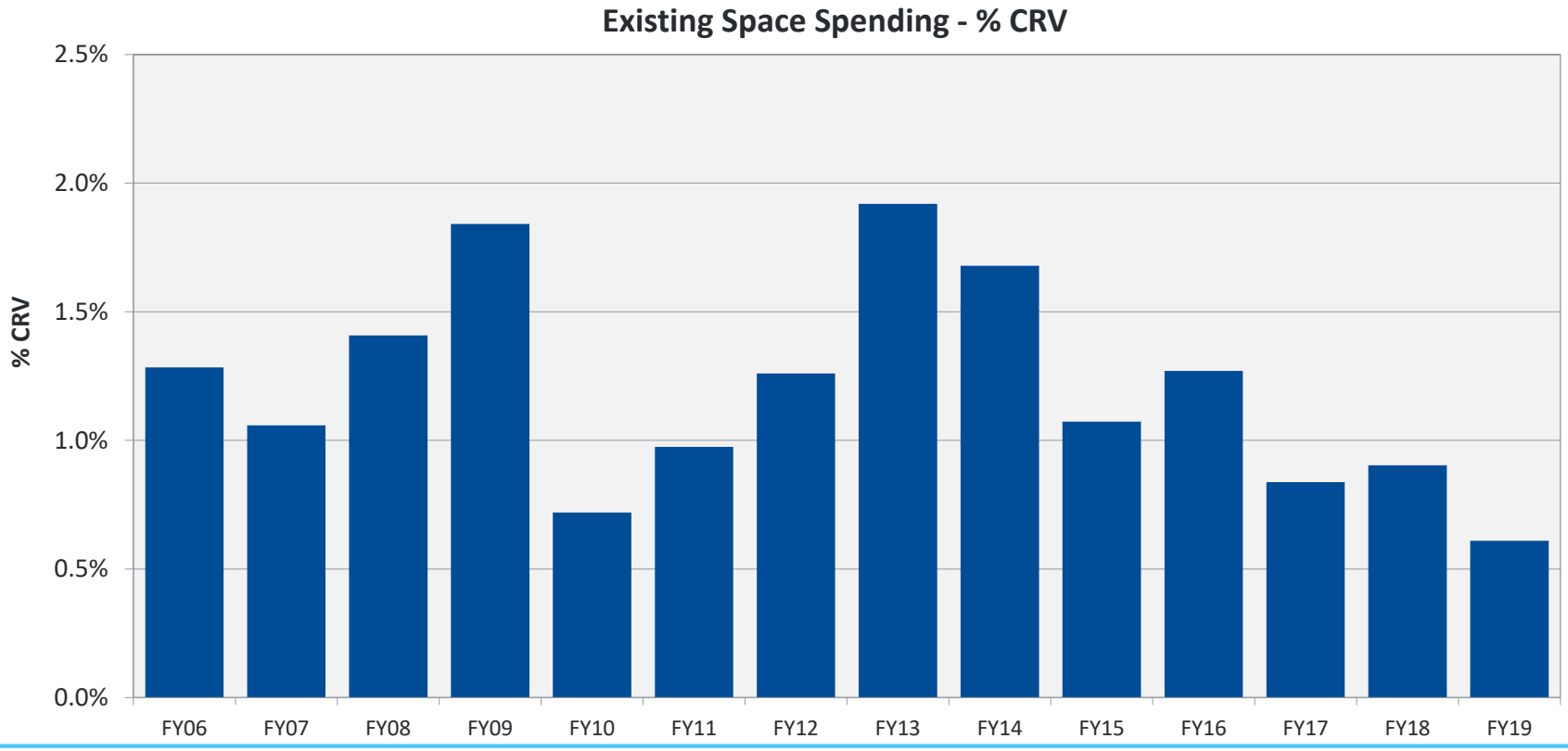
Facilities Operating Actuals as % of GIR



*This information will be tracked moving forward.

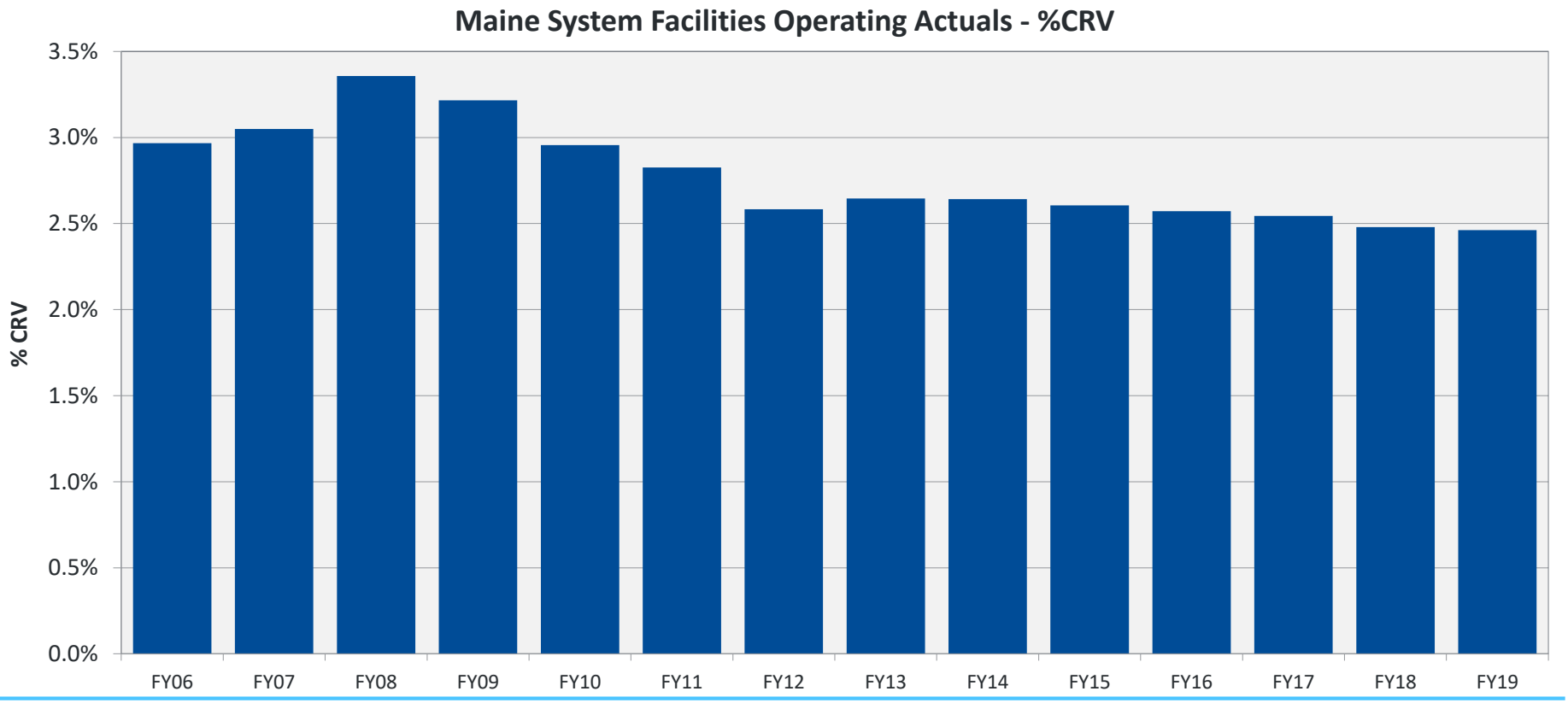
Capital Spending - % CRV

Existing space investment only



sightlines
a GORDIAN company

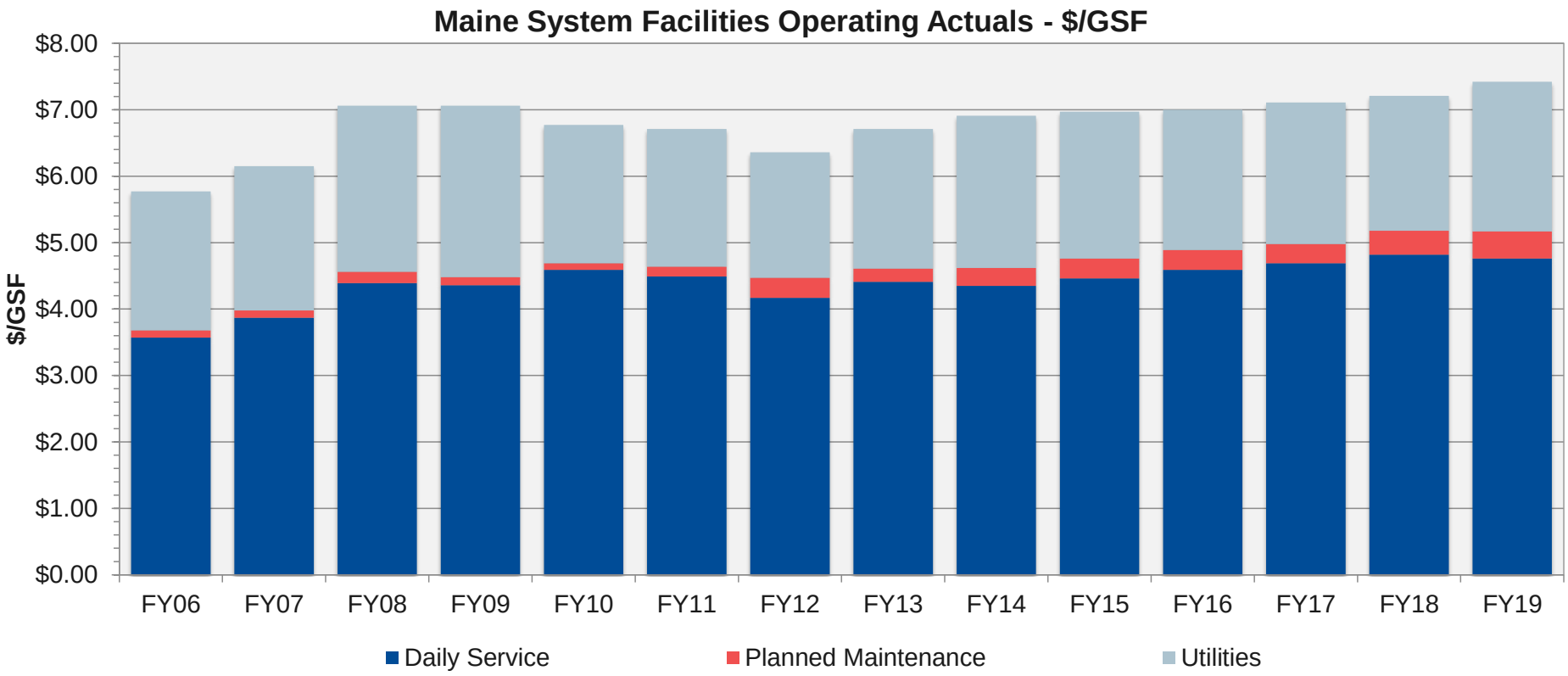
Facilities Operating Actuals as % of CRV



11.1

sightlines
a GORDIAN company

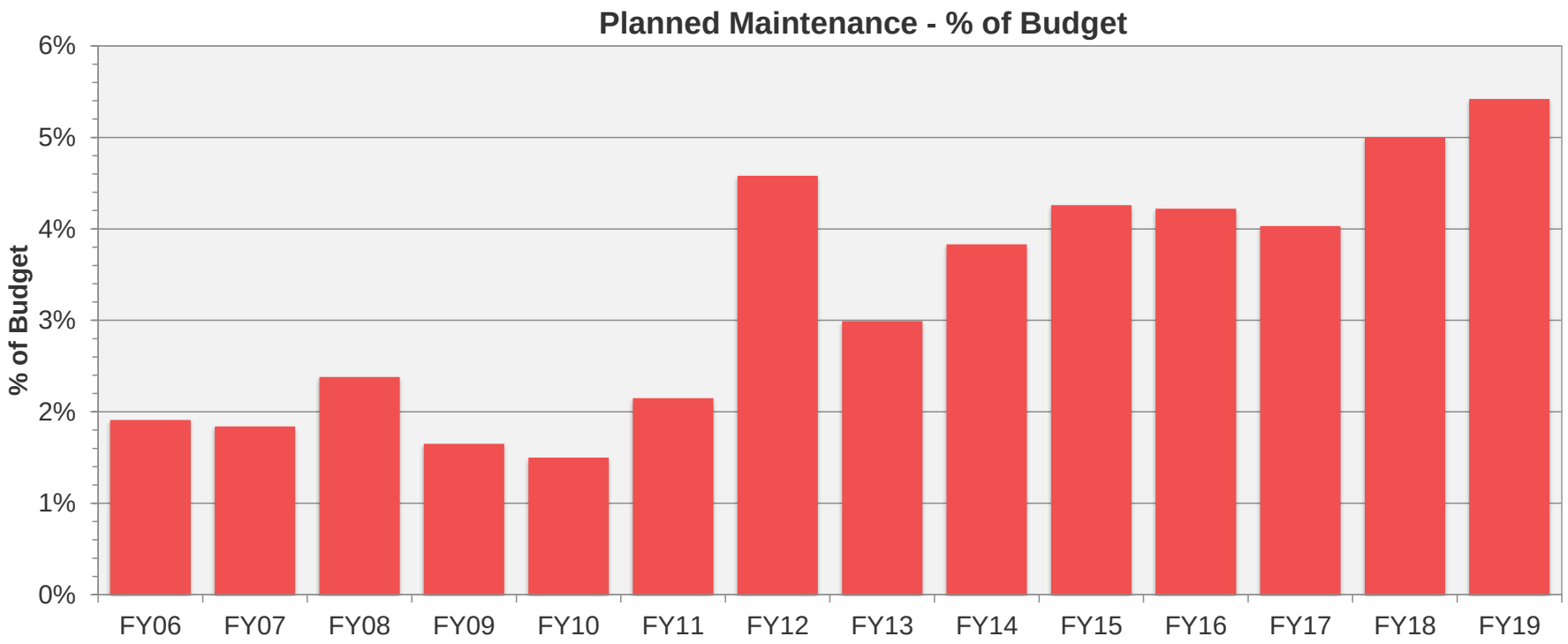
Facilities Operating Budget Actuals



11.1

sightlines
a GORDIAN company

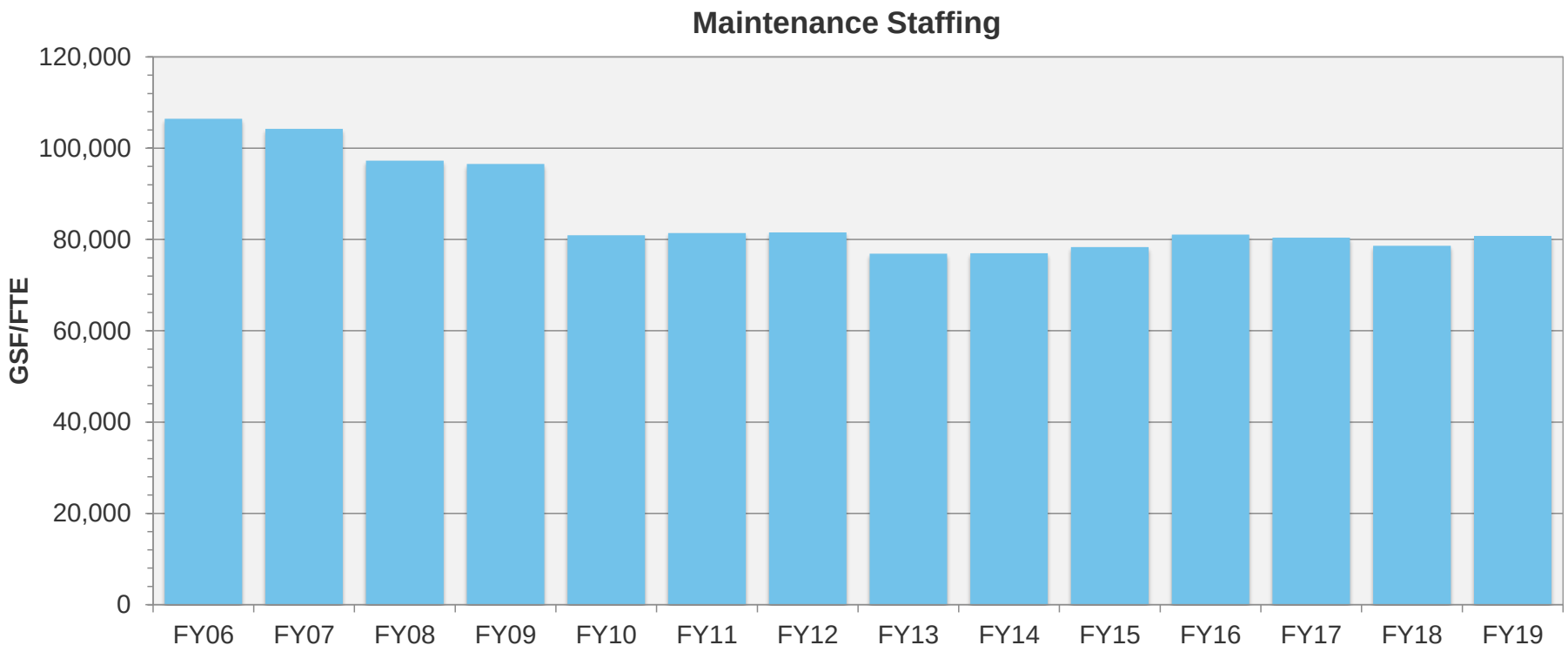
Planned Maintenance



11.1

sightlines
a GORDIAN company

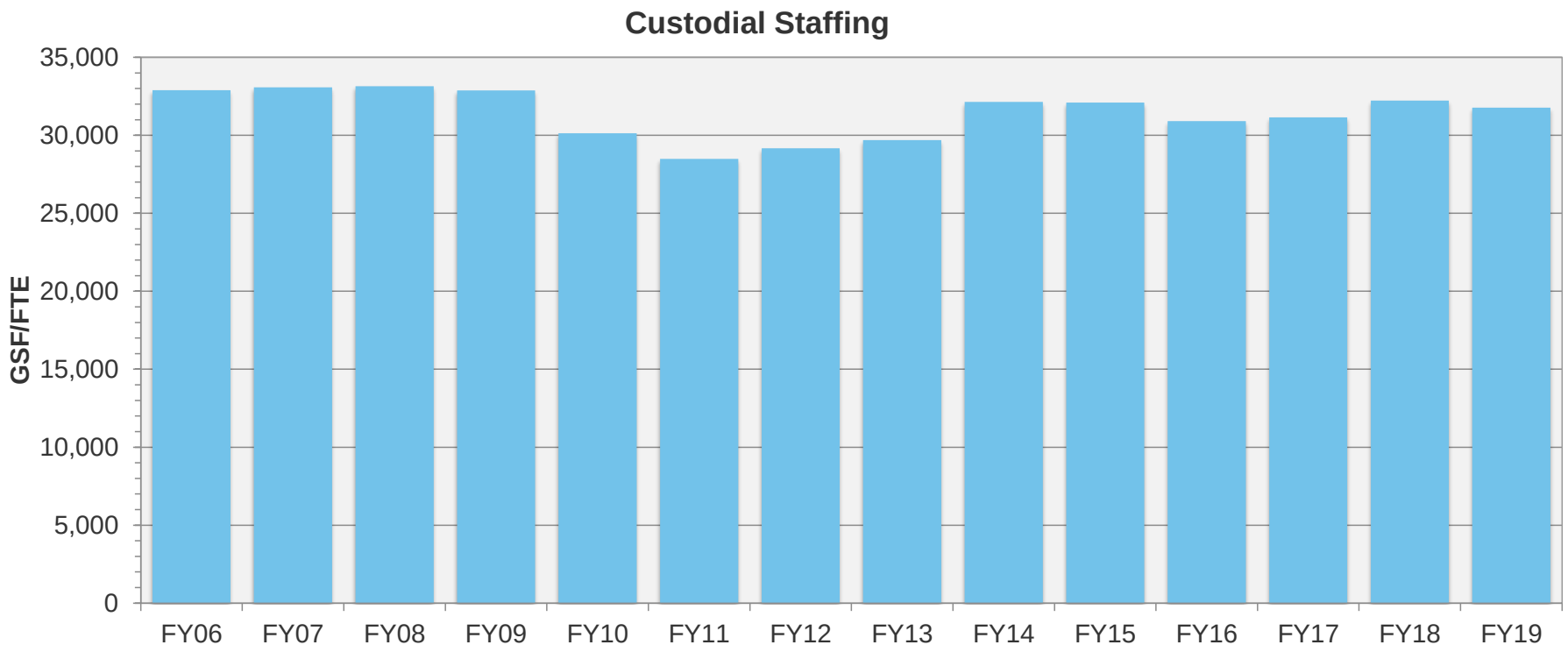
Maintenance Staffing



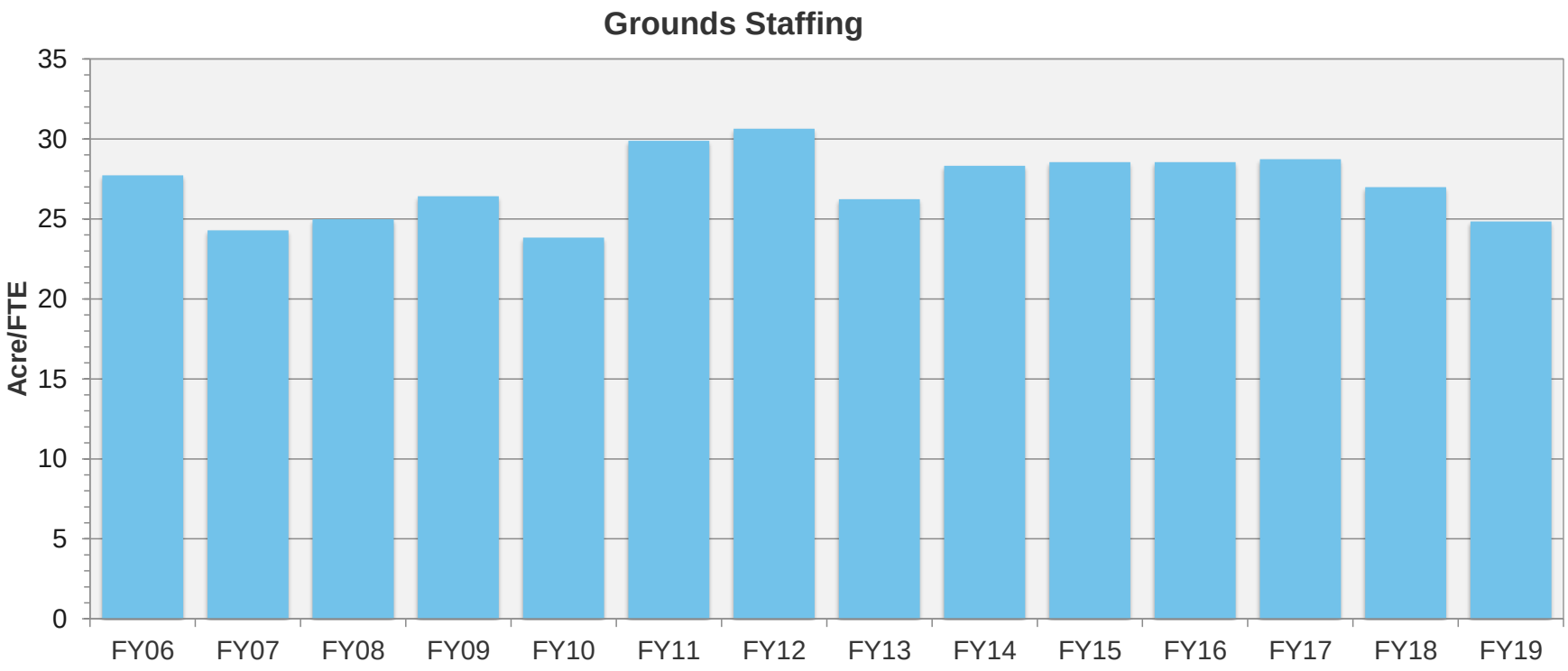
11.1

sightlines
a GORDIAN company

Custodial Staffing



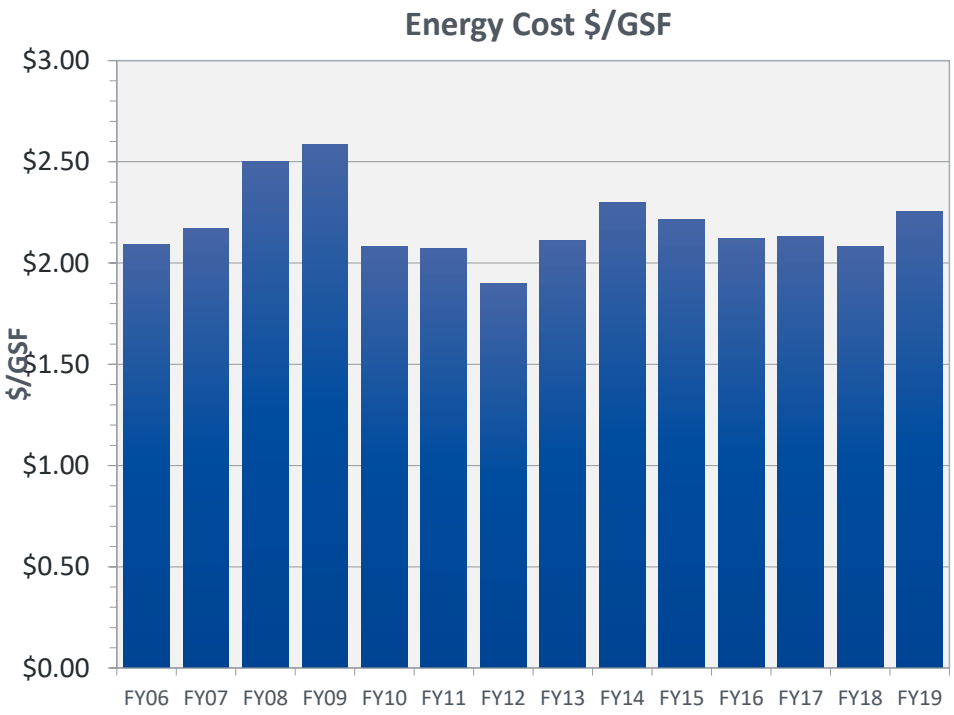
Grounds Staffing

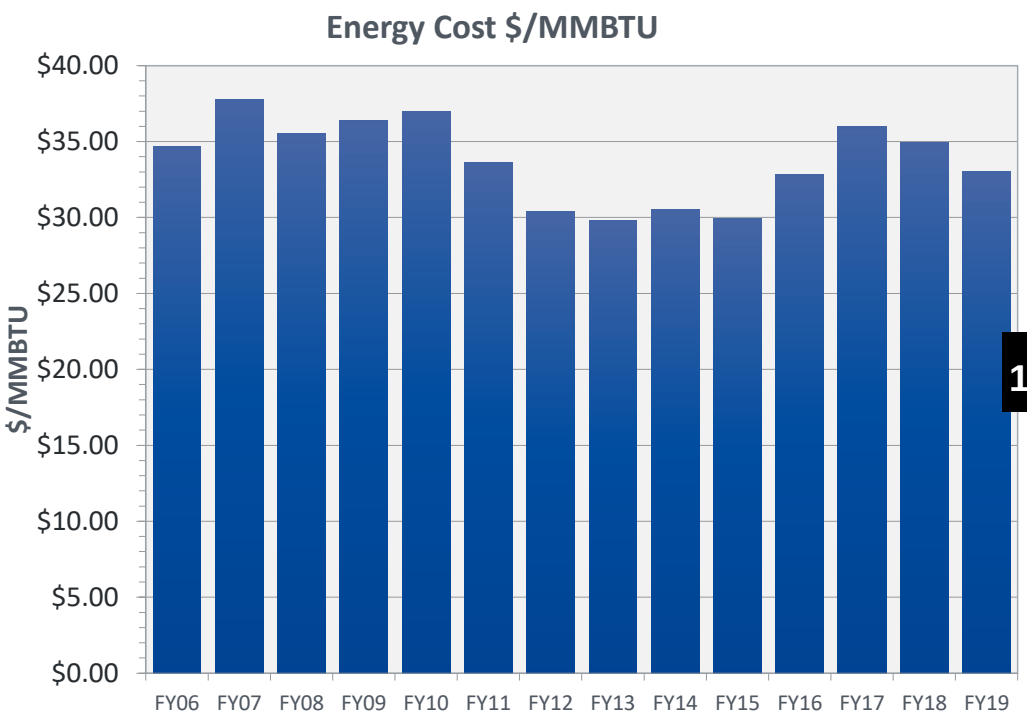


11.1

sightlines
a GORDIAN company

Energy Cost

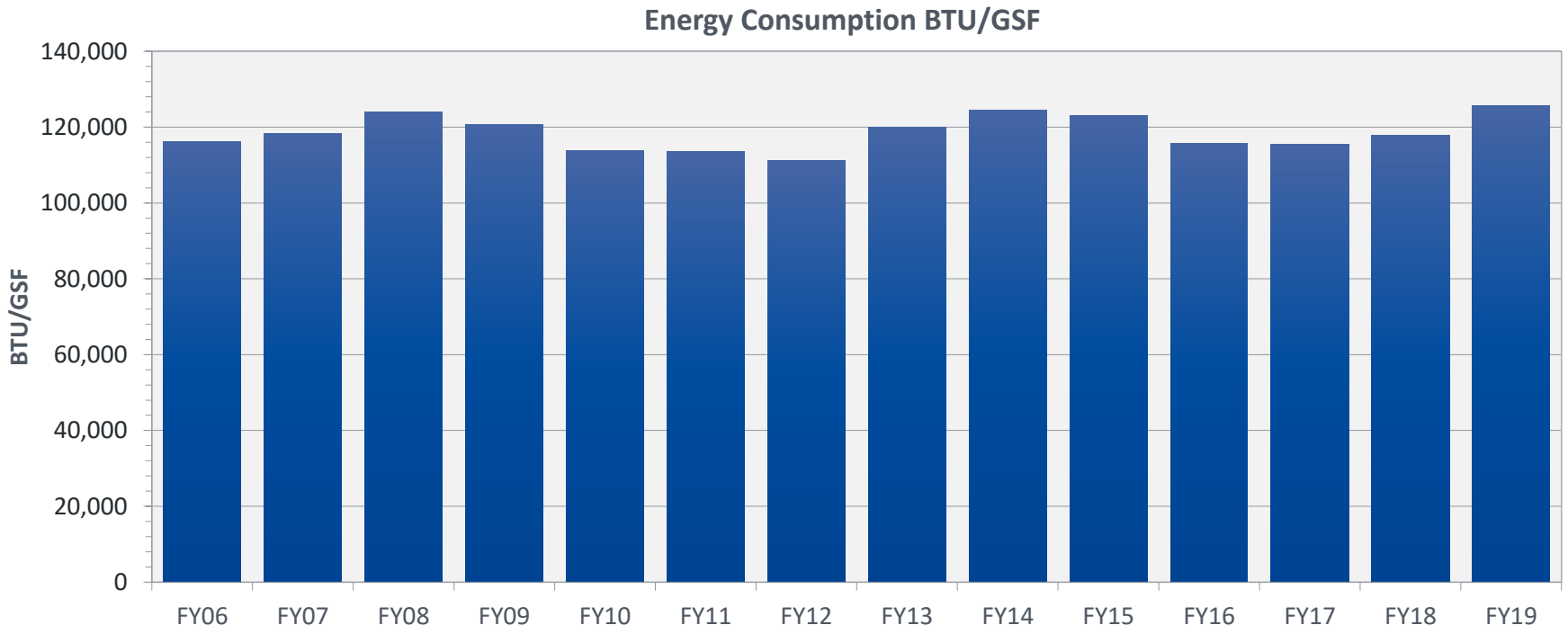




11.1

sightlines
a GORDIAN company

Energy Consumption



11.1

sightlines
a GORDIAN company

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Capital Project Status Report and Bond Projects Update, UMS

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **X** **BOARD ACTION:**

4. OUTCOME: **BOARD POLICY:**

5. BACKGROUND:

Capital Project Status Overview:
Attached is the Capital Project Status Report for the February 26, 2020 meeting of the Finance, Facilities and Technology Committee. The report reflects a total of 22 projects; two projects were removed as reported in January; four projects were added and one major update occurred as a result of approvals at the January meetings. The new projects include: USM's Nursing Simulation Lab (6100327), Brooks Dining Patio renovation (6200255), Wishcamper Parking Lot expansion (6100330) and UMA's Augusta welcome center (1100077). The major update involved updating the student success center project at USM from schematic design to approval for both the residence hall (6100338) and student success center (6100325) and with enhanced approval to proceed.

Four projects are noted on the report with a completion date of 2019. These projects are complete and only minor punch list or final closeout billing and paperwork remain. These will be removed from the list once the final paperwork is completed.

Bond Project Status Report:
The special portion of this report calling out only bond projects now reflects twenty-seven (27) projects. The total number of projects is reduced this period because of a change in funding allocation in particular at the UMA campus. Three projects were removed and will be funded through campus funds rather than bond funds. Also, one new project was added: UM's Neville Hall Renovation project (5100534).

These projects are currently estimated to account for approximately $32 million of the $49 million in voter approved general obligation bond funding and just under $4.5 million of that has been expended. Supplemental funding is being leveraged for some of these projects and the total estimated project value across all funds currently stands at approximately $48.3 million, including the bond funding and other project resources.

Nine (9) of these bond projects also appear (or appeared) on the Capital Project Status Report with approved budgets above the board threshold. Four (4) projects are expected to be brought to the board for additional authorization as design progresses, but are

currently in design and pre-design phases with budgets below the board approval threshold. One of those projects is part of today's agenda: UMFK's Enrollment and Advancement Center (3100042). The remaining fourteen (14) bond projects do not have budgets that meet the threshold for Board of Trustees consideration, and are therefore not present on the Capital Projects Status Report. One project is complete, however will remain on this report for documenting purposes until all Bond Projects are completed.

Future reports will be updated to reflect additional active Bond projects as the information becomes available.

System P3 Projects Update:
As reported and approved in January, the University of Southern Maine is pursuing several public-private partnerships or P3 projects.

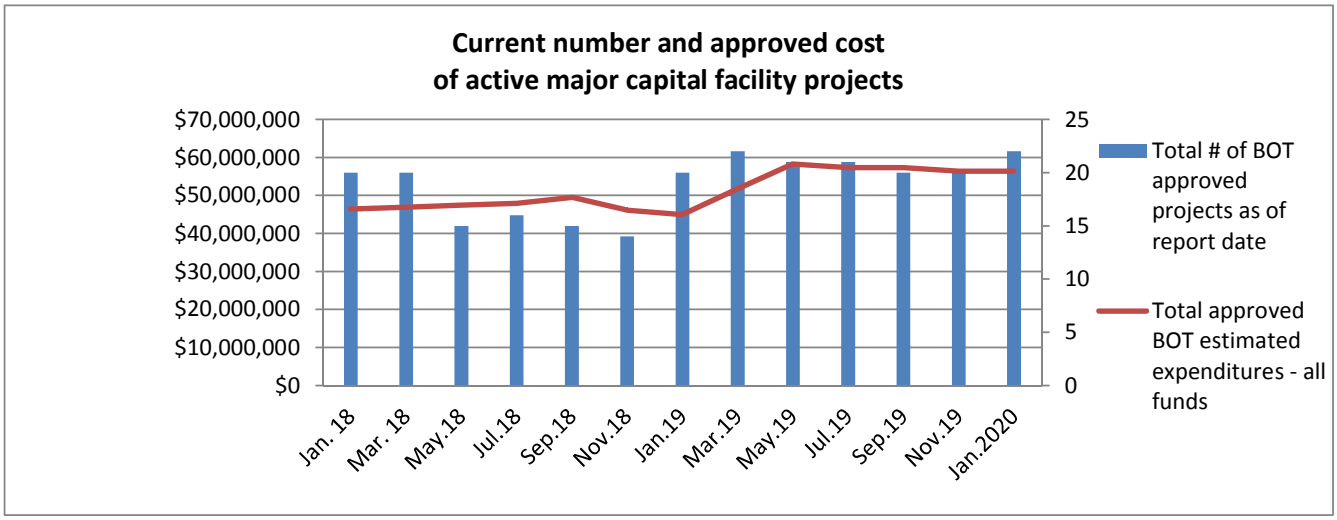
The largest and most advanced at this time is the Student Career and Success Center and Residence Hall projects on the Portland campus where the University is pursuing the newly authorized per-development agreement. Design, planning and due diligence continue in earnest. Financial authorization related to bonding for the project is being requested at this meeting and additional updates will be provided at the next meeting.

Other campuses, including UMF, UM and UMPI are also considering P3 projects at this time. The campuses are all under contract with Brailsford & Dunlavey, the consultant for P3 services who was selected through a competitive process in 2018. The UMF and UMPI projects are focused on residential-related P3 opportunities while the UM project is focused on the potential renovation and repurposing of existing Historic buildings.

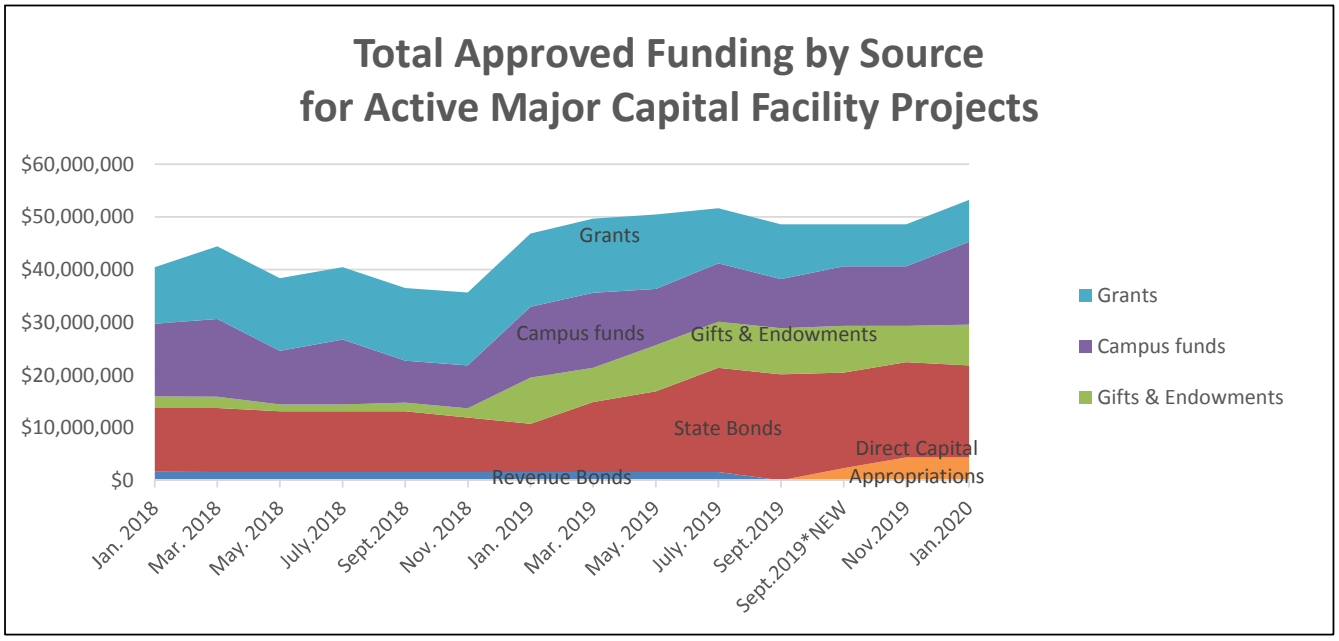
Lewiston Auburn College potential relocation
Trustees were last updated about the University's reimagining of Lewiston Auburn College in October 2019. Data gathering and planning have continued since that time regarding the potential future relocation and updated academic vision for Lewiston Auburn College. In particular: a. USM has obtained a formal opinion of value for the existing facility at an estimated $2.4 to $2.7 million; and, b. UMA and USM have deepened their dialogue about greater partnership and a new academic vision and are working closely together on the potential relocation to downtown Lewiston Auburn. The emerging updated academic vision aligns with Maine state workforce needs and the hospitals and health care facilities in Lewiston and Central Maine. USM expect to come forward in the near future with a full informational update, including: a. a current sequence of project milestones (i.e. listing the property, publishing an RFP for new space in the downtown area, target launch dates of academic programs tied to the new academic vision for LAC) which could, if approved by Trustees, permit a relocation as soon as 2022; b. A multi-year cost analysis of relocation in terms of operating costs and the net fiscal impact of a move; and, c. enrollment and revenue data and projections.

University of Maine Energy Center Project
The University is continuing to seek an agreement with Honeywell Inc. regarding a preliminary project development agreement with a value of up to $5.7 million as authorized by the Trustees to construct an energy center on the University of Maine Campus to provide primary thermal energy and potentially some electricity to the campus. While much progress has been made in these detailed discussions and the remaining issues are believed to be few, no agreement has yet been finalized or executed

between the parties. Trustees granted the authority to make this attempt in March 2019. With discussions now approaching a year in duration, this is longer than the University anticipated. Efforts are under way to bring the matter to a resolution.



12



*Direct Capital Appropriations funds consist of capital appropriations in anticipation of revenue bonding, as well as MEIF funds.

**Please note that the graph reflecting Total Approved Funding by Source for Active Major Capital Facility Projects, two sets of data for the month of September are captured to reflect a change in methodology. The new methodology does not reflect any change in resources but does reflect a refinement in how those resources are categorized. Following months will return to a single set of data for each month.

2/18/2020

Capital Project Status Report

Board Approved Projects

February 2020 - Finance, Facilities and Technology Committee

With Grand Totals and % of Current Approved Estimates

Campus, Project Name (Project ID)	Funding Source(s) & each source's share of expenditures to date	Status	Original Estimated Completion	Current Est. Completion	Original Approved Estimate	Current Approved Estimate	% Expended of Current Approved Estimate	Prior Actions, Information & Notes
UMA								
**Handley Hall HVAC System Upgrade (1200029)	2018 State Bond (77%), Campus E&G Funds (23%)	Design in Progress	2020	2021	$575,000	$575,000	4%	Board approved $575K in September, 2019.
*Augusta Welcome Center (1100077)	2018 State Bond (100%)	Design in Progress	2021	2021	$6,850,000	$6,850,000	1%	Board approved $6.85M in January 2020.
UM								
**Advanced Structures and Composites Center Expansion/ASCC Equip W2-Thermoplastics Lab/ASCC Equip W2 Tow Carriage (5100316, 5100414, 5100432)	2010 State Bond (49%), Grants (44%), Gifts (7%), Campus E&G Funds (0%)	Project 5100316 is Complete, Project 5100414 Design in Progress, Project 5100432 is Complete	2014	2020	$6,400,000	$10,400,000	92%	Board approved $6.4M in November, 2012. Board approved $1.6M in March 2014. Board approved increase of $871,000 in March 2015. BOT approved additional $1.5M in May 2016 for equipment project.
Cooperative Extension Diagnostic & Research Lab (5100387)	2014 State Bond (84%), Grants (5%), Campus E&G Funds (11%)	Complete	2016	2019	$9,000,000	$9,600,000	99%	BOT approved $9M in July, 2015. Board approved increase of $400,000 in July 2017. Chancellor approved additional increase of $200,000 in February, 2019.
Aquatic Animal Health Facility (5100440)	Grants (40%), Campus E&G Funds (60%)	Complete	2017	2019	$2,300,000	$2,870,000	100%	Board approved $2.3M in January, 2017. Board approved increase of $500,000 in November, 2017. Chancellor approved additional increase of $70,000 in February 2019.
**Darling Marine Center Waterfront Infrastructure (5100459, 5100460, 5100461)	Grants (69%), Campus E&G Funds (31%)	Bidding	2017	2021	$3,000,000	$5,200,000	7%	Board approved $3M in July, 2017. Board approved increase of $2.2M in September, 2019.
Engineering Education and Design Center (5100458, 5100493, 5200604)	Gifts (35%), Campus Funds (9%), Campus Operating Reserves (11%), Direct Capital Appropriations (45%)	Design in Progress	2024	2024	$1,000,000	$9,000,000	69%	Board approved $1M in September, 2017. Board approved additional $8M in May, 2018. Initial occupancy of this facility is expected in 2022; final completion in 2024.
Wells Commons Generator (5100433)	Campus Auxiliary Operating (64%) Campus Auxiliary Reserves (36%)	Substantially Complete	2019	2020	$525,000	$525,000	61%	Board approved $525,000 January, 2018.
CCAR EDA Hatchery Building Roof Replacement (5100456)	Campus E&G Funds (100%)	Substantially Complete	2019	2020	$562,000	$562,000	78%	Board approved $562,000 in June, 2018.
Hilltop Commons Servery Updates (5100489)	Campus Auxiliary Operating (38%) Campus Auxiliary Reserves (62%)	Substantially Complete	2019	2020	$925,000	$925,000	72%	Board approved $925,000 January, 2019.
York Hall Kitchen Hood Replacement (5100490)	Campus Auxiliary Operating (22%) Campus Auxiliary Reserves (78%)	Substantially Complete	2019	2020	$550,000	$950,000	74%	Board approved $550,000 January, 2019. Board approved additional $400K in May, 2019.
**UM Energy Center Phase II (5100516, 5100517)	Campus Operating (36%) Campus Reserves (64%)	Pre-Design in Progress	2023	2023	$5,700,000	$5,700,000	4%	Board approved $5.7M March, 2019.
UMF								
Dearborn Gym HW Upgrades (2100087)	2018 State Bond (100%)	Substantially Complete	2019	2020	$600,000	$850,000	89%	Board approved $600K in March, 2019. Board approved additional $250K in May, 2019.

12.1

1

Capital Project Status Report

Board Approved Projects

February 2020 - Finance, Facilities and Technology Committee

With Grand Totals and % of Current Approved Estimates

Campus, Project Name (Project ID)	Funding Source(s) & each source's share of expenditures to date	Status	Original Estimated Completion	Current Est. Completion	Original Approved Estimate	Current Approved Estimate	% Expended of Current Approved Estimate	Prior Actions, Information & Notes
USM								
USM Center for the Arts (6100300)	Gifts (100%)	Pre-Design in Progress	2022	2023	$1,000,000	$1,000,000	12%	Board approved $1M in January, 2018.
Ricci Lecture Hall Renovation (6100308)	2018 State Bond (29%), Gifts (42%), Campus E&G Funds (29%)	Substantially Complete	2019	2020	$500,000	$680,000	75%	Board approved $500,000 in January, 2019. Board approved additional $180K in May, 2019.
Brooks Student Center Generator & Switchgear Installation (6100315)	Campus E&G Funds (100%)	Complete	2019	2019	$675,000	$675,000	96%	Board approved $675,000 in January, 2019.
**Career and Student Success Center and *Portland Residence Hall (6100325, 6100338)	2018 State Bond (35%), Campus E&G (65%)	Design in Progress	2020	2022	$1,000,000	$5,700,000	1%	Board approved $1M in January, 2019. Board approved predevelopment expenditures of up to $5.7M combined for the two projects in January 2020. The total project cost remains under development and subject to change.
**Bailey Hall Fire Protection and Electrical Upgrades (6100316, 6100323)	2018 State Bond (8%), Campus E&G Funds (92%)	Project 6100316 is Construction in progress, Project 6100323 is Complete	2019	2021	$2,580,000	$4,388,000	20%	Board approved $2.58M in January, 2019. Board approved $1.808M in January 2020.
*USM Nursing Simulation Lab (6100327)	2018 State Bond (100%)	Pre-Design in Progress	2021	2021	$1,500,000	$1,500,000	3%	Board approved $1.5M in January 2020.
*Brooks Patio Renovations (6200255)	Campus E&G Funds (100%)	Pre-Design in Progress	2020	2020	$650,000	$650,000	3%	Board approved $650,000 in January 2020.
*Wishcamper Parking Lot (6100330)	Campus E&G Funds (100%), Capital Reserves (0%)	Pre-Design in Progress	2020	2020	$1,710,000	$1,710,000	1%	Board approved $1.71M in January, 2020.
UMPI								
UMPI Greenhouse (7100010)	Bond (9%), Direct Capital Appropriations (38%), Gifts (53%)	Substantially Complete	2018	2019	$850,000	$935,000	92%	Board approved $850K in September, 2018. Board approved additional $85,000 in January, 2019.

Explanatory Notes: * Project is new as of this report. ** Details of this project include updates since the last report. *** This project has been completed since the last report and is not expected to appear on the next report.	Funding source(s) reflects primary source(s) for project.	Calendar Year unless otherwise noted.	Percentage expended reflects total expended as of January 31, 2020 as a percentage of the current approved project estimate.

12.1

Bond Project Status Report

Active Bond Projects

February 2020 - Finance, Facilities, and Technology Committee

With Grand Totals and % of Current Approved Estimates

Campus, Project Name (Project ID), Project Manager	Status	Original Estimated Completion	Current Est. Completion	Funding Source(s) & each source's share of expenditures to date	Estimated Bond Funding for Project	Bond Funding Expended	Total Estimated Project Cost	Prior Actions, Information & Notes
UMA								
**Augusta Campus Welcome Center (1100077) Project Manager: Ann Vashon/Walter Shannon	Design in Progress	2021	2021	Bond (100%), Campus E&G Funds (0%)	$2,885,000	$45,781	$6,850,000	Board approved $6.85M in January 2020.
**Handley Hall A/C Replacement (1200029) Project Manager: James Kauppila/Keenan Farwell	Design in Progress	2020	2021	Bond (77%), Campus E&G Funds (23%)	$450,000	$18,215	$575,000	Board approved budget of $575,000 in September, 2019
				Total Bond for Campus	**$3,335,000**	**$63,996**	**$7,425,000**	
UMF								
Dearborn Gym Hot Water Upgrades (2100087) Project Manager: Keenan Farwell	Substantially Complete	2019	2020	Bond (100%)	$850,000	$792,884	$850,000	Board approved $600K in March, 2019. Board approved additional $250K in May, 2019.
274 Front St Acquisition (2100089) Project Manager: Keenan Farwell	Complete	2019	2019	Bond (100%)	$855,000	$850,820	$855,000	Board approved $855K in January, 2019.
Scott Hall Renovations (2100092) Project Manager: Keenan Farwell	Construction in Progress	2019	2020	Bond (100%)	$200,000	$171,950	$200,000	
Dakin Hall Shower Renovations (2100093) Project Manager: Keenan Farwell	Construction in Progress	2019	2020	Bond (100%)	$200,000	$40,987	$200,000	
Lockwood Hall Shower Renovations (2100094) Project Manager: Keenan Farwell	Construction in Progress	2019	2020	Bond (100%)	$200,000	$73,965	$200,000	
Stone Hall Shower Renovations (2100095) Project Manager: Keenan Farwell	Construction in Progress	2019	2020	Bond (100%)	$200,000	$25,961	$200,000	
UMF Campus Paving (2100097) Project Manager: Keenan Farwell	Complete	2019	2019	Bond (100%)	$200,000	$97,338	$200,000	
274 Front St Renovation (2100096) Project Manager: Keenan Farwell	Pre-Design in Progress	2020	2020	Bond (100%)	$450,000	$18,744	$1,000,000	Approved budget of $450,000, as it remains in study/design phase.
FRC Floor Renovation (2100098) Project Manager: Keenan Farwell	Complete	2019	2019	Bond (100%)	$200,000	$200,729	$200,000	
Exterior Painting Merrill Hall (2200096) Project Manager: Keenan Farwell	Pre-Design in Progress	2020	2020	Bond (0%)	$40,000	$0	$40,000	
Olsen Center Walk-In Replacement (2100090) Project Manager: Keenan Farwell	Construction in Progress	2020	2020	Bond (0%)	$100,453	$0	$291,453	
				Total Bond for Campus	**$3,495,453**	**$2,273,379**	**$4,236,453**	
UM								
*Neville Hall Renovation (5100534) Project Manager: Art Bottie	Design in Progress	2021	2021	Bond (0%), Campus E&G (0%)	$300,000	$0	$1,500,000	Approved budget of $300,000 as it remains in study/design phase.
				Total Bond for Campus	**$300,000**	**$0**	**$1,500,000**	

12.2

1

Bond Project Status Report

Active Bond Projects

February 2020 - Finance, Facilities, and Technology Committee

With Grand Totals and % of Current Approved Estimates

Campus, Project Name (Project ID), Project Manager	Status	Original Estimated Completion	Current Est. Completion	Funding Source(s) & each source's share of expenditures to date	Estimated Bond Funding for Project	Bond Funding Expended	Total Estimated Project Cost	Prior Actions, Information & Notes
UMFK								
UMFK Enrollment/Advancement Center (3100042) Project Manager: Jacob Olsen	Design in Progress	2022	2022	Bond (0%), Campus E&G (100%)	$300,000	$0	$2,900,000	Approved budget of $320,000 as it remains in study/design phase.
				Total Bond for Campus	**$300,000**	**$0**	**$2,900,000**	
UMM								
UMM Science Building Roof Replacement (4100042) Project Manager: Art Bottie	Substantially Complete	2020	2020	Bond (100%)	$325,000	$266,331	$325,000	
UMM Dorward Hall Roof Replacement (4100043) Project Manager: Art Bottie	Substantially Complete	2020	2019	Bond (100%)	$300,000	$255,907	$300,000	
UMM Sennett Roof Replacement (4100044) Project Manager: Art Bottie	Design in Progress	2020	2020	Bond (100%)	$150,000	$9,800	$150,000	
UMM Reynolds Center Roof Repair (4200044) Project Manager: Art Bottie	Substantially Complete	2020	2020	Bond (100%)	$164,000	$149,380	$164,000	
**UMM Site Work (4200045) Project Manager: Joshua Burke	Substantially Complete	2020	2020	Bond (100%)	$60,000	$50,195	$60,000	
				Total Bond for Campus	**$999,000**	**$731,613**	**$999,000**	
USM								
**Woodward Hall Renovations (6100301) Project Manager: Carol Potter	Complete	2019	2019	Bond (86%), Campus E&G Funds (14%)	$1,500,000	$1,008,395	$1,172,840	Board approved $1.8M in January, 2019. Remaining Bond Funding to be moved to a new project.
Ricci Lecture Hall Renovations (6100308) Project Manager: Ann Vashon	Substantially Complete	2019	2020	Bond (29%), Gifts (42%), Campus E&G Funds (29%)	$150,000	$150,000	$680,000	Board approved $500,000 in January, 2019. Board approved additional $180K in May, 2019.
**Career and Student Success Center (6100325, 6100338) Project Manager: Ann Vashon	Pre-Design in Progress	2020	2022	Bond (35%), Campus E&G Funds (65%)	$19,000,000	$27,013	$19,000,000	Board approved $1M in January, 2019. Board approved predevelopment exependitures of up to $5.7M combined with the residence hall project in January 2020. The total project cost remains under development and subject to change.
**Bailey Hall Fire Protection and Electrical Upgrades (6100316, 6100323) Project Manager: Joe Gallant	Project 6100316 is Out to Bid, Project 6100323 is Complete	2019	2021	Bond (8%), Campus E&G Funds (92%)	$1,460,000	$43,267	$4,388,000	Board approved $2.58M in January, 2019. Board approved additional $1.808M in January, 2020.
**USM Nursing Simulation Lab Science (6100327) Project Manager: Joe Gallant	Design in Progress	2021	2020	Bond (100%)	$1,500,000	$100,448	$1,500,000	Board approved $1.5M in January, 2020.
				Total Bond for Campus	**$23,610,000**	**$1,329,122**	**$26,740,840**	

Bond Project Status Report

Active Bond Projects

February 2020 - Finance, Facilities, and Technology Committee

With Grand Totals and % of Current Approved Estimates

Campus, Project Name (Project ID), Project Manager	Status	Original Estimated Completion	Current Est. Completion	Funding Source(s) & each source's share of expenditures to date	Estimated Bond Funding for Project	Bond Funding Expended	Total Estimated Project Cost	Prior Actions, Information & Notes
UMPI								
Wieden Renovation Bond (7100025) Project Manager: Joseph Moir	Design in Progress	2020	2020	Bond (0%)	$125,000	$32,167	$4,000,000	Approved budget of $125,000, as it remains in study/design phase.
Folsom Renovation Bond (7100026) Project Manager: Joseph Moir	Design in Progress	2020	2020	Bond (100%)	$100,000	$1,283	$478,000	approved budget of $100,000, as it remains in study/design phase.
				Total Bond for Campus	**$225,000**	**$33,449**	**$4,478,000**	
				Totals:	**$32,264,453**	**$4,431,559**	**$48,279,293**	
Explanatory Notes: * Project is new as of this report. ** Details of this project include updates since the last report.	Funding source(s) reflects primary source(s) for project.	Calendar Year unless otherwise noted.						Percentage expended reflects total expended as of January 31, 2020 as a percentage of the current approved project estimate.

12.2

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Reduction of Canadian Tuition Rate

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION:** X

4. OUTCOME:
Increased Enrollment

BOARD POLICY:
703 Tuition and Fees

5. BACKGROUND:

Four of the University of Maine System universities are uniquely positioned mere miles from the northern and eastern Canadian border. This geographic location allows for across-the-border prospective student recruitment.

The primary challenge to recruitment in Canada relates to the cost differential. Canadian students are currently assessed an out-of-state tuition rate, which results in an overall tuition, room, and board rate of approximately $7,000 more than they will pay at a Canadian-based institution of higher learning. The assessment of an in-state rate will decrease that deficit to just $3,000 for most programs. These numbers are examples, from the University of Maine at Presque Isle (UMPI) and the University of Maine at Fort Kent (UMFK)

UMPI and UMFK submitted a proposal for a new marketing campaign to Canadian students that included a reduction in tuition for Canadian students. All University Presidents have found this to be a favorable enrollment strategy and are seeking to change their Canadian tuition rates.

We are asking for this change out of the budget process, so that these institutions can begin marketing for Fall 2020.

6. TEXT OF PROPOSED RESOLUTION

That the Finance, Facilities, and Technology Committee forward this item to the March 15-16, 2020 Board of Trustees meeting for approval of the following resolution:

> That the Board of Trustees accepts the recommendations of the Finance, Facilities and Technology Committee and approves the change from Canadian non-resident tuition rates to in-state tuition rates for all campuses effective for Fall 2020.

Revised - 2/20/2020

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

AGENDA ITEM SUMMARY

1. NAME OF ITEM: Approval of 2019 Maine Economic Improvement Fund Annual Report

2. INITIATED BY: Mark R. Gardner, Chair

3. BOARD INFORMATION: **BOARD ACTION:** X

4. OUTCOME: **BOARD POLICY:**
Support Maine through Research & Economic Development

5. BACKGROUND:

Maine statute requires the University of Maine System to provide an annual report to the Governor and Legislature each year. In addition to listing the annual financial data, we also include an assessment of the achievement of the annual goals and objectives, and a summary of the research and development projects that have been funded. The annual report is included in the meeting materials for review and approval.

6. TEXT OF PROPOSED RESOLUTION:

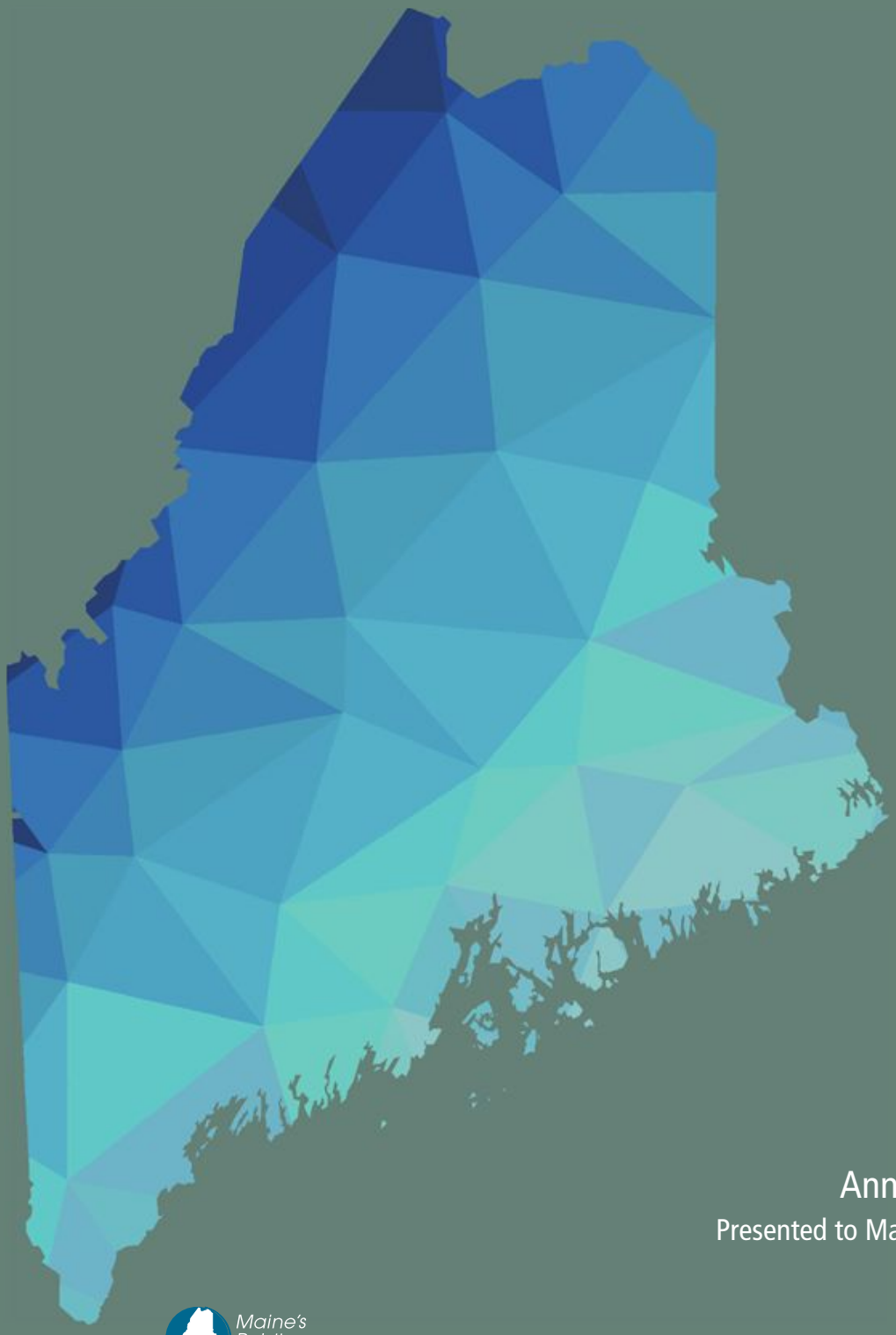
That the Finance, Facilities and Technology Committee forwards this item to the March 15-16, 2020 Board of Trustees meeting for approval of the following resolution:

> That the Board of Trustees accepts the recommendation of the Finance, Facilities and Technology Committee and approves the 2019 Maine Economic Improvement Fund Annual Report as presented.

2/24/2020

DRAFT

MAINE ECONOMIC IMPROVEMENT FUND



14.1

Annual Report FY19

Presented to Maine State Legislature

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

A successful partnership among Maine's government, private sector and public universities to build Maine's economy and future workforce through research and development.

DRAFT

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM

TABLE OF CONTENTS

14.1

MAINE ECONOMIC IMPROVEMENT FUND
2019 ANNUAL REPORT

Memo from the Chancellor

The Maine Economic Improvement Fund (MEIF) represents Maine's ongoing commitment between the state and our public universities, working together to advance research and economic development for the benefit of all Maine people. In July 2014, the University of Maine System Board of Trustees (UMS BOT) established Strategic Outcomes and metrics to measure the performance of the University of Maine System and its campuses. Included in these Strategic Outcomes are specific goals for research, economic development and workforce development. The UMS BOT has applied these overall Strategic Outcomes to research and development, and has established specific goals and metrics for the Maine Economic Improvement Fund to help achieve these Strategic Outcomes. These metrics were approved at the end of FY2014, and are applied to all FY2019 MEIF activity and included in this annual report. New goals for FY2020 and beyond are presented at the conclusion of this report and are aimed at advancing the goals of the University of Maine System R&D Plan and the Maine Economic Development Strategy. By statute, MEIF-funded activity is restricted to Maine's seven statutorily established R&D sectors.

In FY19, the state's $17.35 million MEIF investment was leveraged at a rate of 4.4:1 by our UMS campuses for an additional $76.57 million in federal and private-sector grants and contracts in the seven sectors.

- MEIF funds and the external grants and contracts it leverages funded the work of 587 researchers and technicians, and 1,054 graduate and undergraduate students.
- These grants and contracts provided more than $2.5 million to purchase major equipment to upgrade and outfit university laboratories.
- Maine's public universities secured new patents, worked on development projects with large and small businesses and start-ups, and provided R&D support to 530 companies and individuals.

As required in the statute that created MEIF, included with this FY2019 MEIF report are financial and informational details.

If you have any questions about MEIF projects, this report or other University of Maine System research and economic development programs, please contact me.

Sincerely,

Dannel Malloy
Chancellor

The Maine Economic Improvement Fund Fiscal Year 2019

MEIF Background

The Maine Economic Improvement Fund (MEIF) represents the ongoing commitment between the state, the private sector and our public universities, working together to advance research and economic development for the benefit of all Maine people.

Since the Maine Legislature established MEIF in 1997, MEIF has positioned the University of Maine System (UMS) at the center of statewide efforts to leverage economic development through targeted investment in university-based R&D. MEIF continues to be funded through an annual state appropriation to UMS.

These funds provided through state appropriation to the University of Maine System are dollars specifically directed to support university-based research, development and commercialization in the state's legislatively designated seven strategic technology areas:

- Advanced Technologies for Forestry and Agriculture
- Aquaculture and Marine Sciences
- Biotechnology
- Composites and Advanced Materials Technologies
- Environmental Technologies
- Information Technologies
- Precision Manufacturing

The University of Maine and the University of Southern Maine have well-established research, development and commercialization activities accounting for 97 percent of the MEIF activity. In 2009, the University of Maine System established the Small Campus Initiative Fund to promote seven-sector research and development activity at the other five UMS campuses and, as of 2013, Maine Maritime Academy (MMA).

Role of MEIF

The role of MEIF is to solve fundamental problems and discover new solutions and to provide researchers at Maine's public universities with the investment necessary to:

- Attain external grants and contracts to support R&D activities in Maine's seven sectors.
- Attract and retain world-class researchers.
- Provide support for modern laboratories and state-of-the-art equipment.
- Create new products, patents, technologies, companies and exciting job opportunities in Maine.
- Create and sustain economic development and innovation.

MEIF funds often provide the required match to acquire federal or private sector grants, and this investment in Maine's public university R&D helps faculty, staff and students successfully leverage tens of millions of dollars in grants and contracts annually.

MEIF monies also support equipment purchases or facilities renovations to make the universities more competitive for federal grants, expanding opportunities to support Maine companies and involve students in research learning and real applications of their education.

MEIF increasingly fosters university partnerships with business and industry through economic development collaborations, entrepreneur training programs, business incubators, technology accelerators, business research and other programs. These efforts lead to new Maine-based products, technologies, patents and spin-off businesses.

The University of Maine and the University of Southern Maine are the two universities with established research and graduate programs in the seven targeted research sectors and have received MEIF funds, with 76.6 percent to the University of Maine and 19 percent to the University of Southern Maine. In addition 1.4 percent of MEIF funds are awarded to the University of Maine Machias and 3 percent to the other campuses and Maine Maritime Academy.


MAINE ECONOMIC IMPROVEMENT FUND
22
YEARS of MEIF

History of the Maine Economic Improvement Fund

The concept of the state of Maine investing in university-based research and development began in the mid-90s at a time when Maine's economy was struggling and the state had made historic cuts to the University of Maine System. A group of University of Maine faculty — "the Faculty Five" — began an effort to educate Maine business leaders and legislators about the need to invest in R&D as part of an economic development strategy. Pointing to states with more robust economies and a larger proportion of federally funded science and engineering grants and contracts, the Faculty Five made the case for increased state funding targeted to R&D to bring Maine into the knowledge-based economy (Jacobson et al., 1995). Through continued education, the 117th Maine legislature and the Governor King administration supported the creation of the Maine Economic Improvement Fund (MEIF) to support applied scientific research and related development "conducted by the University of Maine System, its member institutions and its employees and students" with an initial base investment of $500,000 (LD 1854 - An Act to Establish the Maine Economic Improvement Fund enacted as PL 1997 ch. 556). At that time, the University of Maine System allocated 80 percent of the fund to the University of Maine and 20 percent to the University of Southern Maine. The University of Maine used the first MEIF funds to provide match/cost-share for a National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research (EPSCoR) grant to bring over $3 million to the University of Maine to create the Advanced Structures and Composites Center and the initial planning for Aquaculture R&D.

That first MEIF investment was guided by the beliefs that were then shared by the Legislature and the administration. Senate President Mark Lawrence began the Jump Start 2000 initiative (Lawrence et al., 1997), advocating for increasing the MEIF investment to a level of $20 million per year, an amount that would bring Maine into the mix with other states' investments in R&D. In 1997, the 118th Maine Legislature created the Joint Select Committee on Research and Development. A report from that committee also included recommendations to increase spending on the Maine Economic Improvement Fund, as well as creating the Maine Technology Institute. Finally, the King administration, through the State Planning Office, issued the report entitled 30 and 1000*: How To Build A Knowledge-Based Economy In Maine And Raise Incomes To The National Average By 2010 (Richert, 2001). The consistent theme in these reports guided additional investments in the MEIF and the strategic investments made by the University of Maine System.

Indicators of success show that Maine's MEIF investment is paying dividends by:

- Creating businesses and jobs, including the jobs of more than 587 faculty and staff, and over 1054 students working on MEIF-funded projects
- Boosting Maine's economy by leveraging MEIF funds to bring federal and private-sector grants and contracts to Maine.
- Building capacity and expertise to help Maine companies solve problems and commercialize innovation.
- Generating new intellectual property and working to commercialize patents and innovations.
- Capitalizing on natural resources and core strengths by focusing R&D efforts on economic sectors where Maine can make real gains. University research personnel use MEIF resources to support the staff, equipment and facilities they need to successfully pursue and develop research projects.

DRAFT

Progress in FY2019 Strategic Outcomes, Goals and Metrics

In July 2014, UMS BOT developed and approved Strategic Outcomes to measure the performance of the University of Maine System and its campuses. In October 2014, UMS BOT approved the use of these newly developed Strategic Outcomes to create MEIF specific goals and metrics. Several of the UMS Strategic Outcomes are performance targets for all R&D and economic development activity. The MEIF goals recognize that MEIF activity is restricted to Maine's legislatively selected seven R&D sectors and are, therefore, MEIF goals and metrics, and a subset of the overall UMS goals. The UMS Strategic Outcomes that apply to R&D activity are:

UMS Strategic Outcomes Target 1 –
Increase Research Capacity and Activity

UMS Strategic Outcomes Target 2 –
Support New Technologies, Licensing, and Commercialization

UMS Strategic Outcomes Target 4 –
Increase Economic Development Partnerships

UMS Strategic Outcomes Overall Goal –
Support R&D Workforce Development

This report addresses these goals. In addition, the University of Maine System reports R&D outcomes annually through the statutorily required survey of Maine R&D activity administered by the Maine Department of Economic and Community Development Office of Innovation (5 MSRA 13107).

The R&D Strategic Outcomes and related MEIF goals are:

MEIF Target 1

UMS maintains a sponsored programs grant and contracts effort growing greater than 3 percent annually on a three-year rolling average from a 2013 baseline of $45 million and NSF-defined total research expenditures of $45 million in the MEIF sectors. Activity from the seven MEIF sectors will account for 50 percent of the total R&D grants and contracts, with a 3 percent annual growth on a three-year rolling average. The FY13 baseline was a calculated percentage of total activity.
Table 1 below shows the actual FY13 baseline at slightly less than $45 million at $44,228,964 million.

14.1

Table 1

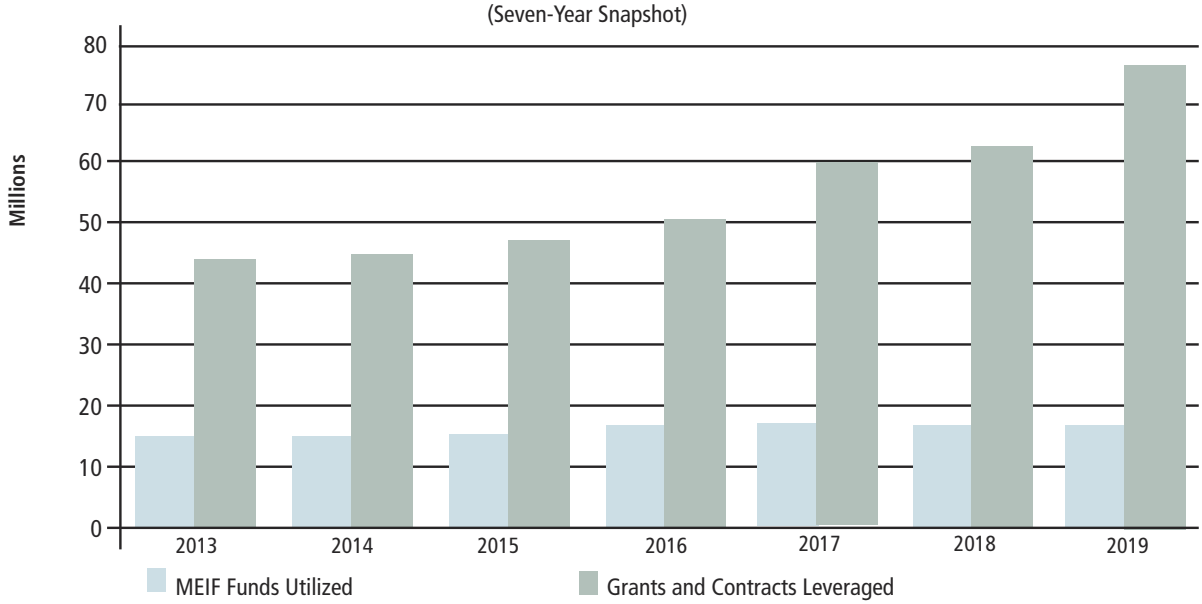
FY19 Total Grants and Contracts (ALL Activity Inclusive)	Number of Awards	Total Award Value
Total Proposals Submitted	1,285 submitted	$218,825,415
Total Proposals Awarded	1,113 awarded	$106,326,636

Grants and Contracts Awarded in MEIF Sectors ONLY	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019
Aquaculture and Marine	7,045,322	9,153,389	15,187,566	12,631,690	21,229,069	16,032,068	8,084,961
Biotechnology	1,985,295	6,353,450	1,524,204	2,399,487	3,821,390	6,552,964	16,035,473
Composites	9,230,715	5,135,033	5,247,712	6,974,264	13,504,642	9,952,947	11,478,611
Cross Sector	2,990,129	4,681,209	1,018,132	507,842	4,274,394	3,034,812	21,301,337
Environmental Technologies	5,781,658	7,959,264	4,349,651	5,045,536	5,543,121	7,407,213	7,250,820
Forestry and Agriculture	8,642,424	7,654,060	14,194,009	10,317,799	4,660,014	10,685,631	9,598,475
Information Tech	7,422,675	2,520,521	4,473,781	11,497,199	5,292,726	5,582,266	951,594
Precision Manufacturing	1,130,746	1,414,700	780,694	1,009,921	1,602,646	3,099,123	1,870,527
Total	**$44,228,964**	**$44,871,626**	**$46,775,749**	**$50,383,738**	**$59,928,002**	**$62,347,024**	**$76,571,798**

FY18–19 Increase 23%

Strategic Outcomes, Goals and Metrics

Figure 1 MEIF Return on Investment (UMS)
Tens of Millions Leveraged in Grants and Contracts
(Seven-Year Snapshot)



In summary, the MEIF Target 1 for increasing external grants and contracts leveraged through MEIF investments saw an increase of 23 percent over the previous fiscal year exceeding the goal of 3 percent per year. This favorable trend continues in a positive direction after decreases from FY10 through FY12. This is largely related to changes in the economy and the federal agencies that have stabilized budgets and funding for R&D. In addition, UMS campuses have seen turnover in faculty researchers resulting in over 150 new faculty in the last few years. New faculty researchers typically need several years of start-up activity to become competitive proposal writers, and their success is starting to show. Another key contributor to this growth is larger multi-principle investigator proposals at well-established centers.

Recognizing the lead time for proposal preparation, sponsor review and selection, and contract activity to begin, there can be a one- to two-year lag in output. Proposal preparation and submissions remain steady. For the purpose of this report, a private-sector contract is counted as a single proposal submission.

MEIF Target 2

Derived from UMS BOT Research and Economic Development Target 2

UMS annual revenue from commercialization including intellectual property licensing increases at least 20 percent annually on a three-year rolling average from a baseline of $150,000, from the MEIF sectors.

Table 2

MEIF Target 2 — Commercialization Activity	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY19
Revenue from Commercialization	$121,250	$263,758	$359,723	$204,709	$329,840	$914,120	$289,088
Three-year rolling avarage	N/A	N/A	$248,244	$276,063	$298,091	$482,890	$511,016
Number of Patents Filed	15	32	28	19	18	20	17
Number of Patents Issued	16	12	6	5	8	6	6
Number of License Agreements and License Options	6	6	16	8	7	9	11

FY18–19 Change in three-year avarage revenue 6%

In summary, three year rolling average revenue from commercialization has shown an overall increase since FY2013. Commercialization relies on private companies utilizing UMS intellectual property to secure private investment to advance technology, products and services into markets. Maine continues to rank very low in comparison to other states for its industry R&D and innovation. This has been recognized by the state economic development agencies and is addressed in the 2020 Maine Economic Development Strategy.

The timeline for commercialization of newly invented technology is hard to predict, but it is lengthy. U.S. patent applications take four to five years from initial application to issuance. Newly issued UMS patents reported above and detailed in Appendix 1 were filed four to five years ago. In addition, UMS technologies generally fall into categories, such as transportation infrastructure, pulp and paper and sensors and biotechnology. These sectors have longer timelines from lab to market at five to ten years. UMS is focusing additional effort to accelerate commercialization with private-sector partners and other investment programs, such as the Maine Technology Institute and Maine Venture Fund.

14.1

MEIF Target 3

Derived from UMS Research and Economic Development Target 4

The UMS annual revenue from activities with business and industrial partners in the MEIF sectors increased from an FY13 baseline of $4.156,184 million to $7,211,422 million by FY19, and the number of business and industry contracts in the MEIF sectors increased from a baseline of 407 in FY13 to 530 in FY19. The number of business and industry contracts is included in the total grant and contract count in Table 1.

Table 3

MEIF TARGET 3 — Business and Industry Contracts	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY19
Revenue from Business and Industrial Contracts	$4,156,184	$4,371,999	$5,759,572	$4,836,138	$5,035,394	$6,339,260	$7,211,422
Number of Business and Industrial Contracts	407	500	624	519	565	528	530

FY18–19 Revenue Revenue Change 13.76%

In summary, many MEIF investments not only leverage external grants and contracts, but through a combination of MEIF funds, and grant and contract funds, help UMS campuses build capacity to work directly with industry partners. Figure 2 illustrates the variety of campus-based programs that work directly with companies. Some industry partners will be companies licensing and commercializing UMS intellectual property, while many companies are working with UMS campuses to get assistance with solving their problems or perfecting their inventions and innovations. UMS projects with business and industry are steady and activity is meeting the goals and metrics of this Target. Figure 2 demonstrates the statewide nature of these partnerships for those contracts that are currently tracked. Many additional companies, inventors, and entrepreneurs receive advice and guidance but do not result in formal contracts.

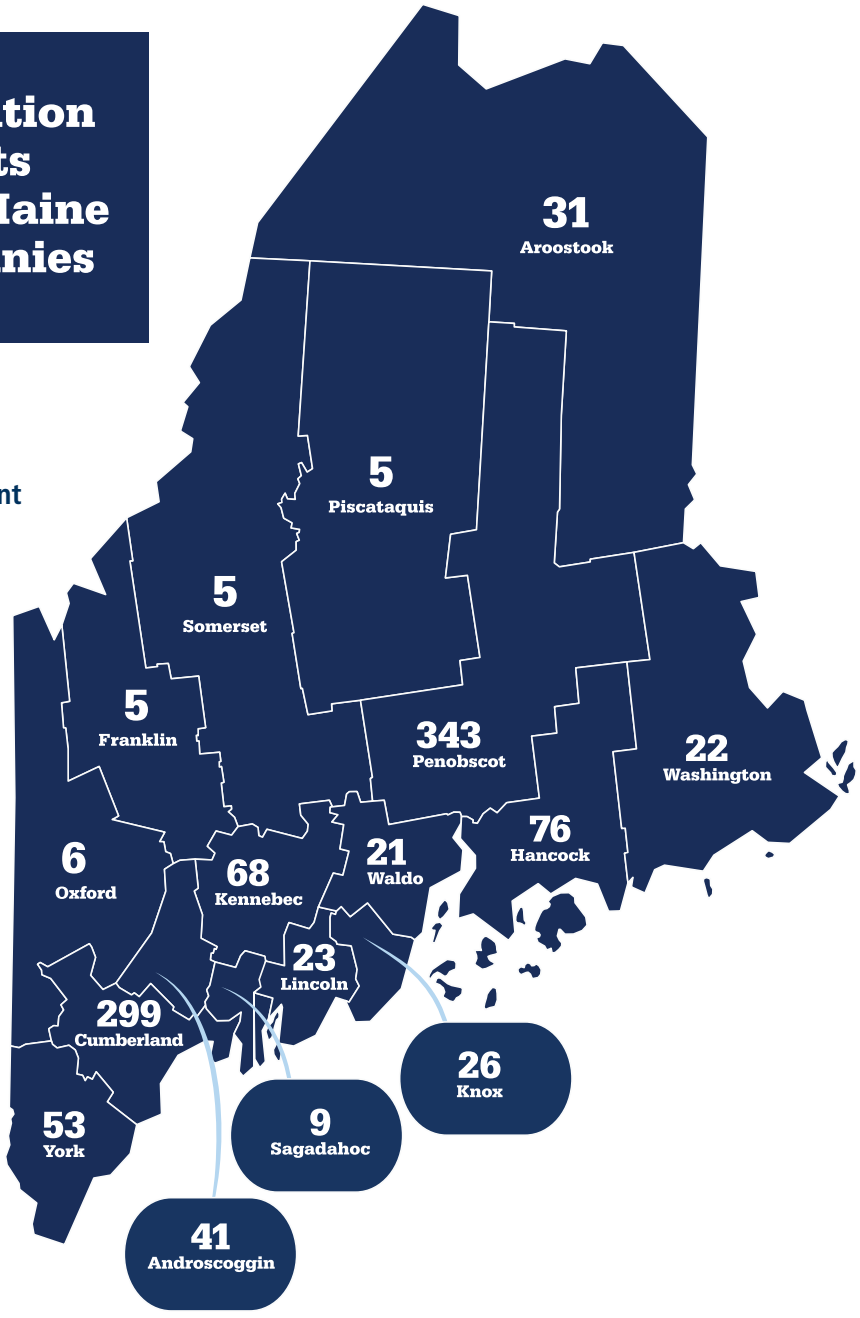
THE UNIVERSITY OF MAINE

Figure 2 Innovation projects with Maine companies FY15–FY19

1033 Innovation projects with Maine companies

Every day, the University of Maine strives to turn research and development activities into new opportunities that will create jobs and grow Maine's economy.

In the past five years, UMaine has supported more than 1,000 innovation projects, providing access to facilities and expertise to help organizations with research, new products and business development.



14.1

MEIF Target 4

Support R&D Workforce Development

UMS shall maintain a concerted effort to involve faculty, staff and students participating in research, development and commercialization, and shall report annually the number of employees directly supported by MEIF funds and by grants and contracts in the MEIF sectors. As external funding is hard to predict, there is no specific numerical goal for employee count, but UMS shall report the annual number of faculty, staff and students to indicate trends and identify opportunities for growth.

In summary, state economic analysis predicts economic growth in Maine based on an available trained and educated workforce. Growth in the seven MEIF sectors is especially dependent on the available workforce. MEIF seven-sector projects at UMS rely on regular faculty and staff, as well as many "soft money" employees — those hired to work on specific grants and contracts, and paid by those grant and contract funds. UMS employees and students gain valuable on-the-job training and experience, and may then contribute to the employment base within these sectors after completion of the grants or graduation. Grant and contract revenue is a strong contribution to this workforce development. UMS counts employees involved in this activity, and will continue to pursue the growth in employment numbers related to growth in grant and contract activity. Non-student employees are tracked as full-time equivalents (FTEs) based on a 40-hour/52-week work year. Student employees, tracked by head count, generally work less than 20 hours per week during the academic year.

Grant and contract revenue also is an important source of funding for students' salary, tuition and other types of support, allowing many research-active students to offset their cost of education while getting valuable skills and on-the-job experience, positioning them well to be leading contributors to Maine's key growth sectors.

Success and Strategic Impact
By investing MEIF funds in researchers, facilities and matching for grants, UMS has attracted more than $384.5 million since 2013 in federal and private-sector grants and contracts related to the seven strategic research areas. This funding directly results in Maine products and technologies, such as biofuels, pulp and paper products, new potato varieties, aquaculture technologies and software, which lead to improvements in Maine's industries.

Return on Investment
Each year, the state's MEIF appropriation is expanded by tens of millions of dollars in federal and private funds for important research, development and commercialization. The University of Maine as the state's land grant, sea grant and space grant institution utilizes its long-established research capacity and infrastructure to attract the majority of these external funds. Other UMS schools continue to build and partner within federal and private-sector grants and contracts.

Developing Workforce and Creating Jobs
Five hundred plus full-time equivalent jobs are funded in Maine through the grants and contracts leveraged and expended related to MEIF. These positions include faculty, technicians and research staff. Currently 1054 graduate and undergraduate students are funded for their involvement in research, development and commercialization. This student involvement in research, development and commercialization projects is comparable to an internship and gives students great real-world experience as well as life-long networks and connections.

14.1

Table 4-A

MEIF Target 4 — Workforce Development	FY19 Wages Paid from MEIF	FY19 Wages Paid from External Grants/Contracts	Totals
Number of Faculty and Staff Supported (FTE = Full-Time Equivalent)	130.72	456.65	587.37
Number of Graduate Students Supported (Headcount)	15	307	322
Number of Undergraduate Students Supported (Headcount)	116	616	732

Table 4-B

Graduate and Undergraduate Student Costs Paid from Grants and Contracts	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019
Student Salaries and Wages from Grants and Contracts	$4,877,650	$4,603,696	$5,255,861	$4,957,536	$4,853,956	$6,361,381
Student Tuition Paid by Grants and Contracts	857,781	835,961	956,963	870,787	373,118	$457,884
Student Fellowships Paid by Grants and Contracts	199,400	552,944	197,744	233,111	214,000	$298,386
Student Health Insurance Paid by Grants and Contracts	282,848	62,967	247,960	203,406	795,339	$916,618
Total Soft Money Student Support	**$6,217,679**	**$6,055,568**	**$6,658,528**	**$6,264,840**	**$6,236,413**	**$8,034,269**

FY18–19 Change 29%

MEIF Success Stories

Aquaculture and Marine

Optimizing Growth and Removing Barriers in Maine Aquaculture

Aquaculture companies in Maine are leading efforts to culture high-quality seafood products, but notable barriers to expansion and increased production affect different sectors in different ways. Several awards aim to help Maine aquaculture evolve and thrive, taking advantage of new technology, global expertise and novel approaches to managing common issues.

Shellfish Opportunity

Two awards from National Oceanic and Atmospheric Administration (NOAA) are supporting research related to sustainable shellfish aquaculture in Maine.

A team led by Damian Brady and Emmanuel Boss of the University of Maine School of Marine Sciences was awarded $692,216 under the National Sea Grant Aquaculture Initiative for a project to inform sustainable aquaculture development using water quality data.

Prospective shellfish farmers must determine what species to grow and where to grow them. Building on the success of previous Sea Grant work that established satellite imagery as an effective tool for aquaculture site selection, the Maine Sea Grant team members will use the maps they have developed to refine a bivalve growth model. The goal is to identify optimal growing locations for American oysters, European oysters, scallops and mussels. Findings will be shared in training sessions with growers and other practitioners interested in using satellite imagery for siting shellfish farms in their own regions.

In another project, funded through a $295,380 NOAA Saltonstall-Kennedy Grant, Brady and Dana Morse of Maine Sea Grant will focus on optimizing production and products for scallop aquaculture in Maine. Presently, upward of a dozen farms in Maine are producing sea scallops.

Scallop culture in the state has progressed with advances in spat collection, nursery culture, and ear-hanging production, thanks in part to strong collaboration with Japan, which has a long history of scallop aquaculture. Ear-hanging — a Japanese technique in which a hole is drilled in one of two flat corners of the scallop shell near the hinge (the so-called "ear") so that it can be tied to a submerged line for grow-out — is equipment and capital intensive, so it is critical to optimize farm operations. This award aims to identify and help overcome common issues in the production process in order to improve returns and advance scallop production as a profitable industry.

Solving for Salmon

The National Sea Grant College Program awarded $725,365 to Heather Hamlin, Deborah Bouchard and Ian Bricknell of the Aquaculture Research Institute to research an integrated approach to sea lice control in the commercial culture of Atlantic salmon.

The economic impact of sea lice infestation to the U.S. salmon aquaculture industry is estimated at $15 million annually and $740 million per year globally. Sea lice infestations remain the greatest barrier to continuing and expanding marine salmon aquaculture.

This project will address gaps in knowledge of sea lice biology and control methods, such as integrated pest management, and new, ecologically sensitive chemical compounds and their effects on nontarget species, such as lobsters.

Hamlin is working with industry and regulators to understand the factors that prevent adoption of new sea lice control techniques and to identify other impediments faced by the salmon industry.

Maine Sea Grant's investment in aquaculture research, outreach and education programs continues to make a difference in Maine's coastal communities. From February 2017 to January 2018, Maine Sea Grant invested approximately $1.4 million in aquaculture research, technology transfer and outreach in Maine and reported $5.9 million in economic impacts, including support of 123 businesses and 200 jobs. In 2018, the total harvest value of Maine aquaculture topped $71 million.

The Maine Sea Grant College Program at the University of Maine is a program of the National Oceanic and Atmospheric Administration and the state of Maine.

UMaine Researcher Undertaking Massive Lobster Population Study

A $149,636 grant awarded by Maine Sea Grant and the Maine Department of Marine Resources is supporting an exhaustive study of the state's lobster population by UMaine Professor of Marine Sciences Robert Steneck.

The work aims to understand the health of the state's lobster population and help inform future landing predictions for an industry that helps to drive Maine's economy.

Steneck is revisiting the same areas and using the same methods he employed during a 10-year in situ study conducted from 1989–1999 to look at lobster population densities, body size and habitat use. The research seeks to answer whether lobster population densities have declined over the past 20 years in certain regions and to determine if lobster habitat use has changed, among other key benchmarks.

MEIF Success Stories

USM Aquaculture Course Supports Expanding Industry

An aquaculture course that has grown out of the Suds to Shrimp Project at the University of Southern Maine is helping to prepare students for careers in related fields. Directed by the University of Southern Maine's (USM) Environmental Science and Policy Department, the Suds to Shrimp Project began in the summer of 2018 with the goal of creating a retail and wholesale network focused on polyculture aquaponic systems in Maine. Aquaponics is a system that combines aquaculture (raising fish and other aquatic animals in tanks) with hydroponics (cultivating plants in water) into an indoor ecosystem. USM has developed an Aquaponics Lab centered around a multi-species, zero-discharge aquaponics system in which waste beer grains are used to grow prawns, tilapia and vegetables.

In spring 2019, the Lab was showcased in an online course titled "Practical Guide to Aquaculture" that was inspired by the announcement of two land-based aquaculture systems being proposed for midcoast Maine.

The course presented an overview of aquaponic growing and recirculating aquaculture taught at a lay level for non-scientists, and addressed the business of land-based farming and aquaculture. Content for the course was developed in collaboration with a number of local and industry partners, including Maine Adult Learning Centers, Whole Oceans, Nordic Aquaculture, Springworks Farms, Maine Agrotech, Mook Sea Farm and the University of Maine Center for Cooperative Aquaculture Research. While mostly online, the class also incorporated in-person field experience and participants met over several weekends to tour aquaponic and related facilities in Maine.

The course was open to both full-time USM students and people across the state as part of ongoing efforts to develop the skilled workforce that will be needed as aquaponics and aquaculture continue to grow in Maine.

The course was supported in part by a U.S. Department of Agriculture (USDA) Rural Business Development Grant, which helped lower course fees and tuition for part-time students or those only interested in the single class.

UMaine Machias Research Examines Ocean Acidification Effects on Key Species

University of Maine Machias Professor of Marine Ecology Brian Beal is studying the effects of ocean acidification on lobsters, crabs, clams, mussels and scallops with funding from the Maine Economic Improvement Fund (MEIF) Small Campus Initiative.

Beal is leading three projects that were awarded a total of $300,000, increasing capacity for applied marine research and development in Down East Maine. The research projects also will engage undergraduate students.

The first project examines effects of ocean acidification on commercially important, calcified marine organisms, such as lobsters, crabs, clams, mussels and scallops — a global problem that has implications for healthy, sustainable wild and cultured fisheries in Maine. A postdoctoral research associate has been hired to help conduct the research and to assist in assembling a lab at UMM's marine science field station at the Downeast Institute in Beals, Maine.

A second project builds on work initiated in 2018 to create a selective breeding program designed to improve genetic lines of American and European oysters for growth in the cold waters of Down East Maine. The goal of the project is to produce a line of fast-growing, disease-resistant animals that eventually will become commercially available to eastern Maine oyster farmers.

A third project focuses on the Atlantic razor clam, an aquaculture species typically harvested in the fall and winter in Maine. Researchers are examining culture techniques in the hatchery to produce juveniles for eventual grow-out under field conditions.

Biotechnology

Townsend Lab Research Supported by NSF, NIH Awards

A University of Maine research team led by associate professor of neurobiology Kristy Townsend received grants from the National Science Foundation (NSF) and National Institutes of Health (NIH) in FY19.

The Townsend Lab explores how the brain coordinates energy balance and how the central and peripheral nervous systems undergo plasticity. This research impacts the study of obesity, diabetes, metabolic syndrome, aging and neurodegenerative diseases.

Understanding the creation of new nerve cells in adult brains while engaging more Maine college students in biomedical research is Townsend's focus in a five-year study funded by a $1 million NSF CAREER grant.

The NSF Faculty Early Career Development (CAREER) Program offers the foundation's most prestigious awards in support of the early career-development activities of those teacher-scholars who most effectively integrate research and education within the context of the mission of their organization.

Townsend's research focuses on adult neural plasticity and neurogenesis. The broader impact goals of the project are to expand a capstone course for seniors to conduct original biomedical research, and the development of an outreach program and summer fellowship with community colleges and other underrepresented groups in Maine in order to engage students in research and increase access to biomedical careers.

NIH awarded Townsend nearly $713,000 for a two-year study investigating brain-adipose communication and how peripheral nerves in fat tissue function. FY19 marked the second year of study for this award, which considers how nerves and fat tissue interact to affect metabolic health.

Metabolic disorders that stem from excess and unhealthy body fat are a major public health issue. Currently, Maine is the most obese state in

New England, and obesity is linked to other metabolic conditions, such as Type 2 diabetes and cardiovascular disease. Unhealthy adipose tissue, such as tissue that lacks proper innervation, may exacerbate these conditions, Townsend has found.

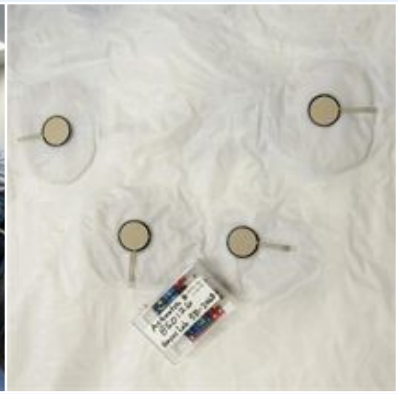
Townsend also co-founded the UMaine biotech spinoff Neuright, which has developed a medical device for early detection and diagnosis of peripheral neuropathy (the dying-back of nerve fibers). Neuright, a graduate of UMaine's technology accelerator programs MIRTA and Top Gun, took home one of two $25,000 grand prizes at the Top Gun Showcase pitch event in May 2019. Rosemary Smith, professor of electrical and computer engineering at UMaine, is the lead biomedical engineer for the design and fabrication of Neuright's product. Smith received a $60,000 grant from the U.S. Department of Health and Human Services and Mount Desert Island Biological Laboratory to optimize and validate the company's prototype.

Activas Spinoff Developing UMaine Technology with Potential to Detect Early Symptoms of Alzheimer's, Cognitive Impairment

The University of Maine was issued a key patent in FY19 for a device that detects brain injury by measuring sleep movement patterns and intends to license this technology to Activas Diagnostics, a UMaine spin-off company.

The invention is a fitted mattress sheet equipped with more than a dozen sensors that allow it to gather information about a person's sleep-wake and respiratory patterns. The advantage is that the sheet can be used while a person is sleeping in the comfort of their own home rather than in a sleep study facility. The SleepMove monitoring system has the potential to detect early symptoms of mild cognitive impairment and Alzheimer's Disease.

The UMaine inventors are Marie Hayes, professor of neuroscience, and Ali Abedi, assistant vice president for research, and professor of electrical and computer engineering. Together, they formed Activas Diagnostics to commercialize the technology. The company has received Maine Technology Institute funding and in 2018 was awarded $1 million from the National Institutes of Health Small Business Innovation Research (SBIR) program to continue product and market development. Activas Diagnostics graduated from UMaine's Top Gun accelerator program in 2013. Activas Diagnostics is located in the UpStart Center for Entrepreneurship and participates in UMaine's business incubation program, which is funded in part through MEIF.



Through the funding they have received and the licensing opportunity, their next steps are to complete the ongoing clinical sleep study to test this technology. The results from the home sleep studies on early Alzheimer's will allow Activas to then seek approval from the U.S. Food and Drug Administration.

Composites

$20 Million Research Partnership Opens New Market for Maine Forest Products

A new research collaboration between the University of Maine Advanced Structures and Composites Center and the Department of Energy's Oak Ridge National Laboratory (ORNL) in Tennessee will advance efforts to 3D print with wood products, creating a new market for Maine's forest products industry.

The $20 million effort, funded by DOE's Advanced Manufacturing Office, aims to strengthen regional manufacturing by connecting university–industry clusters with DOE's Manufacturing Demonstration Facility at ORNL.

The ORNL and UMaine research team is working with the forest products industry to produce new bio-based materials that will be conducive to 3D printing a variety of products, such as boat hull molds, shelters, building components, tooling for composites and wind blades. They also will position the industry to print large, structurally demanding systems, such as boats.

ORNL is a world leader in advanced manufacturing and is DOE's largest science and energy laboratory, conducting basic and applied research to deliver transformative solutions to compelling problems in energy and security. UMaine is a world leader in cellulose nanofiber (CNF) technology, including development of nano- and micro-cellulose reinforced thermoplastic composites through its Advanced Structures and Composites Center.

The collaboration provides students, faculty and companies associated with UMaine's Advanced Structures and Composites Center access to ORNL's assets and expertise in advanced manufacturing. ORNL researchers, in turn, gain access to UMaine's facilities and expertise in CNF and composites.

Scientists from ORNL and UMaine are conducting fundamental research in several key technical areas, including CNF production, drying, functionalization and compounding with thermoplastics, multiscale modeling and sustainability life cycle analysis. By placing CNF into plastics, strong, stiff and recyclable bio-derived material systems can be developed that may be 3D printed at deposition rates of hundreds of pounds per hour and up to 50 percent cellulose fiber loading. Printing with 50 percent wood promises to open new markets for the pulp, paper and forest products industries.

As a forest product, CNF could rival steel properties, and its successful incorporation into plastics shows great promise for a renewable feedstock suitable for additive manufacturing.

Environmental Technologies

Maine-Greenland Collaborations Offer Climate Insights

A multi-disciplinary team of 16 University of Maine System researchers and faculty traveled to southwest Greenland June 21-29 to address 21st century challenges throughout the Arctic, North Atlantic and Maine by experiencing the impacted region first-hand. The "Arctic Futures Workshop" was organized by Paul Mayewski, director of the Climate Change Institute at the University of Maine, and Charles Norchi, director of the Center for Oceans and Coastal Law at the University of Maine School of Law. This UMS initiative included participants from UMaine, University of Southern Maine and Maine Law, and was made possible through MEIF and other funding.

The first-of-its-kind workshop explored aspects of climate change and adaptation in South Greenland. The eight-day field visit allowed the multidisciplinary team to study the monumental cultural, environmental and socio-economic challenges facing this region of the Arctic as it grapples with a rapidly warming climate. The adaptation issues are similar to those in Maine. However, Greenland's terrestrial and marine environment changes are occurring at a far more accelerated pace.

During the South Greenland workshop, faculty and researchers identified potential research projects and points of collaboration. These included essays and grant proposals, USM and UMaine collaborations to employ satellite data to map shifts in landscape and vegetation changes across South Greenland over a 40-year time period, an artistic animation series that brings to life narratives about Greenland and the "Greenland Bridge" and compilation of a matrix of geodata resources relevant to researchers and faculty across many disciplines.

Students in geography, GIS, anthropology, art, social work and tourism studies will benefit from planned courses related to the South Greenland collaboration. In summer 2022, students will go to South Greenland for a field research project focused on understanding human-environment interactions and adaptations in fragile environments. In addition to field data collection, students will use geospatial tools and techniques to supplement their field understanding of relevant issues.

14.1

Winter Survival Rates of Ticks and Implications for Tick-borne Diseases in Maine

With tick-borne illnesses on the rise in Maine, Allison Gardner, UMaine assistant professor of arthropod vector biology, is studying over-winter survival rates for two types of ticks. Gardner's work addresses the hypothesis that winter temperatures currently constrain the geographic distribution of both the black-legged tick (already established in Maine) and the lone star tick (not yet established in Maine, but increasingly prevalent elsewhere in the Northeast). It is further hypothesized that climate change may increase over-winter tick survival and thus contribute to the spread of tick-borne disease.

With a grant from the Maine Department of Inland Fisheries and Wildlife, Gardner will conduct an over-winter survival assay for both tick species in five locations spanning a statewide climate gadient. Another component of the research involves studying the geographic distribution of the blacklegged tick in 13 locations throughout the state and testing small animals in these regions for a variety of tick-borne pathogens.

Forestry and Agriculture

Wood to Jet Fuel Program Gets a Big Boost

The University of Maine's groundbreaking work to convert woody biomass into biofuels recently got a big boost in the form of a $4 million grant from the U.S. Department of Defense.

Many Maine communities have felt the effects of declining paper industries. In order to revitalize the economies of these towns across the state, it is crucial to find alternative and innovative uses for the mills and resources that are currently underutilized. The Forest Bioproducts Research Institute has been addressing this problem through research into nanocellulose, a forest-based bioproduct, that is showing a variety of useful applications in a range of industries.

The new grant funding will allow UMaine to expand and scale up its wood-to-fuel technology, putting in place the research infrastructure needed to produce sufficient quantities of diesel and jet fuel needed for fuel certification testing. Additionally, it allows for follow-up work on co-production of chemicals derived from carbon sugars and advanced materials derived from nanocellulose and biochar.

The pilot plant at the University of Maine's Technology Research Center in Old Town, Maine, is able to process up to 1 ton of woody biomass every day, with the ability to run 100 continuous hours.

14.1

Blueberry Research Supports Health of Key Maine Industry

Several projects aim to help Maine's wild blueberry growers and processors to improve safety, efficiency, and profitability.

Lowbush blueberries are a historically important crop in Maine, and our state remains the number one domestic source for wild blueberries, producing an average of more than $100 million pounds annually.

Research led by University of Maine Cooperative Extension wild blueberry specialist and assistant professor of horticulture Lily Calderwood and supported by a $199,828 grant from the U.S. Department of Agriculture considers nutrient and weed management strategies for the state's organic wild blueberry growers. With the price of conventional wild blueberries reaching a record low in 2017, more growers are exploring organic production. Organic berries command significantly higher prices, but low yields are a chronic problem without effective nutrient and weed management plans. Difficulty developing and implementing such plans is commonly cited as a barrier to transitioning to organic production, and Calderwood's work focuses on both research and related education to support Maine's blueberry growers.

Calderwood also is studying the role of fertilizers in the wild blueberry system in order to draft revised guidance for growers in an effort to improve farm efficiency and profitability. This work, supported by a $43,887 grant from the U.S. Department of Agriculture evaluates new fertilizer

products and their impact on weed and disease pests, as well as studies the effect of warmer temperatures and fertilizer application on wild blueberry productivity, weed pressure and disease incidence.

In addition, Jennifer Perry, UMaine assistant professor of food microbiology, continued work to improve the safety of Maine's wild blueberry products with grant assistance from the Wild Blueberry Commission of Maine. The study is an academic and industry collaboration to examine the use of emerging aqueous treatments on the safety of wild blueberries during simulated commercial processing. More than 90% of Maine's wild blueberry harvest is diverted to frozen product, and changes in the way people consume blueberries demand that frozen berries be delivered ready-to-eat. A transition away from baking means that many people do not heat the product before consumption, bringing bacterial control to the fore. Perry is studying the utility of underutilized and emerging aqueous treatments including ozone, electrolyzed water and peracetic on the survival of Listeria bacteria. The commercial processing simulations involved in the research are designed to mirror existing processing operations so that solutions can be easily and cost effectively implemented by the industry.

This study builds on Perry's prior work in this area, which was supported by a grant from Maine's Agricultural Development Grant Program in 2018.

UMaine Continues to Lead the Way in Potato Research

A $433,370 grant from the U.S. Department of Agriculture is the latest award in a multiyear integrated study of potato breeding and variety development for improved quality and pest resistance in the Eastern United States. Greg Porter, a professor of crop ecology and management at UMaine who leads the university's potato breeding and development program, is working with colleagues at universities in six other states as part of ongoing research to develop attractive, highly productive disease- and insect-resistant potato varieties that can be employed by small and large producers to enhance marketing opportunities, farm sustainability and profits.

It takes 12 to 14 years to develop a new potato variety, and Porter's work at UMaine's 425-acre Aroostook Research Farm focuses on every aspect of potato growth and development. In recent years, UMaine's breeding program has released several varieties, including the Caribou Russet, which has white flesh and lightly russeted skin, and the Pinto Gold, a yellow-flesh gourmet potato.

The Caribou Russet hit store shelves with limited supply in 2016. A year later, Hannaford stores began stocking the new variety in its produce sections throughout Maine. Today, Hannaford and Stop & Shop stores are carrying the Caribou Russet and it is available to some smaller supermarkets as well. In 2019, demand for Caribou Russet grew to include chefs and the food service industry.

In the time since the release of the Caribou Russet, acreage has increased to 3,900 acres which accounts for 7.5% of all the potatoes planted in Maine. The Pinto Gold, released in 2018, is earlier in its development trajectory and has received acclaim for its excellent roasting and eating qualities.

The management of insects, diseases and other pests is key to sustaining Maine's $500 million potato industry, and the University of Maine Cooperative Extension's long-established Potato Integrated Pest Management Program is vital to that goal. Without reliable and sustainable pest management strategies, potato growers face the potential for severe crop losses resulting in significant reductions in profits and threats to long-term viability. Funded through the USDA via the Maine Department of Agriculture for $99,571 in 2019, the Potato Integrated Pest Management Program, provides ongoing support to growers through field monitoring, disease forecasting and distribution of educational materials.

Information Tech

Learning Platform Expands STEM Access for Blind or Visually Impaired Students

Development and evaluation of a first-of-its-kind remote learning platform providing people who are blind or visually impaired (BVI) nonvisual access to STEM-related graphical information is the focus of a $748,000 National Science Foundation grant to the University of Maine.

The project, "A Remote Multimodal Learning Environment to Increase Graphical Information Access for Blind and Visually Impaired Students," is led by Nicholas Giudice, UMaine professor of spatial informatics who directs the Virtual Environment and Multimodal Interaction (VEMI) Laboratory.

The system uses combinations of nonvisual inputs, such as vibration, speech and auditory information, that allow BVI users to feel and hear the visual content of graphics as they move their hand around the touchscreen of smartphones and tablets. With graphical educational materials at the core of all STEM disciplines, this information access is critical for improving BVI students' classroom outcomes.
The project will conduct one of the largest experiments ever performed on graphical access with BVI participants, with results leading to the development of a robust and economically viable solution for the BVI community.

This newest award is the latest in six years of research by Giudice and the VEMI Lab focused on using commercial smartphones and tablets to provide BVI people with nonvisual and multimodal access to visual graphics. The work has been supported by two other NSF grants and has been published in over 30 papers and conference presentations.

The research has led to the development of a new class of information access technology that has gained significant national attention and has potential for solving the long-standing graphics access problem for people with visual impairment. By creating an accessible remote learning platform that can work on a BVI user's personal smartdevice, this most recent project takes the research outside of the lab and directly to the people who can most benefit from its application.

USM Municipal Data Consortium Pilot Project Identifies Key Needs

The University of Southern Maine Data Innovation Project is dedicated to partnering with organizations to increase their capacity to utilize data to clearly define their work, achieve results and demonstrate impact in Maine. Part of this effort has been the Municipal Data Consortium project, which began in spring 2018.

This work has focused on reviewing open data movement initiatives for local municipalities, as well as data-sharing platforms that exist around the U.S. and Canada. Through dialogue with Greater Portland area town managers to explore their primary data needs, staff undertook a data collection pilot project with the towns of Falmouth, Scarborough, Gray, Yarmouth, Gorham and Cape Elizabeth.

The participating towns identified being able to make meaningful comparison data across towns and benchmarking as high priorities. The pilot found that the data collected and maintained by towns lack uniformity, making cross-town comparisons or benchmarking very difficult.

At the municipal level, the two most significant data files are budgets and town parcel and assessor files. While Maine has created voluntary guidelines to standardize each of these common data files, they are not mandated for use. For example, the Office of the State Auditor has a model chart of accounts that could standardize budgets, and the Maine GeoLibrary created recommended land use codes for assessor data and standards for digital parcel files. Neither of these efforts appears to have been widely publicized beyond the year in which they were created.

As a result of this project, the staff has a much stronger vision for a data consortium, its functionality, the process by which it could be developed, as well as a draft business plan/proposal that outlines the stages, resources necessary and stakeholders to involve in the future.

Precision Manufacturing

Advanced Manufacturing Center Pioneering 3D Metal Printing for Maine

A broad-based coalition of Maine companies is taking advantage of additive metal manufacturing services and training available at the University of Maine as part of a concerted effort to make 3D metal printing accessible for Maine businesses.

The work is being done at UMaine's Center for Additive Manufacturing of Metals (CAMM), based at the Advanced Manufacturing Center (AMC) on the Orono campus. It is the only Maine facility

currently offering these services, which focus on the process of fusing small metal particles together through 3D printing to form solid metal objects. The technology is ideal for creating small parts used in tooling or fixturing.

CAMM's funding comes from a nearly $500,000 Maine Technology Institute (MTI) cluster initiative program grant, with matching funds from the university and 35 Maine companies, bringing the total to $1 million. The funds also will be used as a partial match for a $750,000 U.S. Economic Development Administration grant AMC recently received. With matching funds, the grant totals $1.5 million.

The companies who have contributed funding — including GE Power in Bangor — are true partners in CAMM's work. GE's location in Bangor manufactures steam turbine rotors and blading and specializes in gas turbine components. The AMC has been working with GE on test parts for a gripper system that the company uses to hold blades and parts for machining, as well as testing for a high-temperature masking operation they use in the blade-coating process. The ability to experiment with CAMM is an asset to businesses who want to try this new technology, and the hope is to facilitate the adoption of 3D metal printing in businesses around the state.

14.1

Cross Sector

Maine Regulatory Training and Ethics Center Interns in the Field

The Maine Regulatory Training and Ethics Center (MeRTEC) project focuses on an interdisciplinary, educational partnership between the University of Southern Maine (USM) and Maine's businesses and community partners. Regional business, industry leaders and community partners have conveyed to USM the need for guidance in regulatory training, workforce development and ethics. In partnership with Maine Law, MeRTEC has established Regulatory Navigation Certificates consisting of professional training curriculum focused on core competencies within law, ethics and the social sciences. The program draws from USM's recognized strengths in these areas to offer in-person and online courses, training, and student internships. The successful pilot launch of the Professional Certificate in 2017-2018 resulted in 10 students in the pilot cohort receiving a Certificate of Compliance.

Over the course of 2019, MeRTEC has also helped to meet the needs of Maine's businesses, industry leaders and community partners through providing MeRTEC interns/graduate assistants. These individuals provided technical assistance to community partners with at least two projects in each of the emphasized sectors: agricultural, marine, health and life science. MeRTEC also piloted a student internship exchange with Reykjavik University at Eimskip Portland and Reykjavik.

Appendix 1 — University of Maine System Intellectual Property

Table A1-1

University of Maine System New Patent Applications Filed FY2019

Title	Application Type	Filing Date	Inventor	Campus
METHOD OF ASSEMBLING A FLOATING WIND TURBINE PLATFORM	US-DIVISIONAL	5/15/2019	HABIB DAGHER ANTHONY VISELLI	ORONO
SPENT GRAIN PAPER AND PAPERBOARD PRODUCTS AND RELATED METHODS	US – PROVISIONAL	3/22/2019	KAI SMITH	ORONO
HYBRID COMPOSITE CONCRETE BRIDGE AND METHOD OF ASSEMBLING	US	3/12/2019	WILLIAM G DAVIDS JAMES M ANDERSON JOSHUA DAVID CLAPP HABIB JOSEPH DAGHER *	ORONO
ADVANCED SEGMENTED PRE-CAST CONCRETE HULLS FOR WAVE ENERGY CONVERTERS	US	3/4/2019	ANTHONY VISELLI* HABIB JOSEPH DAGHER	ORONO
NON-ORTHOGONAL ADDITIVE MANUFACTURING AND THE TREATMENT OF PARTS MANUFACTURED THEREFROM	US	1/17/2019	MATTHEW JOHN IRELAND JAMES M ANDERSON *	ORONO
COMPOSITIONS AND METHODS FOR MODULATING ENDOTHELIAL CELL MIGRATION AND ANGIOGENESIS	PCT	11/15/2018	PANAGIOTIS TSAKIROGLOU DOROTHY J KLIMIS *	ORONO
IMPROVED FILAMENTS FOR 3D PRINTING	PCT	11/15/2018	JORDAN E SANDERS LU WANG DOUGLAS JEROME GARDNER *	ORONO
TUNE MASS DAMPER FOR FLOATING STRUCTURES	US-PROVENTIAL	11/2/2018	ANDREW JOSEPH GOUPEE ANTHONY M VISELLI HABIB JOSEPH DAGHER *	ORONO
METHOD TO PRODUCE COMPOSITE-ENHANCEDMARKET PULP AND PAPER	PCT	10/10/2018	MICHAEL BILODEAU * MARK A PARADIS	ORONO
STYLIZED ADAPTIVE MOBILITY DEVICE	US	9/20/2018	VINCENT CACCESE ELIZABETH DEPOY * STEPHEN F GILSON	ORONO
CONTROLLED POROSITY STRUCTURAL MATERIAL WITH NANOCELLULOSE FIBERS	US	9/20/2018	DAVID GREGG HOLOMAKOFF MUHAMMAD RADOWAN HOSSEN MICHAEL D MASON *	ORONO
PARASITE TREATMENT COMPOUND	PCT	9/12/2018	DEBORAH A BOUCHARD * IAN BRICKNELL	ORONO
TREHALASE-RESISTANT TREHALOSE ANALOGUES AND USES THEREOF	US-PROVISIONAL	8/22/2018	PETER WOODRUFF	USM
NON-ORTHOGONAL ADDITIVE MANUFACTURING AND THE TREATMENT OF PARTS MANUFACTURED THEREOF	US-PROVISIONAL	8/9/2018	MATTHEW JOHN IRELAND JAMES M ANDERSON *	ORONO
PHOTOVOLTAIC FABRIC WITH WOVEN BUS ARCHITECTURE	PCT	7/30/2018	KARL PEPIN *	ORONO
A NOVEL BARRIER CONCEPT TO REDUCE SEA LICE INFESTATION OF SALMON FARMS	US-PROVISIONAL	7/26/2018	IAN BRICKNELL KRISHNA THIAGARAJAN *	ORONO
DOPPLER RADAR BASED BEE HIVE ACTIVITY MONITORING SYSTEM	US-PROVISIONAL	7/10/2018	HERBERT AUMANN NURI EMANETOGLU	ORONO
		TOTAL 17		

14.1

Table A1-2 University of Maine System — Patents Issued FY2019

Title	Patent Number	Issued Date
ENERGY EFFICIENT PROCESS FOR PREPARING NANOCELLULOSE FIBERS	602013056272.5	6/5/2019
ENERGY EFFICIENT PROCESS FOR PREPARING NANOCELLULOSE FIBERS	E 1140092	6/5/2019
ENERGY EFFICIENT PROCESS FOR PREPARING NANOCELLULOSE FIBERS	502019000070530	6/5/2019
ENERGY EFFICIENT PROCESS FOR PREPARING NANOCELLULOSE FIBERS	2861799	6/5/2019
FLOATING WIND TURBINE PLATFORM AND METHOD OF ASSEMBLING	57.397	5/24/2019
POLYMERIC COMPOSITE MATERIALS AND METHODS OF MAKING THEM	364784	5/7/2019
CELLULOSE NANOFIBRILS REINFORCED POLYPROPYLENE NANOCOMPOSITES: MECHANICAL AND MORPHOLOGICAL PROPERTIES	10280294	5/7/2019
METHOD OF MOORING ONE OR MORE FLOATING WIND TURBINE PLATFORM	ZL201580007382.3	5/7/2019
SYSTEM AND METHOD FOR EARLY DETECTION OF MILD TRAUMATIC BRAIN INJURY CONTINUATION OF APPLICATION 13/106451	NOW PAT. NO. 9192333 10244977	4/2/2019
FLOATING WIND TURBINE PLATFORM AND METHOD OF ASSEMBLING	2836708	2/27/2019
HYBRID COMPOSITE MATERIAL SYSTEMS FOR OFFSHORE FLOATING PLATFORMS	602013051466.6	2/27/2019
HYBRID COMPOSITE MATERIAL SYSTEMS FOR OFFSHORE FLOATING PLATFORMS	2836708	2/27/2019
FLOATING WIND TURBINE SUPPORT SYSTEM	3049668	2/27/2019
METHOD OF CONSTRUCTION, ASSEMBLY AND LAUNCH OF A FLOATING WIND TURBINE PLATFORM	10215161	2/26/2019
HYBRID COMPOSITE MATERIAL SYSTEMS FOR OFFSHORE FLOATING PLATFORMS	2635489	2/20/2019
BUOY WITH INTEGRATED MOTION COMPENSATION	10202174	2/12/2019
HULL FOR A FLOATING WIND TURBINE PLATFORM	10202170	2/12/2019
FLOATING WIND TURBINE SUPPORT SYSTEM	105793563	1/22/2019
METHOD OF FORMING A COMPOSITE STRUCTURAL MEMBER (APPARATUS)	2812942	1/20/2019
METHOD OF FORMING A COMPOSITE STRUCTURAL MEMBER (METHOD)	2812941	1/15/2019
METHOD FOR DRYING CELLULOSE NANOFIBRILS	2797681	12/18/2018
POLYMERIC COMPOSITE MATERIALS AND METHODS OF MAKING THEM	3004222	12/5/2018
HYBRID CONCRETE - COMPOSITE TOWER FOR A WIND TURBINE AND METHOD OF MANUFACTURING	ZL201580019384.4	11/27/2018
BIODEGRADABLE MATERIALS AND METHODS OF MAKING THE SAME	10065080	9/4/2018

TOTAL 47: 6 U.S.; 41 foreign

14.1

Appendix 2 — Maine Economic Improvement Fund Financial History and Tables

Table A2-1

A History of Legislative Actions on Appropriating State Research Funds

The following is a summary of the actions of the 118th–127th (first regular session) Maine Legislature with regard to appropriating research and development funds to the University of Maine System.

118th LEGISLATURE
March 26, 1997: Governor signed into law the Economic Improvement Strategy (Chapter 24) that appropriated $500,000 to UMS for research.

April 1, 1998: Governor signed into law the Economic Improvement Strategy (Chapter 643, Part LL, Sec. S-3) that appropriated $4 million to UMS for research. These funds were allocated from the FY98 year-end state surplus for use in FY99.

119th LEGISLATURE
March 15, 1999: Governor signed into law the Part I Current Services budget (Chapter 16) that appropriated $4 million in 1999–2000 and 2000–01 to UMS on a "base budget" basis for research. This extends the one-time FY99 $4 million research appropriation that was funded from the FY98 year-end state surplus.

June 4, 1999: Governor signed into law the Part II Supplemental Appropriation budget (Chapter 401) that appropriated an additional $5.55 million in 1999–2000 and an additional $50,000 in 2000–01 to UMS on a "base budget" basis for research.

April 25, 2000: Governor signed into law the Part II Supplemental Appropriation budget (Chapter 731) that appropriated $300,000 in 2000–01 to UMS on a "base budget" basis for the Maine Patent Program.

120th LEGISLATURE
June 21, 2001: Governor signed into law the Part II Supplemental Appropriation budget (Chapter 439) that appropriated an additional $2 million in 2002–03 to UMS on a "base budget" basis for research.

March 25, 2002: Governor signed into law a deappropriation (Chapter 559) that reduced the FY03 $2 million Supplemental Appropriation by $1 million.

July 1, 2002: Governor signed a Financial Order that curtailed the FY03 $2 million Supplemental Appropriation by an additional $1 million. This eliminated the FY03 increase of $2 million for research, bringing the FY03 research and development appropriation back to the FY02 level of $10.1 million.

November 18, 2002: Governor signed into law a Supplemental Appropriation budget (Chapter 714) that deappropriated the $1 million curtailment that was signed July 1, 2002.

121st LEGISLATURE
March 27, 2003: Governor signed into law the Part I Current Services budget (Chapter 20, Part RR) that appropriated $100,000 in 2003–04 and 2004–05 on a "base budget" basis for research.

January 30, 2004: Governor signed into law a Supplemental Appropriation budget (Chapter 513, Part P, Sec. P-2) that includes a provision to transfer to MEIF up to $2 million of any unbudgeted State revenue remaining at the close of FY04. The full amount was subsequently transferred to UMS. This same Chapter 513, Part P, Sec. P-3 made the $2 million part of the MEIF FY05 base appropriation.

122nd LEGISLATURE
March 29, 2006: Governor signed into law a Supplemental Appropriations budget (Chapter 519, Part A, Sec. A-1) that includes providing one-time funding of $600,000 in FY07 for the commercialization of research and development activity, and for the Gulf of Maine Ocean Observing System.

123rd LEGISLATURE
June 7, 2007: Governor signed into law a budget (Chapter 240, Part A, Sec. A-68) that provides an increase of $1.5 million in FY08 and an additional $1 million in FY09 on a "base budget" basis for research.

124th LEGISLATURE
May 28, 2009: Governor signed into law a budget (Chapter 213, Part A, Sec. A-67) that maintains the annual funding at the FY09 level of $14.7 million.

125th LEGISLATURE
June 15, 2011: Governor signed into law a budget (Chapter 380) that maintains the annual funding at $14.7 million. May 29, 2012: PUBLIC Law (Chapter 698) creates the formula funding for the Small Campus Initiative, reserving a percentage of MEIF exclusively for the five smaller campuses of the University of Maine System.

126th LEGISLATURE
June 10, 2013: Governor signed into law (Chapter 225) an amendment to the MEIF statute to include Maine Maritime Academy as a MEIF-eligible small campus.

June 26, 2013: Legislature approved into law a budget (Chapter 368) that maintains the annual funding at $14.7 million.

127th LEGISLATURE
June 30, 2015: Legislature approved into law a budget (Chapter 267) that increases the annual funding by $2.65 million in each year of the biennium.

128th LEGISLATURE
July 4, 2017: Governor signs into law the state budget that maintains the annual funding at $17.35 million (FY17/FY18).

129th LEGISLATURE
June 17, 2019: Governor signs into law the state budget that maintains the annual funding at $17.35 million (FY18/FY19)

Table A2-2

Legislative History of MEIF New Appropriations

118th LEGISLATURE

	FY1998	FY1999	Total 2-Year
UMaine	$400,000	$3,200,000	$3,600,000
USM	100,000	800,000	900,000
Total	$500,000	$4,000,000	$4,500,000

119th LEGISLATURE

	FY2000	FY2001	Total 2-Year
UMaine	$4,440,000	$40,000	$4,480,000
USM	1,110,000	10,000	1,120,000
Total	$5,550,000	$50,000	$5,600,000

120th LEGISLATURE

	FY2002	FY2003	Total 2-Year
UMaine	$0	$0	$0
USM	0	0	0
Total	$0	$0	$0

121st LEGISLATURE

	FY2004	FY2005	Total 2-Year
UMaine	$80,000	$1,600,000	$1,680,000
USM	20,000	400,000	420,000
Total	$100,000	$2,000,000	$2,100,000

122nd LEGISLATURE

	FY2006	FY2007	Total 2-Year
UMaine	$0	$540,000	$540,000
USM	0	60,000	60,000
Total	$0	$600,000	$600,000

123rd LEGISLATURE

	FY2008	FY2009	Total 2-Year
UMaine	$1,200,000	$720,000	$1,920,000
USM	300,000	180,000	480,000
S.C. Initiatives	0	100,000	100,000
Total	$1,500,000	$1,000,000	$2,500,000

124th LEGISLATURE20

	FY2010	FY2011	Total 2-Year
UMaine	$0	$0	$0
USM	0	0	0
S.C. Initiatives	0	0	0
Total	$0	$0	$0

14.1

125th LEGISLATURE

	FY2012	FY2013	Total 2-Year
UMaine	$0	$0	$0
USM	0	0	0
S.C. Initiatives	0	0	0
Total	$0	$0	$0

126th LEGISLATURE

	FY2014	FY2015	Total 2-Year
UMaine	$0	$0	$0
USM	0	0	0
S.C. Initiatives	0	0	0
Total	$0	$0	$0

127th LEGISLATURE

	FY2016	FY2017	Total 2-Year
UMaine	$2,056,400	$0	$2,056,400
USM	514,100	0	514,100
S.C. Initiatives	79,500	0	79,500
Total	$2,650,000	$0	$2,650,000

128th LEGISLATURE

	FY2018	FY2019	Total 2-Year
UMaine	$0	$0	$0
USM	0	0	0
S.C. Initiatives	0	0	0
Total	$0	$0	$0

129th LEGISLATURE

	FY2020	FY2021	Total 2-Year
UMaine	$0	$0	$0
USM	0	0	0
S.C. Initiatives	0	0	0
Total	$0	$0	$0

Total Yearly Research Appropriations for FY2019

FY2019 Appropriation		
UMaine	$13,289,194	76.6%
USM	3,290,306	19.0%
UMM	250,000	1.4%
UMFK	0	0.0
UMPI	0	0.0
UMA	0	0.0
UMF	0	0.0
UMS	520,500	3.0%
MMA	0	0.0
Total	$17,350,000	100.0%

S.C. Initiatives ..... Small Campus Initiatives
University of Maine ..... UMaine
University of Southern Maine ..... USM
University of Maine at Augusta ..... UMA
University of Maine at Farmington ..... UMF
University of Maine at Fort Kent ..... UMFK
University of Maine at Machias ..... UMM
University of Maine at Presque Isle ..... UMPI
Maine Maritime Academy ..... MMA

14.1

Table A2-3 Maine Economic Development Fund

Utilization of FY19 Research Appropriation by Targeted Sector

UMAINE	Source of R&D Funds				Utilization of R&D Funds						Balance
Targeted Research Area	FY2019 R&D Initial Base Budget	Unused R&D Funds from Prior Years As Reported	Adjustment To Prior Years Unused R&D Funds	Adjusted Unused R&D Funds From Prior Years	FY2019 R&D Funding Transfers	FY2019 Total R&D Funds Available	FY2019 R&D Actual Expenditures	Transferred To Match Grants & Contracts	Transferred Between R&D Accounts	Total R&D Funds Utilized	Unused Funds Carried Forward To FY2020[1]
Adv. Technology Forestry & Agriculture	$1,781,062	$(1,049,667)	-	$1,049,667)	$ -	$731,395	$2,951,359	$184,418	$(1,003,004)	$2,132,773	$(1,401,378)
Aquaculture & Marine Science	2,959,909	(2,400,098)	-	(2,400,098)	-	559,811	3,951,753	1,481,364	(1,356,823)	3,076,294	(2,516,483)
Biotechnology	1,208,714	(1,135,543)	-	(1,135,543)	-	73,171	1,800,930	213,161	(625,709)	1,338,382	(1,315,211)
Composites	1,844,246	2,028,201	-	2,028,201	-	3,872,447	2,237,710	237,576	(889,316)	1,585,970	2,286,477
Environmental	1,338,169	(570,030)	-	(570,030)	-	768,139	2,037,686	115,393	(738,844)	1,414,235	(646,096)
Information Technology	1,856,946	(290,256)	-)	(590,256)	-	1,266,690	3,237,946	27,385	(998,705)	2,266,626	(999,936)
Precision Manufacturing	1,383,284	240,561	-	240,561	-	1,623,845	1,866,741	85,488	(655,964)	1,296,265	327,580
Cross Sector	916,864	(422,450)	-	(422,450)	-	494,414	1,113,696	98,300	(185,957)	1,026,039	(531,625)
Total State Funding	$ 13,289,194	$3,899,282)$	-	$ (3,899,282)	$ -	$ 9,389,912	$ 18,197,821	$ 2,443,085	$ (6,454,322)	$ 14,186,584	$ (4,796,672)
UM Cost Sharing Funding[2]	6,454,248	-	-	-	-	6,454,248	-	-	6,454,248	6,454,248	-
Total Funding	$ 19,743,442	$(3,899,282)	$ -	$(3,899,282)	$ -	$ 15,844,160	$ 18,197,821	$ 2,443,085	$ (74)	$ 20,640,832	(4,796,672)

[1] Includes year-end equipment carry-over funds (equipment ordered, not received and not paid).
[2]Salary and benefits from university.
[3]Actual expenditures for FY2017 included a reversal of a $1,533 FY2016 payroll accrual that was accrued under the instruction functional expense and not included in the FY2016 report.

USM	Source of R&D Funds				Utilization of R&D Funds						Balance
Targeted Research Area	FY2019 R&D Initial Base Budget	Unused R&D Funds from Prior Years As Reported	Adjustment To Prior Years Unused R&D Funds	Adjusted Unused R&D Funds From Prior Years	FY2019 R&D Funding Transfers[3]	FY2019 Total R&D Funds Available	FY2019 R&D Actual Expenditures	Transferred To Match Grants & Contracts	Transferred Between R&D Accounts	Total R&D Funds Utilized	Unused Funds Carried Forward To FY2020[1,2]
Forestry & Agriculture	$ -	$ 452,099	$ -	$ 452,099	$ 696,518	$ 1,148,617	$ 903,794	$57,753	$ -	$ 961,547	$ 187,070
Aquaculture & Marine	-	500,647	-	500,467	360,125	860,772	683,035	-	-	683,035	177,737
Biotechnology	-	14,272	-	14,272	254,432	268,704	251,157	-	-	251,157	17,547
Composites	-	1,089	-	1,089	3,351	4,440	3,550	-	-	3,550	890
Environmental	-	65,700	-	65,700	(27,095)	38,605	35,143	-	-	35,143	3,462
Information Technology	-	676,373	-	676,373	507,565	1,183,938	858,129	78,662	-	936,791	247,147
Precision Manufacturing	-	556	-	556	26,076	26,632	22,661	-	-	22,661	3,971
Cross Sector	-	26,107	-	26,107	1,278,603	1,304,710	1,046,485	-	-	1,046,485	258,225
Unassigned — reallocated by System	3,290,306	287,551	-	287,551	(3,095,575)	478,282	-	-	-	-	478,282
Total State Funding	$ 3,290,306	$ 2,024,394	$ -	$2,024,394	$ -	$5,314,700	$3,803,954	$136,415	$ -	$ 3,940,369	$1,374,331

[1] Includes year-end equipment carry-over funds (equipment ordered, not received, and not paid).
[2] At USM, projects are funded on a year to year basis with renewals contingent on performance. A majority of the unused funds carried forward into FY19 are committed but not yet allocated to multi year projects.
[3] Transfers for current year funding of USM R&D programs and awards from "Unassigned". UM base budgets the MEIF appropriation by sector and thus does not use funding transfers.

Table A2-4 Maine Economic Development Fund

FY2019 Utilization of FY19 Research Appropriation by Campus

	Source of R&D Funds				Utilization of R&D Funds						Balance
	FY2019 R&D Initial Base Budget	Unused R&D Funds from Prior Years As Reported	Adjustment To Prior Years Unused R&D Funds[4]	Adjusted Unused R&D Funds From Prior Years	FY2019 R&D Funding Transfers[3]	FY2019 Total R&D Funds Available	FY2019 R&D Actual Expenditures	Transferred To Match Grants & Contracts	Transferred Between R&D Accounts	Total R&D Funds Utilized	Unused Funds Carried Forward To FY2020[1]
UMAINE	$13,289,194	$(3,899,282)	$ -	$(3,899,282)	$ -	$9,389,912	$18,197,821	$2,443,085	$(6,454,322)	$14,186,584	$(4,796,672)
USM	3,290,306	2,024,394	-	2,024,394	-	5,314,700	3,803,954	136,415	-	3,940,369	1,374,331
UMM	250,000	243,100	-	243,100	300,000	793,100	457,579	-	-	457,579	335,521
UMFK	-	177,032	-	177,032	-	177,032	115,675	-	-	115,675	61,357
UMPI	-	258,571	-	258,571	-	258,571	192,950	-	-	192,950	65,621
UMA	-	7,288	-	7,288	85,129	92,417	7,287	-	-	7,287	85,130
UMF	-	23,636	-	23,636	-	23,636	13,656	-	-	13,656	9,980
UMS	520,500	13,853	-	13,853	(435,063)	99,290	49,839	-	-	49,839	49,451
MMA	-	105,418	-	105,418	49,934	155,352	52,626	-	-	52,626	102,726
Total State Funding	$17,350,000	$(1,045,990)	$ -	$(1,045,990)	$ -	$16,304,010	$22,891,387	$2,579,500	$(6,454,322)	$19,016,565	$(2,712,555)

1 Includes year-end equipment carry-over funds (equipment ordered, not received, and not paid).

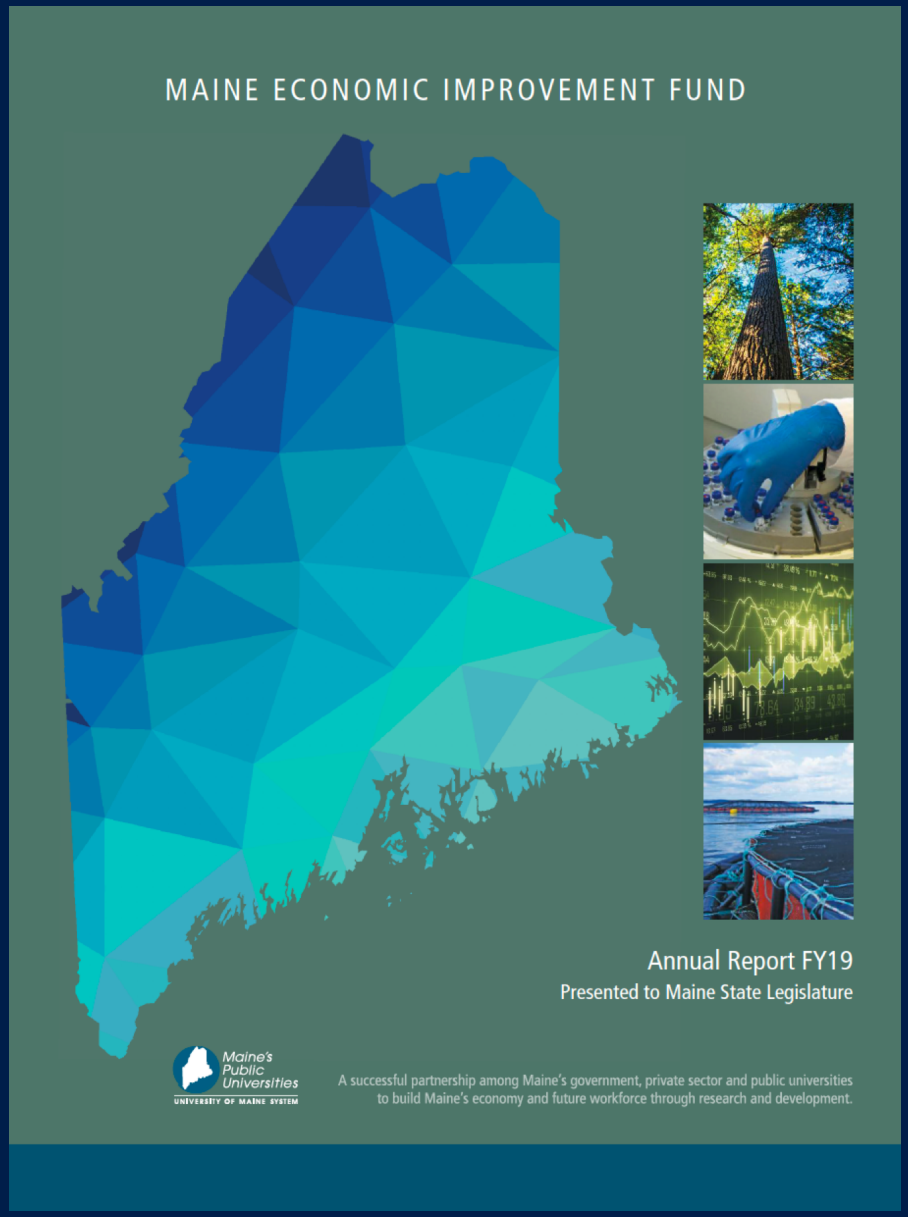
2 UM Cost Sharing.

3 Inter-unit R&D funding transfers related to FY2019 MMA and Small Campus Initiative (SCI) awards.

14.1

800.804.3200 • 207.973.3240 • maine.edu

Maine's Public Universities
UNIVERSITY OF MAINE SYSTEM



1865 THE UNIVERSITY OF MAINE

Maine Economic Improvement Fund

FY 2019 Annual Report

14.2

February 26, 2020

President Joan Ferrini-Mundy

THE UNIVERSITY OF MAINE

The role of MEIF is to solve fundamental problems and discover new solutions and to provide researchers at Maine's public universities with the investment necessary to:

- Attain external grants and contracts to support R&D activity in Maine's seven sectors
- Attract and retain world-class researchers
- Provide support for modern laboratories and state-of-the-art equipment
- Create new products, patents, technologies, companies and exciting job opportunities in Maine
- Create and sustain economic development and innovation

14.2

THE UNIVERSITY OF MAINE

MEIF History

Established by the Maine Legislature in 1997, MEIF represents the ongoing commitment between the state, the private sector and our public universities, working together to advance research and economic development for the benefit of all Maine people.

Through MEIF, the University of Maine System (UMS) is at the center of statewide efforts to leverage economic development through targeted investment in university-based R&D. MEIF continues to be funded through an annual state appropriation to UMS.

By statute, MEIF dollars are directed to support university-based research, development and commercialization in the state's legislatively designated seven strategic technology areas.

THE UNIVERSITY OF MAINE

MEIF Seven Sectors

1. Advanced Technologies for Forestry and Agriculture
2. Aquaculture and Marine Sciences
3. Biotechnology
4. Composites and Advanced Materials Technologies
5. Environmental Technologies
6. Information Technologies
7. Precision Manufacturing

THE UNIVERSITY OF MAINE

FY2019 MEIF Highlights

In FY2019, the state's **$17.35 million** MEIF investment was leveraged at a rate of **4.4:1** by our UMS campuses for an additional **$76.57 million** in federal and private-sector grants and contracts in the seven sectors.

MEIF funds and leveraged external grants and contracts funded the work of **587 researchers** and technicians, and **1,054 graduate and undergraduate students**.

These grants and contracts provided more than **$2.5 million** to purchase major equipment to upgrade and outfit university laboratories.

Maine's public universities secured new patents, worked on development projects with large and small businesses and start-ups, and provided R&D support to **530 companies and individuals**.

14.2

THE UNIVERSITY OF MAINE

How do we measure success?

In accordance wit the MEIF Statute, the Annual Report shall include "*The annual measurable goals and objectives of the fund, as established by the board, and an assessment of the achievement of those goals and objectives. The goals and objectives must include, but may not be limited to, education, research and development..*"

In FY2014 The University of Maine System approved the current MEIF goals and metrics based on the UMS Strategic Outcomes in place at that time:

- UMS Strategic Outcomes Target 1 – Increase Research Capacity and Activity
- UMS Strategic Outcomes Target 2 – Support New Technologies, Licensing, and Commercialization
- UMS Strategic Outcomes Target 3 – Increase Economic Development Partnerships
- UMS Strategic Outcomes Target 4 – Support R&D Workforce Development

THE UNIVERSITY OF MAINE

MEIF Target 1: Grants and Contracts

Goal: UMS maintains a sponsored programs grant and contracts effort growing greater than 3 percent annually on a three-year rolling average from a 2013 baseline of $45 million and NSF-defined total research expenditures of $45 million in the MEIF sectors.

- FY2019 Goal @ 3% per year = $53,732,353
- FY2019 result = $76,571,798
- FY2019 annual growth = 23%

Goal: Activity from the seven MEIF sectors will account for 50 percent of the total R&D grants and contracts, with a 3 percent annual growth on a three-year rolling average. (FY2014 = 50%, FY2019=60%)

- FY2019 total new awards all sources = $106,326,636
- FY2019 Goal of 60% of new awards in MEIF sectors = $ 63,795,982
- FY2019 Actual 72% of new awards in MEIF sectors = $ 76,571,798

14.2

THE UNIVERSITY OF MAINE

MEIF Target 1: Grants and Contracts

Table 1

FY19 Total Grants and Contracts (ALL Activity Inclusive)	Number of Awards	Total Award Value
Total Proposals Submitted	1,285	$218,825,415
Total Proposals Awarded	1,113	$106,326,636

Grants and Contracts Awarded in MEIF Sectors ONLY	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019
Aquaculture and Marine	7,045,322	9,153,389	15,187,566	12,631,690	21,229,069	16,032,068	8,084,961
Biotechnology	1,985,295	6,353,450	1,524,204	2,399,487	3,821,390	6,552,964	16,035,473
Composites	9,230,715	5,135,033	5,247,712	6,974,264	13,504,642	9,952,947	11,478,611
Cross Sector	2,990,129	4,681,209	1,018,132	507,842	4,274,394	3,034,812	21,301,337
Environmental Technologies	5,781,658	7,959,264	4,349,651	5,045,536	5,543,121	7,407,213	7,250,820
Forestry and Agriculture	8,642,424	7,654,060	14,194,009	10,317,799	4,660,014	10,685,631	9,598,475
Information Tech	7,422,675	2,520,521	4,473,781	11,497,199	5,292,726	5,582,266	951,594
Precision Manufacturing	1,130,746	1,414,700	780,694	1,009,921	1,602,646	3,099,123	1,870,527
Total	$44,228,964	$44,871,626	$46,775,749	$50,383,738	$59,928,002	$62,347,024	76,571,798

FY18–19 Increase 23%

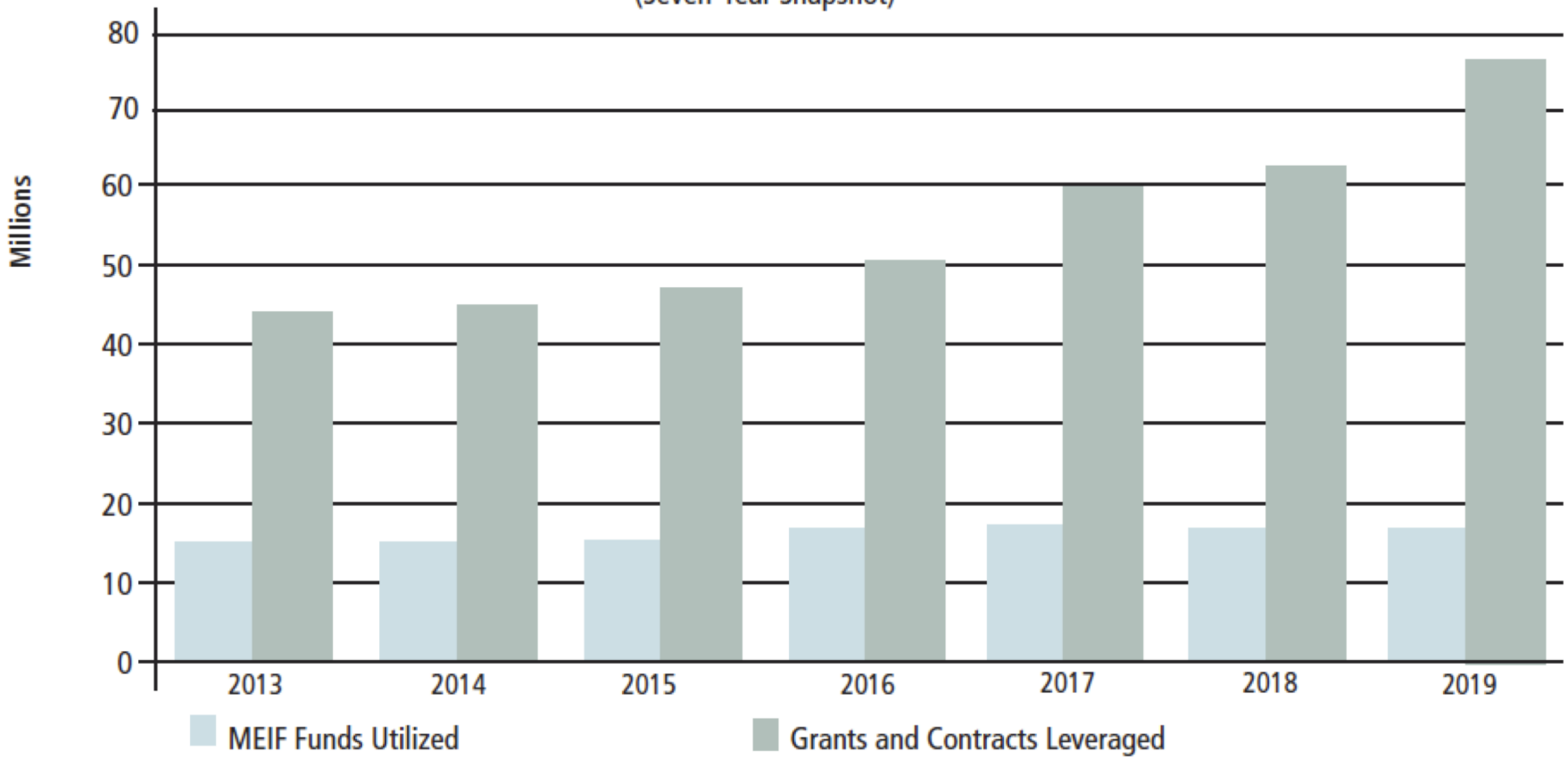
14.2

THE UNIVERSITY OF MAINE

MEIF Target 1 Return on Investment

Strategic Outcomes, Goals and Metrics

Figure 1 MEIF Return on Investment (UMS)
Tens of Millions Leveraged in Grants and Contracts
(Seven-Year Snapshot)



14.2

447897.6

THE UNIVERSITY OF MAINE

MEIF Target 2: Commercialization Activity

Goal: UMS annual revenue from commercialization including intellectual property licensing increases at least 20 percent annually on a three-year rolling average from an FY2013 baseline of $150,000, from the MEIF sectors.

- FY2019 Calculated goal (@ 20% per year growth) = $447,898
- FY2019 Actual 3 year rolling average = $511,016

Table 2

MEIF Target 2 — Commercialization Activity	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY19
Revenue from Commercialization	$121,250	$263,758	$359,723	$204,709	$329,840	$914,120	$289,088
Rolling three-year avarage	N/A	N/A	$248,244	$276,063	$298,091	$482,890	$511,016
Number of Patents Filed	15	32	28	19	18	20	17
Number of Patents Issued	16	12	6	5	8	6	6
Number of License Agreements and License Options	6	6	16	8	7	9	11

FY18–19 Change in three-year avarage revenue 6%

14.2

THE UNIVERSITY OF MAINE

MEIF Target 3: Business & Industry Contracts

The UMS annual revenue from activities with business and industrial partners in the MEIF sectors increased from an FY13 baseline of $3.15 million to $6.75 million by FY17, and the number of business and industry contracts in the MEIF sectors increased from a baseline of 407 in FY13 to 450 in FY17.

- The dollar value of Business and industrial contracts did not reach the goal of $6.75 million by FY2017 but did exceed it in FY2019 at $7,211,422

- The number of Business and Industry contracts did exceed the goal of 450 in FY2017 and has remained fairly consistent at an average of 553 over the last 5 years.

14.2

Table 3

MEIF TARGET 3 — Business and Industry Contracts	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY19
Revenue from Business and Industrial Contracts	$4,156,184	$4,371,999	$5,759,572	$4,836,138	$5,035,394	$6,339,260	$7,211,422
Number of Business and Industrial Contracts	407	500	624	519	565	528	530

FY18–19 Revenue Revenue Change 13.76%

MEIF Target 4: R&D Workforce Development

Goals:
UMS shall maintain a concerted effort to involve faculty, staff and students participating in research, development and commercialization, and shall report annually the number of employees directly supported by MEIF funds and by grants and contracts in the MEIF sectors.

As external funding is hard to predict, there is no specific numerical goal for employee count, but UMS shall report the annual number of faculty, staff and students to indicate trends and identify opportunities for growth

Grant and contract revenue also is an important source of funding for students' salary, tuition and other types of support, allowing many research-active students to offset their cost of education while getting valuable skills and on-the-job experience, positioning them well to be leading contributors to Maine's key growth sectors.

THE UNIVERSITY OF MAINE

MEIF Target 4: R&D Workforce Development

Table 4-A

MEIF Target 4 — Workforce Development	FY19 Wages Paid from MEIF	FY19 Wages Paid from External Grants/Contracts	Totals
Number of Faculty and Staff Supported (FTE = Full-Time Equivalent)	130.72	456.65	587.37
Number of Graduate Students Supported (Headcount)	15	307	322
Number of Undergraduate Students Supported (Headcount)	116	616	732

Table 4-B

Graduate and Undergraduate Student Costs Paid from Grants and Contracts	FY2014	FY2015	FY2016	FY2017	FY2018	FY19
Student Salaries and Wages from Grants and Contracts	$4,877,650	$4,603,696	$5,255,861	$4,957,536	$4,853,956	$6,361,381
Student Tuition Paid by Grants and Contracts	857,781	835,961	956,963	870,787	373,118	$457,884
Student Fellowships Paid by Grants and Contracts	199,400	552,944	197,744	233,111	214,000	$298,386
Student Health Insurance Paid by Grants and Contracts	282,848	62,967	247,960	203,406	795,339	$916,618
Total Soft Money Student Support	**$6,217,679**	**$6,055,568**	**$6,658,528**	**$6,264,840**	**$6,236,413**	**$8,034,269**

FY18–19 Change 29%

14.2