Strategies to Optimize Facilities Condition and Maximize Value of Facilities Capital Investments

Federal Facilities Council

24 September 2013

Jim Cowell, PE
Associate Vice President for Facilities
California Institute of Technology

Caltech

Agenda

- The Management Imperative
- Facilities Condition Data
- Definitions
- Portfolio Strategy And Decisions
- Capital Investment Case Studies

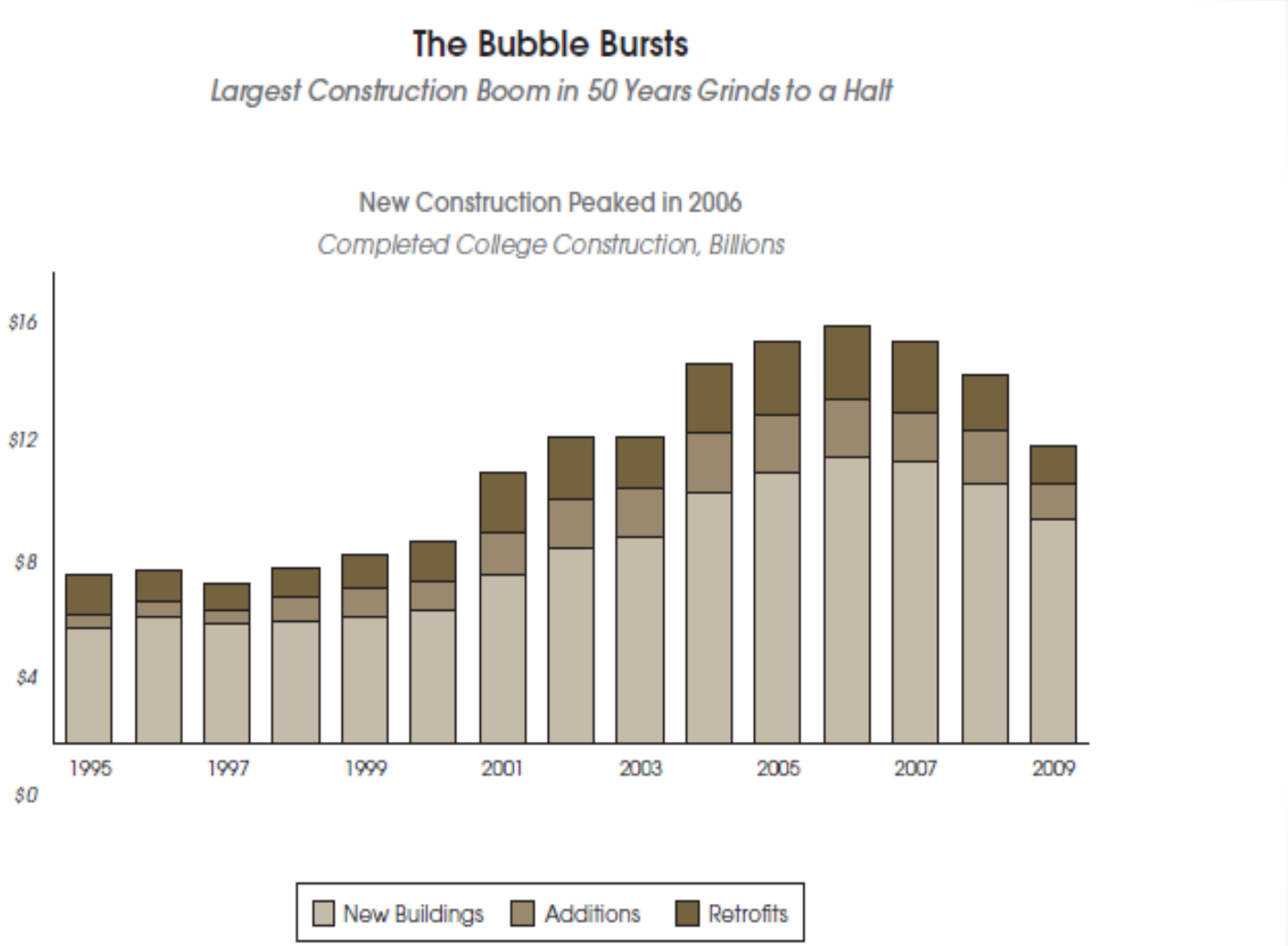
California Institute of Technology

- Private research university in Pasadena, CA
- Campus population roughly 5000
- 4.4 Million SF of buildings
- 125 acres in urban setting
- $2.4B Replacement Value

The Facilities Management Imperative

- ***Organization Stewardship*:** Provide the highest value in supporting the organization's mission
  - Resources are limited.
  - Scientific discovery and instruction requires high performance, reliable and "world class" facilities.
  - Researchers and faculty want more space – and most of all, they require high quality space.

Higher Education Construction History



Source: 2009 Annual College Construction Report: A Supplement to College Planning and Management Magazine, http://www.peterli.com/cpm/pdfs/COPM-20 09- 02-SUPPLEMENT.pdf (accessed March 16, 2010)

Use of Facilities Condition Data

- Is facilities condition data used effectively?
- Is the data a tool to maximize value?
- How does the data support the institutional mission?
- Does the data support the allocation of capital?
- How should the data be used to support the strategic allocation of capital?

Key Definitions

- **Current Replacement Value**: The total amount of expenditures required to replace the facilities and infrastructure portfolio in its present state.

- **Capital Renewal**: Investments required over and above the annual maintenance and operating budget to sustain or return facilities and infrastructure to a reliable original condition.

Key Definitions

- **Renovation, Modernization and Adaption**: Investments required to enlarge existing facilities, change interior alignment of space or modify physical characteristics; including technological, programmatic or regulatory requirements.

- **New Construction:** Investments to add new buildings to the portfolio.

Key Definitions

- **Recapitalization**: All capital investments for the campus facilities portfolio; the total of the previous identified categories.
- **Facilities Condition Index (FCI):** Facilities condition is a measure of renewal need as compared to current replacement value (CRV).

The Facilities Strategic Challenge

New or Remodel?

Photo Credit: Randy Howard

Joint Center for Artificial Photosynthesis - JCAP
DOE Energy Innovation Hub

Comparative Recapitalization Scenario

Institution I

- 1.85 million GSF
- 160 acres
- Average age of mission critical bldgs. – 33 years
- $317 CRV/GSF
- Campus space growth 25% since 2000
- Campus recapitalization rate: 2.28% of CRV

Caltech

- 4.44 million GSF
- 125 acres
- Average age of mission critical bldgs. – 47 years
- $553 CRV/GSF
- Campus space growth 5% since 2000
- Campus recapitalization rate: 2.21% of CRV

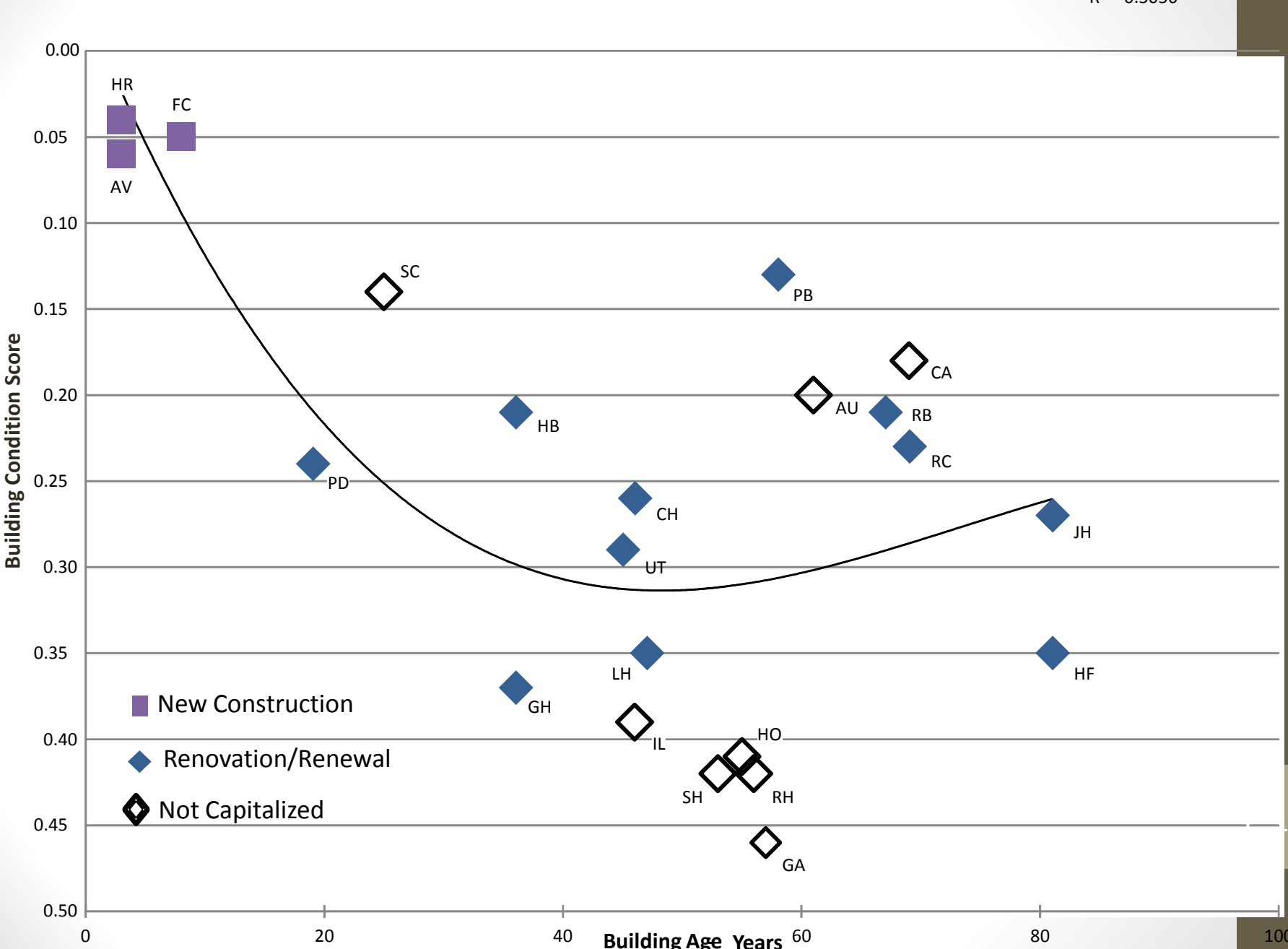
Annual Campus Recapitalization

Expressed as % of CRV

	Institution I	Caltech
Total Recapitalization	**2.28%**	**2.21%**
New Building Construction	1.78% ↑	1.05%
Renovation/ Remodel	0.16%	0.76% ↑
Capital Renewal	0.34%	0.40%

- Recapitalization rate is similar
- Institution I emphasizes new
- Caltech's recapitalization has a strong renovation program

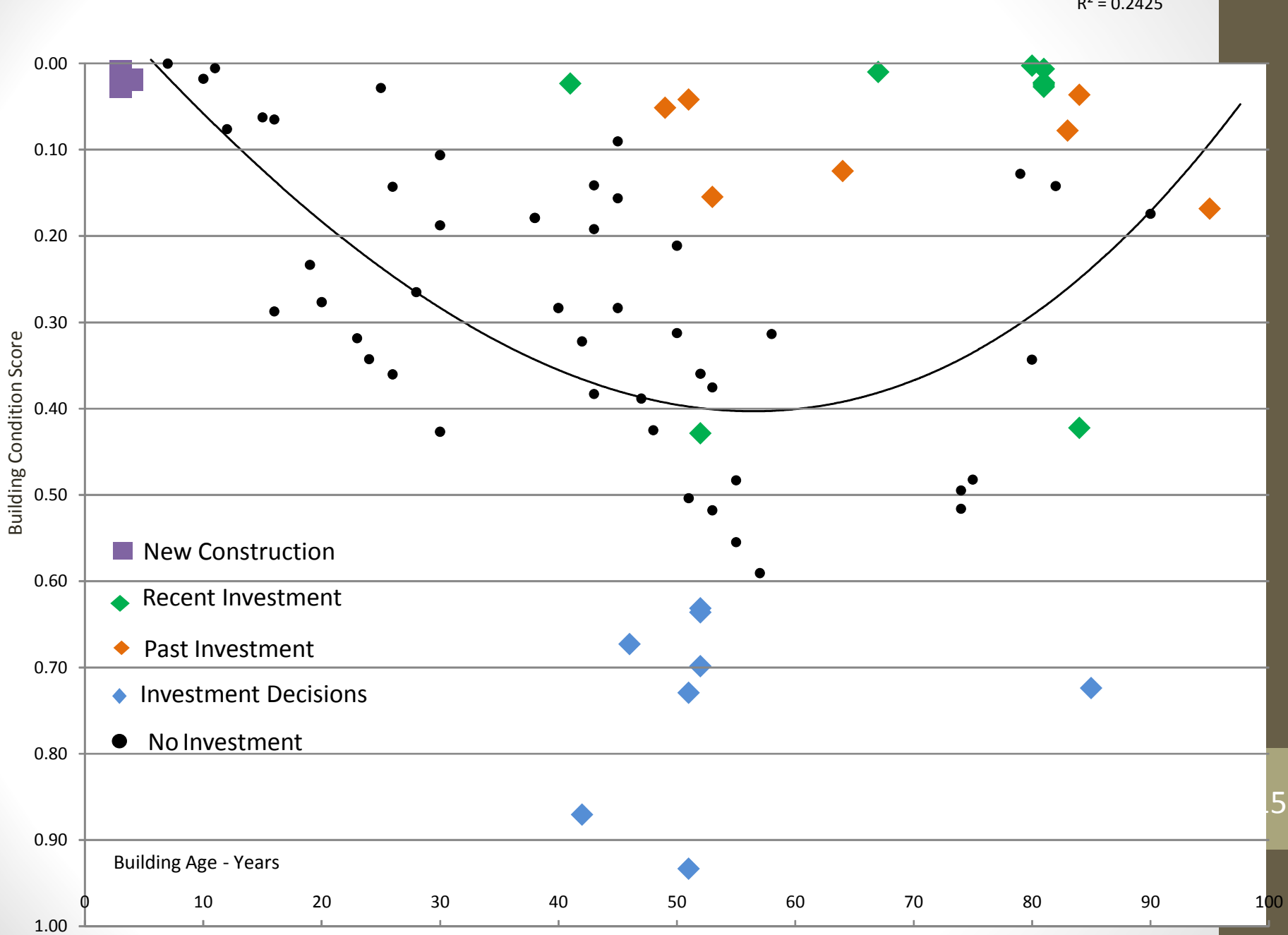
Institution 1: Building Condition and Age



Recapitalization Approach: Institution I

- Recapitalization has primarily been in new construction.
- Renovation and remodeling has mostly been “incremental” (parts of buildings).
- There has been an attempt to sustain most of the facilities portfolio (so far).

Caltech: Building Condition and Age



Caltech – Investment Strategy

- Plan for future whole building renovation/ investment opportunities
- Look for funding opportunities from multiple sources
- Coordinate with other major maintenance activities

Caltech – Investment Strategy (cont.)

Disciplined Focus on Mission Critical Buildings

- Demolition – Building has no future use or has reached point of no return
  - Reduce O&M costs by $5-$10/GSF
  - Payback in as little as 3 years
  - Provide only emergency maintenance
- Mothball – Building has a future use
  - Lock the door and turn off the lights

Whole Building Renovations

Deep Renovation

Whole Building Renovations

- Capital Renewal Funding alone is not adequate to sustain the portfolio
- Leveraging Programmatic Capital is essential

Building	Project $	Cap. Ren. completed	Operating Cost Implication
L+R	$35M	$6M	No increase in O&M costs
Jorgensen	$22M	$3M	
Thomas	$21M	$10M	

Operating Cost Impacts

	Institution I	Caltech
GSF Growth (8 yrs.)	25%	5%
AFOE/CRV (%)*	1.08%	0.98%

- Institution I annual facilities operating expenses (AFOE) are greater because FCI curve is less favorable.
- An investment strategy committed to new construction vs. current buildings leaves a significant building condition problem for the future.
- AFOE costs will continue to grow with greater GSF of buildings.

*APPA Facilities Performance Indicators Data – 2011-12

Strategy Comparison

Institution I

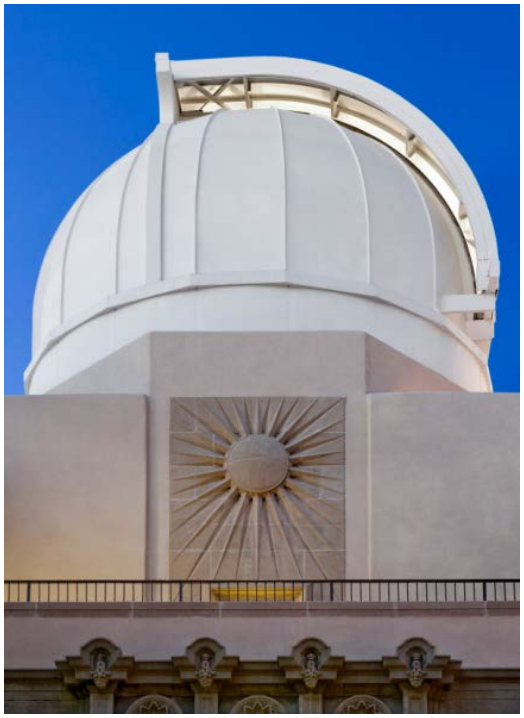
- Incremental improvement
- Capital focused on new construction
- O&M costs grow with new GSF and un-capitalized space
- Large portion of campus un-capitalized
- Future …. Find additional capital investment or cull portfolio

Caltech

- Investments reset bldg. age
- New construction decisions balanced w/ whole building renovations or repurposing
- O&M costs are contained while providing modern research space
- Identify buildings that are reaching the tipping point
- Discipline to demolish or mothball buildings

In Summary

- Effective facilities portfolio recapitalization requires a comprehensive institutional strategy; more than a facilities challenge!
- A *new construction strategy* does not solve existing recapitalization challenges; it's difficult build your way out of this problem.
- A facilities recapitalization strategy ideally includes the institutional discipline to cull the building stock.



Questions or Comments?

Prepared by:

Jim Cowell, PE, California Institute of Technology www.caltech.edu

and

Duane G. Hickling, Hickling & Associates www.hicklingassociates.com