

Deferred Maintenance @ U of A

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Our Infrastructure - The Facts

- ❖ ~17.5M ft² of space, more than any other Canadian university.
- ❖ 0-110 year old campus
- ❖ Mix of simple and complex buildings

What is Deferred Maintenance?

$$\begin{array}{r} \text{Annual Maintenance Requirements} \\ + \text{Deferred Action} \\ \hline = \text{Deferred Maintenance} \end{array}$$

- ❖ Deferred Maintenance can look like:
 - ❖ Floods in spaces
 - ❖ Heating/Power loss in a building
 - ❖ Equipment failures leading to impacts on research.

Why should you care about Deferred Maintenance?

- ❖ Risk to the Institution, Academic Mission
 - ❖ Impact to student usage/occupancy
 - ❖ Impact to research outcomes
- ❖ DM is increasing unsustainably. Building system failures will be more numerous, more intense, and more often.

So what is this \$1B I read about?

University of Alberta's deferred maintenance bill now tops \$800M

JURIS GRANEY Updated: November 15, 2016

The work will also help address the university's deferred maintenance bill, which has now topped \$1 billion. Sharman said the refurbishment will knock that number down by \$21 million.

effects and costlier future repairs. The highest decision-making body at the U of A, the Board of Governors, [said at an October 2017 meeting that the university's deferred maintenance bill is nearing one billion dollars.](#)

Ballooning deferred maintenance costs continue to cause consternation at Alberta's post-secondary institutions.

University of Alberta deferred maintenance bill nearing \$1 billion

JURIS GRANEY Updated: October 21, 2017

Current DM vs. 5 Year Projection

	Supported	Unsupported	Total
	(\$ million)	(\$ million)	(\$ million)
Current deferred maintenance	311	69	380
5-year projection	888	93	981

Figures pulled from the Government of Alberta Deferred Maintenance database. Our experience shows that these figures are understated by an average of 40%.

So how did we get here?

- ❖ Deferred Maintenance primarily driven by maintenance budget limitations.
- ❖ 1% – 4% of building value for maintenance industry standard.

Translated: \$63.1M – \$252.4M.

- ❖ So where are we at?

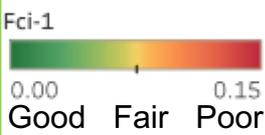
0.7%

How is maintenance funded?

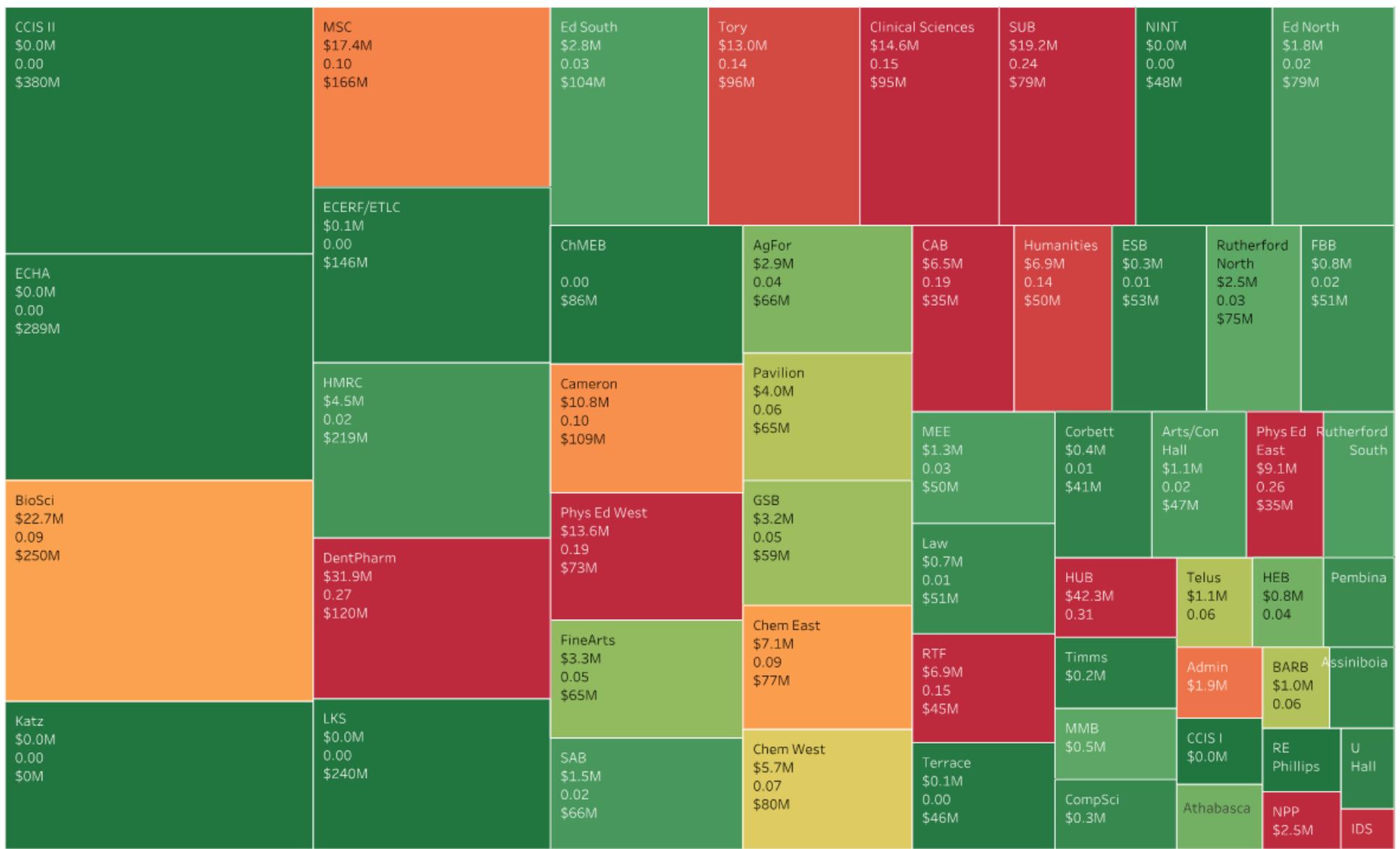
FY	Infrastructure Maintenance Program (\$ million)	Operating Maintenance (\$ million)	Total (\$ million)	Shortfall to 1% (\$ million)	Shortfall to 2% (\$ million)
2014/15	19.8	9.3	29.1	34.0	97.1
2015/16	17.5	9.3	26.8	36.3	99.4
2016/17	23.6	9.3	32.9	30.2	93.3
2017/18	34.9	9.3	44.2	18.9	82.0
2018/19	34.9	9.3	44.2	18.9	82.0

What does our situation look like?

Key:
 <Building>
 <Deferred Maint.>
 <FCI>
 <Approx. Replace. Value>

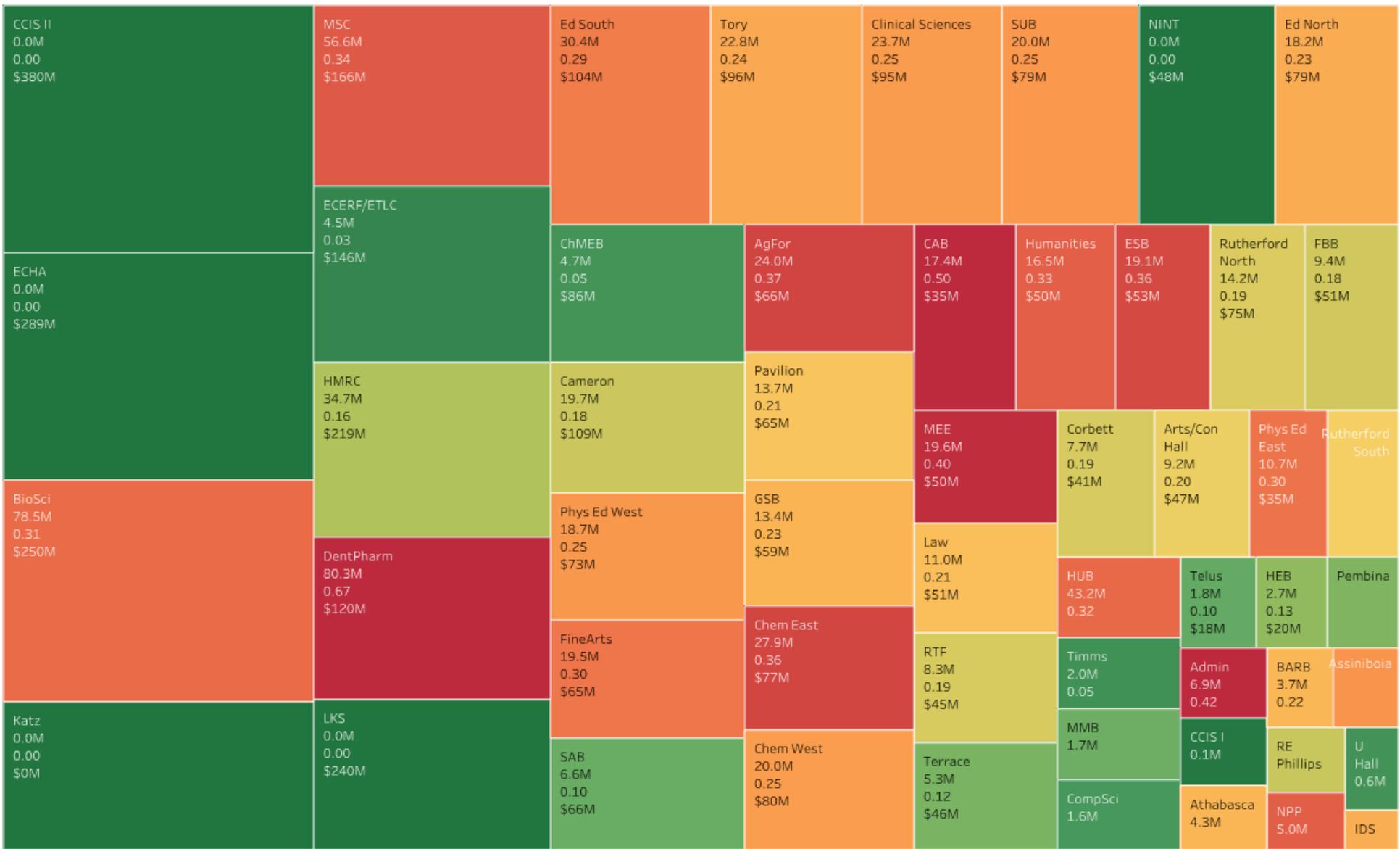
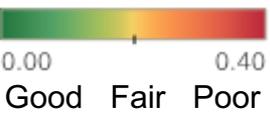


Deferred Maintenance (North Campus) FY 2017/2018



5 Year Maintenance Projection (North Campus) FY 2017/2018

Key:
 <Building>
 <Deferred Maint.>
 <FCI>
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North Campus (Understanding the Bow Wave) FY 17/18

Pre War

Buildings over 50

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

Highest risk (11%)

Post War

Buildings 25 to 50

Major envelope and mechanical life cycles come due. Functional obsolescence prevalent. High risk (42%)

Modern

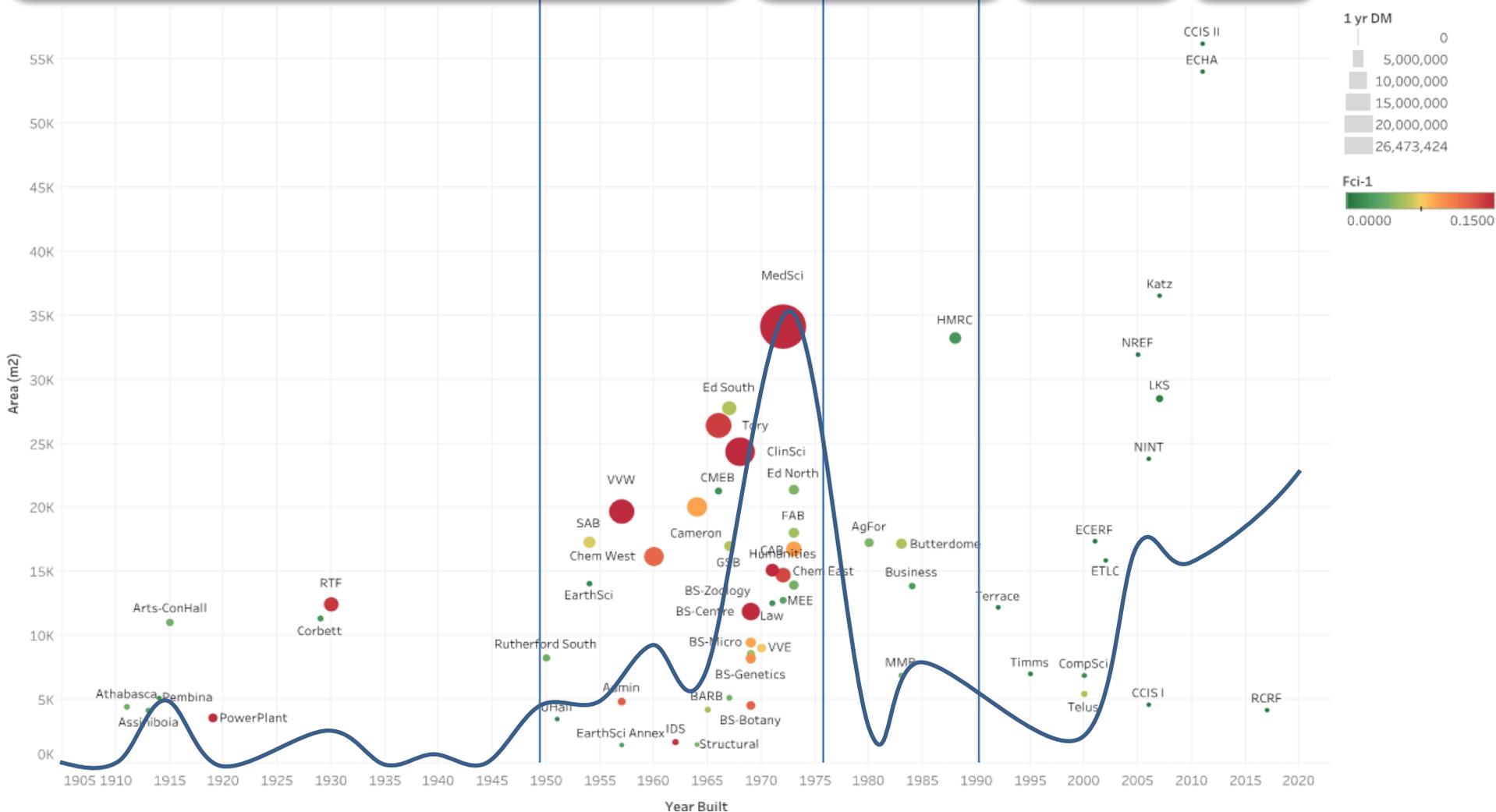
Buildings 10 to 25

Short life-cycle needs; primarily space renewal. Medium Risk (18%)

Complex

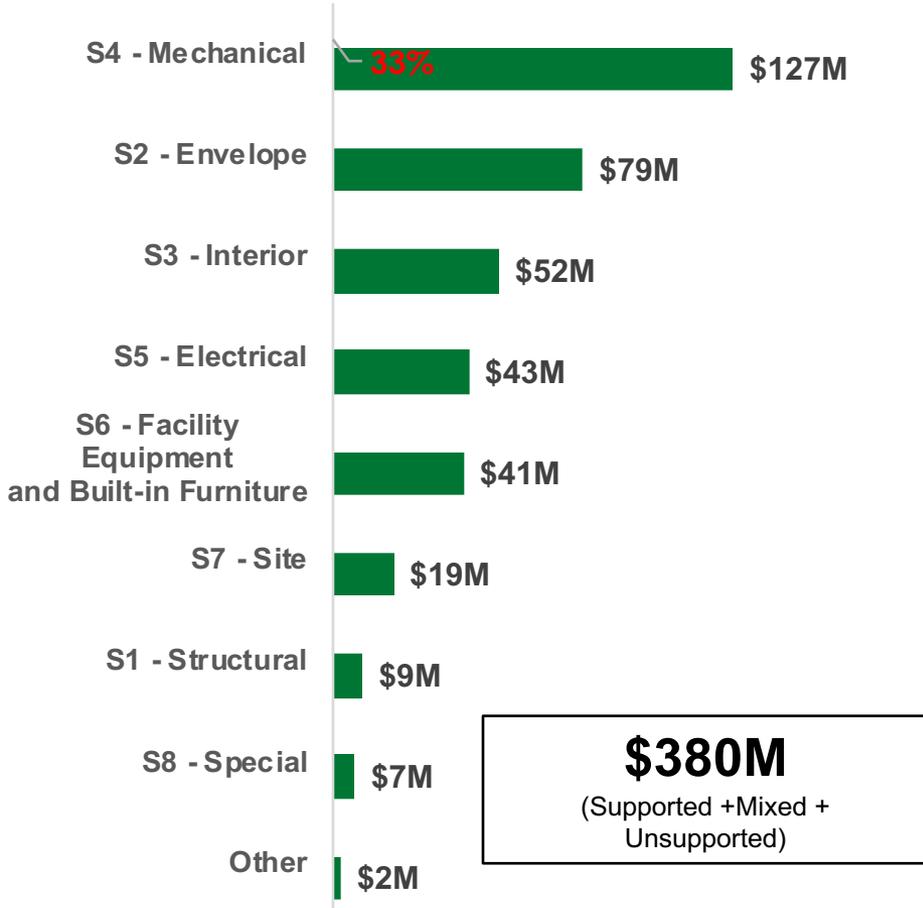
Buildings Under 10

Little work. "Honeymoon" period. Low Risk (29%)

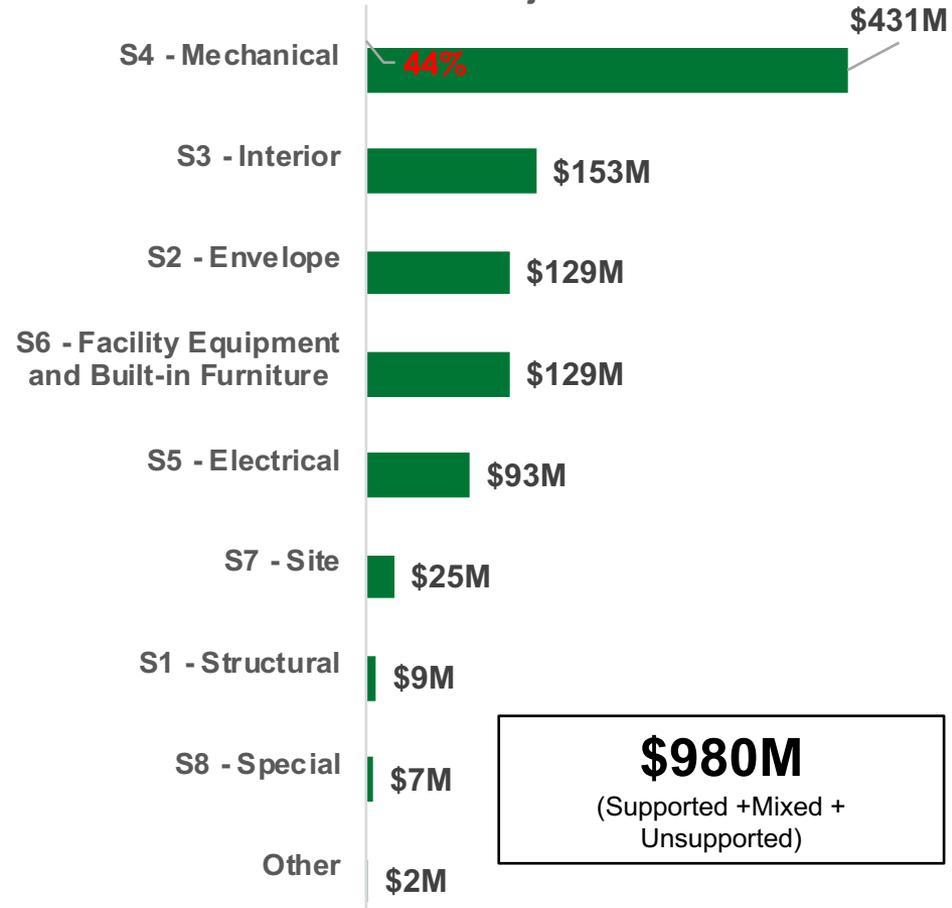


Deferred Maintenance and 5 Year Maintenance Projection: By Category

Current Deferred Maintenance

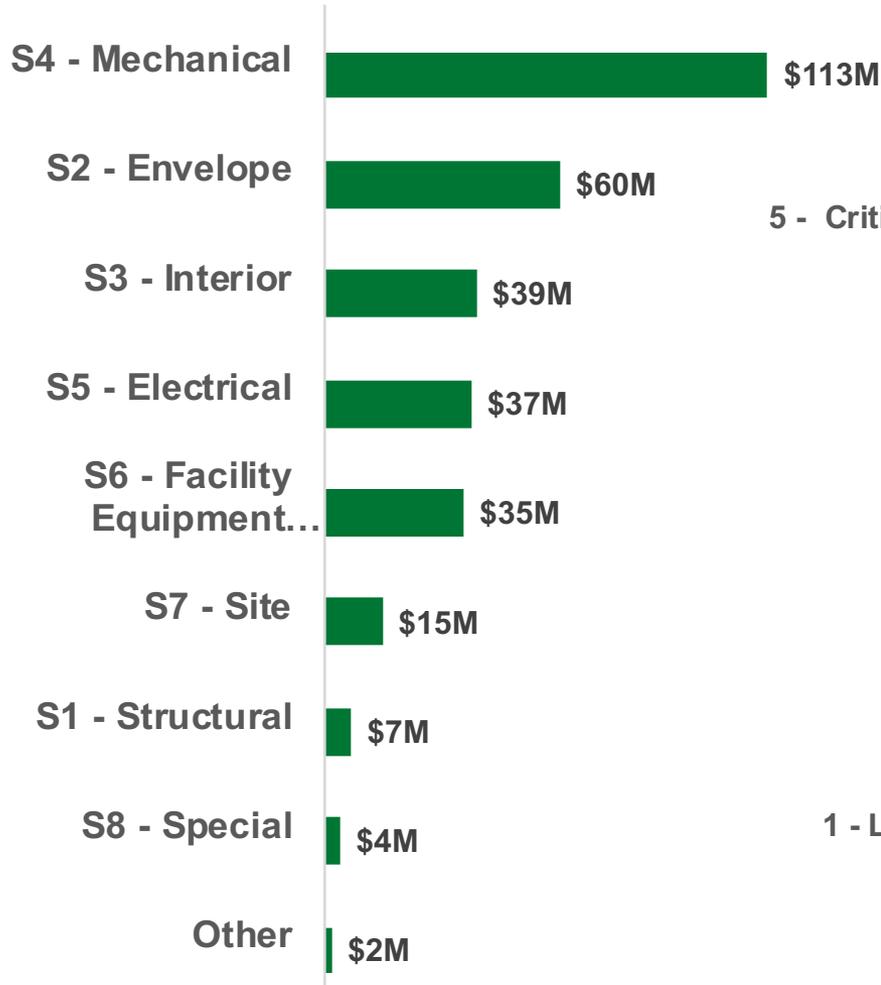


5 Year Projection

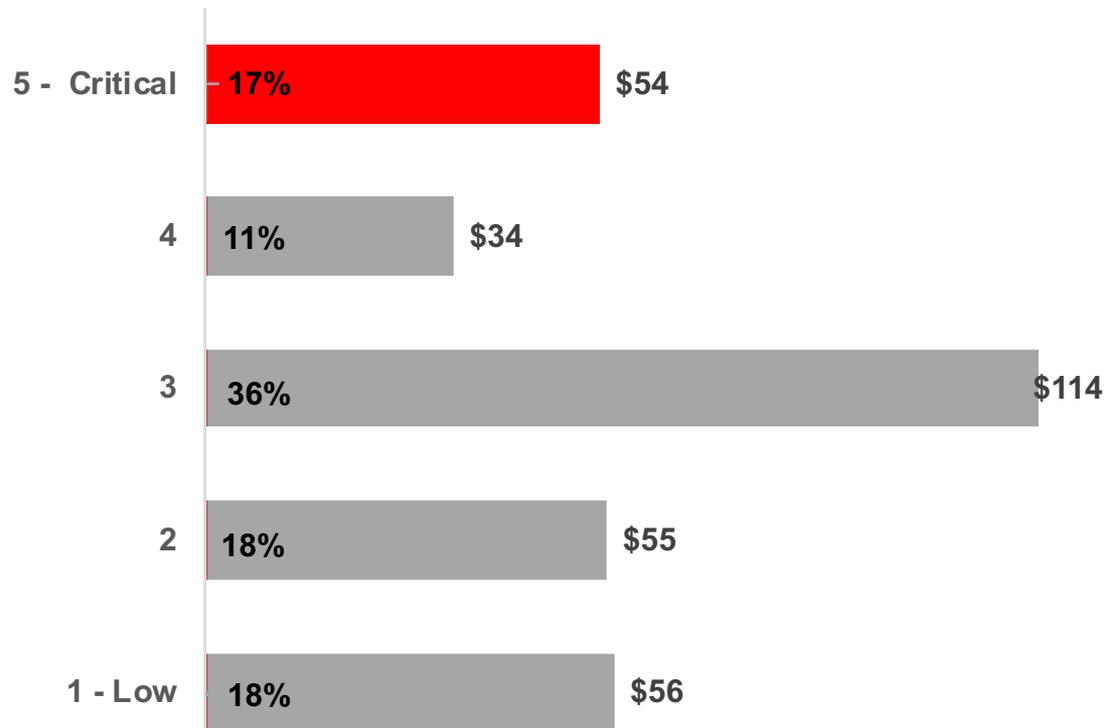


Current Deferred Maintenance: Where We Are Today

Supported & Mixed Buildings By Category



Supported & Mixed Buildings By Criticality



So what do we do now?

Improving Maintenance

- ❖ Preventive Maintenance – catching things before they fail.
- ❖ Enhanced Maintenance Planning – triaging critical systems first.

A multi-faceted approach



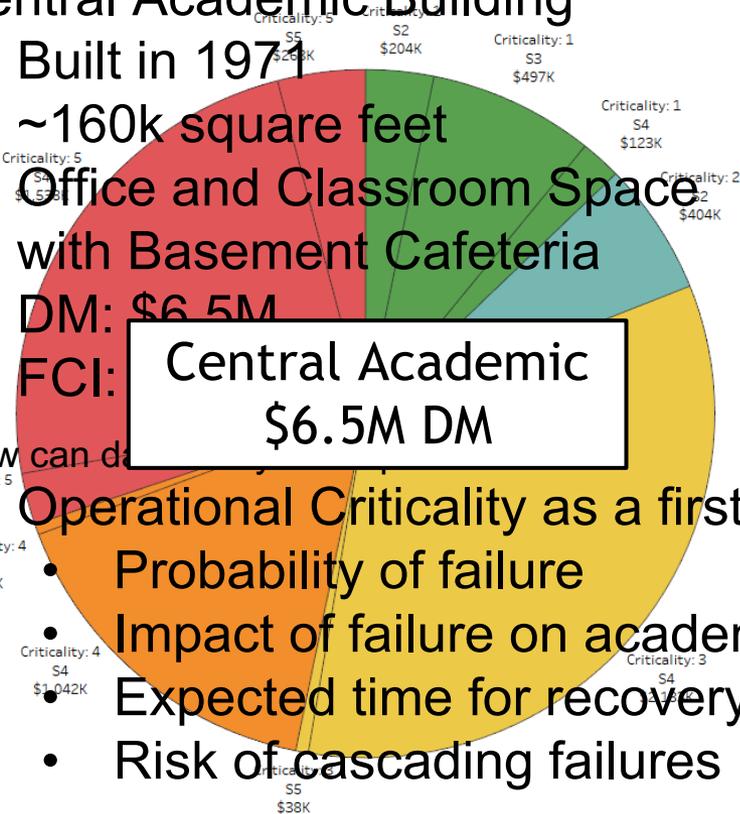
Into 3 main pillars

- ❖ Renew and Repurpose
 - ❖ Make strategic investments in our facilities.
- ❖ Space Optimization
 - ❖ Better utilize our space on campus.
- ❖ Asset Reduction
 - ❖ Remove infrastructure where renewal and maintenance costs outpace financial sustainability.

Targeted Investment

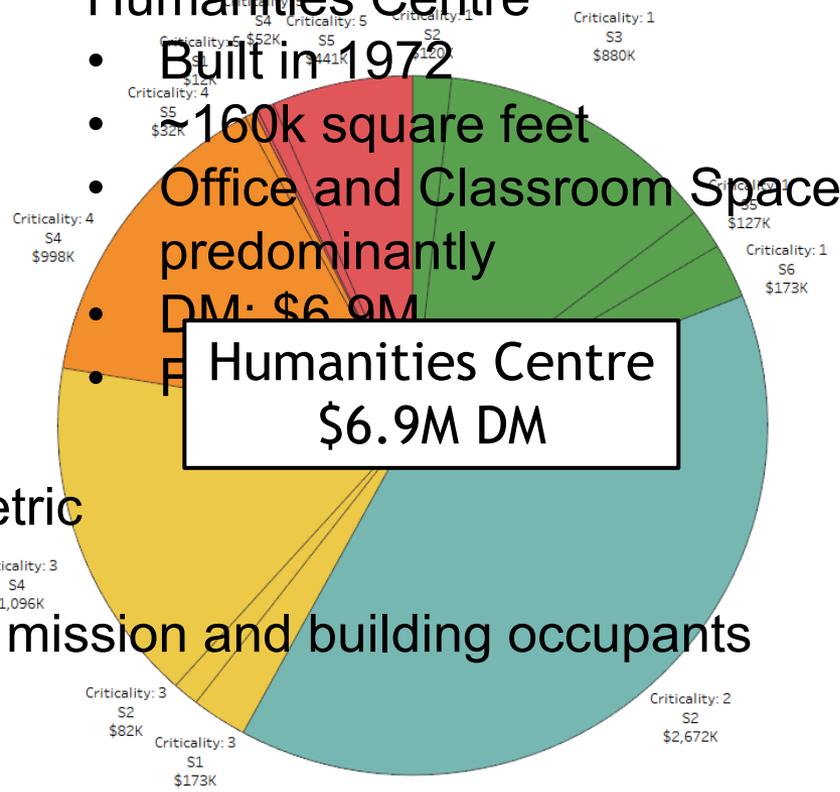
Central Academic Building

- Built in 1971
- ~160k square feet
- Office and Classroom Space with Basement Cafeteria
- DM: \$6.5M
- FCI: Central Academic \$6.5M DM



Humanities Centre

- Built in 1972
- ~160k square feet
- Office and Classroom Space predominantly
- DM: \$6.9M
- FCI: Humanities Centre \$6.9M DM



How can data be used to inform investment decisions? Operational Criticality as a first metric

- Probability of failure
- Impact of failure on academic mission and building occupants
- Expected time for recovery
- Risk of cascading failures