

# FY24 – FY28 Capital Plan

Administration & Finance Committee

September 20, 2023



University of Massachusetts

Amherst • Boston • Dartmouth • Lowell • Medical • Law

# Agenda

- **Capital Planning Context / Background**
- **Capital Plan Summary**
- **Appendices**
  - **Capital Policy Overview**
  - **Dashboard Data**
  - **Conceptual (Not Yet Authorized) Projects**
  - **Sustainability**
  - **Real Estate & Asset Management**
  - **Campus Data**
  - **Project Votes**

# Key Takeaways

- University Capital Plan totals 137 projects and \$2.1 billion with 73% funded by University resources including debt and other operating funds
- Commercial paper used to bridge to next long-term borrowing expected early 2024
- Deferred maintenance totals \$4.8 billion; authorized projects will continue to address backlog, but a strategy and significant investments are needed
- Continued advocacy for State resources; potential for Federal Inflation Reduction Act funds to support conceptual projects and deferred maintenance

# Capital Planning: Context / Background

# University Capital: by the Numbers

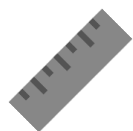
*With 518 buildings and 27.2 million gross square feet of space, the University has a complex and extensive real estate profile that needs to be actively managed.*



**\$4.8 billion** deferred maintenance backlog



About **92,000 students, staff, and faculty**



**27.2 million total GSF** across the university



**~3,677** maintained acres



**518 buildings** across 5 campuses



**~\$18.0 billion** replacement value

## Debt Facts

**University credit rating:**  
Aa2 stable (Moody's), AA- stable (S&P), AA stable (Fitch)

**Total debt outstanding:**  
\$3.3 billion *as of 6/30/22*

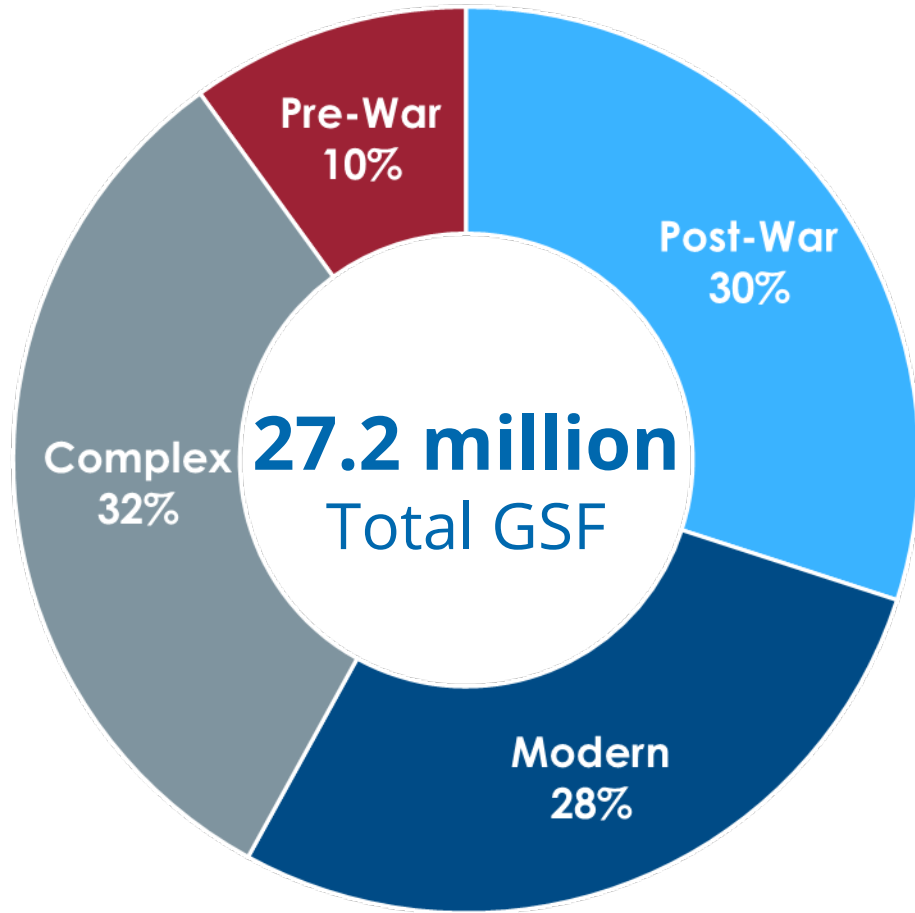
**Annual debt service:**  
\$218 million *as of 6/30/22*

**Debt service burden:**  
5.8% (peers are under 5%) *as of 6/30/22*

**Financial leverage ratio:**  
0.53 (total cash/total adjusted debt) (below the peer median of 0.70, indicating the University has higher total debt in relation to peers) *as of 6/30/22*

# UMass Building Age

*58% of University built in eras requiring higher levels of care and maintenance today*



## Construction Eras

- Pre-War (pre-1951): durable construction, older but lasts longer
- Post-War (1951-1975): lower quality, needs more repairs & renovation
- Modern (1975-1990): quick flash construction, low quality components
- Complex (post-1990): technically complex, higher quality, more expensive to maintain or repair

# Capital Plan

## What is it?

Comprehensive, five-year plan of capital investment based on financial planning, policy priorities, and strategic plans to ensure effective investment in the future and management of capital assets

## What is included?

- ✓ Prioritized list of projects
- ✓ Connection to strategic plans
- ✓ Funding sources
- ✓ Impacts on deferred maintenance and key ratios
- ✓ Informed by the 5-year financial forecast

## When do we do it?

Developed and presented to the Board of Trustees biennially; updates prepared and presented quarterly

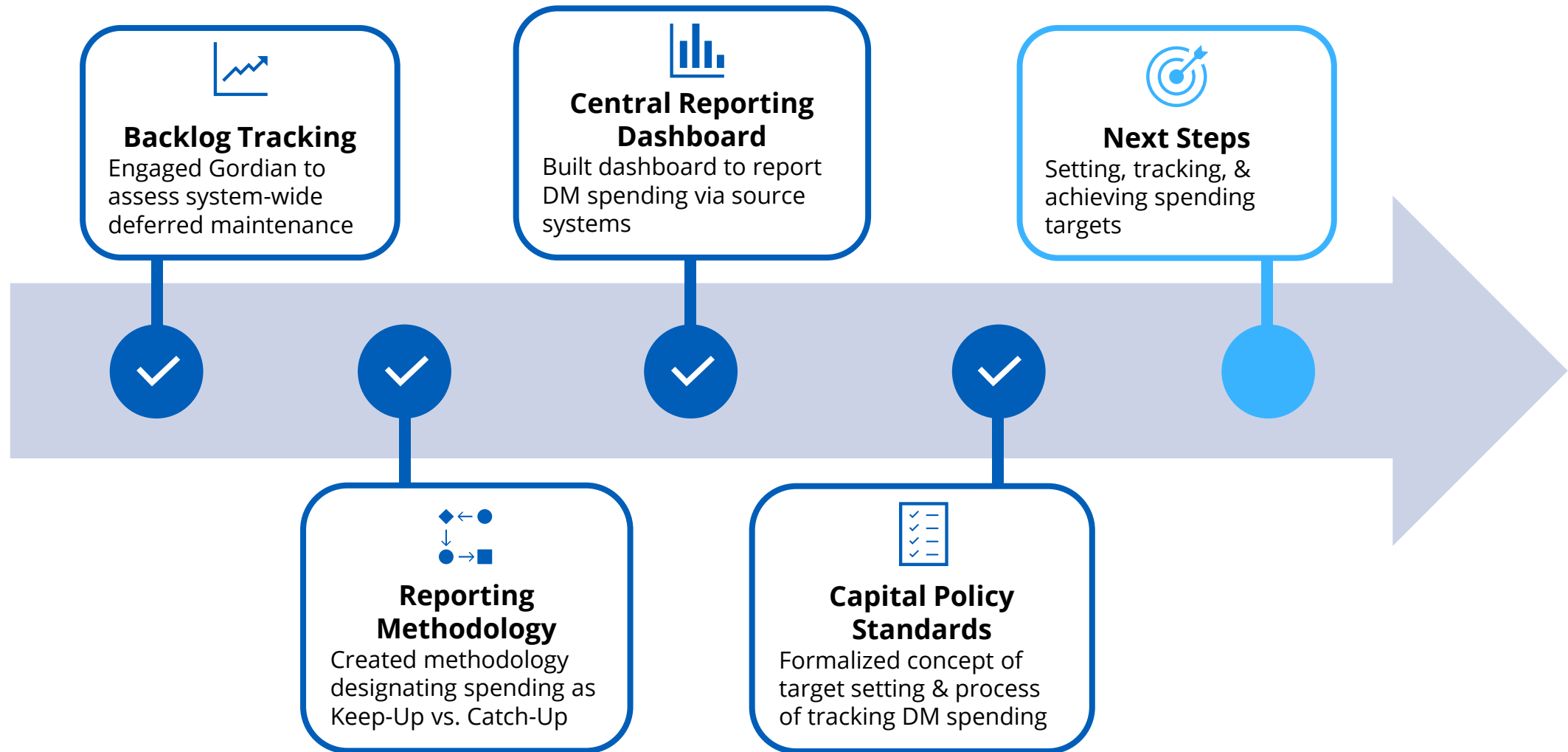
## Why do we do it?

- ✓ To identify and prioritize capital needs
- ✓ To evaluate available sources of funding
- ✓ To understand the financial impact and timing of needs, informing the 5-year financial forecast
- ✓ To promote effective communication with stakeholders on capital needs and borrowing plans

## Who is involved?

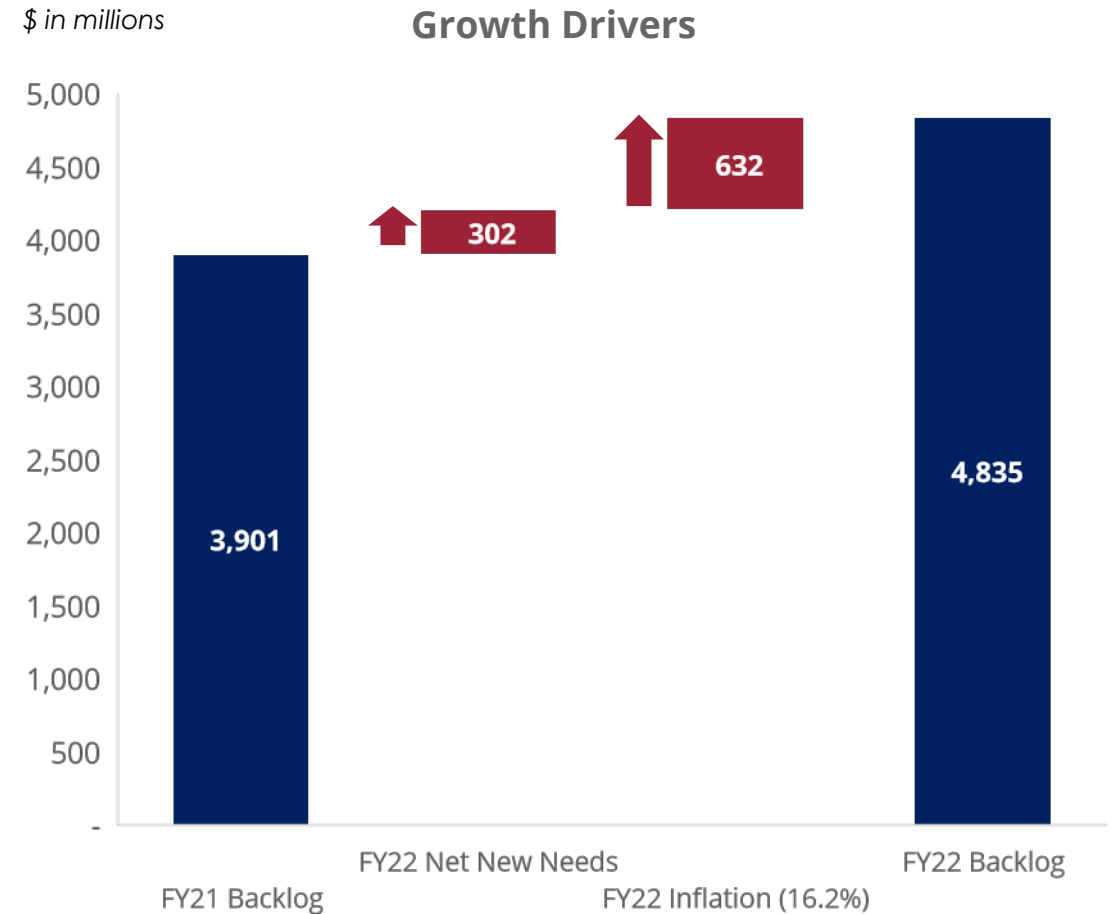
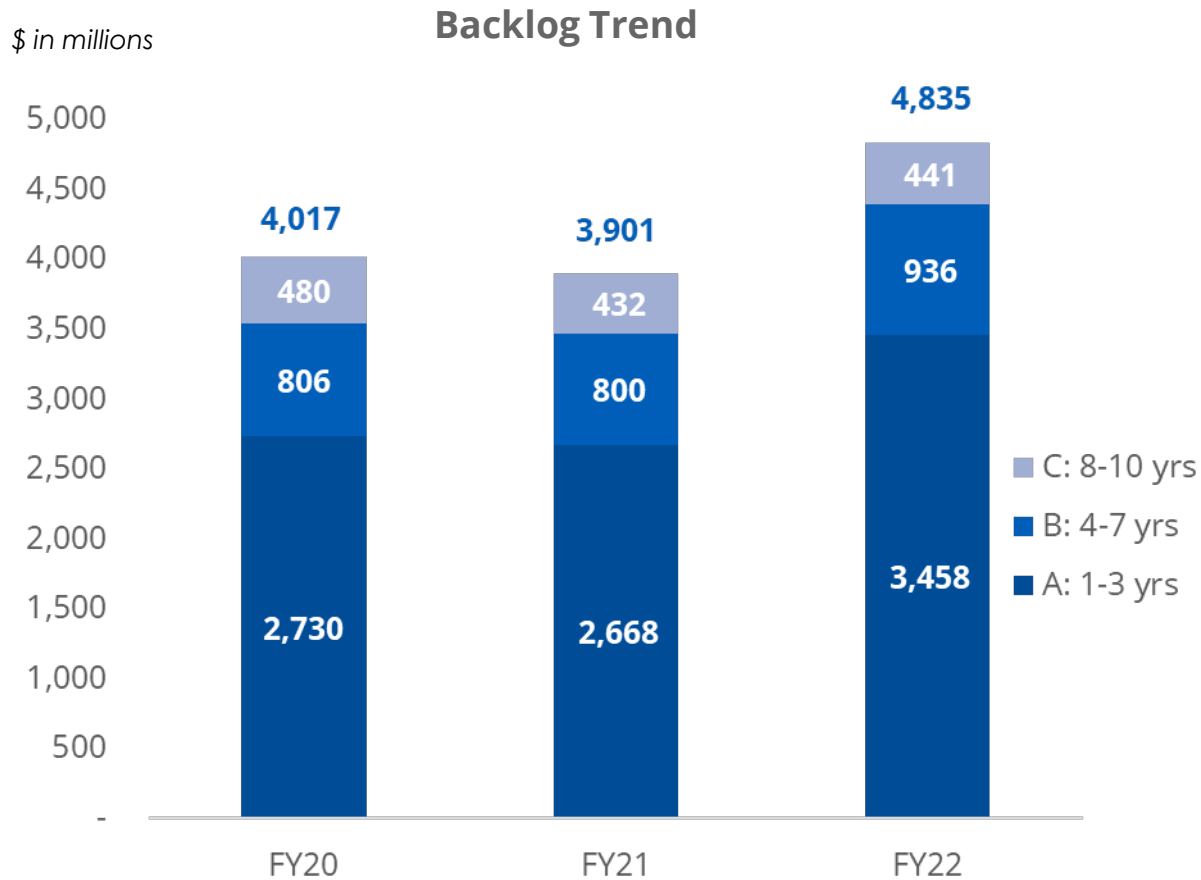
- ✓ President's Office
- ✓ Campuses
- ✓ UMass Building Authority (UMBA)
- ✓ Gordian (formerly Sightlines)
  - UMass contracts with Gordian to obtain the data and contextual understanding of the deferred maintenance backlog via an annual assessment and report

# Deferred Maintenance – Progress to Date



# Deferred Maintenance Backlog

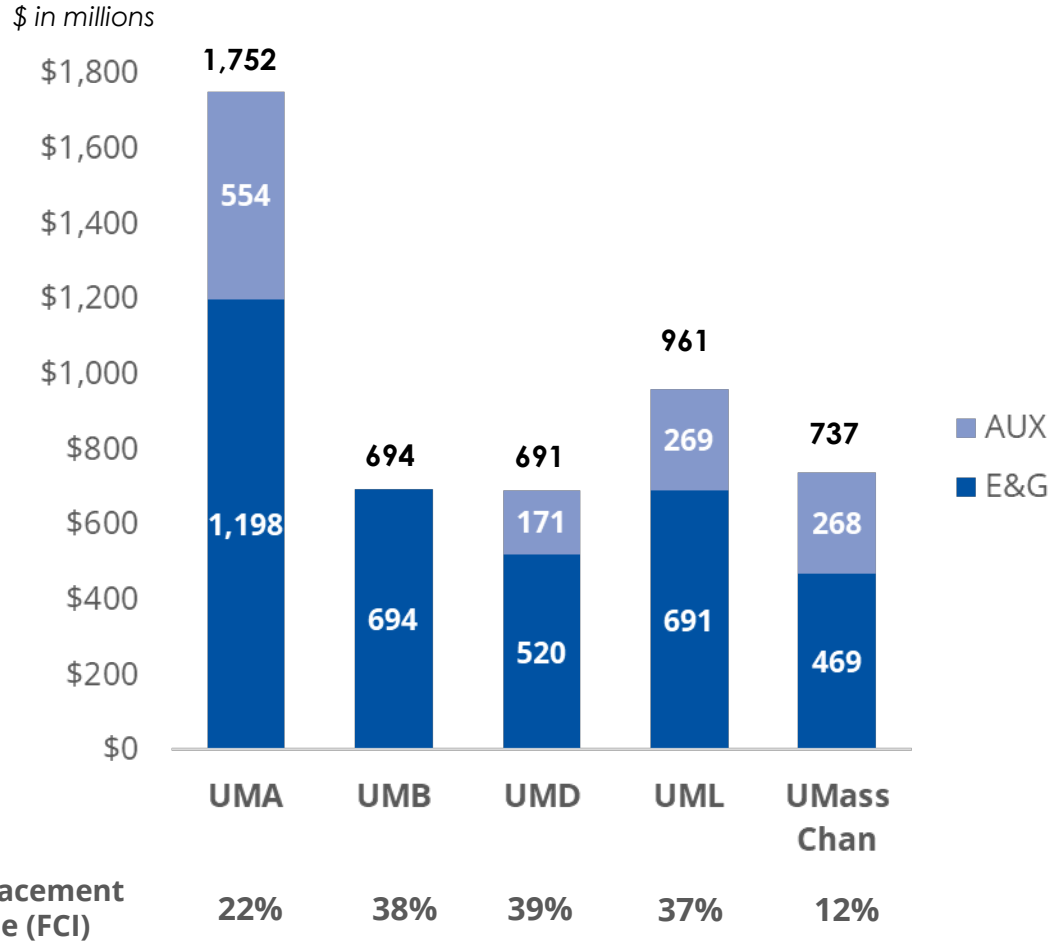
*Inflation creates challenges for reducing deferred maintenance*



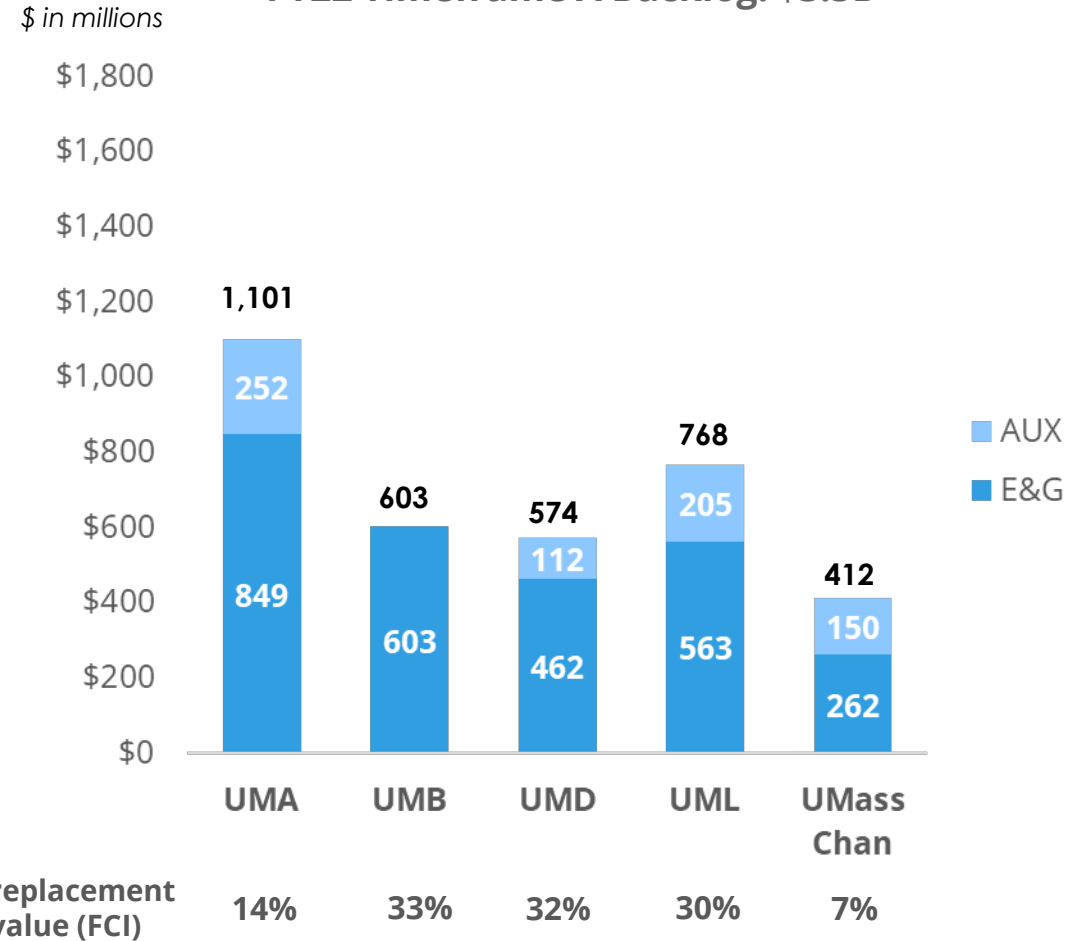
# Deferred Maintenance Backlog

10-year needs total \$4.8 billion; needs coming due in 1-3 years total \$3.5 billion

FY22 10-Year Backlog: \$4.8B



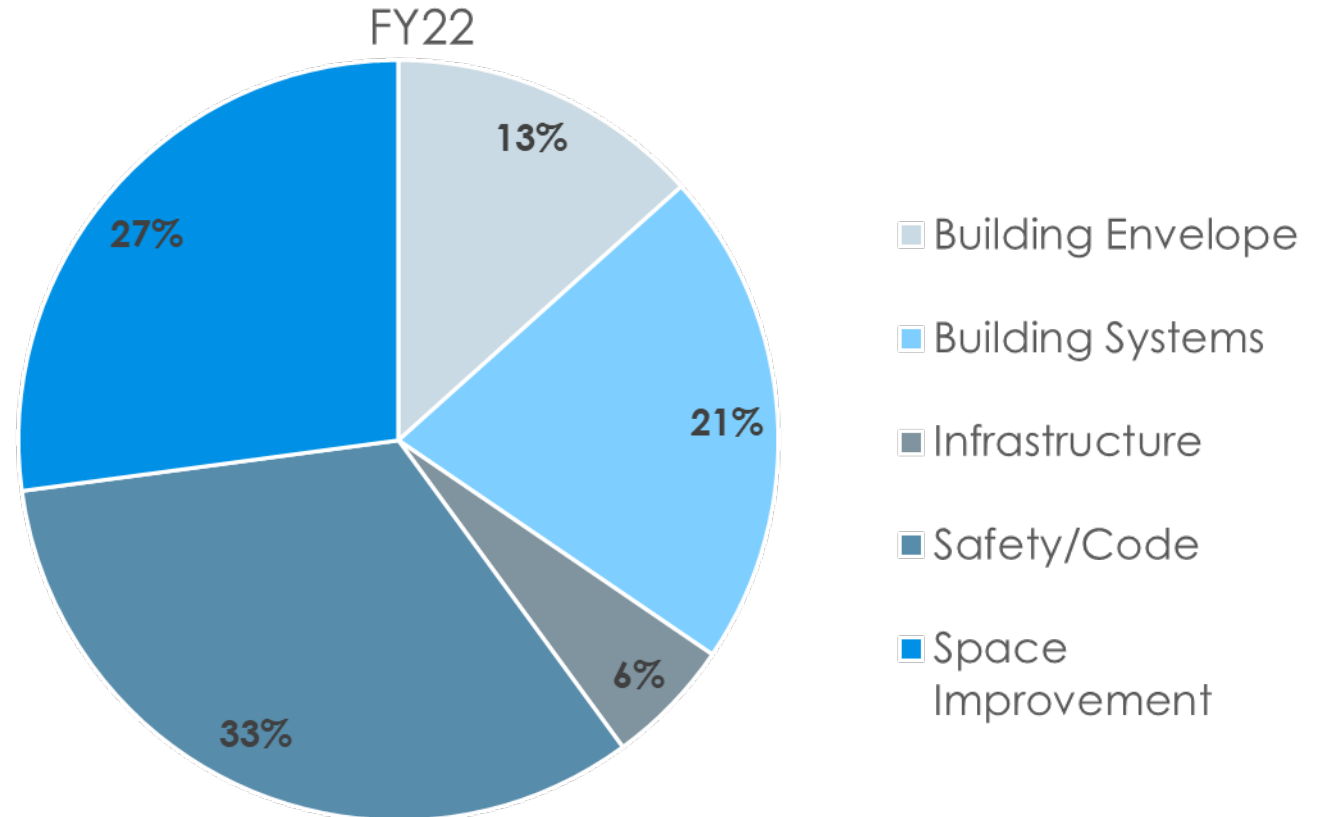
FY22 Timeframe A Backlog: \$3.5B



# Deferred Maintenance Backlog: by Type

*The 1-3 years needs total ~\$3.5 billion; consistent with Gordian higher education clients.*

- Building Envelope: Exterior shell components that are exposed to the outdoors
- Building Systems: Mechanical equipment and components
- Infrastructure: Includes grounds and utility needs
- Safety/Code: Code compliance, institutional safety, and accessibility need
- Space Improvement: Interior shell repairs



# Deferred Maintenance - Annual Investment

## *Establishing Definitions and Setting Targets Based on Industry Best Practice*

### **Keep Up:**

- Defined as the annual investment needed to ensure buildings perform properly and reach their useful lives.
- Includes small operating projects (<\$20k) and preventive/proactive maintenance funded from a recurring funding source.

### **Catch Up:**

- Defined as major capital projects funded by one-time funds such as reserves, bond proceeds, and State resources (also typically bond funds).
- Large backlog that requires funding over a specified time period.

### **Annual Investment Targets:**

- Keep Up - defined as the annual minimum investment required to prevent the deferred maintenance backlog from growing. Gordian calculates the target by discounting the total cost necessary to replace each building component at the completion of its useful life.
- Catch Up – defined as the annual investment needed to eliminate the backlog over a specified time period. This target is still to be determined.





**Central Reporting Dashboard**

Built dashboard to report DM spending via source systems

# Deferred Maintenance - Annual Investment

FY23 Keep Up

**\$100 M**

FY23 Keep Up

**\$282 M**

**35%**  
of target



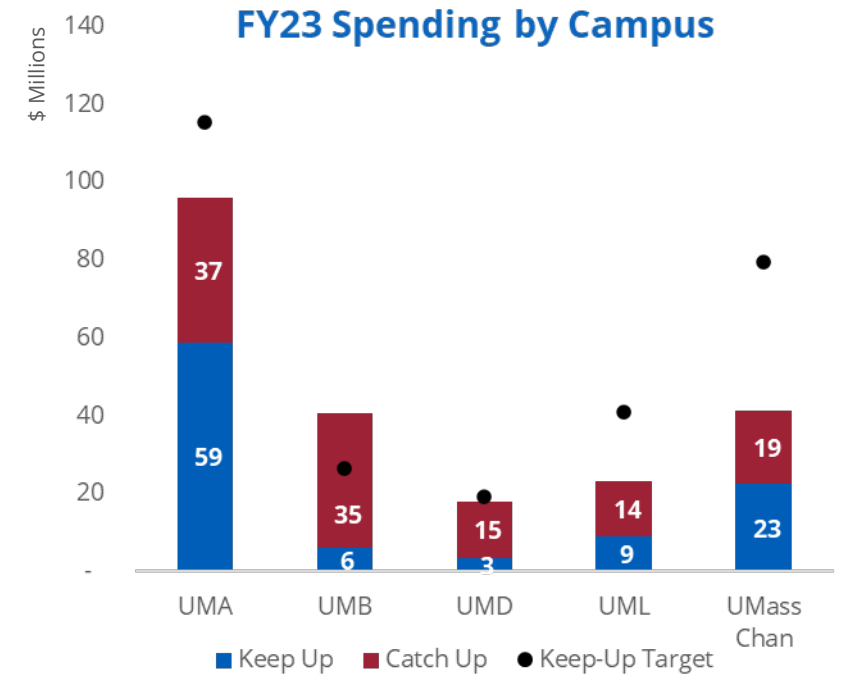
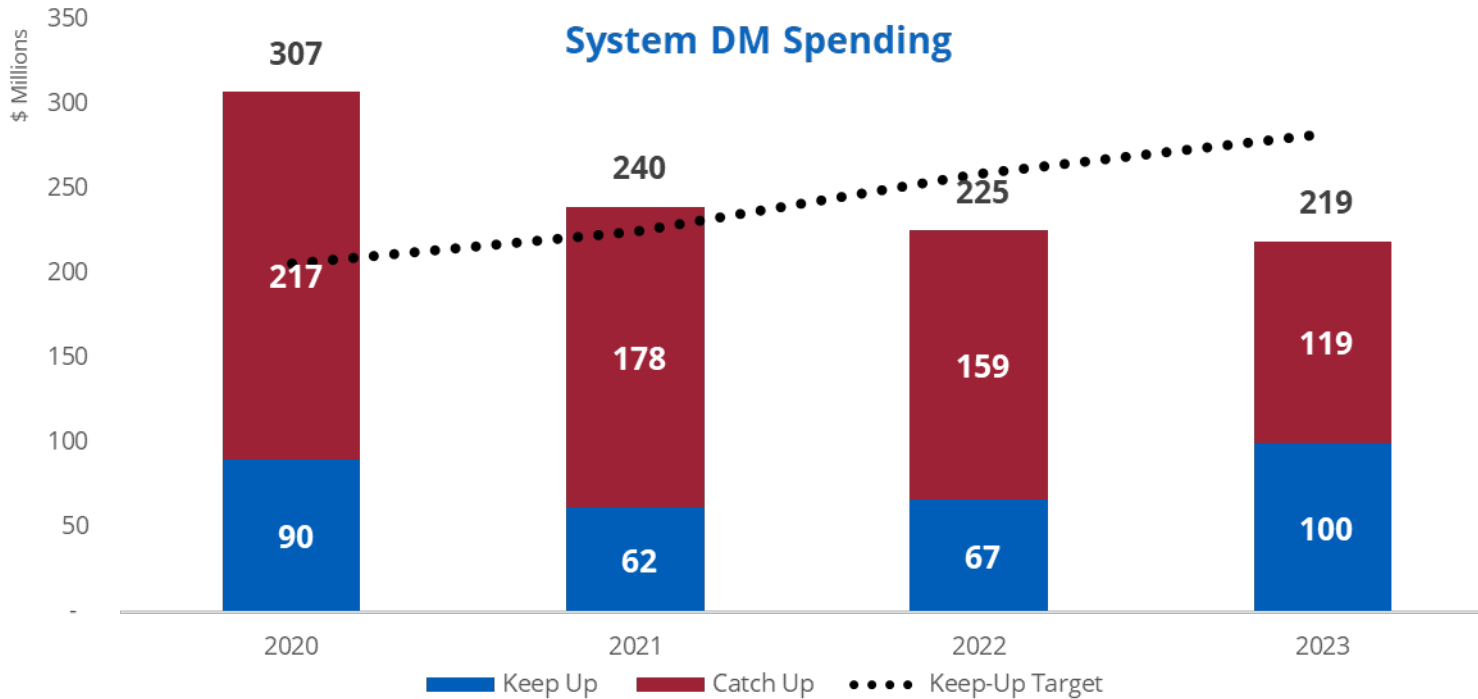
FY23 Catch Up

**\$119 M**

FY23 Catch Up

**\$322 M**

**37%**  
of target



University of Massachusetts

Spending Key

**Actual**

**Target**

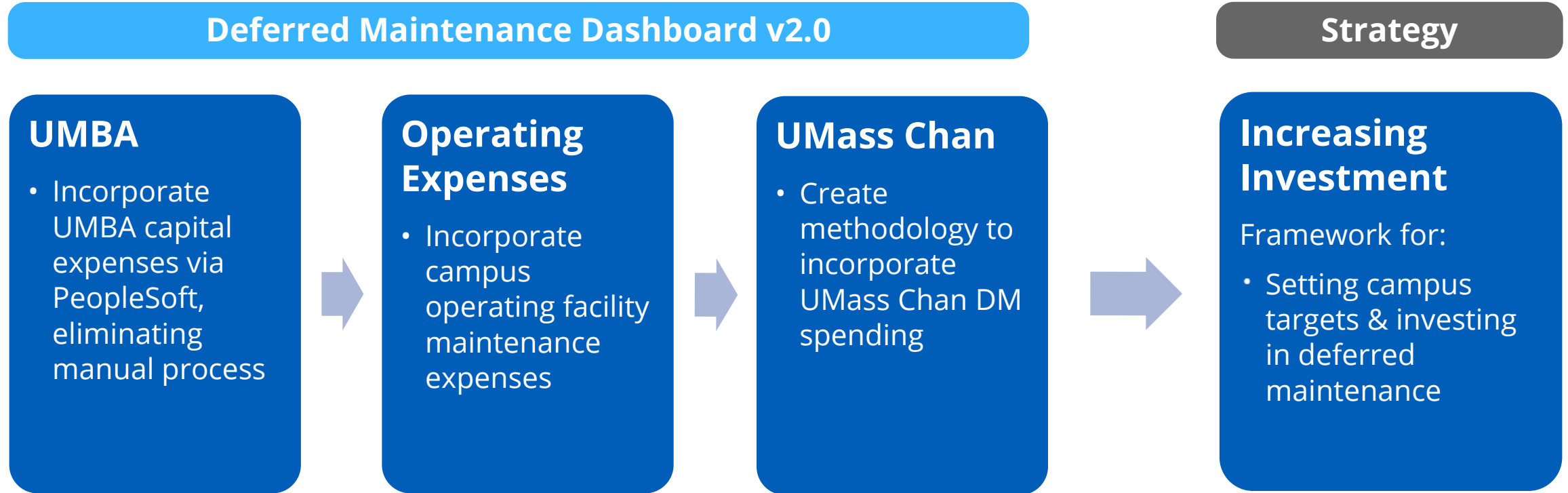
Note: UMass Chan data campus-reported; not derived from dashboard



**Next Steps**  
Setting, tracking, & achieving spending targets

# Deferred Maintenance – Next Steps

*Enhancements planned for reporting dashboard in FY24; strategies required to increase investment*



# Capital Project Approvals

## Approving Authority

### Board of Trustees

- \$10M+ total project cost, or
- \$2M+ total project cost and requires debt

### President

- \$2M-\$10M total project cost
- Does not include debt

### Campus

- <\$2M total project cost

## Project Status

### Authorized

- Initial authorization from Board or President (Vote 1)

### Approved

- Final approval from Board or President (Vote 2 & Vote 3)

### Conceptual (not yet authorized)

- Priority projects planned but not yet authorized (Campus strategic, master and energy plans)

# Funding Sources Defined

## University Sources

### Debt

Borrowed through UMBA, MHEFA or WCCC; borrowing campuses are responsible for annual debt service payments

### Local

Reserves or funds programmed within a campus's operating budget

### External

Fundraising or grants from federal, local or private sources

## Non-University Sources

### State

Borrowed and appropriated by the State through the strategic framework for higher education capital investment

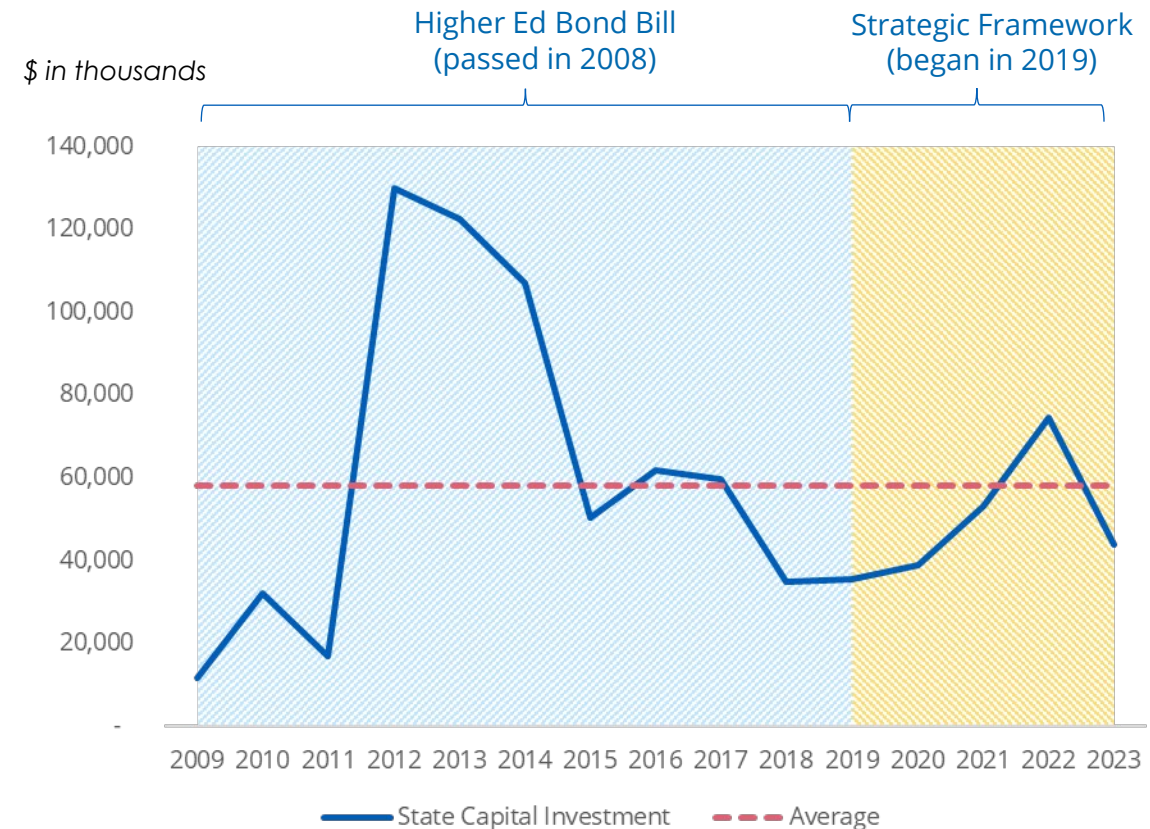
### Alternative

Contractual agreements between the University and a private entity to facilitate the construction, operation, and/or financing of a capital project

# State Capital Investment

- Executive Office for Administration & Finance develops an annual statewide capital plan, approves projects funded by University debt and, through the Division of Capital Asset Management & Maintenance, manages state funded projects.

|                            | Programs  | State Funding   |
|----------------------------|---|---|
| Major Projects             | Major renovation, demolition, or replacement of existing facilities                         | \$75M UMA Computer Sciences; \$75M UMB SDQD; \$37M UML Olney Renovation |
| Critical Repairs           | Renewal/repair/replacement of equipment, systems and infrastructure                         | \$82M commitment FY24 – FY28 (~\$16.4M annually)                        |
| Accelerated Infrastructure | Repairs to HVAC, building envelopes, and elevators, to improve functionality and efficiency | \$81M UMD LARTS Renovation  |
| Fair Share                 | Higher Ed deferred maintenance capital program  | \$50M for all of Higher Ed  |



# Capital Plan Summary

# Summary of Changes: FY24 – FY28 Capital Plan



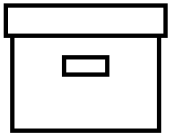
## 33 new projects

1 project for Board authorization  
32 projects for President authorization



## 2 completed projects

2 projects with Board authorization  
0 projects with President authorization



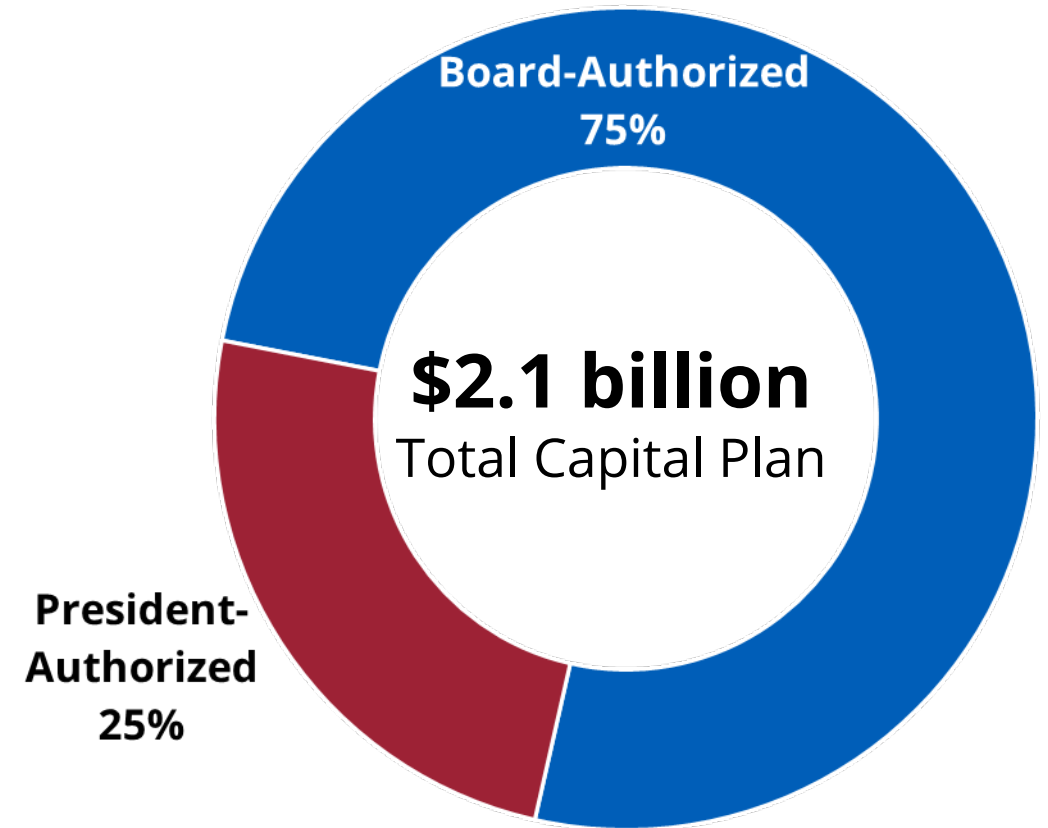
## 5 archived projects

3 projects with Board authorization  
2 project with President authorization



## \$170.1 million

net increase in projects

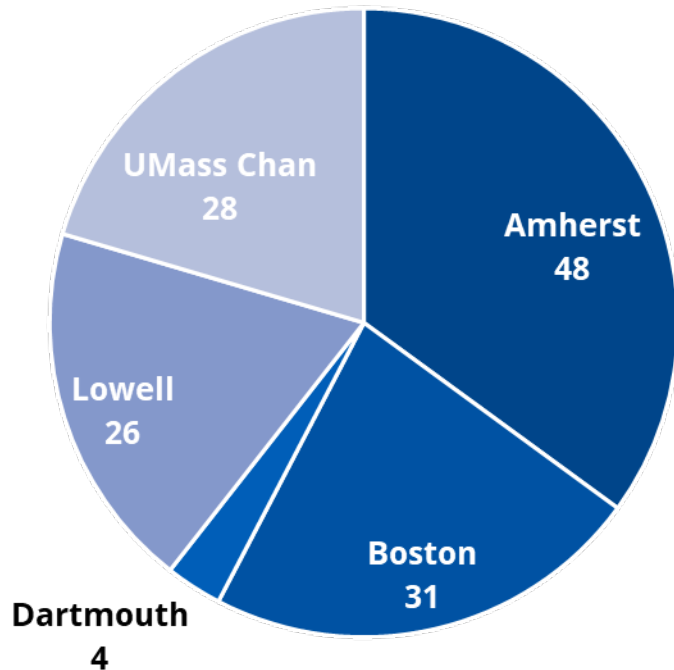


# Capital Plan

Current capital plan includes 137 projects totaling \$2.1 billion.

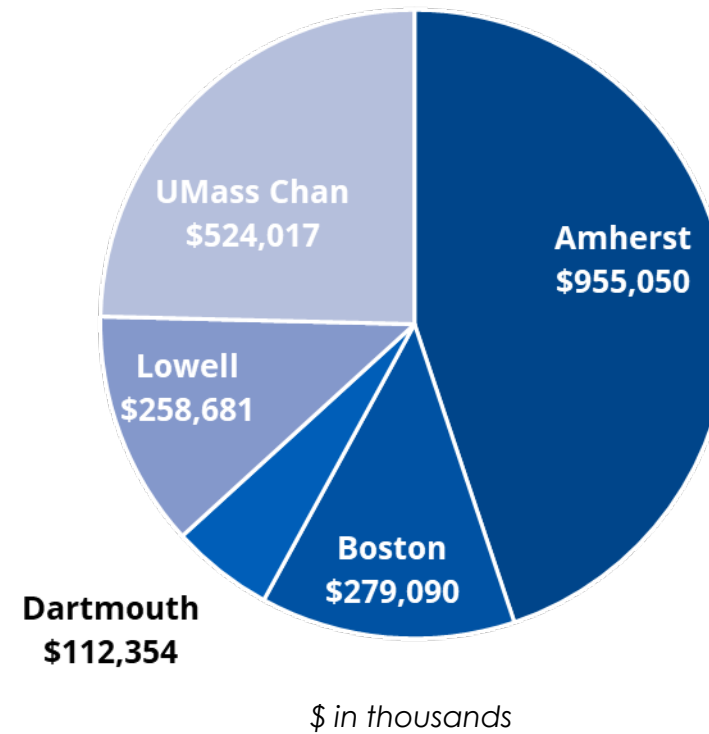
### Number of Projects

137



### Estimated Cost of Projects

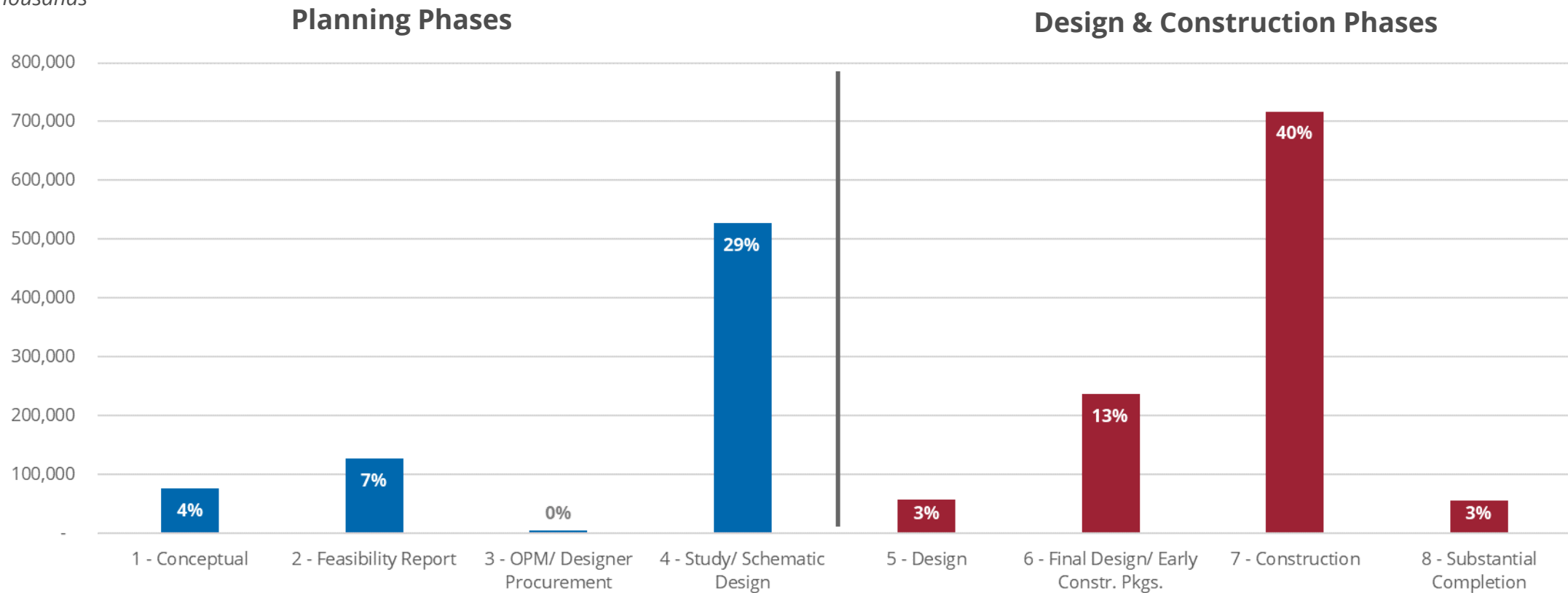
\$2.1B



# Project Phases Dashboard

43% of projects are in construction or substantially complete (phases 7 & 8).

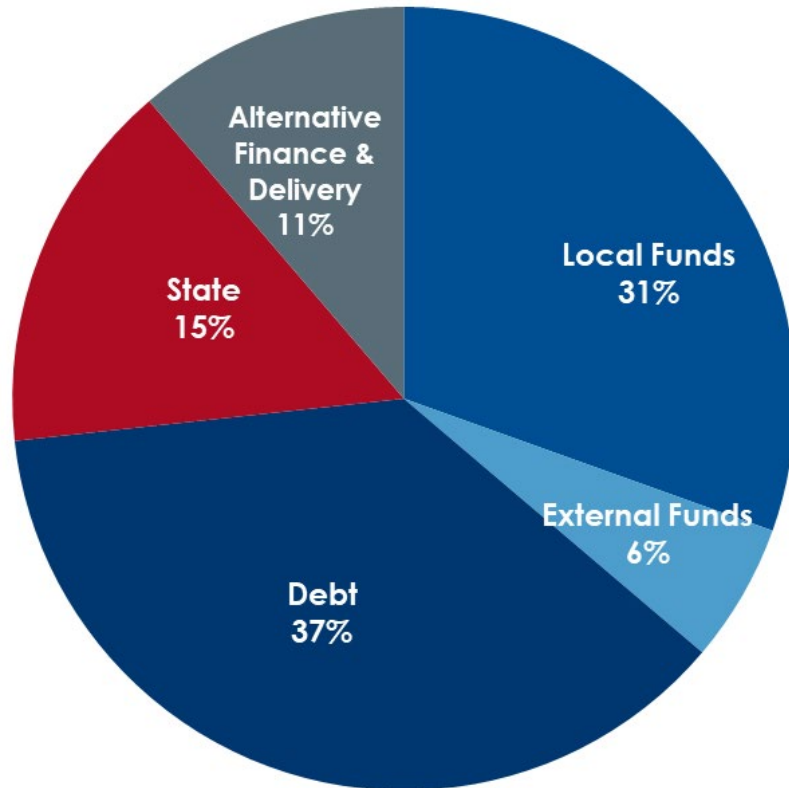
\$ in thousands



Note: Phases 1-4 are authorized with Vote 1. Phases 5-9 are approved with Vote 2. Phase 9 is not shown, as it indicates completion. Data as of 9/2023. Percentages based on project cost. Alternative financing & delivery projects excluded.

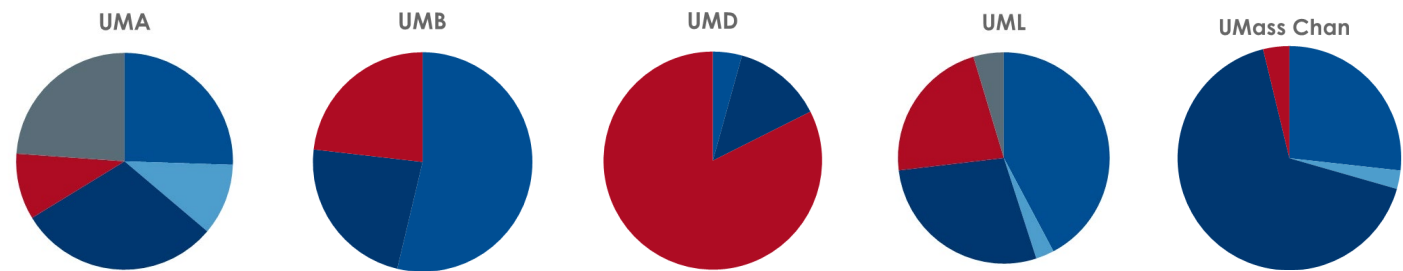
# Funding Sources Dashboard

73% of Capital Plan funded by University resources.



\$ in thousands

| Funding Source                         | Total Capital Plan | % Total    |
|--|--------------------|------------|
| Local Funds                            | 648,711            | 30%        |
| External Funds                         | 122,192            | 6%         |
| Debt                                   | 789,432            | 37%        |
| <i>Subtotal University Funding</i>     | <i>1,560,334</i>   | <i>73%</i> |
| State                                  | 328,857            | 15%        |
| Alternative Finance & Delivery         | 240,000            | 11%        |
| <i>Subtotal Non-University Funding</i> | <i>568,857</i>     | <i>27%</i> |
| <b>TOTAL Authorized Projects</b>       | <b>2,129,191</b>   |            |



# Project Spending Dashboard

*30% of Capital Plan spending has occurred; spending to date varies by source.*

## Capital Plan = \$2.1 billion



## Debt = \$789 million



## Local/External = \$771 million



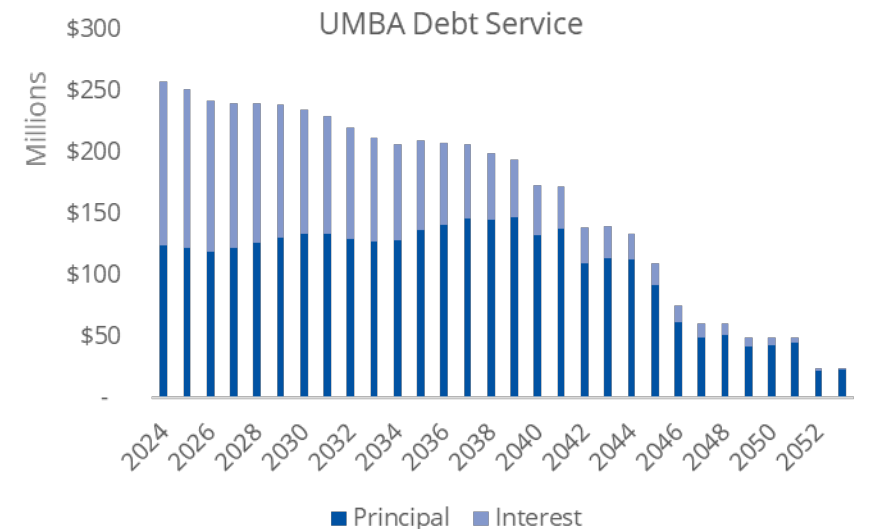
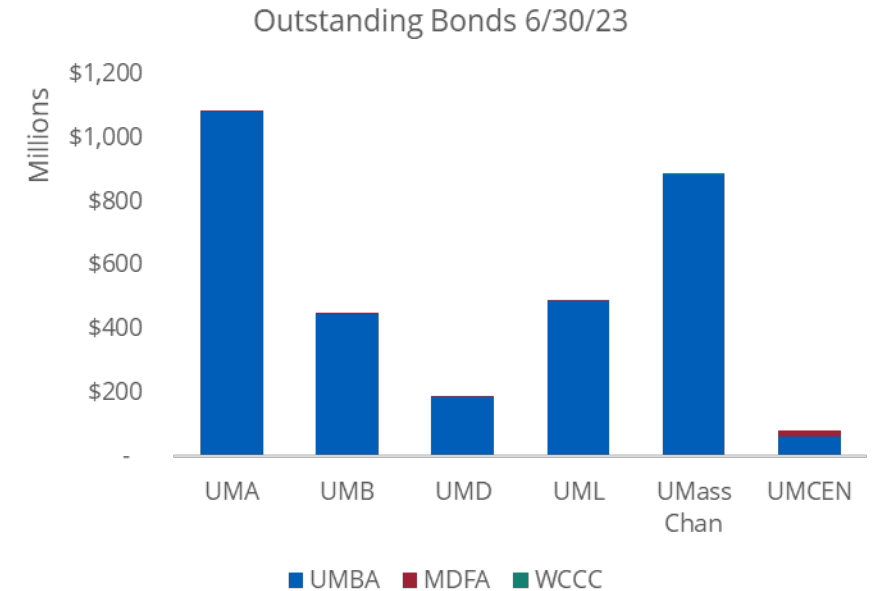
## State = \$328 million



Note: Spending through June 2023. Projects in phases 9A and 9B have been archived due to completion.

# University Outstanding Debt

- The University had \$3.2 billion in outstanding bonds as of 6/30/23
  
- University debt consists of UMBA, MDFA, & WCCC bonds:
  - UMBA debt = \$3.15 billion
  - MDFA debt = \$20.4 million
  - WCCC debt = \$425 thousand
  
- 62.4% of outstanding UMBA bonds mature within 15 years



# Commercial Paper Dashboard

- UMBA established a \$200 million Commercial Paper (CP) program in August 2013.
- Program was established to further UMBA's and the University's efforts to establish a "just in time" borrowing program to fund the University's capital plan as needed during construction periods.
- Long term bond issuance planned for FY24 to maintain capacity.
- Total CP represents a portion of the additional borrowing required to complete the current capital plan.

*\$ in thousands*

| Campus       | CP Issued     | Planned Issuance |               |               |               | Total          |
|--------------|---------------|------------------|---------------|---------------|---------------|----------------|
|              |               | FY24 Q1          | FY24 Q2       | FY24 Q3       | FY24 Q4       |                |
| UMA          | 0             | 0                | 11,900        | 24,510        | 45,400        | 81,810         |
| UMB          | 41,000        | 0                | 5,600         | 6,218         | 0             | 52,818         |
| UMD          | 0             | 0                | 0             | 0             | 0             | 0              |
| UML          | 6,250         | 0                | 0             | 0             | 0             | 6,250          |
| UMass Chan   | 0             | 0                | 0             | 0             | 0             | 0              |
| <b>Total</b> | <b>47,250</b> | <b>0</b>         | <b>17,500</b> | <b>30,727</b> | <b>45,400</b> | <b>140,878</b> |

# Next Steps

- Recommend approval of the capital plan and project changes:
  - Vote 1: 1 project (Amherst) totaling \$24 million
    - North Campus Energy Exchange Center
  - Vote 2: 3 projects (UMass Chan) totaling \$50.7 million
    - BW Mechanical Penthouse \$11.0M; BW Substations \$13.5M; SW Substations \$12.0M
- Capital planning policy and monitoring include sufficient safeguards to ensure financial sustainability
- Work underway on 5-year financial forecast and key ratios will be updated
  - Coordination between UMBA, the President's Office and Campuses required to properly reflect borrowing needs, timing and structure into financial forecast
- Continue refining dashboard using source system data to track deferred maintenance spending and assessing impact on backlog
- Continued advocacy for State and Federal resources to support capital plan and deferred maintenance needs

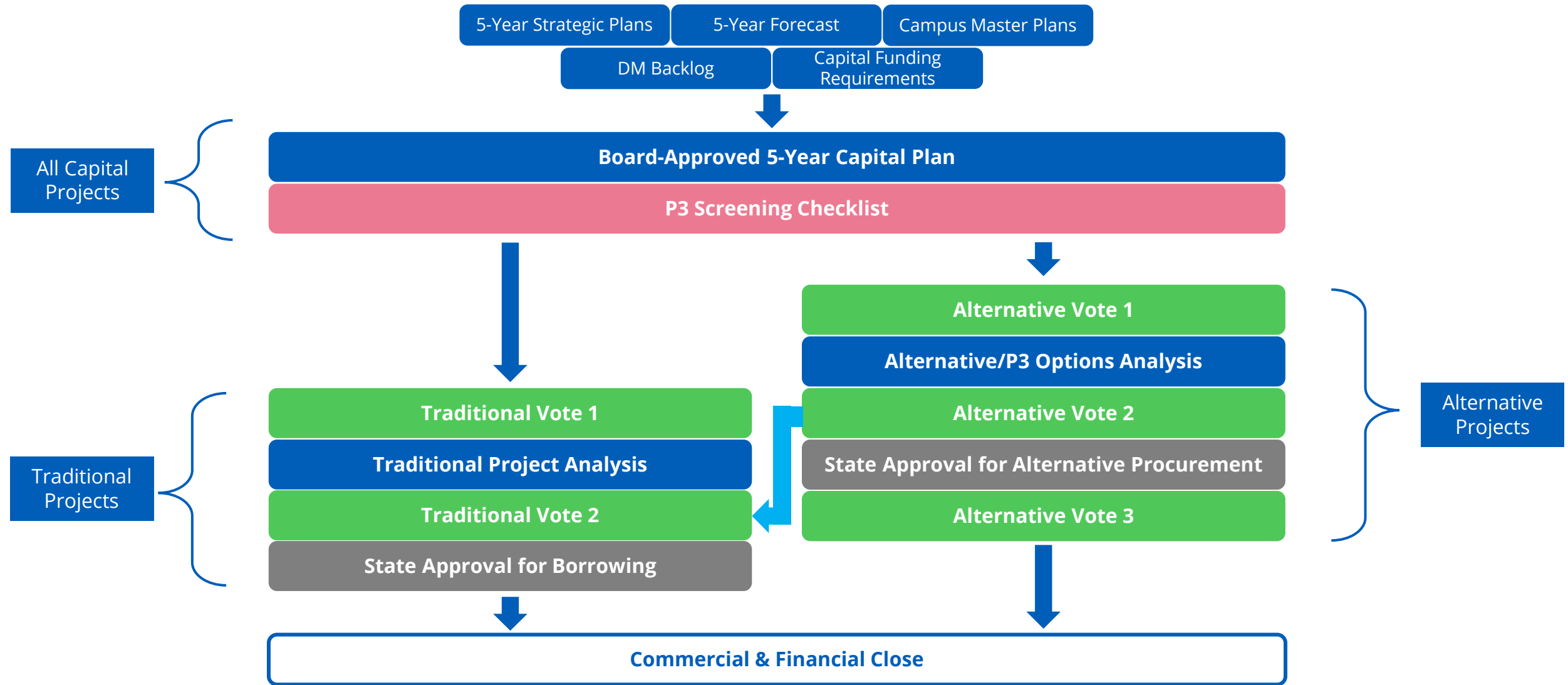
# Appendices

- Capital Policy Overview
- Dashboard Data
- Conceptual (Not Yet Authorized) Projects
- Sustainability
- Real Estate & Asset Management
- Campus Data
- Project Votes

# Capital Policy Overview



# Capital Approval Process



# Definition of Phases

1. Conceptual – Initial project identification that there is a need by Campus, possibly from Master Plan.
  2. Feasibility Report – Developed by the Campus to identify and establish initial project scope, justification, preliminary program, size, location, deferred maintenance, enabling projects, schedule and project budget. Funding sources identified.
  3. Owner’s Project Manager / Designer Procurement – Owner’s Project Manager (OPM) and Designer selection and award.
  4. Study / Schematic Design – Project Study; Program development/verification; Schematic Design. Final scope determined with estimated construction cost (ECC), total project cost (TPC) and schedule defined.
- 
5. Design – Project design continues through Design Development and Construction Document phase.
  6. Final Design / Early Construction Packages – Completion of design, bid phase, construction mobilization, early construction packages commence, establish Guaranteed Maximum Price (GMP).
  7. Construction – Project is under construction.
  8. Substantial Completion – Final 1% of construction, punch list, final commissioning, certificate of occupancy, closeout, final report.
  9. A. Construction Complete – Construction on the project is complete however bills continue to be paid on the project so reporting in the database continues.
  9. B. Financially Complete – All construction and bills associated with the project are complete and the project can be archived in the database.

# Key Financial Ratios Defined

**Debt burden** – Compares the relative cost of borrowing to overall expenditures

$$\frac{\text{Debt service (P\&I)}}{\text{Total expenses}}$$

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**Debt service coverage** – Measures the ability to make debt service payments from annual operations

$$\frac{(\text{Total revenues} - \text{total expenses}) + \text{depreciation} + \text{interest}}{\text{Debt service (P\&I)}}$$

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**Financial Leverage Ratio** – Measures the ability to repay bondholders from wealth that can be accessed over time or for a specific purpose

$$\frac{\text{Total Cash \& Investments}}{\text{Total Adjusted Debt}}$$

# Dashboard Data



# FY24-FY28 Capital Plan Summary: Approved/Authorized Projects

*\$ in thousands*

| Campus            | BOT Authorized |                    | President Authorized |                  | Total Authorized |                    |
|-------------------|----------------|--------------------|----------------------|------------------|------------------|--------------------|
|                   | Projects       | Project Cost       | Projects             | Project Cost     | Projects         | Project Cost       |
| UMA               | 17             | 785,270            | 31                   | 169,780          | 48               | 955,050            |
| UMB               | 2              | 138,824            | 29                   | 140,266          | 31               | 279,090            |
| UMD               | 2              | 101,368            | 2                    | 10,986           | 4                | 112,354            |
| UML               | 4              | 160,446            | 22                   | 98,235           | 26               | 258,681            |
| UMass Chan        | 7              | 421,574            | 21                   | 102,443          | 28               | 524,017            |
| <b>University</b> | <b>32</b>      | <b>\$1,607,481</b> | <b>105</b>           | <b>\$521,710</b> | <b>137</b>       | <b>\$2,129,191</b> |

*As of 9/2023*

# Project Phases Dashboard: Traditional Projects

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

\$ in thousands

| Traditional Projects:<br>Project Phase | UMA       |                  | UMB       |                  | UMD      |                  | UML       |                  | UMass Chan |                  | Total      |                    |
|--|-----------|------------------|-----------|------------------|----------|------------------|-----------|------------------|------------|------------------|------------|--------------------|
|  | #         | \$               | #         | \$               | #        | \$               | #         | \$               | #          | \$               | #          | \$                 |
| 1 - Conceptual                         | 0         | -                | 2         | 9,987            | 1        | 7,500            | 6         | 28,500           | 3          | 30,340           | 12         | 76,327             |
| 2 - Feasibility Report                 | 6         | 37,750           | 12        | 59,439           | 0        | -                | 7         | 29,500           | 0          | -                | 25         | 126,689            |
| 3 - OPM/Designer Procurement           | 0         | -                | 0         | -                | 0        | -                | 1         | 5,000            | 0          | -                | 1          | 5,000              |
| 4 - Study/Schematic Design             | 14        | 250,500          | 8         | 42,002           | 1        | 97,000           | 2         | 129,875          | 2          | 8,000            | 27         | 527,377            |
| <b>Authorized Subtotal</b>             | <b>20</b> | <b>\$288,250</b> | <b>22</b> | <b>\$111,428</b> | <b>2</b> | <b>\$104,500</b> | <b>16</b> | <b>\$192,875</b> | <b>5</b>   | <b>\$38,340</b>  | <b>65</b>  | <b>\$735,393</b>   |
| 5 - Design                             | 5         | 31,000           | 0         | -                | 0        | -                | 1         | 3,000            | 5          | 23,900           | 11         | 57,900             |
| 6 - Final Design/Early Constr. Pkgs.   | 5         | 178,420          | 2         | 9,398            | 0        | -                | 1         | 3,540            | 7          | 45,090           | 15         | 236,448            |
| 7 - Construction                       | 12        | 115,730          | 6         | 158,264          | 1        | 4,368            | 6         | 47,266           | 8          | 391,567          | 33         | 717,194            |
| 8 - Substantial Completion             | 3         | 26,850           | 0         | -                | 1        | 3,486            | 0         | -                | 3          | 25,120           | 7          | 55,456             |
| <b>Approved Subtotal</b>               | <b>25</b> | <b>\$352,000</b> | <b>8</b>  | <b>\$167,661</b> | <b>2</b> | <b>\$7,854</b>   | <b>8</b>  | <b>\$53,806</b>  | <b>23</b>  | <b>\$485,677</b> | <b>66</b>  | <b>\$1,066,998</b> |
| <b>Total Traditional Projects</b>      | <b>45</b> | <b>\$640,250</b> | <b>30</b> | <b>\$279,090</b> | <b>4</b> | <b>\$112,354</b> | <b>24</b> | <b>\$246,681</b> | <b>28</b>  | <b>\$524,017</b> | <b>131</b> | <b>\$1,802,391</b> |

# Alternative Finance & Delivery: Public-Private Partnerships

*\$ in thousands*

| P3 Projects              | UMA      |                  | UMB      |            | UMD      |            | UML      |                 | UMass Chan |            | Total    |                  |
|--------------------------|----------|------------------|----------|------------|----------|------------|----------|-----------------|------------|------------|----------|------------------|
|                          | #        | \$               | #        | \$         | #        | \$         | #        | \$              | #          | \$         | #        | \$               |
| Vote 1                   | 1        | 13,000           | 1        | -          | 0        | -          | 1        | -               | 0          | -          | 3        | 13,000           |
| Vote 2                   | 0        | -                | 0        | -          | 0        | -          | 1        | 12,000          | 0          | -          | 1        | 12,000           |
| Vote 3                   | 2        | 301,800          | 0        | -          | 0        | -          | 0        | -               | 0          | -          | 2        | 301,800          |
| <b>Total P3 Projects</b> | <b>3</b> | <b>\$314,800</b> | <b>1</b> | <b>\$0</b> | <b>0</b> | <b>\$0</b> | <b>2</b> | <b>\$12,000</b> | <b>0</b>   | <b>\$0</b> | <b>6</b> | <b>\$326,800</b> |

*\$ in thousands*

| Total Authorized Projects        | UMA       |                  | UMB       |                  | UMD      |                  | UML       |                  | UMass Chan |                  | Total      |                    |
|----------------------------------|-----------|------------------|-----------|------------------|----------|------------------|-----------|------------------|------------|------------------|------------|--------------------|
|                                  | #         | \$               | #         | \$               | #        | \$               | #         | \$               | #          | \$               | #          | \$                 |
| Vote 1                           | 21        | \$301,250        | 23        | \$111,428        | 2        | \$104,500        | 17        | \$192,875        | 5          | \$38,340         | 68         | \$748,393          |
| Vote 2                           | 25        | \$352,000        | 8         | \$167,661        | 2        | \$7,854          | 9         | \$65,806         | 23         | \$485,677        | 67         | \$1,078,998        |
| Vote 3                           | 2         | \$301,800        | 0         | \$0              | 0        | \$0              | 0         | \$0              | 0          | \$0              | 2          | \$301,800          |
| <b>Total Authorized Projects</b> | <b>48</b> | <b>\$955,050</b> | <b>31</b> | <b>\$279,090</b> | <b>4</b> | <b>\$112,354</b> | <b>26</b> | <b>\$258,681</b> | <b>28</b>  | <b>\$524,017</b> | <b>137</b> | <b>\$2,129,191</b> |

# Changes From Previous Plan

*Crosswalk of plan changes since last biennial plan update (September 2021)*

| Date    | Starting Plan Total | Projects Added | Cost Changes | Completed/ Archived | Ending Plan Total | Net Change   |
|---------|---------------------|----------------|--------------|---------------------|-------------------|--------------|
| 9/2021  |                     |                |              |                     | 1,864,948,473     |              |
| 12/2021 | 1,864,948,473       | 222,920,000    | 16,980,000   | (91,750,000)        | 2,013,098,473     | 148,150,000  |
| 4/2022  | 2,013,098,473       | 21,920,000     | 36,995,707   | (64,665,022)        | 2,007,349,158     | (5,749,315)  |
| 6/2022  | 2,007,349,158       | 110,650,000    | (11,413,510) | (195,520,000)       | 1,911,065,648     | (96,283,510) |
| 9/2022  | 1,911,065,648       | 41,250,000     | (3,444,500)  | (84,000,000)        | 1,864,871,148     | (46,194,500) |
| 12/2022 | 1,864,871,148       | 48,000,000     | 20,100,000   | (19,700,000)        | 1,913,271,148     | 48,400,000   |
| 4/2023  | 1,913,271,148       | 71,250,000     | (6,320,000)  | (45,000,000)        | 1,933,201,148     | 19,930,000   |
| 6/2023  | 1,933,201,148       | 22,625,254     | 12,736,173   | (9,500,000)         | 1,959,062,575     | 25,861,427   |
| 9/2023  | 1,959,062,575       | 161,342,984    | 146,310,902  | (137,525,000)       | 2,129,191,461     | 170,128,886  |

# Conceptual (Not Yet Authorized) Projects



# Campus Master Planning

- Master plans provide a framework for campus development & capital improvements
- Master planning engages key stakeholders including students, staff, faculty and external partners in how to best meet campus needs into the future
- The most recent master plans for each campus were published / updated:

| Campus     | Master Plan | Energy  | Carbon/Climate                              |
|------------|-------------|---|---|
| Amherst    | 2012        | 2015  | 2021  |
| Boston     | 2022        | 2022  | 2014 (climate resiliency plan)              |
| Dartmouth  | 2017        | 2021  | 2020  |
| Lowell     | 2023        | 2021  | 2021  |
| UMass Chan | 2019        | 2019<br>(Power plant master plan refresh in progress) | 2021<br>(Decarbonization study in progress) |

# FY24-FY28 Capital Plan Summary: Conceptual (Not Yet Authorized) Projects

- Capital projects for future consideration that are consistent with campus master and strategic plans.
- Project costs generally reflect an order of magnitude based on current assumptions for potential scope & size, typical construction costs for similar building type & use, and a multiplier for soft costs & contingencies.
- Projects and related costs have not yet been vetted by studies, programming, or detailed cost estimates.
- Projects **may not proceed** without authorization by the Board or President, identification of a funding source, and inclusion in the financial forecast.

| <i>\$ in thousands</i> | <b>Conceptual (Not Yet Authorized)</b> |                    |
|------------------------|--|--------------------|
|                        | <b>Campus</b>                          | <b>Projects</b>    |
| UMA                    | 20                                     | \$1,151,000        |
| UMB                    | 3                                      | \$633,000          |
| UMD                    | 14                                     | \$227,865          |
| UML                    | 17                                     | \$800,400          |
| UMass Chan             | 11                                     | \$99,825           |
| <b>University</b>      | <b>65</b>                              | <b>\$2,912,090</b> |

# Sustainability

# University & State are Aligned on Energy Efficiency Goals

*Significant investment required to meet these goals.*

## University Priorities:

- Board adopted Sustainability policy in 2016 with strategies around reducing carbon emissions and energy use; increasing use of renewable energy
- University leads in new construction and renovations with 35 buildings LEED certified; 35% of statewide LEED certifications
- Partnership with DOER in emissions reduction efforts
- The 5 UMass campuses together contribute 43% of total Lead By Example portfolio onsite fossil fuel emissions, meaning these campuses play a significant factor in overall portfolio progress

## State Priorities:

- Executive Order 594 signed in April 2022; directing state agencies to reduce greenhouse gas emissions and improve energy efficiency toward net zero goal by 2050
- Focus on existing buildings, reducing onsite fossil fuel consumption and optimizing building performance
- Requires new construction to have efficient electric heating/cooling/hot water, be LEED Silver or higher, and perform 20% better than existing energy code requirements

# State Investment Required to Meet Goals

*Campuses engaged in energy & sustainability master planning efforts and coordinating with State*

- **Funding**: will require state investment to decarbonize campus energy infrastructure at the pace required to meet DOER's updated goals
  - For example, electrifying campus heating and cooling systems to meet emission goals requires investments in new utility infrastructure on all 5 campuses – estimated cost \$1 billion+
- **Infrastructure**: concerns on the ability of the ISO New England Grid to keep pace with demand while ensuring the reliability and resiliency for business continuity
- **Deferred Maintenance Needs**: significant backlog impacts energy efficiency; requires a partnership for funding to address building envelope and energy efficiency projects to reduce energy demand and address long-standing capital needs

# Real Estate & Asset Management



# Real Estate & Asset Management

*With 518 buildings and 27.2 million gross square feet of space, the University and UMBA have a complex and extensive real estate profile that needs to be actively managed.*

- University mission built on research and education; mission cannot be reached without state of the art facilities.
- Regularly evaluating real estate assets; with the advice of industry experts, assesses opportunities to acquire real estate, change the use of existing real estate and dispose and monetize property, when in the best long term interest of the University.
- Campuses have acquired buildings and land in different ways such as donations, State resources, and University resources including debt.

# Campus Data

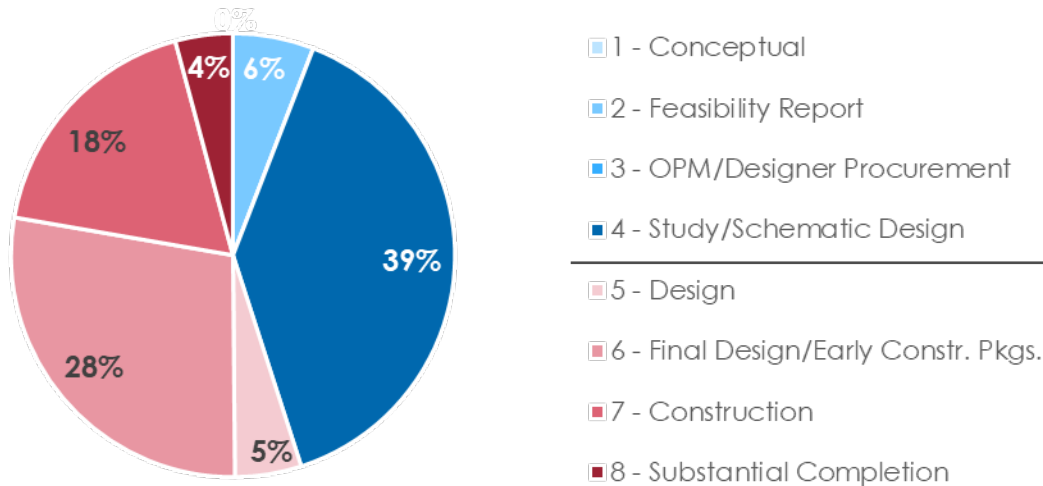
# Amherst

- Relationship to Campus Strategic & Master Plans:
  - UMass Amherst relies on comprehensive academic program and space utilization studies to inform the implementation of the Master Plan and capital priorities. The capital plan provides for new and renovated facilities necessary to compete at the national level to attract and retain top faculty and students, conduct cutting edge research, and ensure academic success of a diverse student body.
- Focus on Deferred Maintenance:
  - The campus balances investments across deferred maintenance, modernization, and new construction so as to achieve the greatest possible return on investment and broadest improvement in physical capacity. The campus had eliminated more than \$560M of DM since 2009 through a combination of renewal and demolition projects but realized a recent increase in the backlog due in part to the deferral of projects during the pandemic. The current plan continues a strong focus on DM and addresses priority buildings using data from Gordian and other studies.
- Commitment to Sustainability:
  - The campus established a Carbon Mitigation Taskforce and completed a comprehensive study to develop a road map towards carbon neutrality. Campus projects are guided by carbon mitigation strategies recommended in the study. The campus also leverages a strategic partnership with the regional utility provider to help incentivize energy efficiency in all projects. While our capital planning integrates sustainability into all of our decisions, achieving substantial progress towards carbon neutrality will require significant external funding.

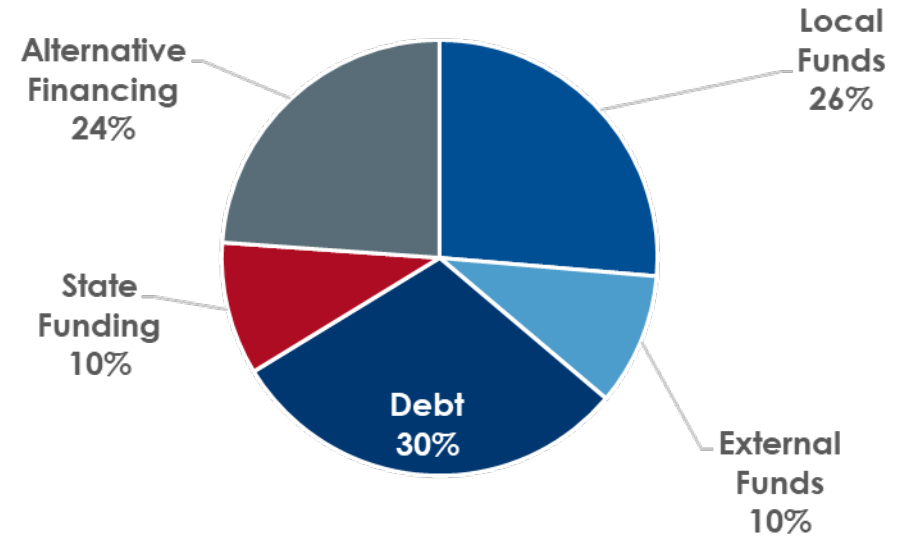
# Amherst: 48 Projects; \$955M; 45% of Capital Plan

22% of Projects in Construction or Substantial Completion

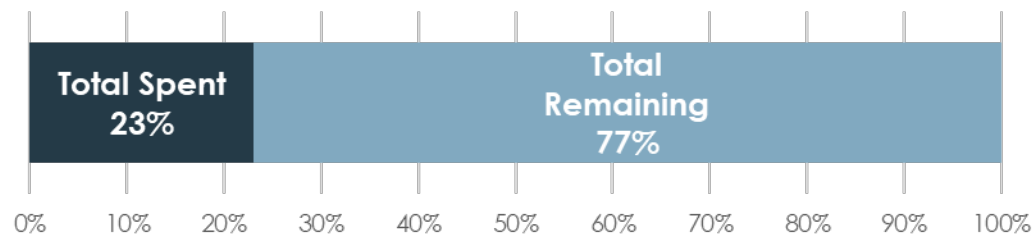
### Projects by Phase

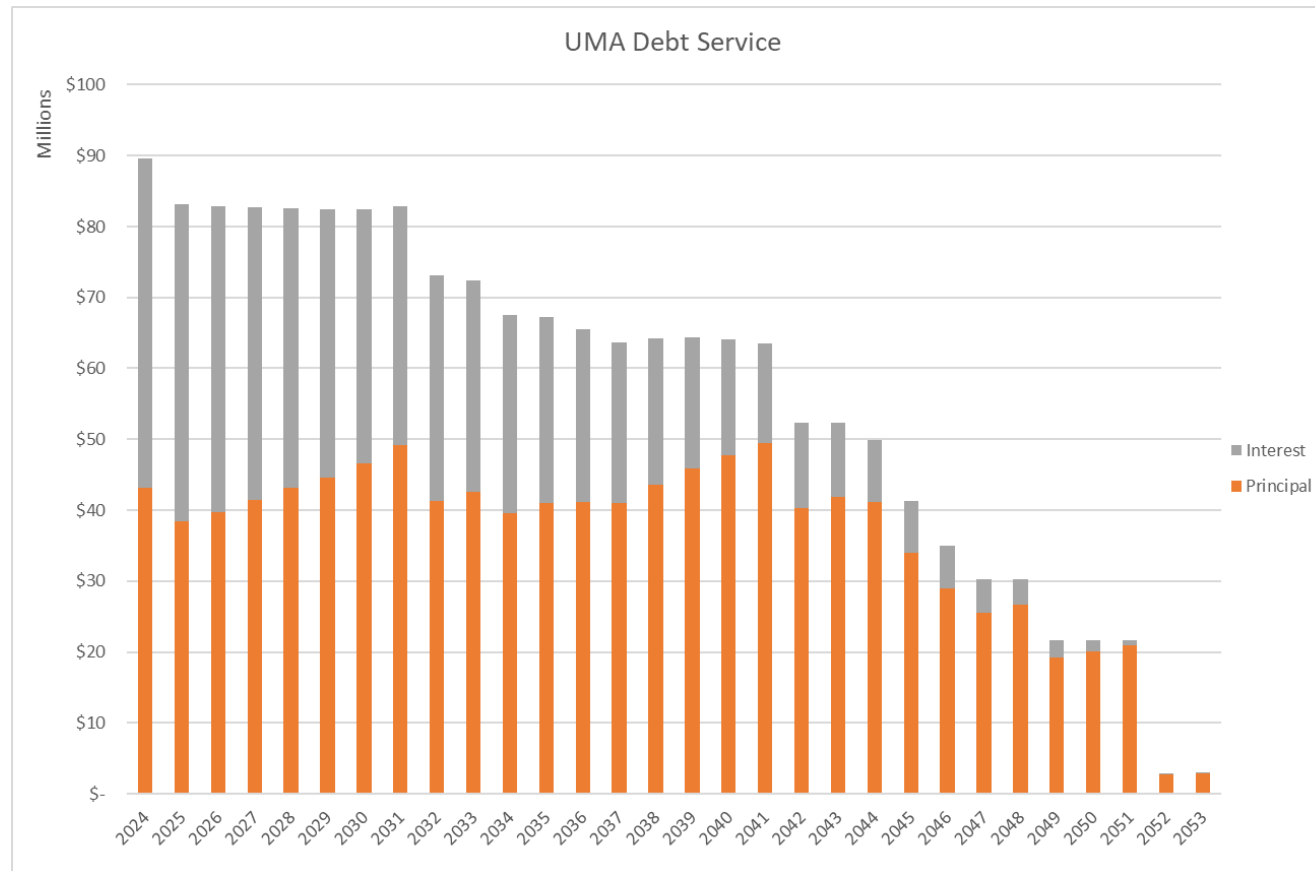


### Funding Sources



### Project Spending





|                           | Actual |        |        |        | Budget | Q3 Projection | Budget | Forecast |        |        |        |
|---------------------------|--------|--------|--------|--------|--------|---------------|--------|----------|--------|--------|--------|
|                           | FY2019 | FY2020 | FY2021 | FY2022 | FY2023 |               | FY2024 | FY2025   | FY2026 | FY2027 | FY2028 |
| Debt Service Burden (%)   | 6.5%   | 6.4%   | 3.7%   | 5.4%   | 5.5%   | 5.6%          | 5.2%   | 5.2%     | 5.4%   | 5.4%   | 5.3%   |
| Debt Service Coverage (x) | 2.3    | 2.0    | 3.2    | 3.8    | 2.4    | 3.0           | 2.7    | 2.7      | 2.6    | 2.6    | 2.5    |
| Financial Leverage (x)    | 0.71   | 0.65   | 0.80   | 0.93   | 0.86   | 0.82          | 0.76   | 0.79     | 0.80   | 0.82   | 0.87   |

# Amherst Projects: Board

| Traditional Projects                                    |                    |  |            |
|---|--------------------|--|------------|
| Project   | Adjusted Cost (\$) | Project Phase                                  | Status     |
| Thompson Deferred Maintenance                           | 2,250,000          | 2 - Feasibility Report                         | Authorized |
| PVTA Bus Garage Expansion                               | 11,000,000         | 4 - Study / Schematic Design                   | Authorized |
| Engineering Building                                    | 125,000,000        | 4 - Study / Schematic Design                   | Authorized |
| School of Public Health and Health Sciences Renovations | 43,000,000         | 4 - Study / Schematic Design                   | Authorized |
| North Campus Energy Exchange Center                     | 24,000,000         | 4 - Study / Schematic Design                   | Authorized |
| Faculty Hire Renovations                                | 15,000,000         | 6 - Final Design / Early Construction Packages | Approved   |
| Office/Lab/Academic Renovations                         | 25,620,000         | 6 - Final Design / Early Construction Packages | Approved   |
| Computer and Information Sciences Building              | 125,000,000        | 6 - Final Design / Early Construction Packages | Approved   |
| Energy Improvements                                     | 16,700,000         | 7 - Construction                               | Approved   |
| Dubois 6th/7th Floor Renovation                         | 8,000,000          | 7 - Construction                               | Approved   |
| Goodell Renovation                                      | 50,000,000         | 7 - Construction                               | Approved   |
| Replace Oil Filled Transformers                         | 2,000,000          | 7 - Construction                               | Approved   |
| Lederle Math Renovation                                 | 7,800,000          | 7 - Construction                               | Approved   |
| Goessmann, SPHHS Renovations                            | 15,100,000         | 8 - Substantial Completion                     | Approved   |
| <b>Total</b>  | <b>470,470,000</b> |  |            |

| Alternative Finance & Delivery Projects |                    |
|---|--------------------|
| Project                                 | Adjusted Cost (\$) |
| Thermal Energy Storage Tank             | 13,000,000         |
| University Village Apartments           | 73,800,000         |
| Housing Expansion                       | 228,000,000        |
| <b>Total</b>                            | <b>314,800,000</b> |

# Amherst Projects: President

| President Projects   |                    |  |            |
|--|--------------------|--|------------|
| Project  | Adjusted Cost (\$) | Project Phase                                  | Status     |
| New Faculty Hire Renovations                                     | 8,000,000          | 2 - Feasibility Report                         | Authorized |
| Deferred Maintenance and Campus Infrastructure                   | 8,000,000          | 2 - Feasibility Report                         | Authorized |
| Class Lab Renovations  | 5,000,000          | 2 - Feasibility Report                         | Authorized |
| Center for Early Education and Care                              | 9,500,000          | 2 - Feasibility Report                         | Authorized |
| Instructional Space Renovations                                  | 5,000,000          | 2 - Feasibility Report                         | Authorized |
| Johnson Residence Hall DM  | 6,000,000          | 4 - Study / Schematic Design                   | Authorized |
| Lederle Lab Renovation   | 3,000,000          | 4 - Study / Schematic Design                   | Authorized |
| Utilities & Infrastructure                                       | 9,000,000          | 4 - Study / Schematic Design                   | Authorized |
| JQA Student Experience Renovations                               | 3,000,000          | 4 - Study / Schematic Design                   | Authorized |
| Utility Storage Tanks  | 2,500,000          | 4 - Study / Schematic Design                   | Authorized |
| Van Meter Roof Rehabilitation                                    | 3,000,000          | 4 - Study / Schematic Design                   | Authorized |
| Water Engineering Technology Laboratories                        | 6,000,000          | 4 - Study / Schematic Design                   | Authorized |
| Gloucester Marine Station Improvements                           | 3,000,000          | 4 - Study / Schematic Design                   | Authorized |
| Southwest Lowrise Tunnel Renovation                              | 4,000,000          | 4 - Study / Schematic Design                   | Authorized |
| Curry Hicks Cage Renovation                                      | 8,000,000          | 4 - Study / Schematic Design                   | Authorized |
| Lederle Chemistry Teaching Laboratories                          | 9,000,000          | 5 - Design                                     | Approved   |
| Pavilion   | 7,000,000          | 5 - Design                                     | Approved   |
| Mullins Dehumidification   | 2,250,000          | 5 - Design                                     | Approved   |
| Mullins Chillers   | 5,750,000          | 5 - Design                                     | Approved   |
| Roof Replacements  | 7,000,000          | 5 - Design                                     | Approved   |
| JQA Life Safety Upgrades & Renovation                            | 9,000,000          | 6 - Final Design / Early Construction Packages | Approved   |
| Housing Deferred Maintenance                                     | 3,800,000          | 6 - Final Design / Early Construction Packages | Approved   |
| Sidewalks/Roads/Landscape  | 5,000,000          | 7 - Construction                               | Approved   |
| Memorial Hall DM   | 2,000,000          | 7 - Construction                               | Approved   |
| Baker Deferred Maintenance                                       | 2,000,000          | 7 - Construction                               | Approved   |
| Washington and Kennedy Residence Halls Life Safety Upgrades      | 5,000,000          | 7 - Construction                               | Approved   |
| Coolidge Life Safety Upgrades                                    | 8,000,000          | 7 - Construction                               | Approved   |
| Whitmore 3rd Floor Renovations                                   | 3,000,000          | 7 - Construction                               | Approved   |
| Washington & Kennedy Resident Halls Life Safety Upgrades Phase 2 | 6,230,000          | 7 - Construction                               | Approved   |
| Wareham Cranberry Station  | 7,750,000          | 8 - Substantial Completion                     | Approved   |
| Brett Residence Hall DM  | 4,000,000          | 8 - Substantial Completion                     | Approved   |
| <b>Total</b>   | <b>169,780,000</b> |  |            |

# Amherst Projects: Conceptual (Not Yet Authorized)

| Conceptual (Not Yet Authorized) Projects                |                      |
|---|----------------------|
| Project   | Adjusted Cost (\$)   |
| Flint Renovations                                       | 21,000,000           |
| Campus Infrastructure                                   | 50,000,000           |
| Lederle Research Center Repairs and Renovations         | 45,000,000           |
| Memorial Hall Renovations                               | 20,000,000           |
| Morrill Science Ctr Renovations                         | 50,000,000           |
| Residence Hall Renovation/Replacement                   | 175,000,000          |
| Instructional and Research Facilities                   | 25,000,000           |
| Life Science Laboratories Phase 3                       | 100,000,000          |
| Fine Arts Center Loading Dock                           | 10,000,000           |
| Athletics Facilities Upgrades                           | 50,000,000           |
| Academic/Classroom/Office Renovations Pool              | 50,000,000           |
| Food Science Renovation/Expansion                       | 30,000,000           |
| Stem Facilities Renewal                                 | 100,000,000          |
| Carbon Zero Plan Initiatives                            | 100,000,000          |
| Deferred Maintenance                                    | 100,000,000          |
| Life Science Laboratories Fitout                        | 15,000,000           |
| Tobin Deferred Maintenance and Renovation               | 20,000,000           |
| Franklin Dining Commons Reno/Addition                   | 40,000,000           |
| Housing Swing Space to Enable DM Work                   | 75,000,000           |
| Indoor and Outdoor Student Recreation Program Expansion | 75,000,000           |
| <b>Total</b>  | <b>1,151,000,000</b> |

- Capital projects for future consideration that are consistent with campus master and strategic plans.
- Project costs generally reflect an order of magnitude based on current assumptions for potential scope & size, typical construction costs for similar building type & use, and a multiplier for soft cost & contingencies.
- Projects and related costs have not yet been vetted by studies, programming, or detailed cost estimates.
- Projects **may not proceed** without authorization by the Board or President, identification of a funding source, and inclusion in the financial forecast.

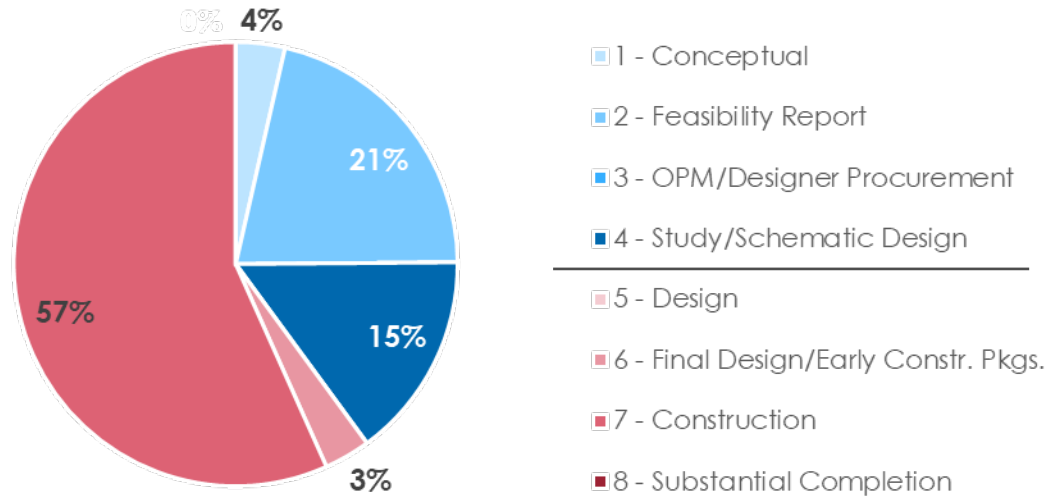
# Boston

- Relationship to Campus Strategic & Master Plans:
  - The last major component of the 2009 Boston Campus Master Plan, the SDQD project, is nearing completion.
  - Boston has completed a new Campus Master Plan to set the course for the next decade plus.
  - New capital projects are focusing on critical deferred maintenance and compliance/safety related issues, with a particular emphasis on Title IX compliance enhancing initiatives in Athletics.
  - Federal funds have been secured to complete a programmatic study and construct a Home Care Digital and Simulation Lab for the Manning College of Nursing and Health Sciences.
- Focus on Deferred Maintenance:
  - Boston's current capital projects are focusing on identified deferred maintenance in some of our older facilities.
  - Projects are focusing on facades, primary transformers, building entrances, HVAC, fire alarms and building controls upgrades.
- Commitment to Sustainability:
  - Boston continues its focus on sustainability and resiliency and has completed a Campus Energy Carbon Master Plan to guide the Campus toward net zero by 2050 and to meet the interim milestone goals set by the State.
  - A major overhaul and expansion of capacity of the Campus' Salt Water Pump House and harbor cove dredging project has been launched to utilize clean, green sources of cooling and potentially heating.
  - In addition to over 1mw of solar capacity, the Campus has added 500kw of battery storage that can be fed back into the electrical distribution.

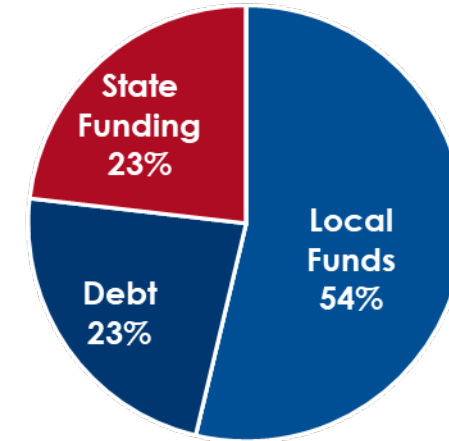
# Boston: 31 Projects; \$279M; 13% of Capital Plan

57% of Projects in Construction or Substantial Completion

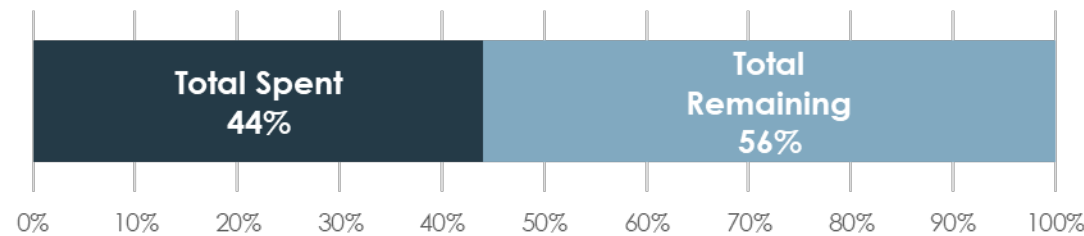
### Projects by Phase

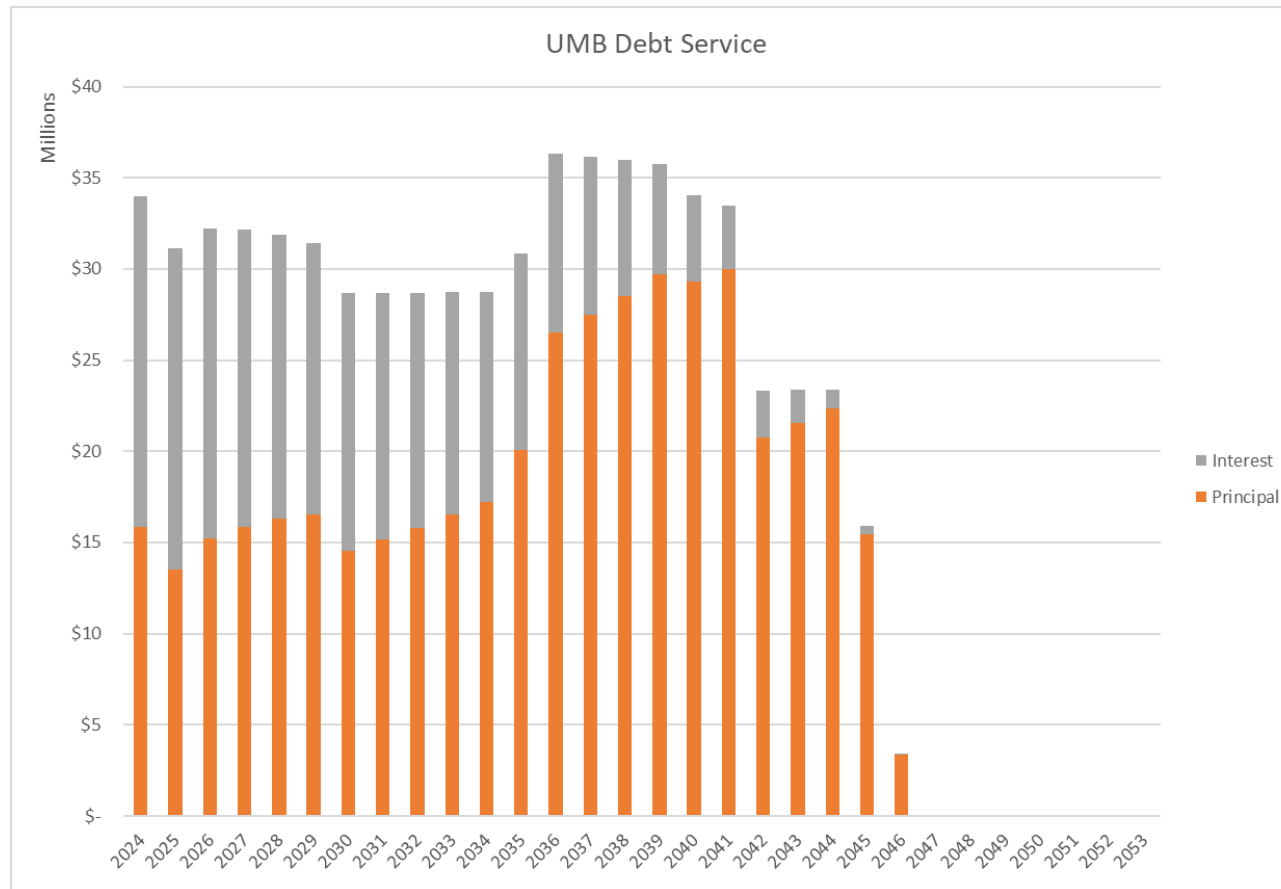


### Funding Sources



### Project Spending





| Key Ratio                 | Actual |        |        |        | Budget | Q3 Projection | Budget | Forecast |        |        |        |
|---------------------------|--------|--------|--------|--------|--------|---------------|--------|----------|--------|--------|--------|
|                           | FY2019 | FY2020 | FY2021 | FY2022 | FY2023 |               | FY2024 | FY2025   | FY2026 | FY2027 | FY2028 |
| Debt Service Burden (%)   | 6.9%   | 7.5%   | 4.2%   | 6.6%   | 6.8%   | 7.1%          | 6.7%   | 6.3%     | 6.2%   | 6.1%   | 5.9%   |
| Debt Service Coverage (x) | 1.6    | 1.7    | 4.0    | 1.9    | 1.7    | 1.7           | 1.8    | 2.2      | 2.3    | 2.3    | 2.3    |
| Financial Leverage (x)    | 0.32   | 0.34   | 0.40   | 0.43   | 0.63   | 0.47          | 0.55   | 0.64     | 0.68   | 0.73   | 0.78   |

# Boston Projects: Board and P3

| Traditional Projects  |                    |                  |          |
|---|--------------------|------------------|----------|
| Project   | Adjusted Cost (\$) | Project Phase    | Status   |
| Demolish Substructure, Science Center, and Pool (Master Plan Phase I) | 138,823,688        | 7 - Construction | Approved |
| <b>Total</b>  | <b>138,823,688</b> |                  |          |

| Alternative Finance & Delivery Projects |                    |
|---|--------------------|
| Project                                 | Adjusted Cost (\$) |
| Calf Pasture Pump House                 | -                  |
| <b>Total</b>                            | <b>-</b>           |

# Boston Projects: President

| President Projects   |                    |  |            |  |
|--|--------------------|--|------------|--|
| Project  | Adjusted Cost (\$) | Project Phase                                  | Status     |  |
| Replace PVC Roof at Service & Supply Building                          | 2,330,628          | 1 - Conceptual                                 | Authorized |  |
| Campus Center Roof Replacement   | 7,656,000          | 1 - Conceptual                                 | Authorized |  |
| Utilities - Pumphouse & Cooling Capacity                               | 9,000,000          | 2 - Feasibility Report                         | Authorized |  |
| Healey Library Building Fire Protection                                | 8,110,000          | 2 - Feasibility Report                         | Authorized |  |
| Utilities SWPH Mechanical Repairs/Dredging                             | 6,000,000          | 2 - Feasibility Report                         | Authorized |  |
| Replace Primary Transformer in McCormack                               | 3,079,741          | 2 - Feasibility Report                         | Authorized |  |
| Fire Alarm System Upgrades (McCormack)                                 | 5,742,923          | 2 - Feasibility Report                         | Authorized |  |
| Fire Alarm System Upgrades (Quinn)                                     | 2,255,478          | 2 - Feasibility Report                         | Authorized |  |
| Fire Alarm System Upgrades (Service & Supply)                          | 1,902,667          | 2 - Feasibility Report                         | Authorized |  |
| Fire Alarm System Upgrades (Wheatley)                                  | 5,945,848          | 2 - Feasibility Report                         | Authorized |  |
| Fire Alarm System Upgrades (Healey)                                    | 7,165,070          | 2 - Feasibility Report                         | Authorized |  |
| Fire Alarm System Upgrades (Clark)                                     | 3,892,070          | 2 - Feasibility Report                         | Authorized |  |
| Replace Primary Transformer in Wheatley                                | 2,794,205          | 2 - Feasibility Report                         | Authorized |  |
| Replace Primary Transformer in Utility Plant                           | 3,551,226          | 2 - Feasibility Report                         | Authorized |  |
| Façade Repairs - Phase 1A  | 2,700,000          | 4 - Study / Schematic Design                   | Authorized |  |
| Clark Softball Field Renovations (Title IX)                            | 7,960,000          | 4 - Study / Schematic Design                   | Authorized |  |
| Healey Library Transformer Replacement                                 | 4,096,150          | 4 - Study / Schematic Design                   | Authorized |  |
| Clark Renovations (Title IX)   | 7,950,000          | 4 - Study / Schematic Design                   | Authorized |  |
| Upgrade Building Controls Campus-Wide                                  | 2,250,000          | 4 - Study / Schematic Design                   | Authorized |  |
| Exterior Door Renovation Project                                       | 3,925,300          | 4 - Study / Schematic Design                   | Authorized |  |
| DPS Consolidation & Accreditation Upgrades                             | 5,346,000          | 4 - Study / Schematic Design                   | Authorized |  |
| Façade Repairs - Phase 1B  | 7,775,000          | 4 - Study / Schematic Design                   | Authorized |  |
| Utility Plant Improvements   | 5,600,000          | 6 - Final Design / Early Construction Packages | Approved   |  |
| Building Utility Submeter & SCADA                                      | 3,797,500          | 6 - Final Design / Early Construction Packages | Approved   |  |
| McCormack Hall: Roof Replacement and Building Envelope Repairs Phase 2 | 5,595,750          | 7 - Construction                               | Approved   |  |
| Repairs to Falling Sections of Harborwalk                              | 4,388,317          | 7 - Construction                               | Approved   |  |
| S&S Loading Dock Concrete Repairs                                      | 2,423,680          | 7 - Construction                               | Approved   |  |
| Healey Ductwork Repair & Air Handling Unit Replacement                 | 3,477,996          | 7 - Construction                               | Approved   |  |
| Network Refresh Edge Switches  | 3,554,456          | 7 - Construction                               | Approved   |  |
| <b>Total</b>   | <b>140,266,005</b> |  |            |  |

# Boston Projects: Conceptual (Not Yet Authorized)

| Unauthorized Projects                          |                    |
|--|--------------------|
| Project  | Adjusted Cost (\$) |
| Wheatley Hall Renovation                       | 200,000,000        |
| Manning College of Nursing and Health Sciences | 325,000,000        |
| Athletic Field and Parking Garage              | 108,000,000        |
| <b>Total</b>                                   | <b>633,000,000</b> |

- Capital projects for future consideration that are consistent with campus master and strategic plans.
- Project costs generally reflect an order of magnitude based on current assumptions for potential scope & size, typical construction costs for similar building type & use, and a multiplier for soft cost & contingencies.
- Projects and related costs have not yet been vetted by studies, programming, or detailed cost estimates.
- Projects **may not proceed** without authorization by the Board or President, identification of a funding source, and inclusion in the financial forecast.

# Highlights of the UMass Boston Campus Master Plan

For the full report please visit Campus Planning & Sustainability - UMass Boston ([umb.edu](http://umb.edu))

1. Created in a **transparent and inclusive process** over 70 individual meetings and events.
2. Accommodates **space for 725,000 GSF of new deficit building space.**
3. Engages our **Boston location.**
4. Creates a more **welcoming campus.**
5. The **library** is transformed into the hub of student success.
6. Adds more **student space**, to encourage more time to be spent on campus
7. The plan supports **collaboration** and an open communal way of working.
8. **Space constraints** have a negative impact on current programs and impede future growth.
9. Better **wayfinding** would improve the sense of belonging.
10. Creates better **connectivity** and **accessibility** between buildings.

# Campus Master Plan

## Heritage Building Renovation

- 1 Wheatley Hall
- 2 McCormick Hall
- 3 Healey Library
- 4 Quinn Administration Center
- 5 Service & Supply
- 6 Clark Athletic Center

## Other Campus Facilities

- 7 Integrated Science Complex
- 8 West Garage
- 9 Campus Center
- 10 University Hall
- 11 Residence Hall East & West
- 12 Softball Field
- 13 Monan Park
- 14 Fox Point Dock

## New Construction

- A Academic Building A
- B Academic/Recreation B
- C Academic Building C
- D Academic Building D
- E Academic Building E
- F Central Plant
- G ISC Addition
- H Campus Support Building
- I Clark Athletic Center Addition
- J Multi-purpose Field & Structured Parking

## Calf Pasture Development

- K Historic Pumping Station
- L Calf Pasture Development Site

## Site Improvements

- M Central Receiving
- N Grand Stair
- O Open Space/Plaza
- P Transit Hub

- Heritage Building Renovation
- New Construction



# Campus Master Plan Update Alignment with Planning Principles

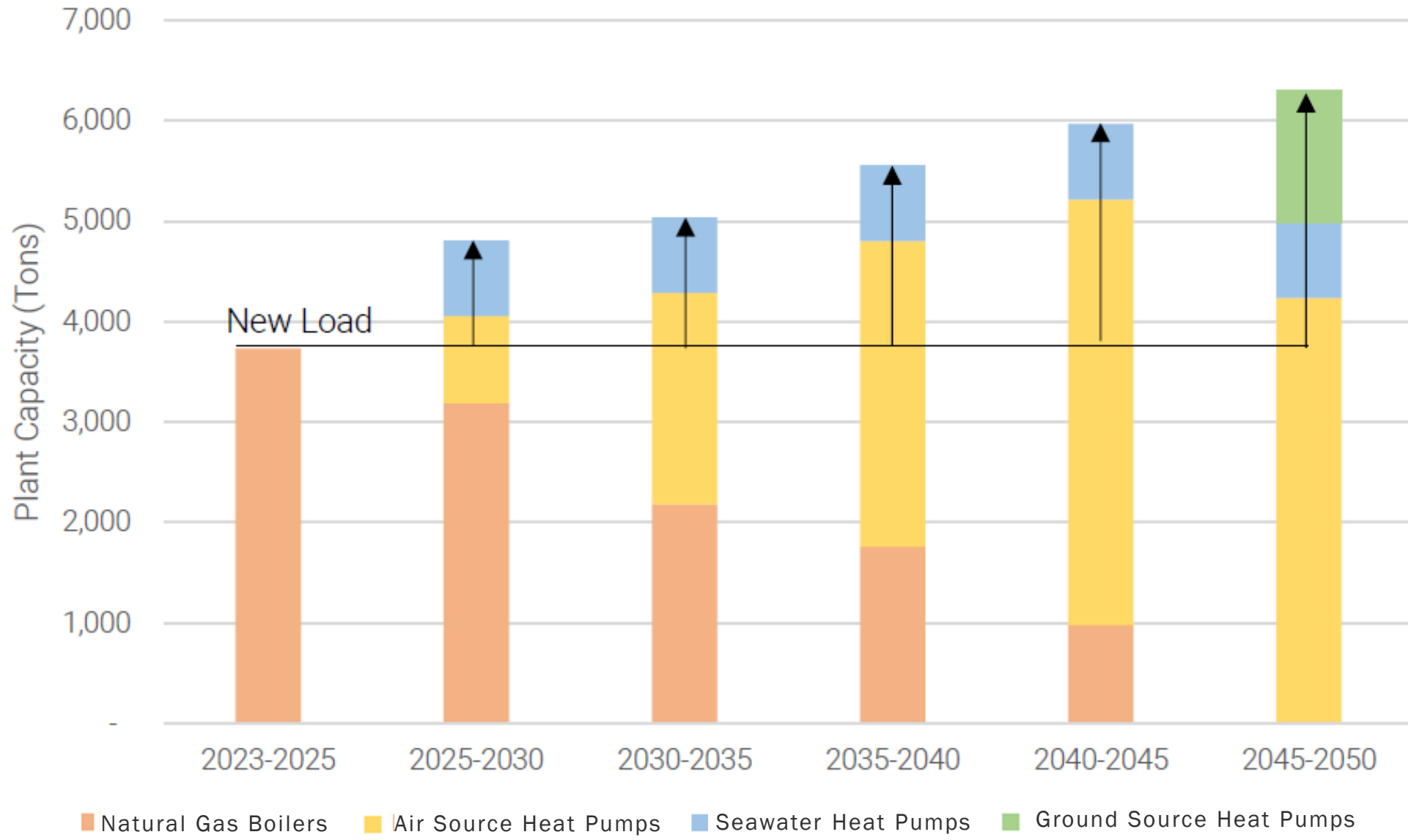
|   | 1   | 2  | 3   | 4  |
|---|---|--|---|--|
|   | Create a welcoming, inclusive, and health promoting UMass Boston campus | Invest in a high-quality inclusive learning environment that supports the University's core values | Create a physical campus that supports community-university reciprocal engagement | Leverage assets and resources to support a sustainable, resilient, and nimble campus |
| <b>Heritage Building Renovations</b><br>Create equity for our human core  | ✓   | ✓  | ✓   | ✓  |
| <b>Healey Transformation to Learning Hub</b><br>Support holistic student success                                      | ✓   | ✓  | ✓   | ✓  |
| <b>Service &amp; Supply/Central Receiving Relocation</b><br>Enable project supporting campus welcome                  | ✓   | ✓  |   | ✓  |
| <b>New Academic Buildings</b><br>Provide world class teaching and research environment                                | ✓   | ✓  | ✓   | ✓  |
| <b>New Mixed-Use Building: Academic/Athletic/Recreation</b><br>Develop a health promoting campus                      | ✓   | ✓  | ✓   | ✓  |
| <b>Realign space in Campus Center</b><br>Focus on co-curricular collaboration and student experience                  | ✓   | ✓  | ✓   | ✓  |
| <b>Multi-purpose Field</b><br>Empower well-being and equity   | ✓   |  | ✓   |  |
| <b>New Research Facilities</b><br>Invest in facilities to support our grand scholarly challenges                      | ✓   | ✓  | ✓   |  |
| <b>Central Plant expansion and resiliency improvements</b><br>Priorize sustainability and meet carbon reduction goals | ✓   |  |   | ✓  |

# Highlights of the UMass Boston Energy and Carbon Master Plan

For the full report please [Campus Planning & Sustainability - UMass Boston \(umb.edu\)](https://www.umb.edu/campus-planning-sustainability)

1. Sets path to **meet 2050 goal** to burn no onsite fossil fuels, reach net-zero emissions, and increase resilience (EO 594 & 569)
2. Prepared through **a participatory process** with Chancellors' Committee for Sustainability
3. Plans for **33% campus facilities deficit growth** and Central Plant Replacement in 5 years
4. Accomplishes this by :
  1. Reducing building energy consumption and enhances resiliency in existing buildings
  2. Building very efficient and resilient new buildings
  3. Switching fuel sources by electrifying Central Building and expanding Sea-water heat pumps
  4. Utilizing renewable energy on and offsite

# Heating Load Electrification



# Dartmouth

- Relationship to Campus Strategic & Master Plans:

- UMass Dartmouth's FY24-FY28 Capital Plan is focused on the preservation of campus assets by addressing critical building systems, interior shell, and exterior building envelope issues.
- Central to the Campus Masterplan is our commitment to honor the legacy of the university's original architect while confronting our deferred maintenance challenge through the renovation of outdated facilities.

- Focus on Deferred Maintenance:

- Our revised capital plan is focused solely on addressing and reducing the substantial deferred maintenance backlog that has grown steadily over the years. With many buildings (50%) over 50 years old, the life cycles of many major building components are past their useful life.

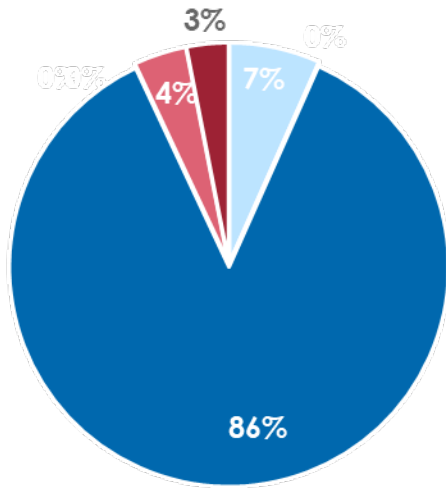
- Commitment to Sustainability:

- UMass Dartmouth has partnered with DCAMM and CMTA to update and refresh the Campus Energy Masterplan that will provide a roadmap to reduce the burning of onsite fossil fuels on campus by 95% by 2050.

# Dartmouth: 4 Projects; \$112M; 5% of Capital Plan

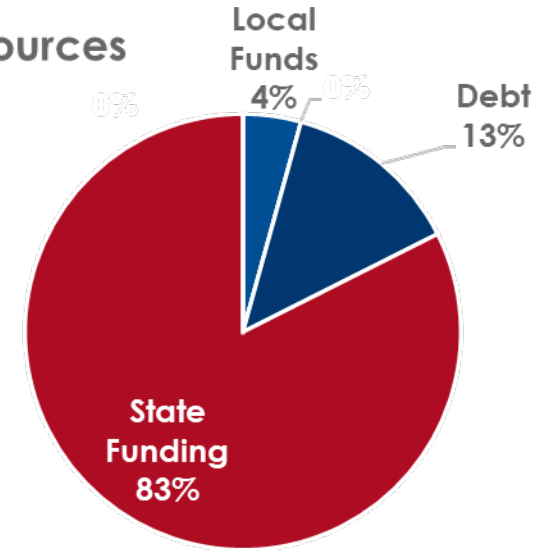
7% of Projects in Construction or Substantial Completion

### Projects by Phase

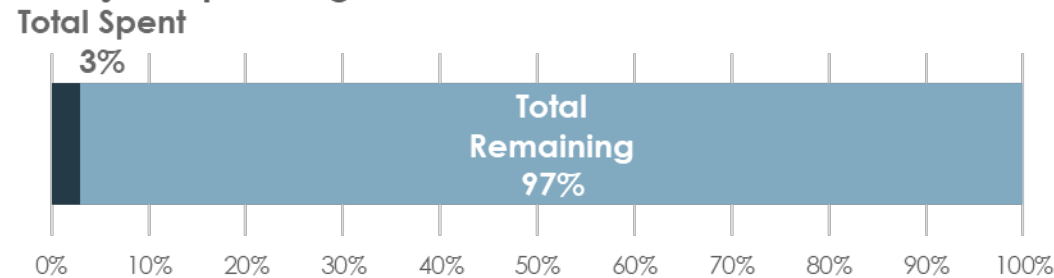


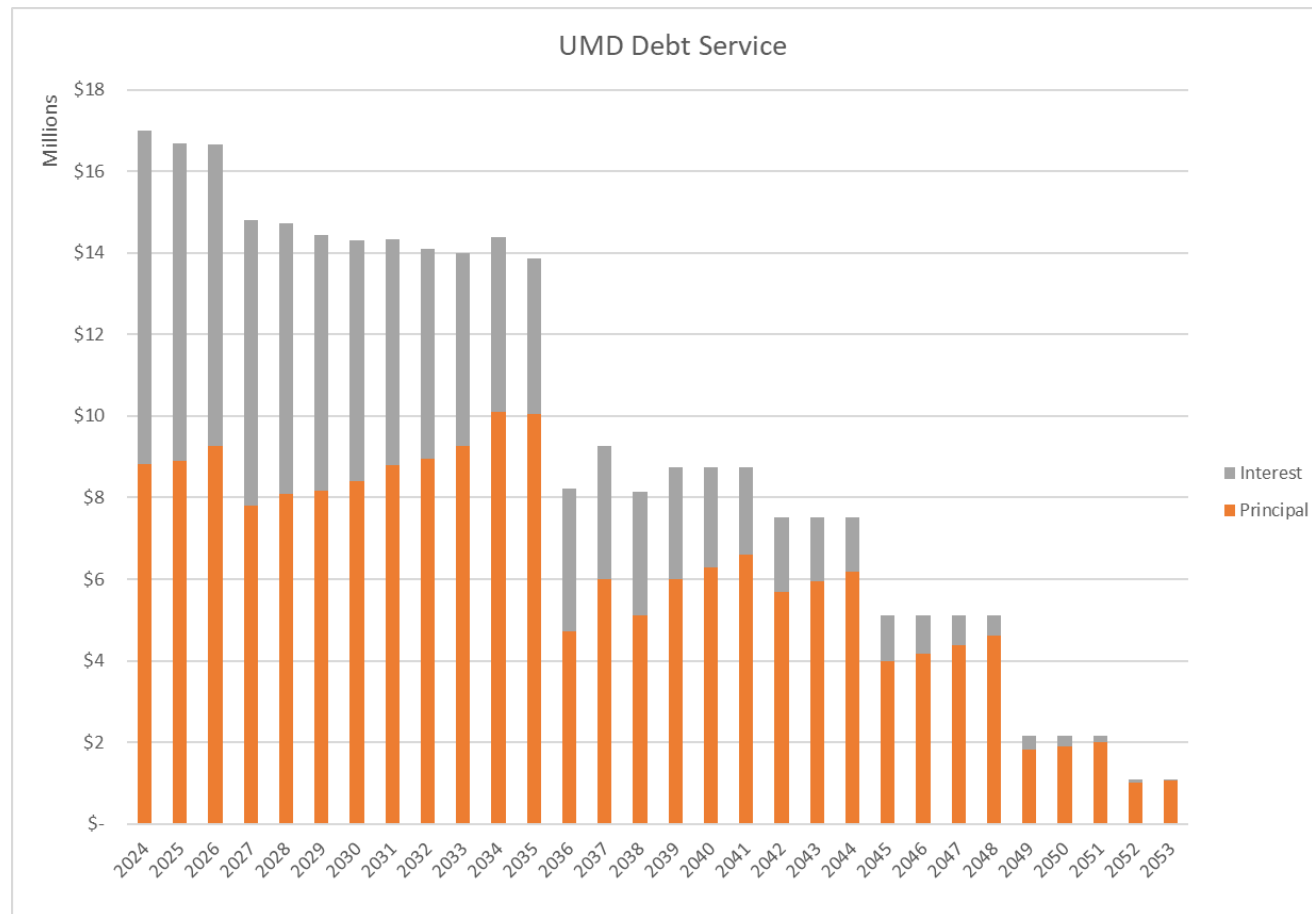
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- 4 - Study/Schematic Design
- 5 - Design
- 6 - Final Design/Early Constr. Pkgs.
- 7 - Construction
- 8 - Substantial Completion

### Funding Sources



### Project Spending





| Key Ratio                 | Actual |        |        |        | Budget | Q3 Projection | Budget | Forecast |        |        |        |
|---------------------------|--------|--------|--------|--------|--------|---------------|--------|----------|--------|--------|--------|
|                           | FY2019 | FY2020 | FY2021 | FY2022 | FY2023 |               | FY2024 | FY2025   | FY2026 | FY2027 | FY2028 |
| Debt Service Burden (%)   | 7.8%   | 7.7%   | 4.1%   | 5.8%   | 5.9%   | 5.8%          | 5.9%   | 6.0%     | 5.6%   | 4.8%   | 4.7%   |
| Debt Service Coverage (x) | 1.6    | 1.5    | 3.1    | 2.1    | 1.8    | 1.7           | 1.9    | 2.2      | 2.1    | 2.3    | 2.2    |
| Financial Leverage (x)    | 0.29   | 0.31   | 0.42   | 0.51   | 0.42   | 0.45          | 0.56   | 0.49     | 0.53   | 0.57   | 0.61   |

# Dartmouth Projects: Board & President

| Traditional Projects                      |                    |                              |            |
|---|--------------------|------------------------------|------------|
| Project                                   | Adjusted Cost (\$) | Project Phase                | Status     |
| LARTS HVAC Renovation/Upgrade             | 97,000,000         | 4 - Study / Schematic Design | Authorized |
| Central Campus Building Entrance Upgrades | 4,367,784          | 7 - Construction             | Approved   |
| <b>Total</b>                              | <b>101,367,784</b> |                              |            |

| President Projects                         |                    |                            |            |
|--|--------------------|----------------------------|------------|
| Project                                    | Adjusted Cost (\$) | Project Phase              | Status     |
| CVPA Building Envelope Improvement Project | 7,500,000          | 1 - Conceptual             | Authorized |
| McLean Campus Center AHU Replacement       | 3,486,298          | 8 - Substantial Completion | Approved   |
| <b>Total</b>                               | <b>10,986,298</b>  |                            |            |

# Dartmouth Projects: Conceptual (Not Yet Authorized)

| Conceptual (Not Yet Authorized) Projects          |                    |
|---|--------------------|
| Project   | Adjusted Cost (\$) |
| Multi Purpose Field House                         | 20,800,000         |
| Campus Elevator Modernization Project Phase 2     | 2,500,000          |
| New Campus Entrance Road                          | 10,000,000         |
| Violette Roof Replacement Project                 | 2,000,000          |
| Foster Administration Window Replacement Project  | 2,750,000          |
| Roadway Repairs                                   | 6,220,000          |
| Law School - Deferred Maintenance                 | 5,000,000          |
| Claire T. Carney Library Exterior Envelope Repair | 14,000,000         |
| Central Administrative Services Building          | 12,690,000         |
| Campus Entrance Building                          | 45,000,000         |
| Campus Center Addition (Student Union)            | 44,421,021         |
| Amphitheater Project                              | 7,000,000          |
| ADA Renovations Immediate Needs                   | 2,184,000          |
| STEM Discovery Facility                           | 53,300,000         |
| <b>Total</b>                                      | <b>227,865,021</b> |

- Capital projects for future consideration that are consistent with campus master and strategic plans.
- Project costs generally reflect an order of magnitude based on current assumptions for potential scope & size, typical construction costs for similar building type & use, and a multiplier for soft cost & contingencies.
- Projects and related costs have not yet been vetted by studies, programming, or detailed cost estimates.
- Projects **may not proceed** without authorization by the Board or President, identification of a funding source, and inclusion in the financial forecast.

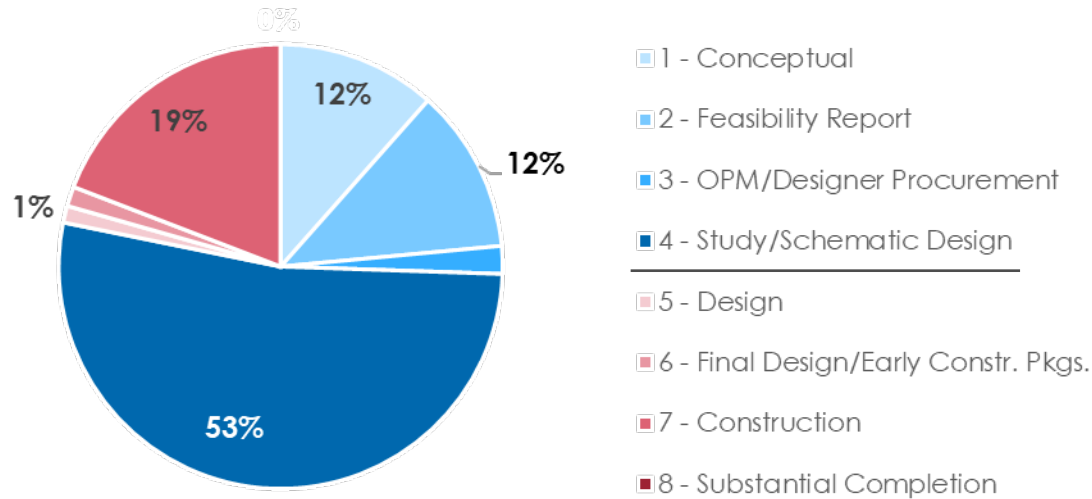
# Lowell

- Relationship to Campus Strategic & Master Plans:
  - UMass Lowell's capital plan prioritizes projects that impact the student experience to help sustain enrollment levels through recruitment and retention as well as those that update and modernize facilities for instruction and research consistent with the goals of the campus's recently completed strategic plan and ongoing master planning to support it.
- Focus on Deferred Maintenance:
  - Enrollment, research, and faculty growth projections confirm that the campus does not need to increase its gross square footage but must instead focus on improving the quality and condition of its current buildings, particularly to support the demands of contemporary research and modernized instruction in STEM fields. Consistent with these objectives, this capital plan will significantly reduce deferred maintenance backlogs.
- Commitment to Sustainability:
  - A core tenet of UMass Lowell's Alternative Energy Master Plan is to incorporate measures to conserve and reduce energy consumption and greenhouse gas emissions into every capital project. The Olney Science Center major capital project, which is by far the largest investment in the capital plan, incorporates several measures to directly address these decarbonization goals. Additional projects will have proportionate beneficial impacts.

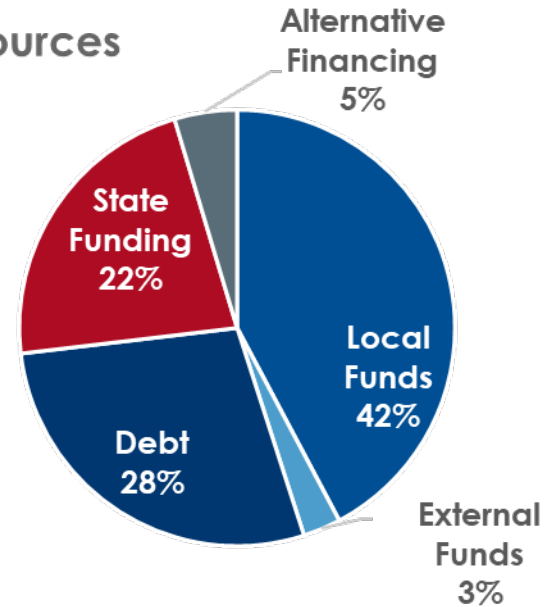
# Lowell: 26 Projects; \$259M; 12% of Capital Plan

20% of Projects in Construction or Substantial Completion

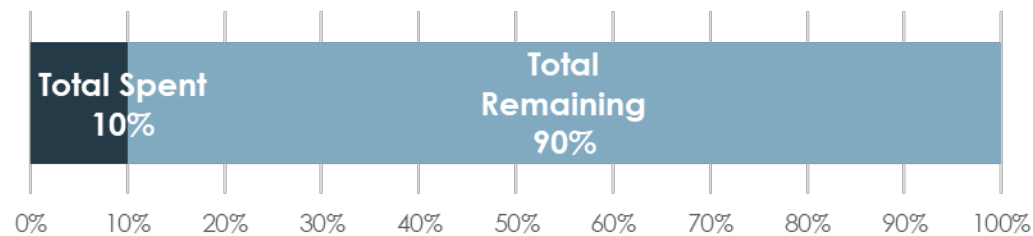
Projects by Phase

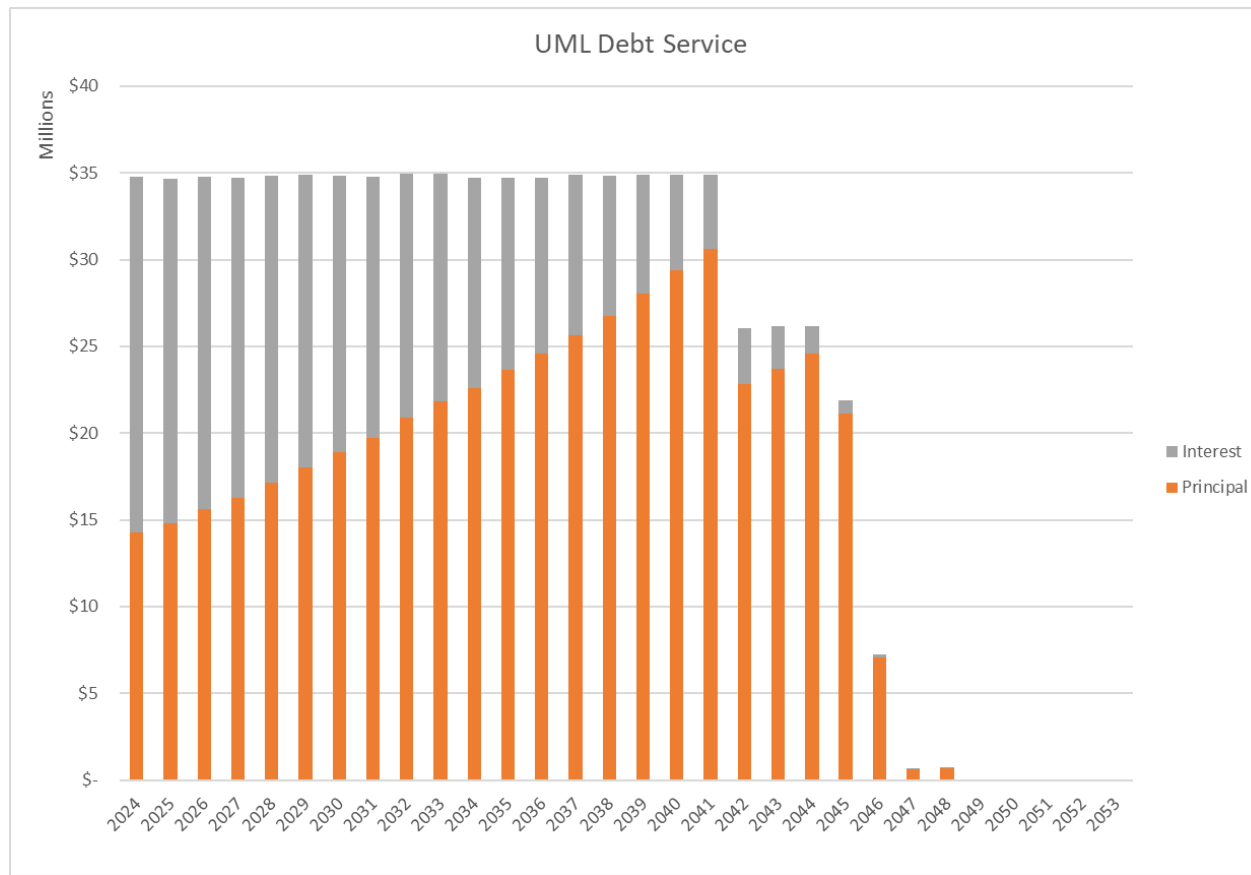


Funding Sources



Project Spending





| Key Ratio                 | Actual |        |        |        | Budget | Q3 Projection | Budget | Forecast |        |        |        |
|---------------------------|--------|--------|--------|--------|--------|---------------|--------|----------|--------|--------|--------|
|                           | FY2019 | FY2020 | FY2021 | FY2022 | FY2023 |               | FY2024 | FY2025   | FY2026 | FY2027 | FY2028 |
| Debt Service Burden (%)   | 7.7%   | 6.8%   | 4.9%   | 6.6%   | 6.6%   | 7.1%          | 6.8%   | 6.4%     | 6.8%   | 6.4%   | 6.0%   |
| Debt Service Coverage (x) | 1.9    | 2.0    | 3.4    | 2.5    | 2.3    | 2.3           | 2.3    | 2.5      | 2.3    | 2.4    | 2.5    |
| Financial Leverage (x)    | 0.36   | 0.38   | 0.52   | 0.45   | 0.62   | 0.47          | 0.48   | 0.56     | 0.56   | 0.58   | 0.60   |

# Lowell Projects: Board

| Traditional Projects   |                    |                              |            |
|--|--------------------|------------------------------|------------|
| Project  | Adjusted Cost (\$) | Project Phase                | Status     |
| Olney Project A - Instructional Modernization                        | 127,000,000        | 4 - Study / Schematic Design | Authorized |
| Critical Repair - Olsen Strategic Renovations, Repairs and Replacem€ | 21,445,756         | 7 - Construction             | Approved   |
| <b>Total</b>   | <b>148,445,756</b> |                              |            |

| Alternative Finance & Delivery Projects |                    |
|---|--------------------|
| Project                                 | Adjusted Cost (\$) |
| Tsongas Center Annex                    | 12,000,000         |
| East Campus Development                 | TBD                |
| <b>Total</b>                            | <b>12,000,000</b>  |

# Lowell Projects: President

| President Projects  |                    |  |            |
|---|--------------------|--|------------|
| Project   | Adjusted Cost (\$) | Project Phase                                    | Status     |
| South Campus Electrical & Steam Infrastructure                      | 5,500,000          | 1 - Conceptual                                   | Authorized |
| Campuswide Space Consolidation to vacate smaller buildings          | 5,000,000          | 1 - Conceptual                                   | Authorized |
| Comley Lane Theater Upgrades  | 2,000,000          | 1 - Conceptual                                   | Authorized |
| Residence Hall & Student Affairs Renewal Program Phase II           | 9,000,000          | 1 - Conceptual                                   | Authorized |
| BAL-214 HVAC and Full Refresh                                       | 4,000,000          | 1 - Conceptual                                   | Authorized |
| East Campus Development Enabling Projects                           | 3,000,000          | 1 - Conceptual                                   | Authorized |
| LeLacheur Park Compliance Upgrades and Deferred Maintenance         | 3,000,000          | 2 - Feasibility Report                           | Authorized |
| Dandeneau First Floor Makerspace Expansion                          | 7,500,000          | 2 - Feasibility Report                           | Authorized |
| Weed Hall Third Floor Renovations                                   | 4,600,000          | 2 - Feasibility Report                           | Authorized |
| eSports Arena   | 4,500,000          | 2 - Feasibility Report                           | Authorized |
| Critical Repairs - Pinanski Electrical Infrastructure               | 3,400,000          | 2 - Feasibility Report                           | Authorized |
| Costello D1 Improvements Phase 2 - Fill & Repurpose Pool Area       | 4,500,000          | 2 - Feasibility Report                           | Authorized |
| Weed Hall Critical Repairs Investments                              | 2,000,000          | 2 - Feasibility Report                           | Authorized |
| Ball Hall Critical Repairs Investments                              | 5,000,000          | 3 - Owner's Project Manager/Designer Procurement | Authorized |
| Wannalancit C Stack   | 2,875,000          | 4 - Study / Schematic Design                     | Authorized |
| Dugan - Art & Design 3D Studio Renovation                           | 3,000,000          | 5 - Design                                       | Approved   |
| Olney Laser Lab   | 3,540,000          | 6 - Final Design / Early Construction Packages   | Approved   |
| Critical Repair Tsongas HVAC  | 9,500,000          | 7 - Construction                                 | Approved   |
| Southwick Lowell Advanced Robotics Initiative (LARI), Math & Chem E | 7,410,000          | 7 - Construction                                 | Approved   |
| Durgin Concert Hall   | 2,750,000          | 7 - Construction                                 | Approved   |
| Pinanski Radiation Physics Lab                                      | 3,510,000          | 7 - Construction                                 | Approved   |
| Riverhawk Village Centralize Water Heaters                          | 2,650,000          | 7 - Construction                                 | Approved   |
| <b>Total</b>  | <b>98,235,000</b>  |  |            |

# Lowell Projects: Conceptual (Not Yet Authorized)

| Conceptual (Not Yet Authorized) Projects                              |                    |
|---|--------------------|
| Project   | Adjusted Cost (\$) |
| Artificial Turf at LeLacheur and Riverview Field                      | 3,500,000          |
| Durgin Hall Renewal & Addition  | 65,000,000         |
| OLN - renovate vacated Chemistry Teaching Labs for Research           | 4,000,000          |
| Renovate Alumni & Lydon Stacks  | 12,000,000         |
| Modernization and Improvement of North Campus Teaching and Re:        | 100,000,000        |
| O'Leary Renewal   | 2,200,000          |
| Residential Hall Comprehensive Renewal Program - Future Phases        | 100,000,000        |
| Olney Project B - Building Infrastructure (State Major Capital Reques | 200,000,000        |
| North Quad Infrastructure Renewal (HVAC & Fire Protection)            | 12,000,000         |
| Weed Hall Renewal   | 100,000,000        |
| Wannalancit Façade Repointing   | 4,000,000          |
| South Campus Master Plan - Initial Space & Mall Improvements - Ph:    | 20,000,000         |
| Ball Hall Instructional Lab Renovations for ECE and Mechanical Engin  | 11,500,000         |
| Ball Hall Comprehensive Renewal Phase II                              | 155,000,000        |
| Costello Phase III  | 4,500,000          |
| Weed entry/basement egress/freezer farm annual call request           | 2,900,000          |
| Olsen Biology Instructional Lab                                       | 3,800,000          |
| <b>Total</b>  | <b>800,400,000</b> |

- Capital projects for future consideration that are consistent with campus master and strategic plans.
- Project costs generally reflect an order of magnitude based on current assumptions for potential scope & size, typical construction costs for similar building type & use, and a multiplier for soft cost & contingencies.
- Projects and related costs have not yet been vetted by studies, programming, or detailed cost estimates.
- Projects **may not proceed** without authorization by the Board or President, identification of a funding source, and inclusion in the financial forecast.

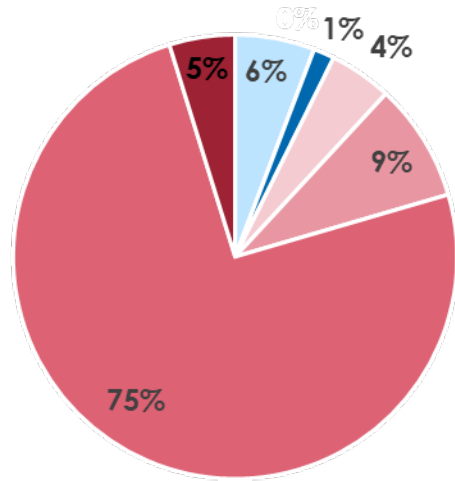
# UMass Chan

- Relationship to Campus Strategic & Master Plans:
  - The Capital Plan for the UMass Chan Medical School continues to be guided by two key institutional documents; the UMass Chan Impact 2025 Strategic Plan and the 2019 Medical School Master Plan.
  - The Capital Plan supports the strategic priorities laid out in Impact 2025, which includes major milestones to be achieved between 2020 and 2025 related to its missions in medical education, academic research, healthcare delivery and public service.
  - The 2019 Master Plan provides UMass Chan with a functional and detailed blueprint for space planning and construction with a focus on enrollment growth and collaborative, technology-integrated learning spaces, and accommodates growth and efficiencies in aligning with the goals of the research enterprise; ForHealth Consulting; and Mass Biologics.
- Focus on Deferred Maintenance:
  - The UMass Chan Capital Plan includes deferred maintenance and repair of the aging Medical School facilities, power plant and utility infrastructure with a focus on incorporating resilient and energy-efficient technologies and upgrading life safety systems and is informed by DM backlog lists maintained by Facilities Management.
  - In support of the strategic priorities, the Capital Plan addresses the need to repurpose and refresh existing space to support programmatic growth while addressing building code deficiencies and improved accessibility.
- Commitment to Sustainability:
  - UMass Chan's commitment to sustainability is represented by the 2021 Sustainability Climate Action Plan, 2023 Decarbonization Plan currently underway, and the schools support of Executive Order 594: Decarbonizing and minimizing environmental impacts of State government.
  - In practice, this commitment is highlighted in the design of the New Educational Research Building which features energy efficiency measures to reduce energy use intensity, and a geothermal systems which will reduce greenhouse gas emissions from the building by 55 percent.

# UMass Chan: 28 Projects; \$524M; 25% of Capital Plan

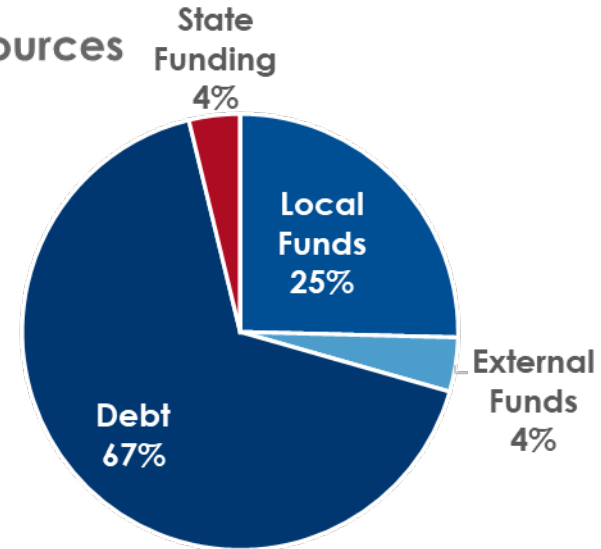
80% of Projects in Construction or Substantial Completion

### Projects by Phase

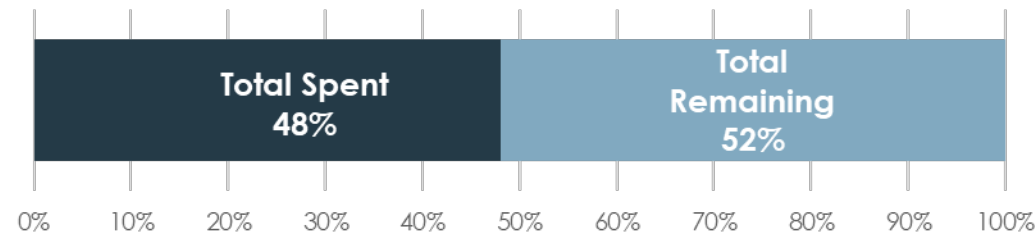


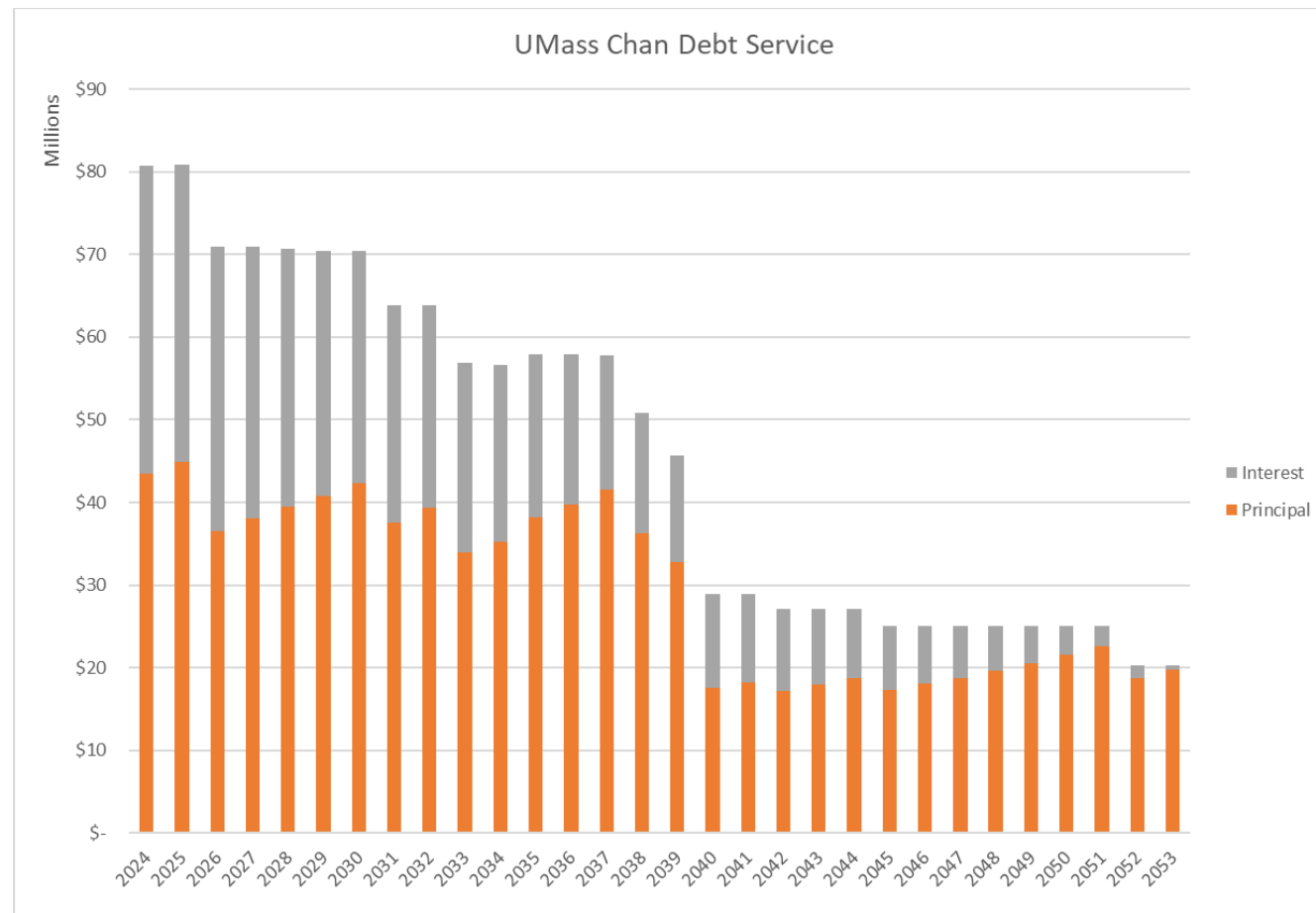
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- 3 - OPM/Designer Procurement
- 4 - Study/Schematic Design
- 5 - Design
- 6 - Final Design/Early Constr. Pkgs.
- 7 - Construction
- 8 - Substantial Completion

### Funding Sources



### Project Spending





| Key Ratio                 | Actual |        |        |        | Budget | Q3 Projection | Budget | Forecast |        |        |        |
|---------------------------|--------|--------|--------|--------|--------|---------------|--------|----------|--------|--------|--------|
|                           | FY2019 | FY2020 | FY2021 | FY2022 | FY2023 |               | FY2024 | FY2025   | FY2026 | FY2027 | FY2028 |
| Debt Service Burden (%)   | 5.5%   | 4.9%   | 2.0%   | 5.1%   | 7.0%   | 7.3%          | 7.1%   | 6.8%     | 5.7%   | 5.5%   | 5.4%   |
| Debt Service Coverage (x) | 2.6    | 2.7    | 5.8    | 2.3    | 2.0    | 1.8           | 1.9    | 1.9      | 2.1    | 2.1    | 2.1    |
| Financial Leverage (x)    | 0.98   | 0.84   | 1.15   | 0.95   | 0.91   | 0.93          | 0.89   | 0.95     | 1.07   | 1.17   | 1.30   |

# UMass Chan Projects: Board & President

| Traditional Projects   |                    |  |            |
|--|--------------------|--|------------|
| Project  | Adjusted Cost (\$) | Project Phase                                  | Status     |
| Departmental equipment purchases   | 10,000,000         | 1 - Conceptual                                 | Authorized |
| Parking Lot Maintenance - Main Campus  | 10,840,000         | 1 - Conceptual                                 | Authorized |
| Medical School - Basic Wing Mechanical Penthouse   | 11,000,000         | 6 - Final Design / Early Construction Packages | Approved   |
| Student Wing Substation, Risers and Electrical Room Replacements                         | 12,000,000         | 6 - Final Design / Early Construction Packages | Approved   |
| New Education and Research Facility  | 350,000,000        | 7 - Construction                               | Approved   |
| Basic Wing Substations, Risers and Electrical Room Replacements                          | 13,533,930         | 7 - Construction                               | Approved   |
| Install Chiller 6  | 14,200,000         | 8 - Substantial Completion                     | Approved   |
| <b>Total</b>   | <b>421,573,930</b> |  |            |
| President Projects   |                    |  |            |
| Project  | Adjusted Cost (\$) | Project Phase                                  | Status     |
| Fall River MBL CGMP Upgrades   | 9,500,000          | 1 - Conceptual                                 | Authorized |
| Library repurposing and renovations  | 5,500,000          | 4 - Study / Schematic Design                   | Authorized |
| HOAGLUND-PINCUS FORHEALTH OFFICE RENOVATIONS   | 2,500,000          | 4 - Study / Schematic Design                   | Authorized |
| Medical School - 7th Floor new BSL3 Lab  | 8,800,000          | 5 - Design                                     | Approved   |
| E/M DM - 5 School HVAC Upgrades / Replacements - Student Wing Mechanical Systems and AHU | 4,000,000          | 5 - Design                                     | Approved   |
| E/M DM - 5 School HVAC Upgrades / Replacements - Amphitheater Mechanical Systems and AHU | 4,000,000          | 5 - Design                                     | Approved   |
| MEDICAL SCHOOL - LEVEL A and 7TH FLOOR ABSL3 and BSL3 Upgrades and Repairs               | 4,300,000          | 5 - Design                                     | Approved   |
| Childcare Expansion  | 2,800,000          | 5 - Design                                     | Approved   |
| POWER PLANT - SUBSTATION CP-1 REPLACEMENT  | 4,870,000          | 6 - Final Design / Early Construction Packages | Approved   |
| POWER PLANT - OIL CRYPT MODERNIZATION  | 3,110,000          | 6 - Final Design / Early Construction Packages | Approved   |
| Basic Wing Restroom Upgrade (14 Rooms)   | 4,500,000          | 6 - Final Design / Early Construction Packages | Approved   |
| Clinical Wing Restroom Upgrades (14 Rooms)   | 4,110,000          | 6 - Final Design / Early Construction Packages | Approved   |
| Gnotobiotics Core (LRB)  | 5,500,000          | 6 - Final Design / Early Construction Packages | Approved   |
| POWER PLANT - 5KV SWITCHGEAR REPLACEMENT   | 2,150,000          | 7 - Construction                               | Approved   |
| MAIN CAMPUS - METERING UPGRADES  | 5,141,500          | 7 - Construction                               | Approved   |
| MEDICAL SCHOOL - LEVEL A ANATOMY LAB RENOVATIONS   | 2,500,000          | 7 - Construction                               | Approved   |
| Medical School Elevator Replacement  | 5,000,000          | 7 - Construction                               | Approved   |
| MAIN CAMPUS - STEAM DISTRIBUTION UPGRADES  | 5,141,500          | 7 - Construction                               | Approved   |
| Clinical Wing Renovation - 4th Phase (2nd Floor)   | 8,100,000          | 7 - Construction                               | Approved   |
| Clinical Wing Substations, Risers and Electrical Room Replacements                       | 8,300,000          | 8 - Substantial Completion                     | Approved   |
| POWER PLANT - COOLING TOWER 4 REPLACEMENT  | 2,620,000          | 8 - Substantial Completion                     | Approved   |
| <b>Total</b>   | <b>102,443,000</b> |  |            |

# UMass Chan: Conceptual (Not Yet Authorized)

| Conceptual (Not Yet Authorized) Projects                        |                    |
|---|--------------------|
| Project   | Adjusted Cost (\$) |
| Misc. Renovations WCCC  | 10,000,000         |
| South Street Building 1 Renovations                             | 7,000,000          |
| Balance of Plant Controls (BOP) Upgrade                         | 22,575,000         |
| POWER PLANT - BATTERY STORAGE                                   | 5,000,000          |
| POWER PLANT - EMERGENCY DIESEL GENERATION                       | 5,500,000          |
| Basic Wing Mechanical Systems and AHU                           | 14,000,000         |
| MEDICAL SCHOOL - FIRE ALARM SYSTEM UPGRADES                     | 2,150,000          |
| Neuro Nexus, A Level Renovations                                | 23,000,000         |
| MEDICAL SCHOOL - BASIC WING ELEVATORS - PE-5-8 and SE-3         | 3,110,000          |
| MEDICAL SCHOOL - SCHOOL / HOSPITAL PRESSURIZATION - CW AC-13/14 | 2,620,000          |
| MEDICAL SCHOOL - A-LEVEL / ANATOMY AC-26-28 REPLACEMENT         | 4,870,000          |
| <b>Total</b>  | <b>99,825,000</b>  |

- Capital projects for future consideration that are consistent with campus master and strategic plans.
- Project costs generally reflect an order of magnitude based on current assumptions for potential scope & size, typical construction costs for similar building type & use, and a multiplier for soft cost & contingencies.
- Projects and related costs have not yet been vetted by studies, programming, or detailed cost estimates.
- Projects **may not proceed** without authorization by the Board or President, identification of a funding source, and inclusion in the financial forecast.

# Traditional Project Votes

# September: Vote 1 Approval

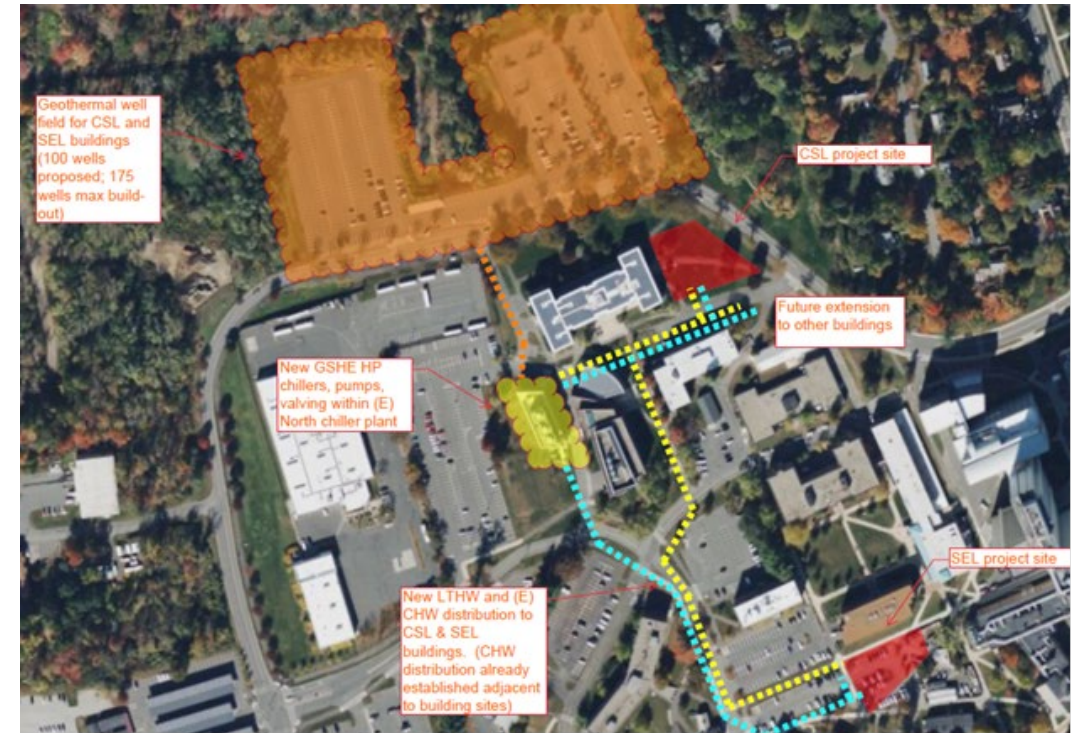
- There is one project seeking vote 1 this quarter at the Amherst campus.

| Project Name                        | Vote 1              | Funding Source      |
|-------------------------------------|---------------------|---------------------|
|                                     |                     | Local Funding       |
| North Campus Energy Exchange Center | 24,000,000          | 24,000,000*         |
| <b>TOTAL</b>                        | <b>\$24,000,000</b> | <b>\$24,000,000</b> |

# September: Vote 1 Approval

## Amherst: North Campus Energy Exchange Center \$24M

- Responsive to Executive Order 594 mandate for efficient electric heating and cooling for new construction
- Installation of geothermal wells and related infrastructure to support heating/cooling for CSL & SEL buildings.
- Leverages existing spare bay in the campus North Chiller Plant for fit out for the energy exchange infrastructure
- Regional system provides operational efficiencies, improved resiliency and expandable infrastructure
- Pursuing Inflation Reduction Act Tax Credit for Clean Energy and Efficiency



Project site plan

# Inflation Reduction Act (IRA) - Overview

## Colleges and Universities are Eligible for Energy Tax Incentives

- August 16, 2022, Congress passed the IRA modifying and creating new energy tax credits to support clean energy initiatives.
- IRA now allows exempt and certain governmental entities to benefit from these tax credits.

## Tax Credit Program for Clean Energy and Efficiency\*

- Provides refundable tax credits to tax-exempt entities.
- Base credit of 6%, 30% when “apprenticeship” and “prevailing wage” requirements are met.
- Credits reduced when tax-exempt financing is used to fund project.
- IRS continues to provide additional guidance.

## UMass Pursuing Opportunities Under Program

- Working with outside consultants to identify potential projects

### **Example: Amherst North Campus Energy Exchange Project**

|                      |         |
|----------------------|---------|
| Cost of the Project  | \$24.0M |
| Estimated 30% Credit | \$7.2M  |

# September: Vote 2 Approval

- There are three projects seeking vote 2 this quarter at UMass Chan.
- These projects had previously received President approval, but project costs have exceeded \$10M

| Project Name   | Vote 1*             | Vote 2              | Funding Sources     |                    |
|--|---------------------|---------------------|---------------------|--------------------|
|  |                     |                     | Local Funding       | State              |
| Basic Wing Mechanical Penthouse                                  | 6,800,000           | 11,000,000          | 11,000,000          | -                  |
| Basic Wing Substations, Risers and Electrical Room Replacements  | 6,000,000           | 13,533,930          | 10,233,930          | 3,300,000          |
| Student Wing Substation, Risers and Electrical Room Replacements | 6,000,000           | 12,000,000          | 8,700,000           | 3,300,000          |
| <b>TOTAL</b>   | <b>\$18,800,000</b> | <b>\$36,533,930</b> | <b>\$29,933,930</b> | <b>\$6,600,000</b> |

\*Received preliminary authorization from the President

# September: Vote 2 Approval

## UMass Chan: Medical School - Basic Wing Mechanical Penthouse \$11M

- This project will create space to modernize the electrical substations and mechanical air handling units within the Basic Wing of the original School building. It will enable the following projects:
  - Basic Wing Substation Replacement
  - Basic Wing AC unit replacement, including heat recovery
  - New BSL3 laboratory construction
- This program of projects within the Basic Wing will allow for increased mechanical and electrical reliability, as well as significant energy savings over the existing original (c. 1970) equipment.



Rendering of new penthouse

# September: Vote 2 Approval

## UMass Chan: Basic Wing Substation, Risers, & Electrical Room Replacements \$13.5M

- 2<sup>nd</sup> of 3 School substation projects involving the replacement of 1970 normal and emergency substation gear and reconstruction of the distribution riser to eight floors of the Medical School Basic Wing.
- New equipment will remedy and mitigate ongoing issues and outages due to the age, condition, and lack of available parts for the existing systems. This will greatly improve reliability and resiliency.
- Code and safety issues will also be addressed, including new electrical distribution for life safety, fire pump, elevators, and legally required systems.



Existing substation to be replaced

# September: Vote 2 Approval

## UMass Chan: Student Wing Substation, Risers, & Electrical Room Replacements \$12M

- 3<sup>rd</sup> of 3 School substation projects involving the replacement of 1970 normal and emergency substation gear and reconstruction of the distribution riser to eight floors of the Medical School Student Wing.
- New equipment will remedy and mitigate ongoing issues and outages due to the age, condition, and lack of available parts for the existing systems. This will greatly improve reliability and resiliency.
- Code and safety issues will also be addressed, including new electrical distribution for life safety, fire pump, elevators, and legally required systems.



Completed clinical wing substation as an example