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VAPPA Conference

Reshaping Deferred Maintenance Strategies

March 2019

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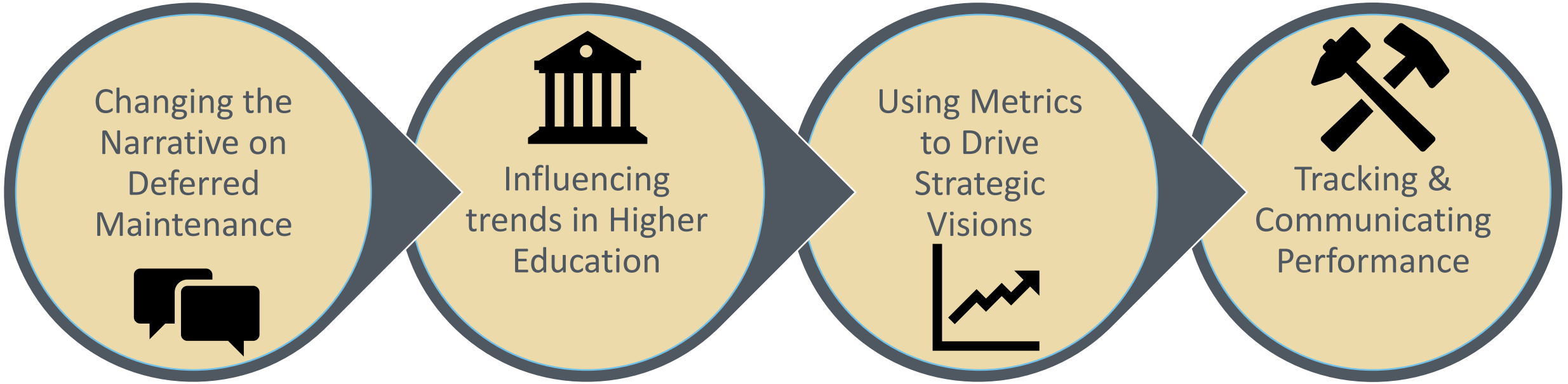
Presentation Objectives



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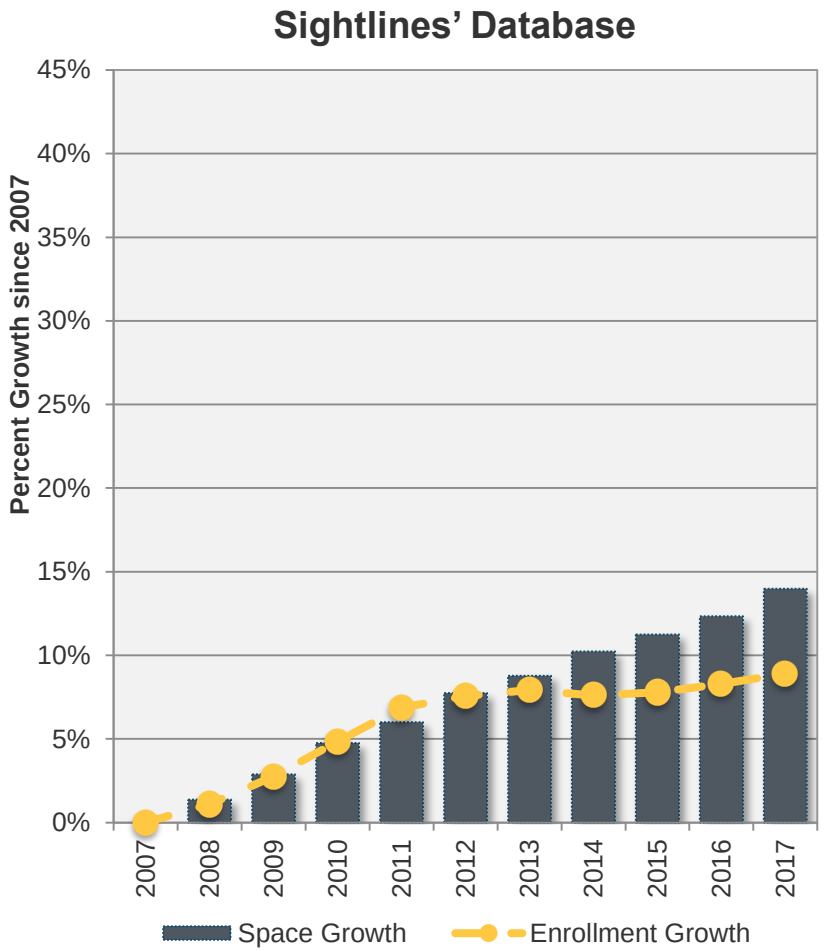
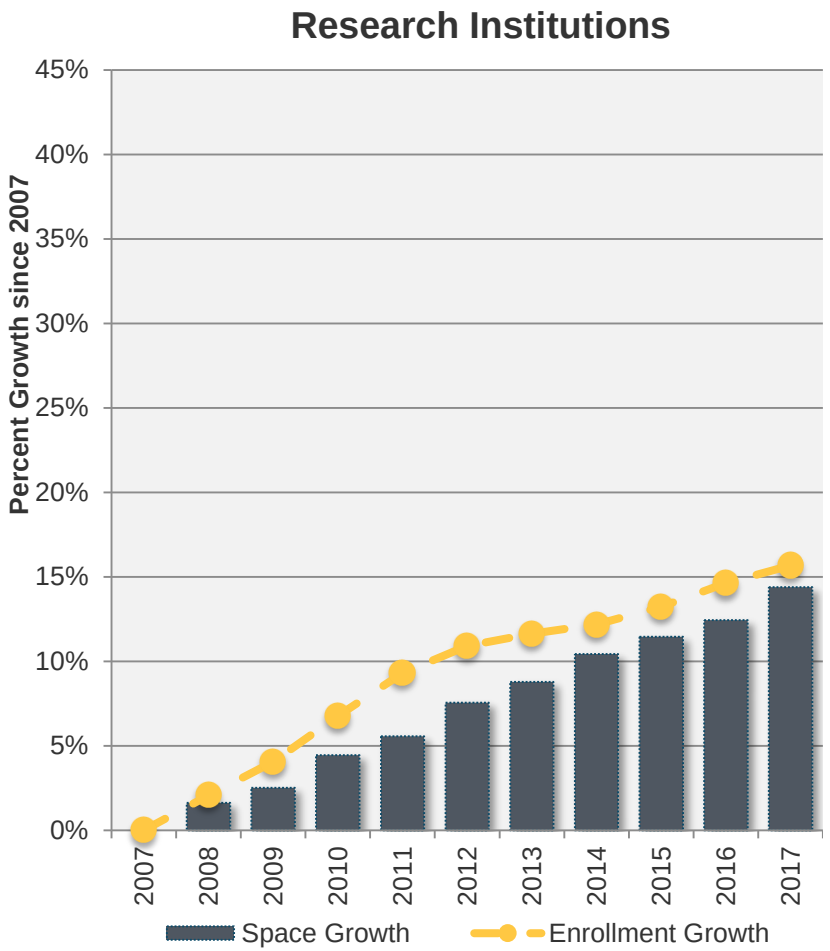
Where We Were

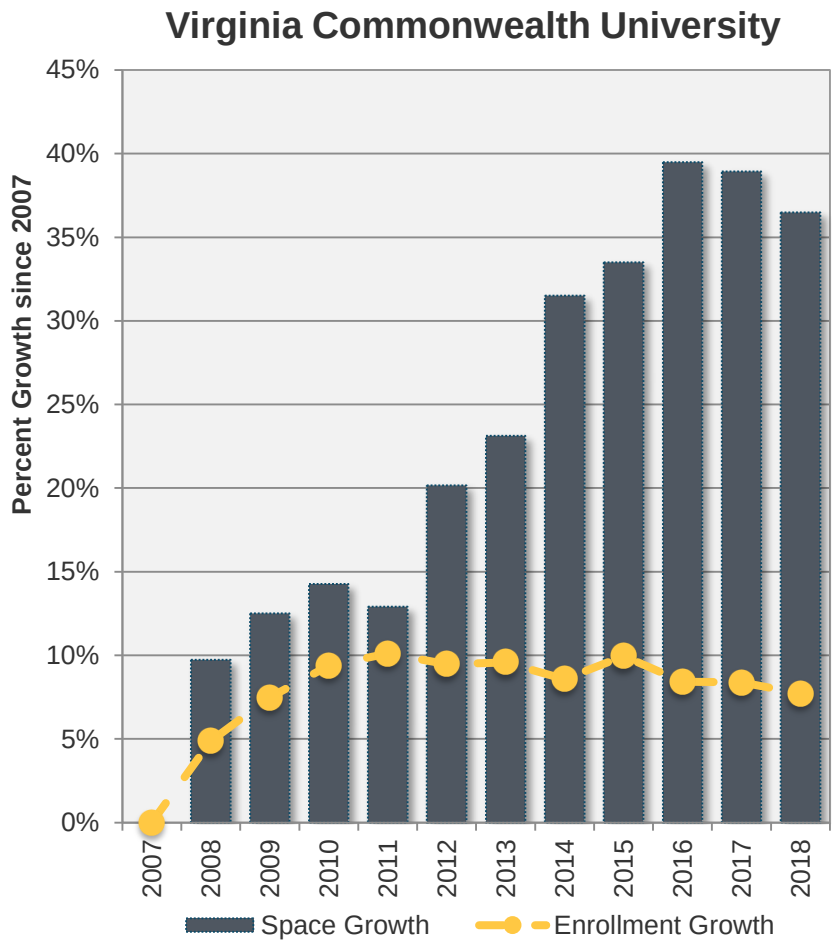
Chaotic & Paralyzing discomfort around deferred maintenance

Priorities in Enrollment Growth See Space Expand

Institutional changes are reflected in the expansion of space







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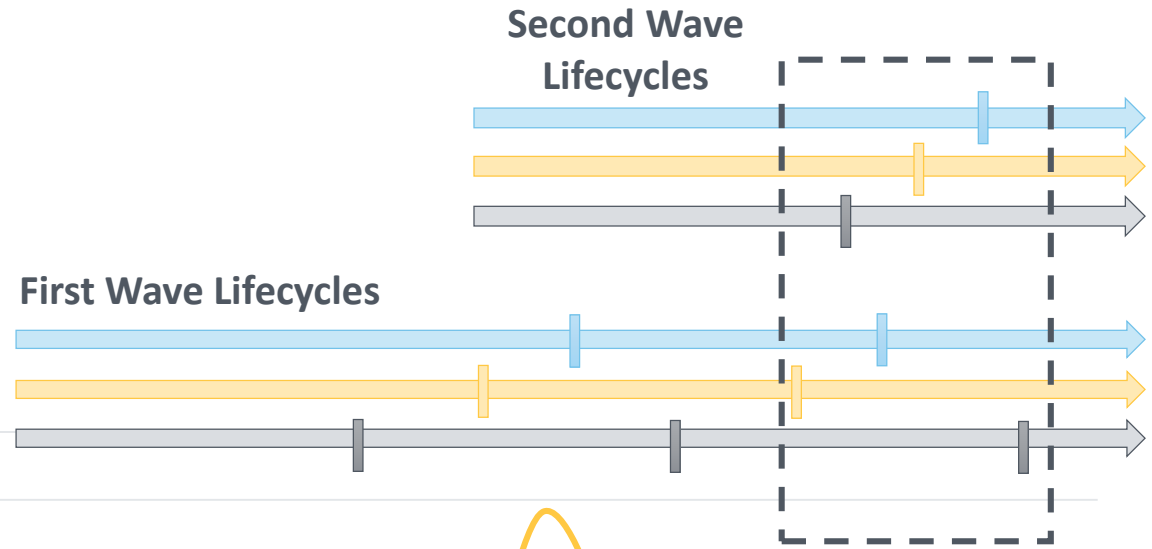
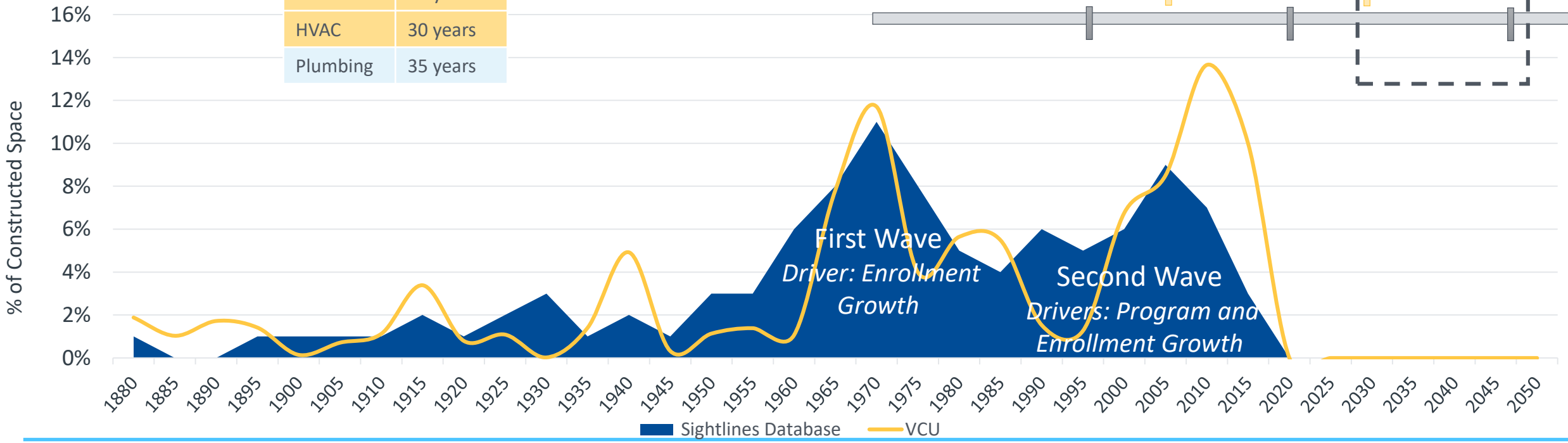
Higher Education Waves of Construction

Drivers of construction booms provide insight into future

System	Life Cycle
Roofing	25 years
Electrical	25 years
Exteriors	30 years
HVAC	30 years
Plumbing	35 years





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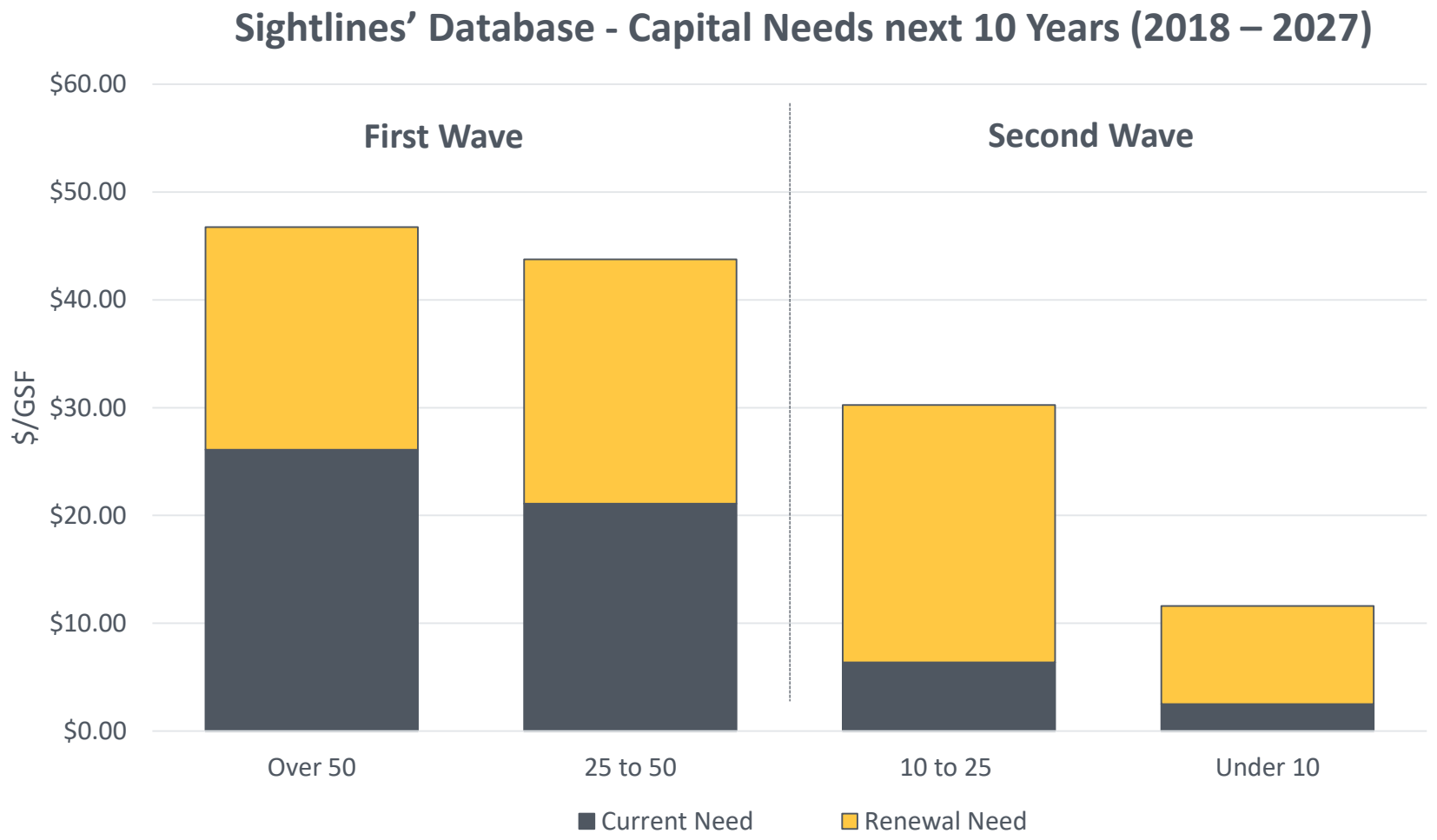
Competing Demands: First Wave Need vs. Second Wave Risk

Renewal needs in buildings aged 10-25 represent hidden risk for deferral acceleration



Renewal Needs: Building needs that will come due over the next 10 years

Current Needs: Building needs that are already past due

**Excludes Modernization and Infrastructure*

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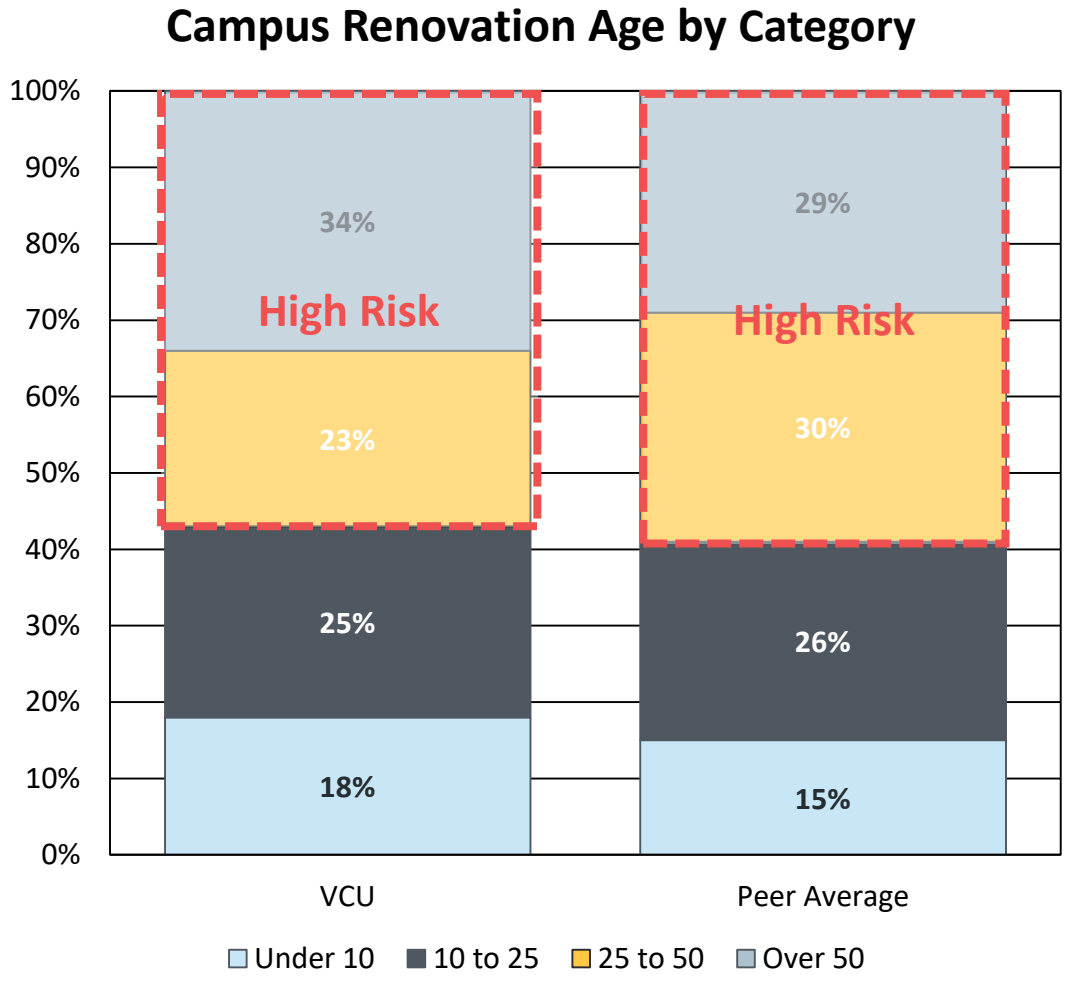
Focus on New Construction Aligns Campus Age with Peers

Even with an abundance of new construction VCU's age is in line with peers, indicating polarizing age characteristics



Buildings Over 50

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

Highest risk

Buildings 25 to 50

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

Higher Risk

Buildings 10 to 25

Short life-cycle needs; primarily space renewal.

Medium Risk

Buildings Under 10

Little work. "Honeymoon" period.

Low Risk

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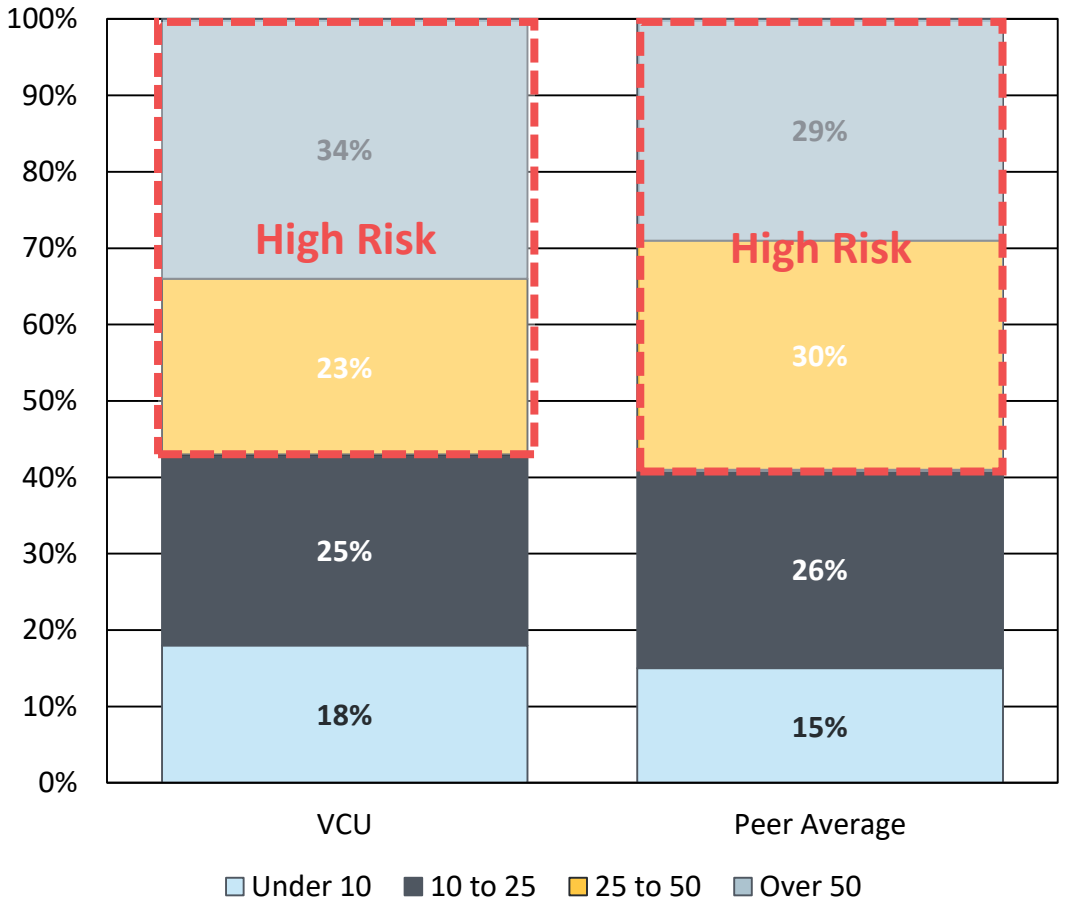
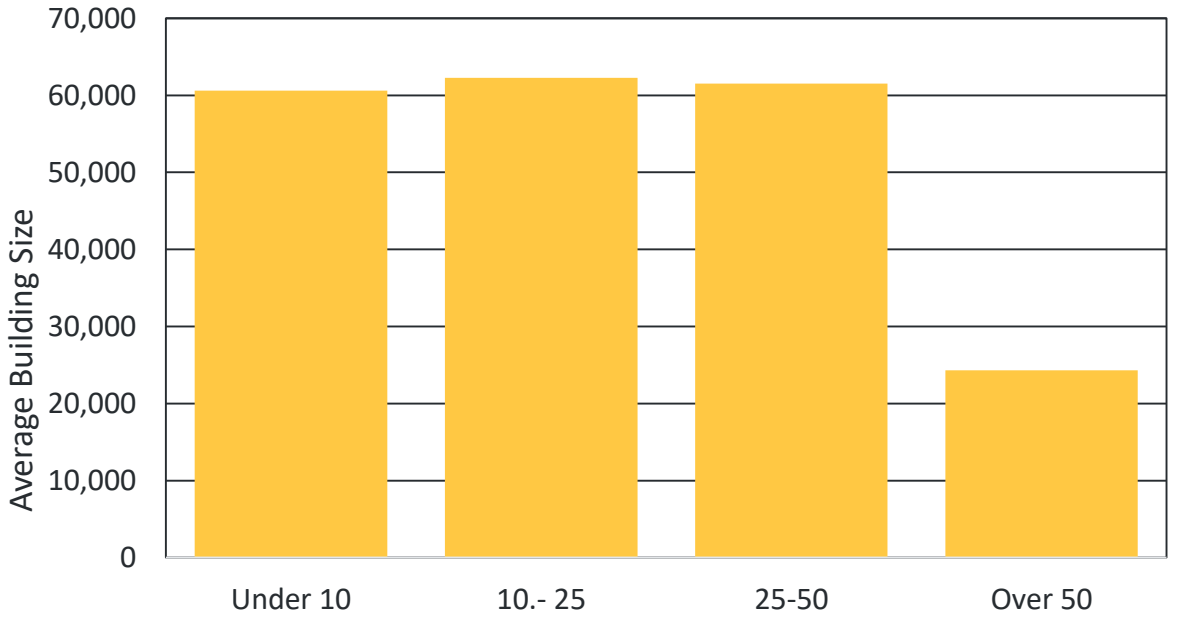
Campus Renovation Age by Category



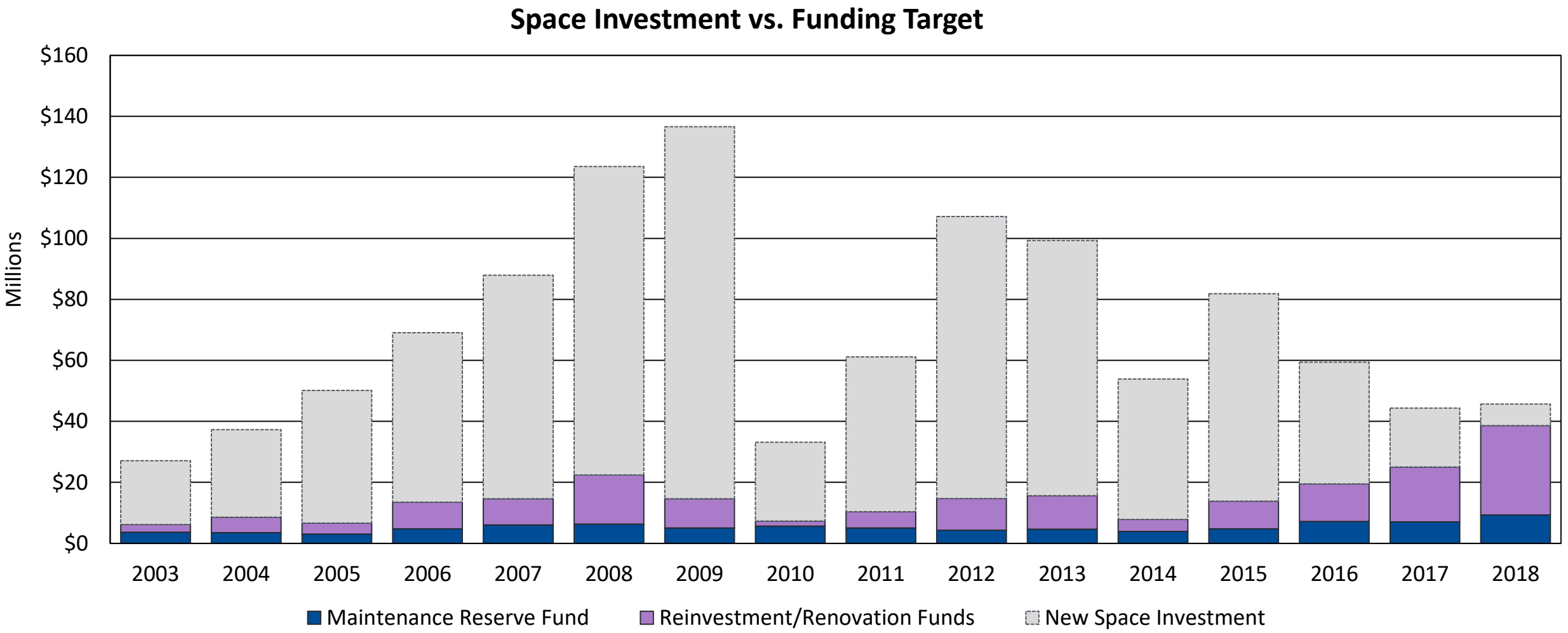
Average Building Size by Age Category



# of Bldgs.	26	36	24	78

Investment Patterns of the Past Inform Needs of the Future

Focus on new construction resulted in underinvestment towards existing spaces with accumulated deferred needs



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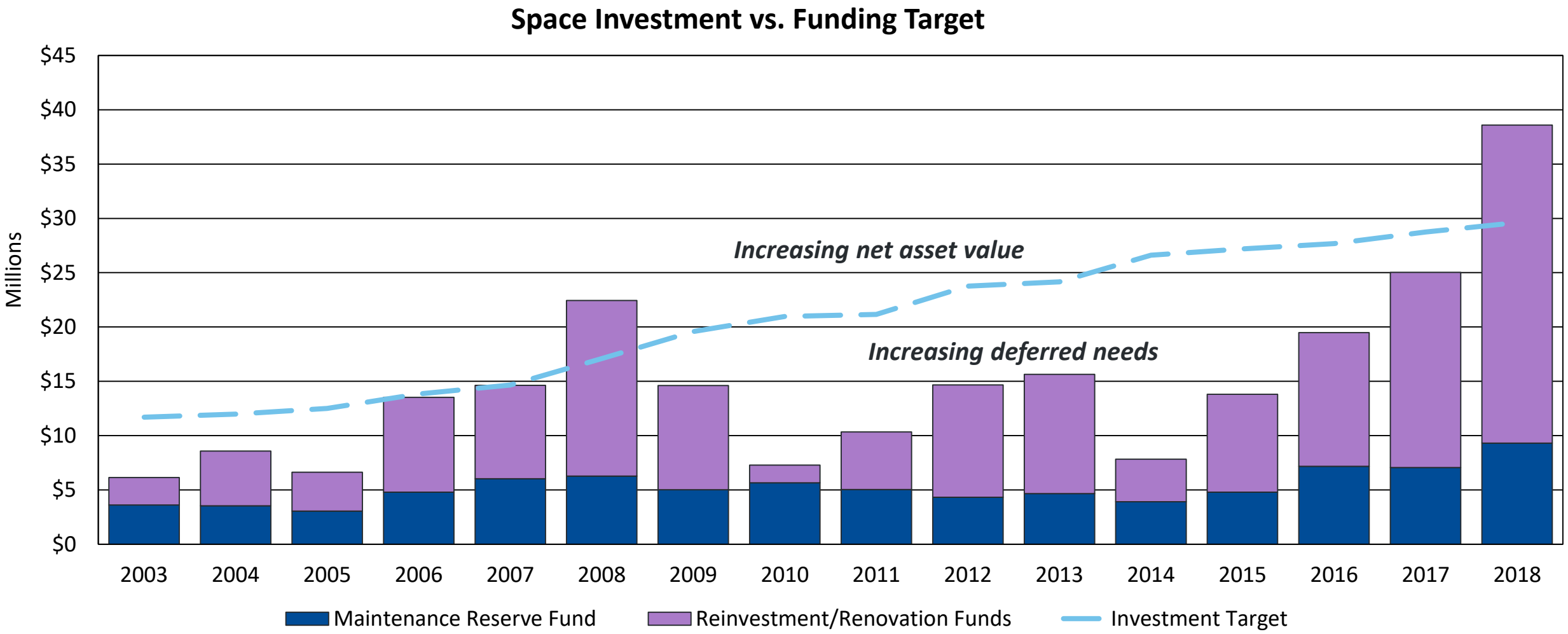

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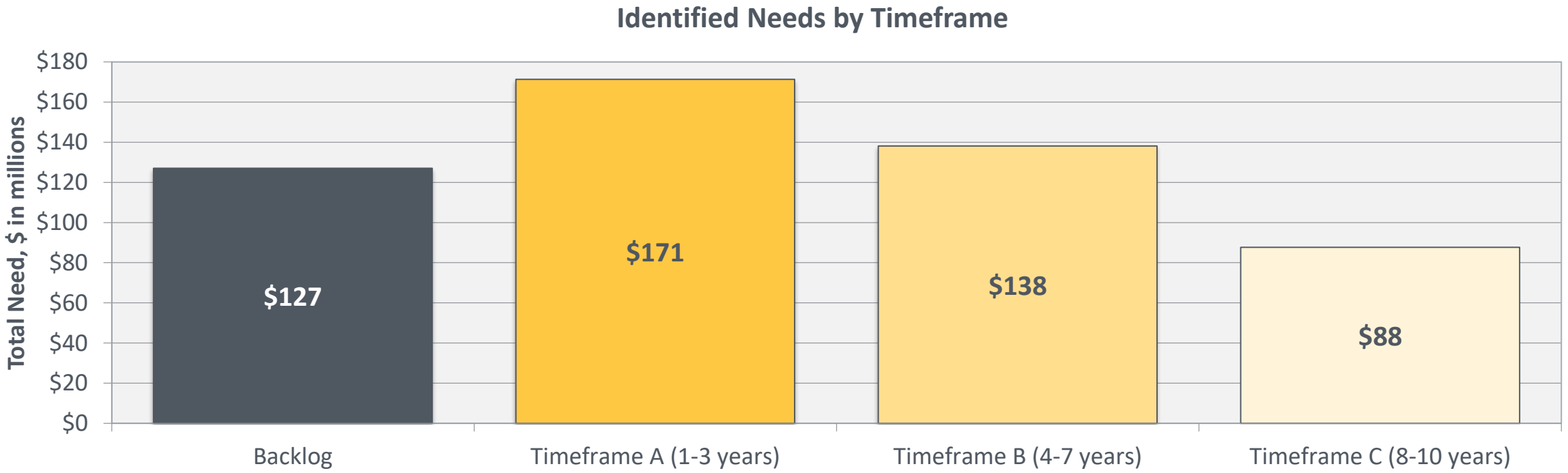
Cash Flow Cycle Determines Urgent Priorities



# of projects	460	1,249	966	599

Average annual need of $100M/yr. coming due in the next 3 years.
Lack of investments in previous years has led to the accumulation of needs to address in the short term.

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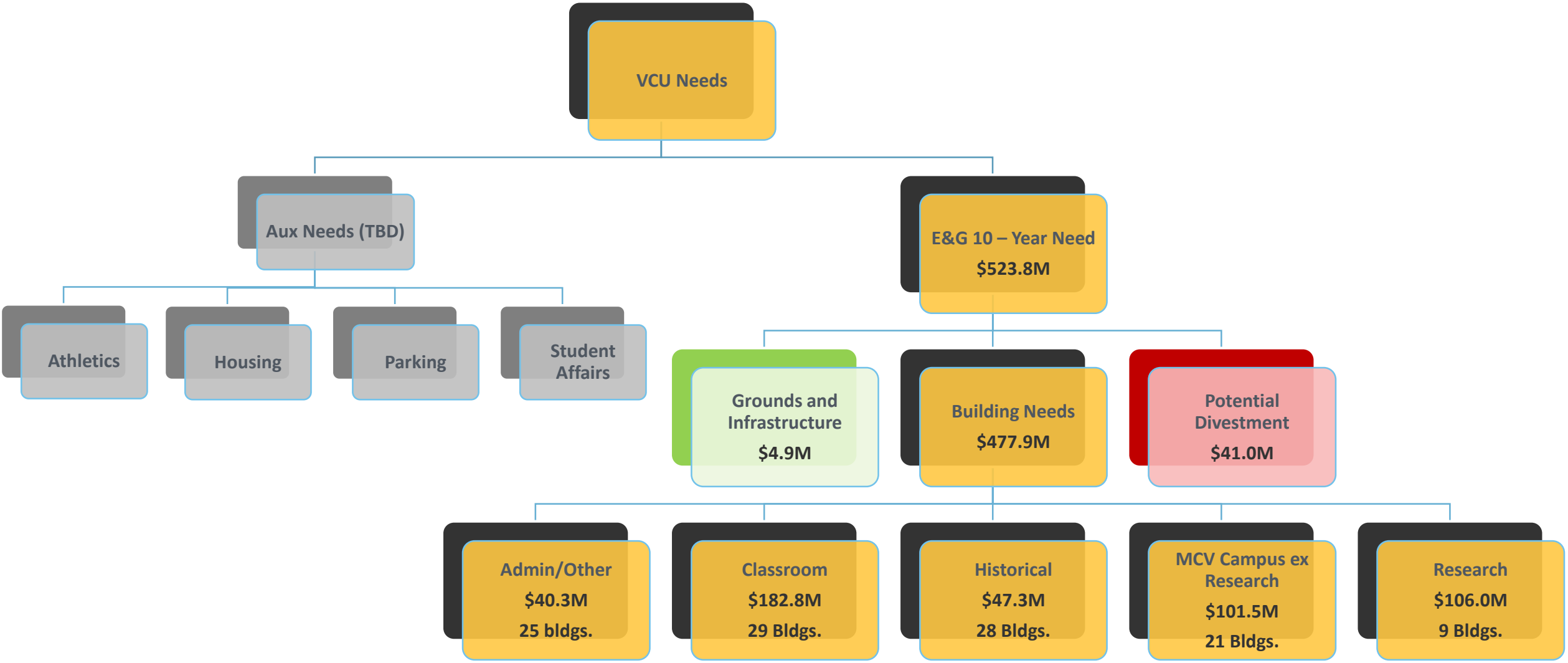
Where We Are Going

Restructuring Investment Focus with Data-Driven Strategies

Portfolios Structure Solutions-Based Communication for Stakeholders



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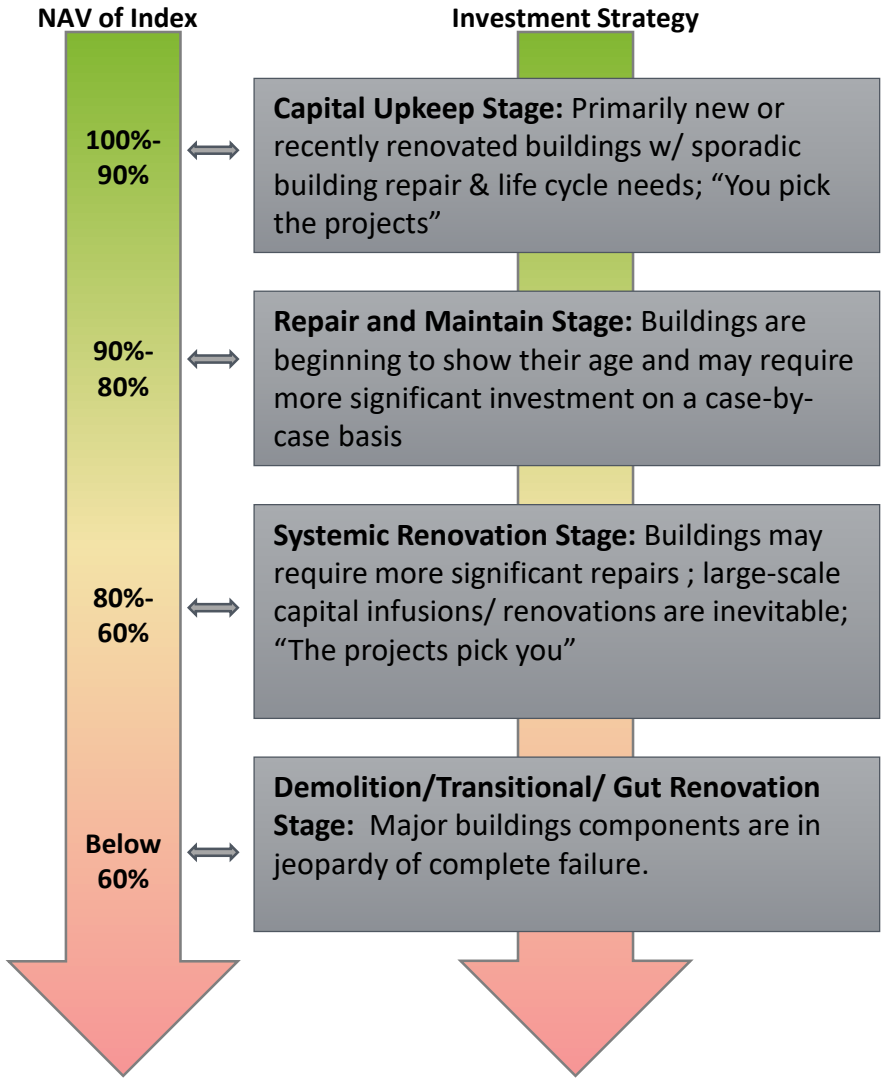
Net Asset Value Evaluates Overall Building Condition

Measuring the "percent good" in a building

$$\text{NAV Index} = \frac{\text{(Replacement Value-Building Needs)}}{\text{Replacement Value}} \times 100$$

Campus leadership can set different NAV levels for different buildings and portfolios, helping to balance capital investments across campus and prioritize project selection



Admin/Other	Classroom	Historical	MCV Campus ex Research	Research
52%	71%	47%	74%	80%

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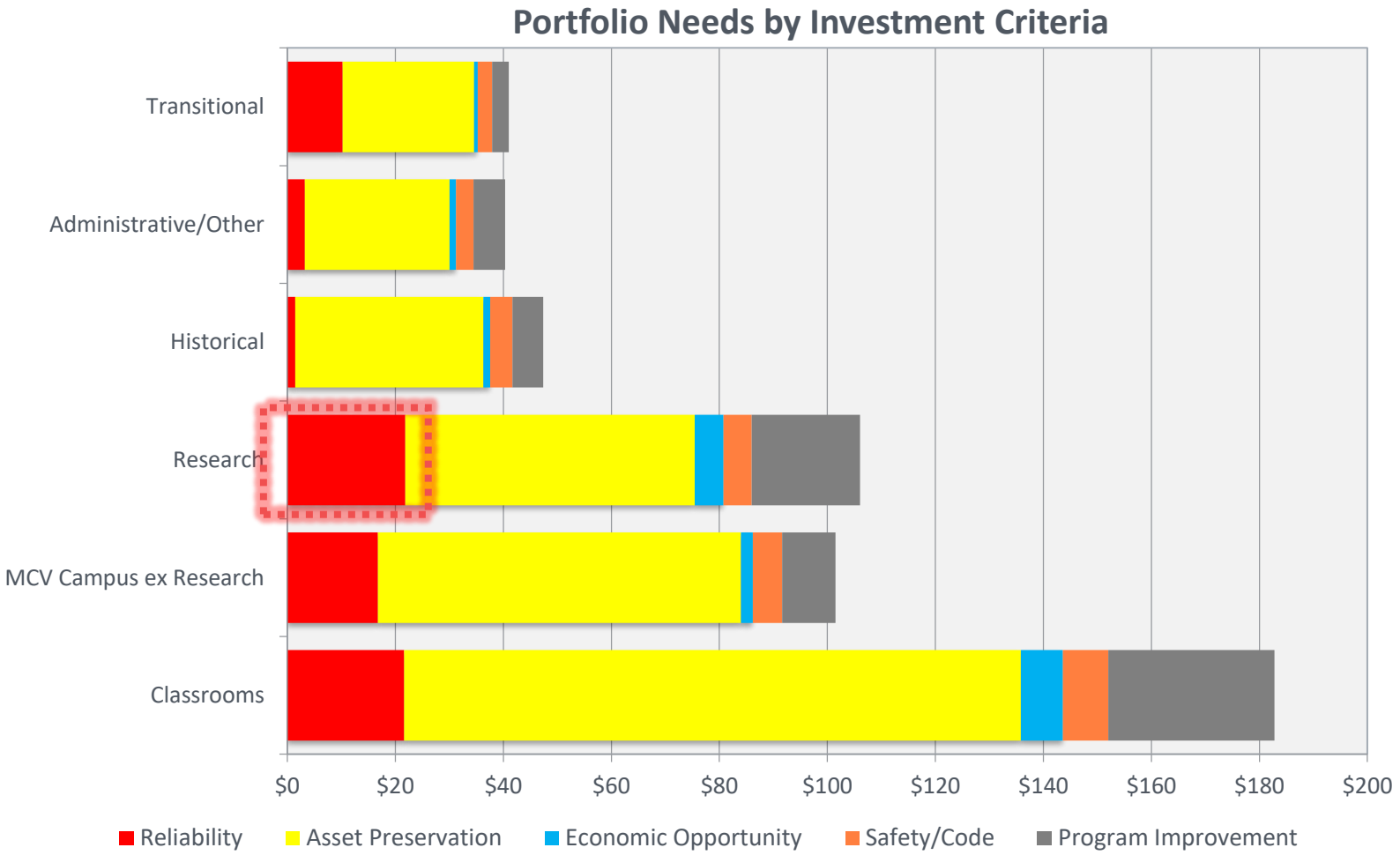
Identify Investment Drivers That Prioritize Reinvestment

Although research portfolio has a high NAV, 25% of the needs are critical reliability projects requiring prioritization



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

Evidence-Based Analysis for Funding Allocation

- **Capacity of Tools:**
- Distribute funding by portfolio
- Prioritize projects by investment criteria
- Flexibility to adjust allocation as funding changes

Sum of Project Cost	Column Labels	Fund Reliability	MR $7M/Yr	MR $10M/Yr Funding
Row Labels	A	100%	Baseline Funding	
Administrative/Other	**$ 16,952,000**	**$ 3,210,000**	**$ -**	**$ -**
Asset Preservation	$ 9,970,000	$ -	$ -	$ -
Economic Opportunity	$ 933,000	$ -	$ -	$ -
Program Improvement	$ 1,240,000	$ -	$ -	$ -
Reliability	$ 3,210,000	$ 3,210,000	$ -	$ -
Safety/Code	$ 1,599,000	$ -	$ -	$ -
Classrooms	**$ 84,678,000**	**$ 21,633,000**	**$ 4,200,000**	**$ 6,000,000**
Asset Preservation	$ 45,688,000	$ -	$ -	$ -
Economic Opportunity	$ 5,012,000	$ -	$ -	$ -
Program Improvement	$ 9,958,000	$ -	$ -	$ -
Reliability	$ 21,633,000	$ 21,633,000	$ 4,200,000	$ 6,000,000
Safety/Code	$ 2,387,000	$ -	$ -	$ -
Historical	**$ 32,043,000**	**$ 1,461,000**	**$ -**	**$ -**
Asset Preservation	$ 26,206,000	$ -	$ -	$ -
Economic Opportunity	$ 1,149,000	$ -	$ -	$ -
Program Improvement	$ 1,756,000	$ -	$ -	$ -
Reliability	$ 1,461,000	$ 1,461,000	$ -	$ -
Safety/Code	$ 1,471,000	$ -	$ -	$ -
MCV Campus ex Research	**$ 72,381,000**	**$ 16,784,000**	**$ 4,200,000**	**$ 6,000,000**
Asset Preservation	$ 46,487,000	$ -	$ -	$ -
Economic Opportunity	$ 2,207,000	$ -	$ -	$ -
Program Improvement	$ 3,827,000	$ -	$ -	$ -
Reliability	$ 16,784,000	$ 16,784,000	$ 4,200,000	$ 6,000,000
Safety/Code	$ 3,076,000	$ -	$ -	$ -
Research	**$ 57,069,000**	**$ 21,813,000**	**$ 12,600,000**	**$ 18,000,000**
Asset Preservation	$ 28,790,000	$ -	$ -	$ -
Economic Opportunity	$ 4,864,000	$ -	$ -	$ -
Program Improvement	$ 1,577,000	$ -	$ -	$ -
Reliability	$ 21,813,000	$ 21,813,000	$ 12,600,000	$ 18,000,000
Safety/Code	$ 25,000	$ -	$ -	$ -
Transitional	**$ 31,371,000**	**$ -**	**$ -**	**$ -**
Asset Preservation	$ 18,607,000	$ -	$ -	$ -
Economic Opportunity	$ 690,000	$ -	$ -	$ -
Program Improvement	$ 858,000	$ -	$ -	$ -
Reliability	$ 10,242,000	$ -	$ -	$ -
Safety/Code	$ 974,000	$ -	$ -	$ -
Grand Total	**$ 294,494,000**	**$ 64,901,000**	**$ 21,000,000**	**$ 30,000,000**

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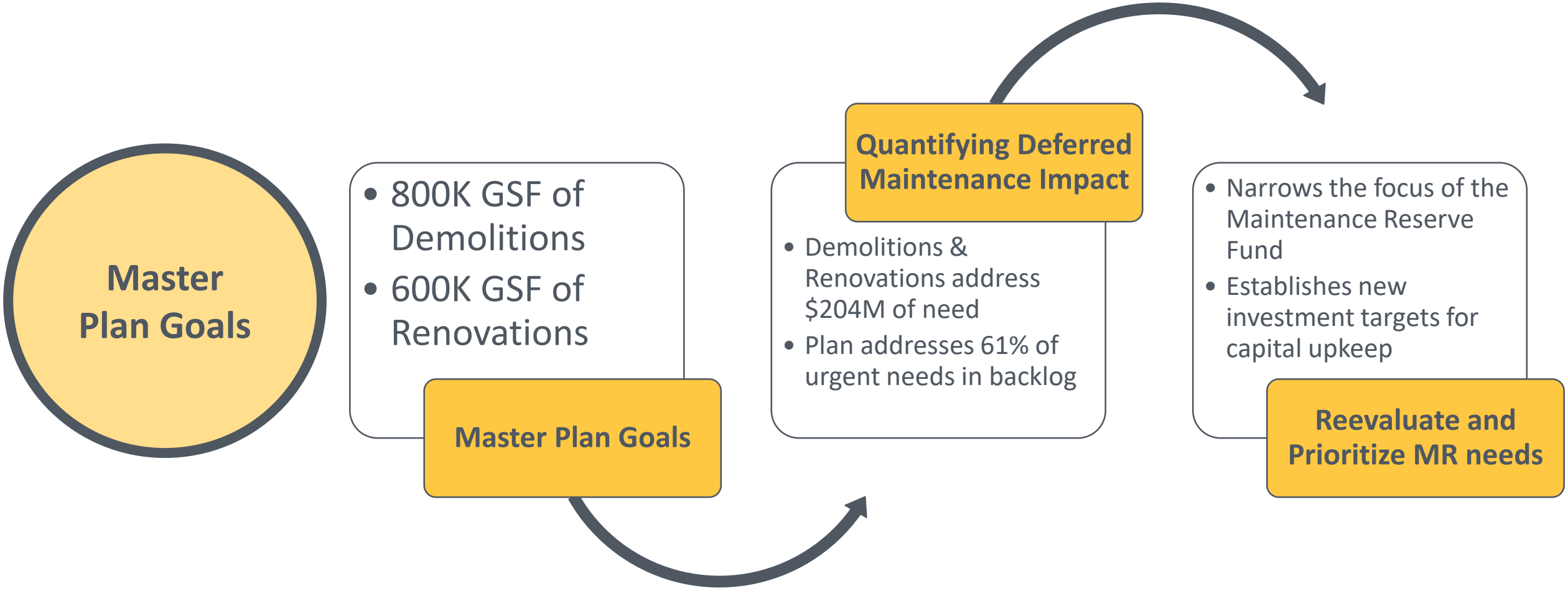
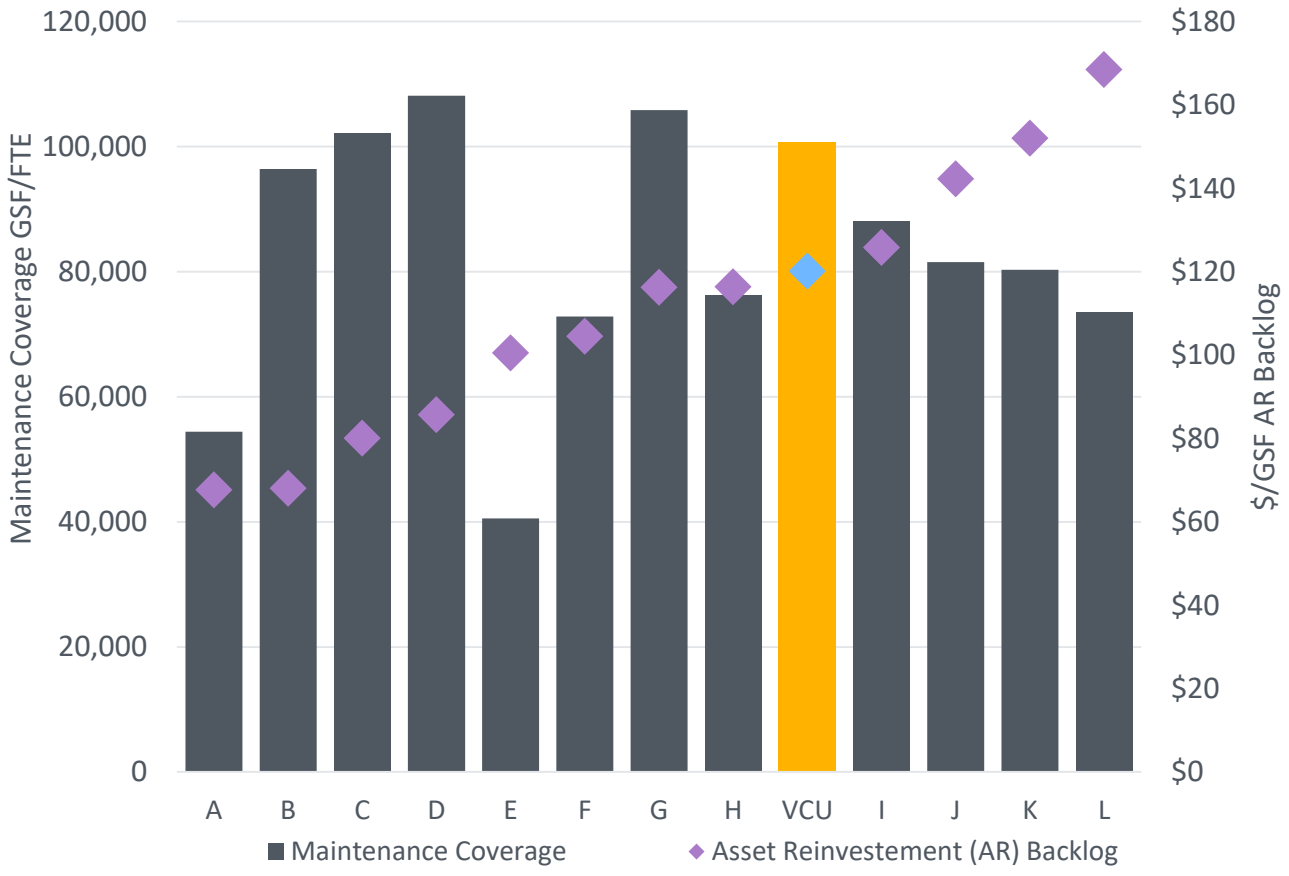
Master Plan – Quantify Financial Impacts of Long-Term Plans



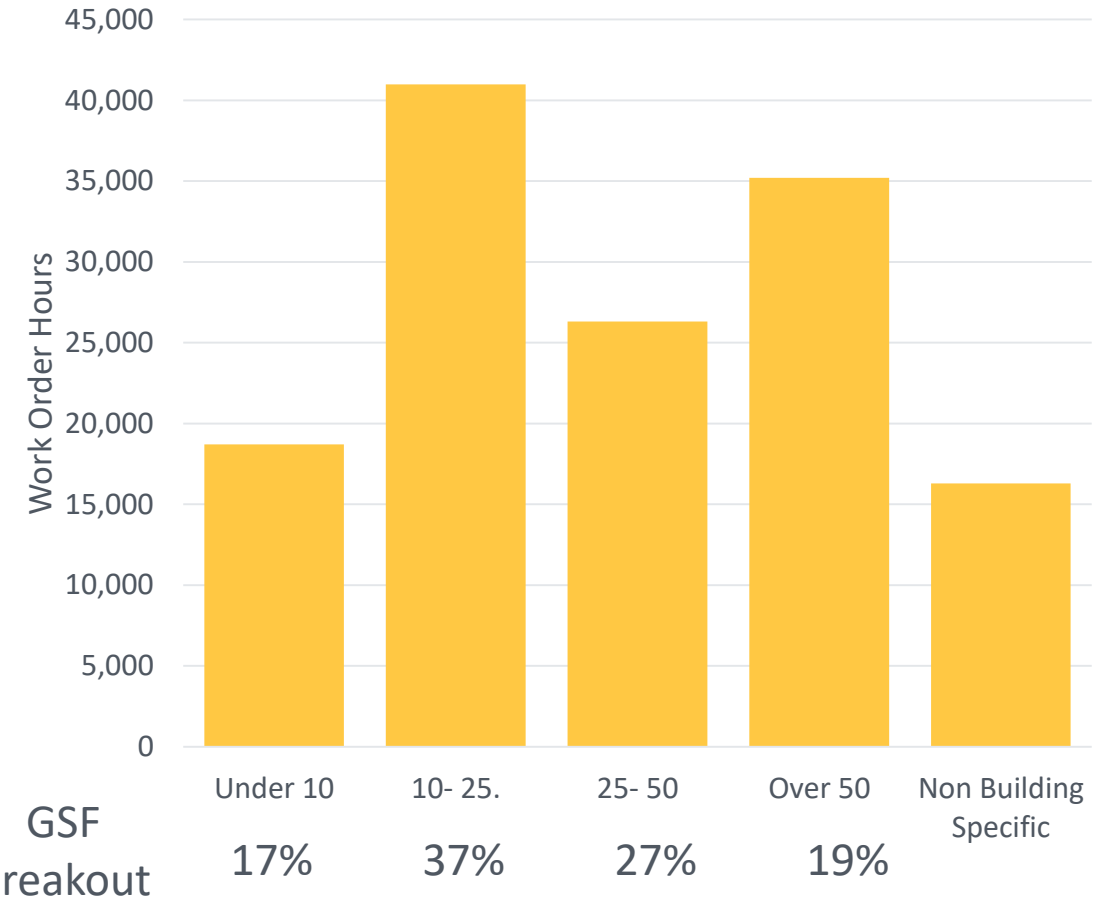
Evaluate Impact Capital Demand Has on Operational Strain

Exposed risk influences the operational resources needed to manage campus day-to-day

Maintenance Coverage vs. Backlog



Work Order Hours By Age Category



GSF Breakout

Under 10	10- 25.	25- 50	Over 50
17%	37%	27%	19%

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Closing Remarks

Concluding Remarks

- **What to Avoid**
  - Throwing out a big number without context
    - Define how it came to exist
    - What does it look like in comparison to others
    - Develop a plan to address it
- **Education**
  - Develop a shared perspective on the state of facilities across all stakeholders
  - Change the narrative of asset management by providing quantitative measures to your leadership
- **Transition into a Solutions-Based Team**
  - Data needs to drive decision making, not paralyze it
  - Reduce the problem to rationally address true issues
  - Develop investment approaches that prioritize impact and risk mitigation
  - Use performance metrics to track sustainable investment targets and operational maintenance costs