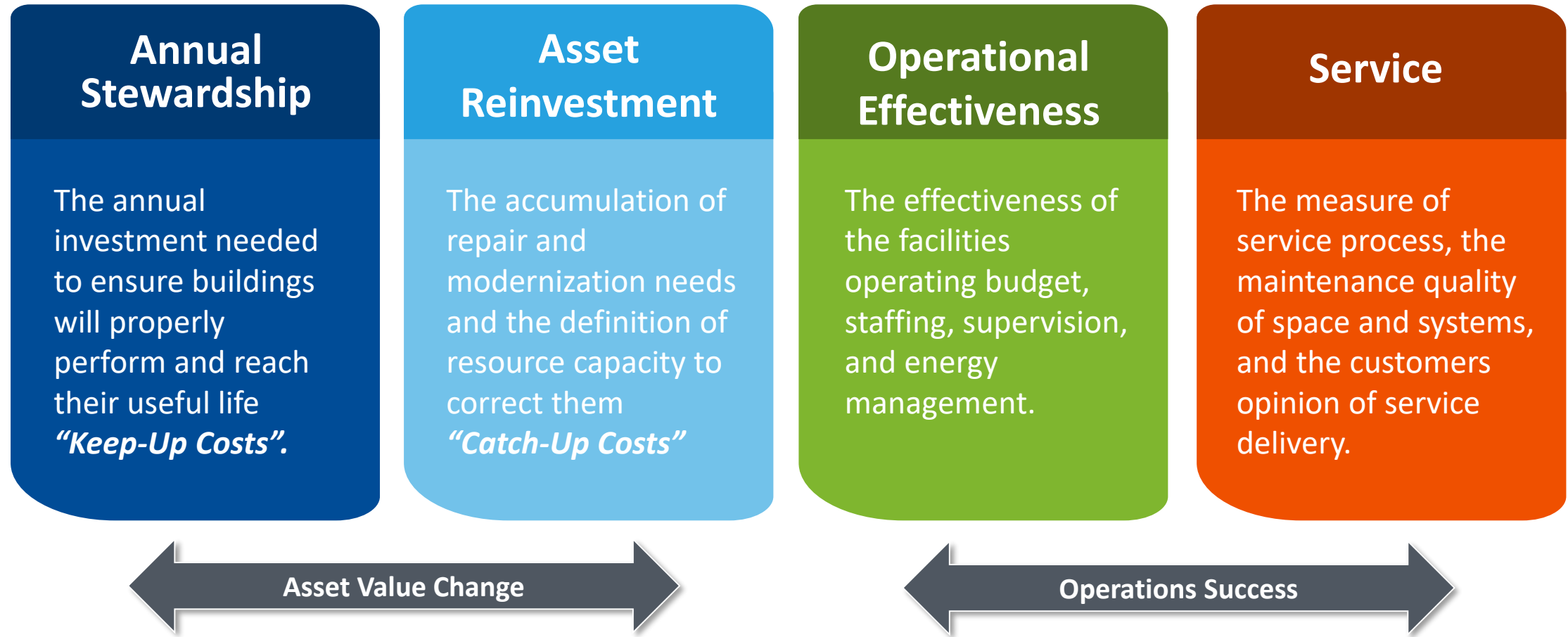# sightlines
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# Wesleyan University

# FY18 ROPA+ Presentation

March 20, 2019

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

# Vocabulary for Facilities Measurement, Benchmarking & Analysis

## Annual Stewardship

The annual investment needed to ensure buildings will properly perform and reach their useful life *"Keep-Up Costs".*

## Asset Reinvestment

The accumulation of repair and modernization needs and the definition of resource capacity to correct them *"Catch-Up Costs"*

## Operational Effectiveness

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

## Service

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

**Asset Value Change**

**Operations Success**

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# Wesleyan Peer Institutions

## SLAC Institutions

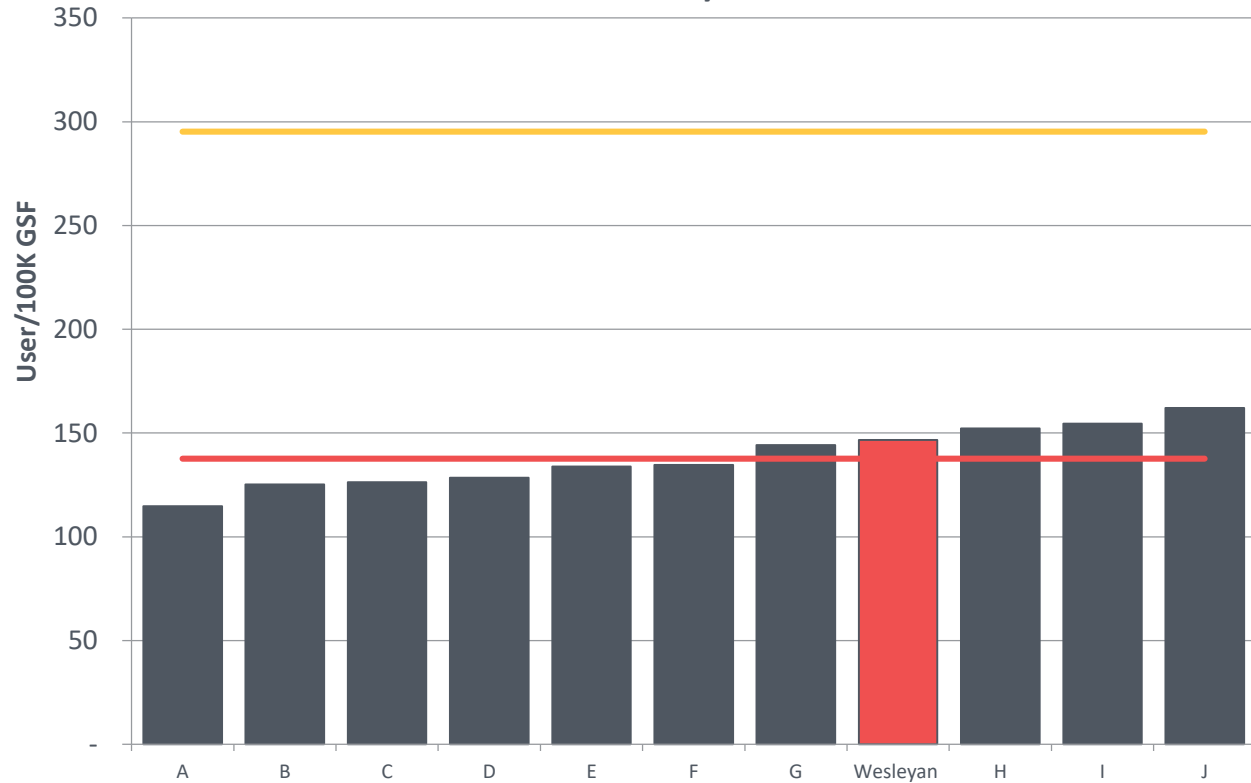| Institution | Location |
|---|---|
| Amherst College | Amherst, MA |
| Bowdoin College | Brunswick, ME |
| Bryn Mawr College | Bryn Mawr, PA |
| Carleton College | Northfield, MN |
| Davidson College | Davidson, NC |
| Hamilton College | Clinton, NY |
| Mount Holyoke College | South Hadley, MA |
| Pomona College | Pomona, CA |
| Swarthmore College | Swarthmore, PA |
| Williams College | Williamstown, MA |



### Comparative Considerations

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

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# Comparing the SLAC Institutions

## Density Factor



## Technical Complexity



— SLAC Peer Average    — Private College Average

**Density Factor Impacts:**
- Daily Operating Costs
- 'Wear and Tear' on Facilities
- Maintenance & Custodial Operations
- Capital Replacement Timelines

**Technical Complexity Impacts:**
- Daily Operating Costs
- Maintenance Trades Staffing Mix
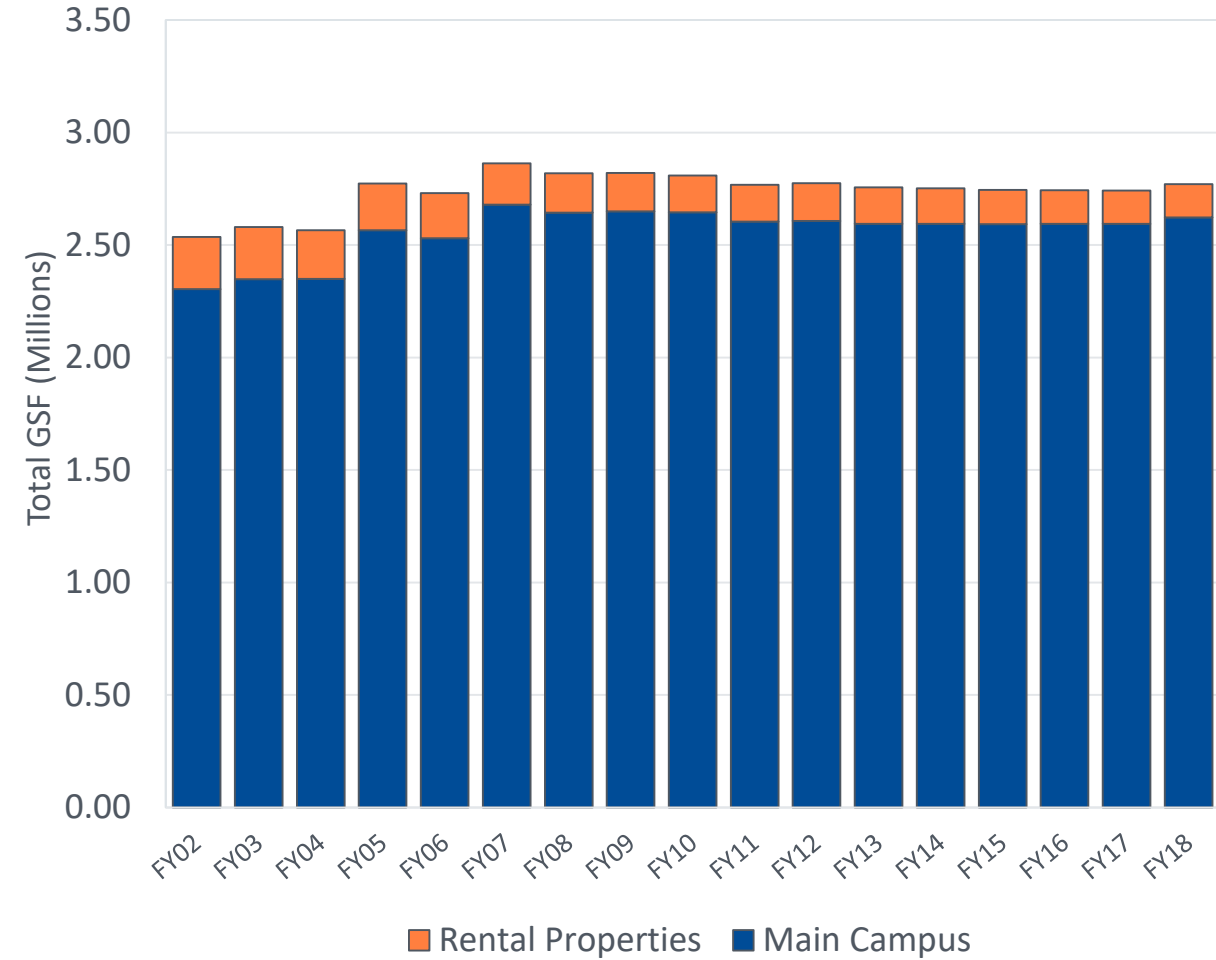- Energy Consumption
- Capital Replacement Costs

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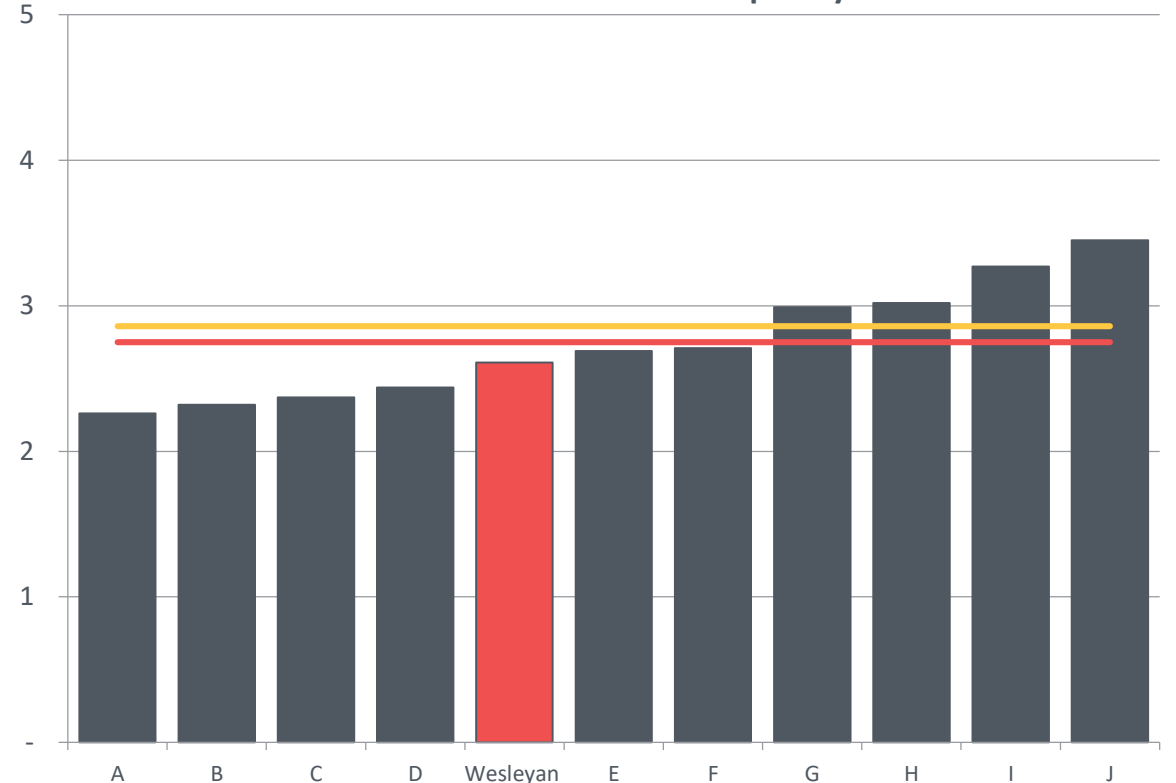
# Space Profile

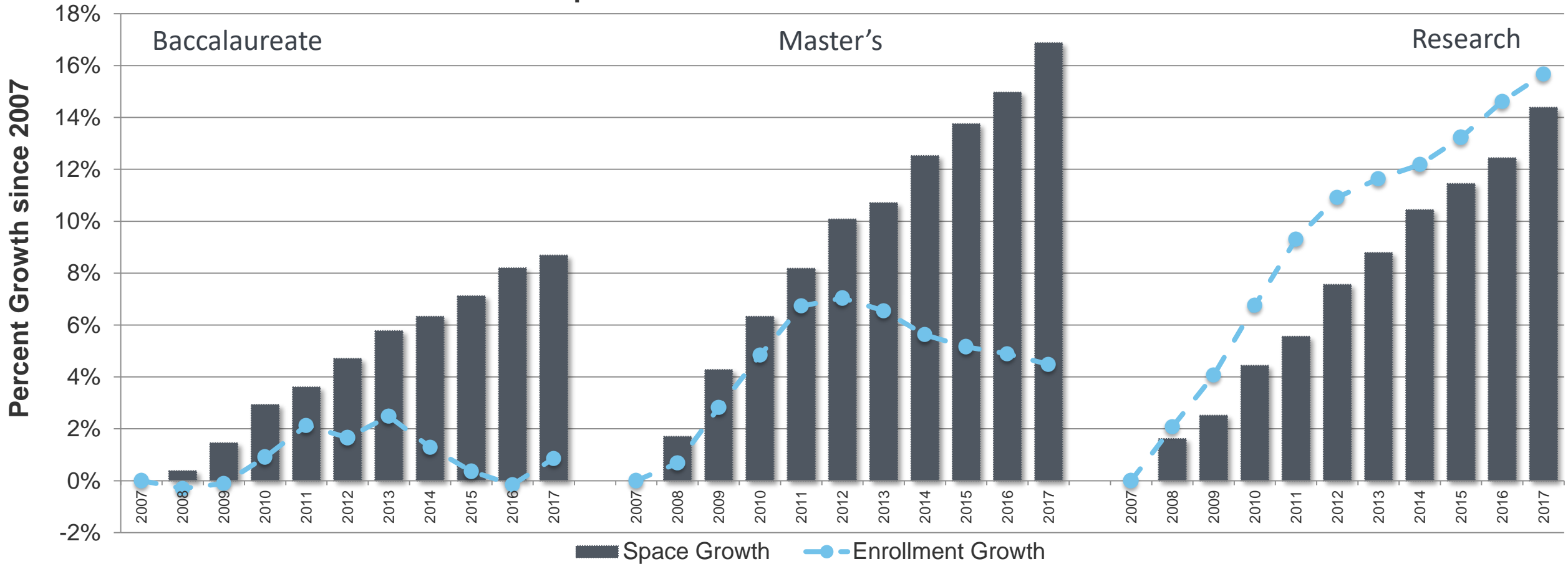# Wesleyan's GSF Consistent Over Time



Institutional GSF Over Time

Rental Properties GSF Over Time
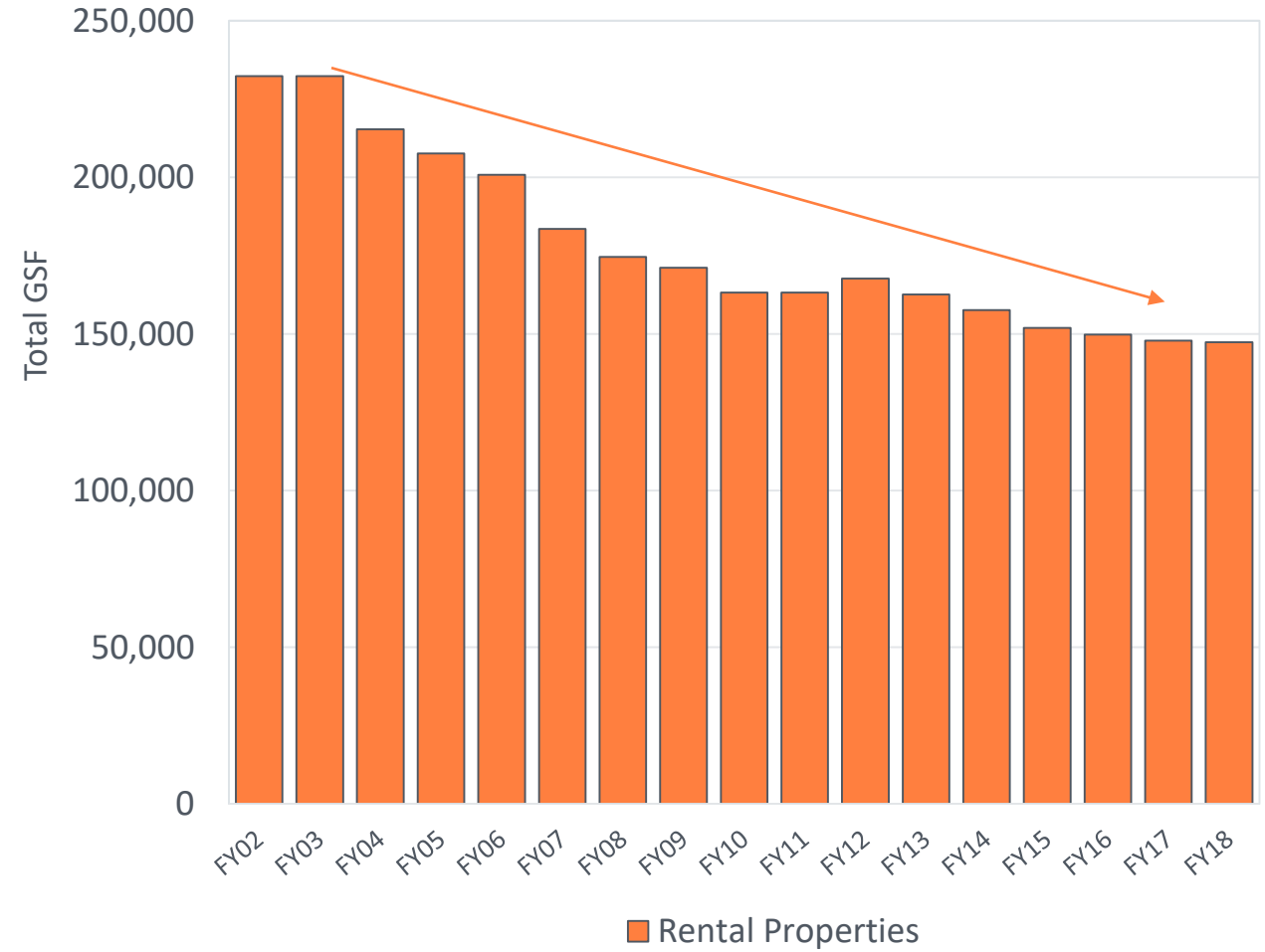
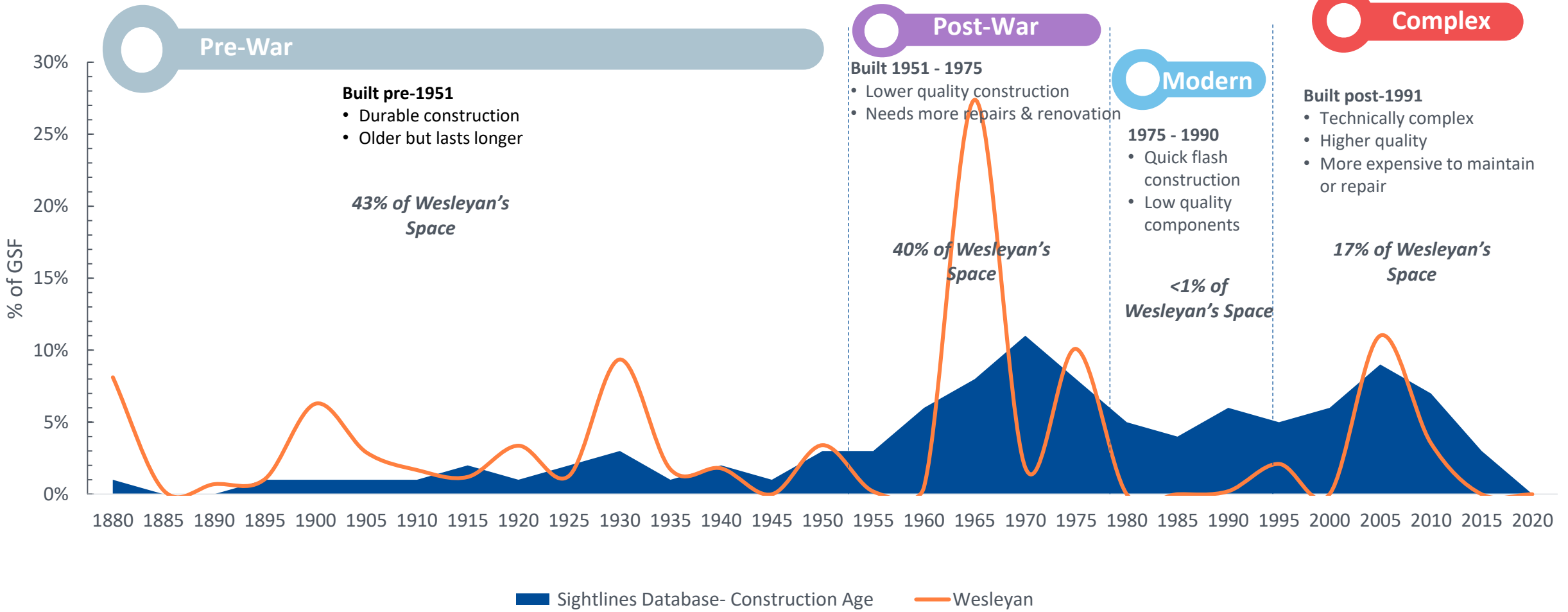# Space Growth with Declining Enrollment is an Exposure

Wesleyan not growing at same rate as other baccalaureate institutions, less exposure
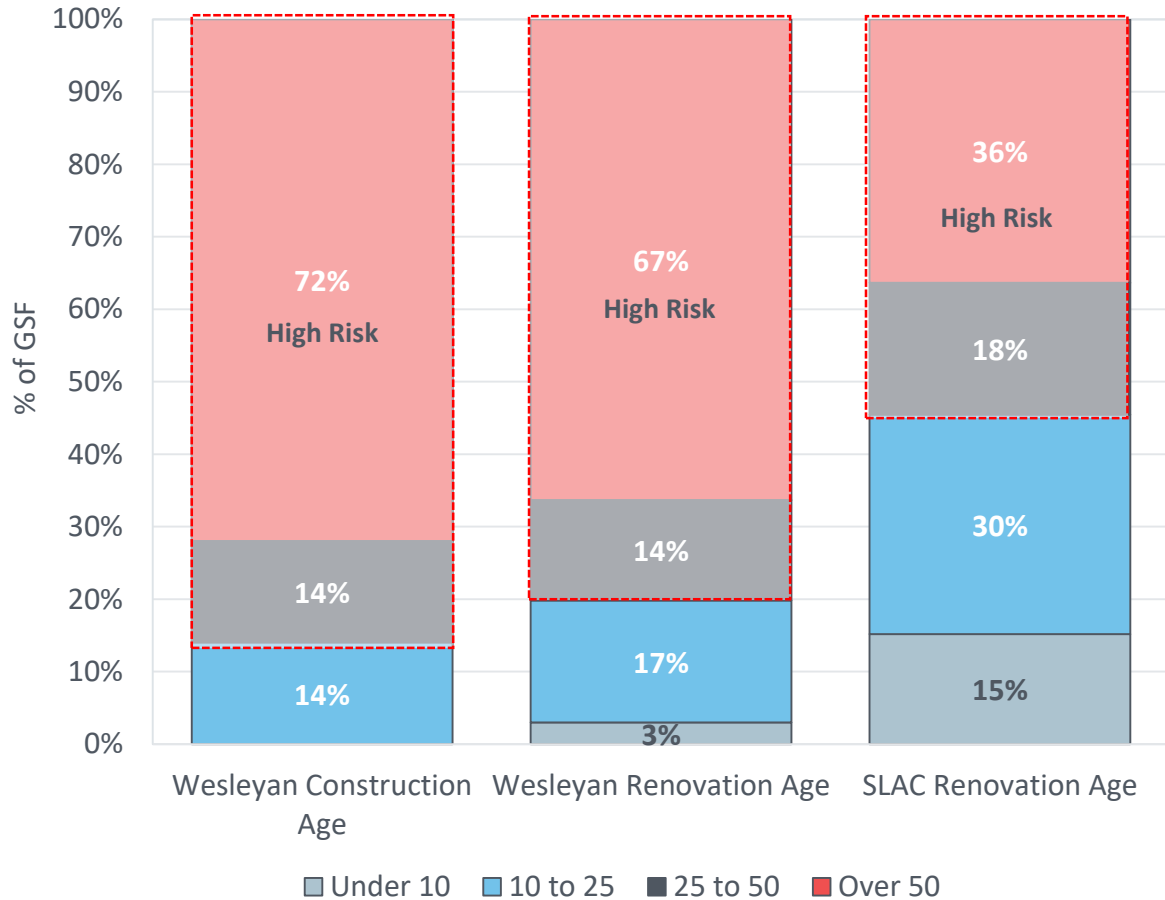


Space Growth vs. Enrollment Growth

Baccalaureate — Master's — Research

Percent Growth since 2007

Legend: ■ Space Growth ● Enrollment Growth

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# Putting Your Campus Building Age in Context



% of GSF by Construction & Renovation Year

**Pre-War**

**Post-War**

**Modern**

**Complex**

**Built pre-1951**
- Durable construction
- Older but lasts longer

*43% of Wesleyan's Space*

**Built 1951 - 1975**
- Lower quality construction
- Needs more repairs & renovation

*40% of Wesleyan's Space*

**1975 - 1990**
- Quick flash construction
- Low quality components

*<1% of Wesleyan's Space*

**Built post-1991**
- Technically complex
- Higher quality
- More expensive to maintain or repair

*17% of Wesleyan's Space*

Legend: Sightlines Database- Construction Age — Wesleyan

# 67% of Wesleyan's Campus Over 50 Years Old

## Campus Reno Age by Category



**Buildings Over 50**
Life cycles of major building components are past due. Failures are possible. Core modernization cycles are missed.
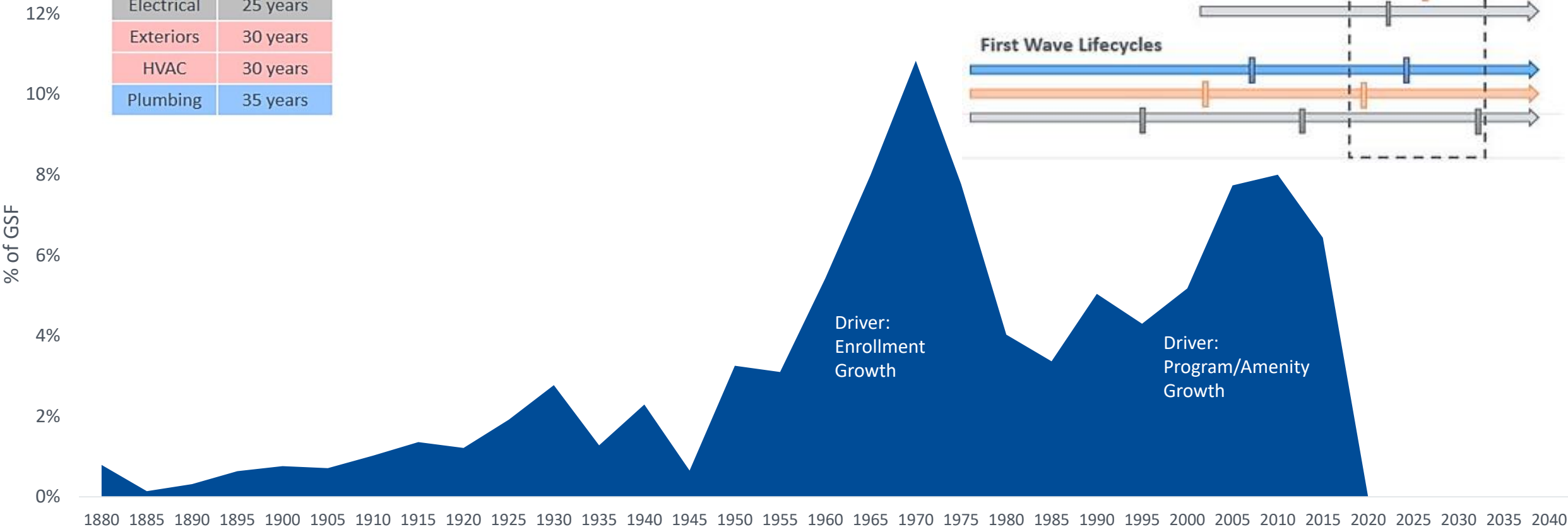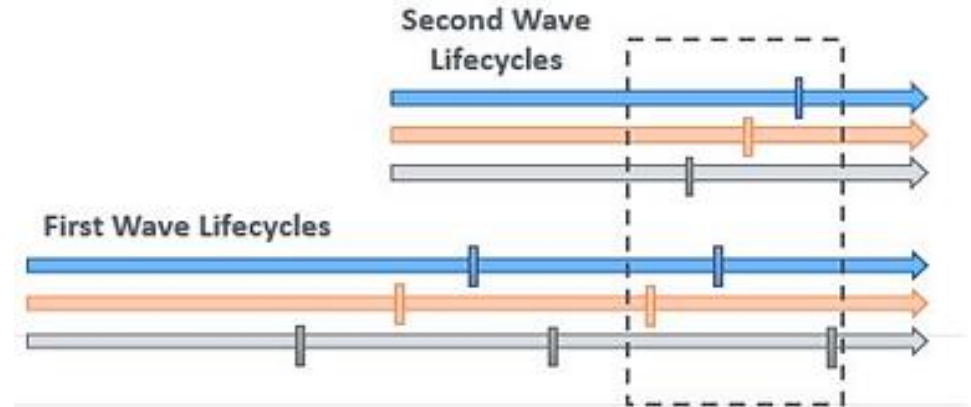Highest risk

**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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# Waves of Construction Drive Increasing Capital Need



| System | SL Standard Life Cycle |
|---|---|
| Roofing | 25 years |
| Electrical | 25 years |
| Exteriors | 30 years |
| HVAC | 30 years |
| Plumbing | 35 years |

Second Wave Lifecycles

First Wave Lifecycles

Driver: Enrollment Growth

Driver: Program/Amenity Growth

% of GSF

■ Sightlines Database- Construction Age

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Asset Value Change

# Total Investment FY02-FY18: $441.1M

FY18 investment $19.6M

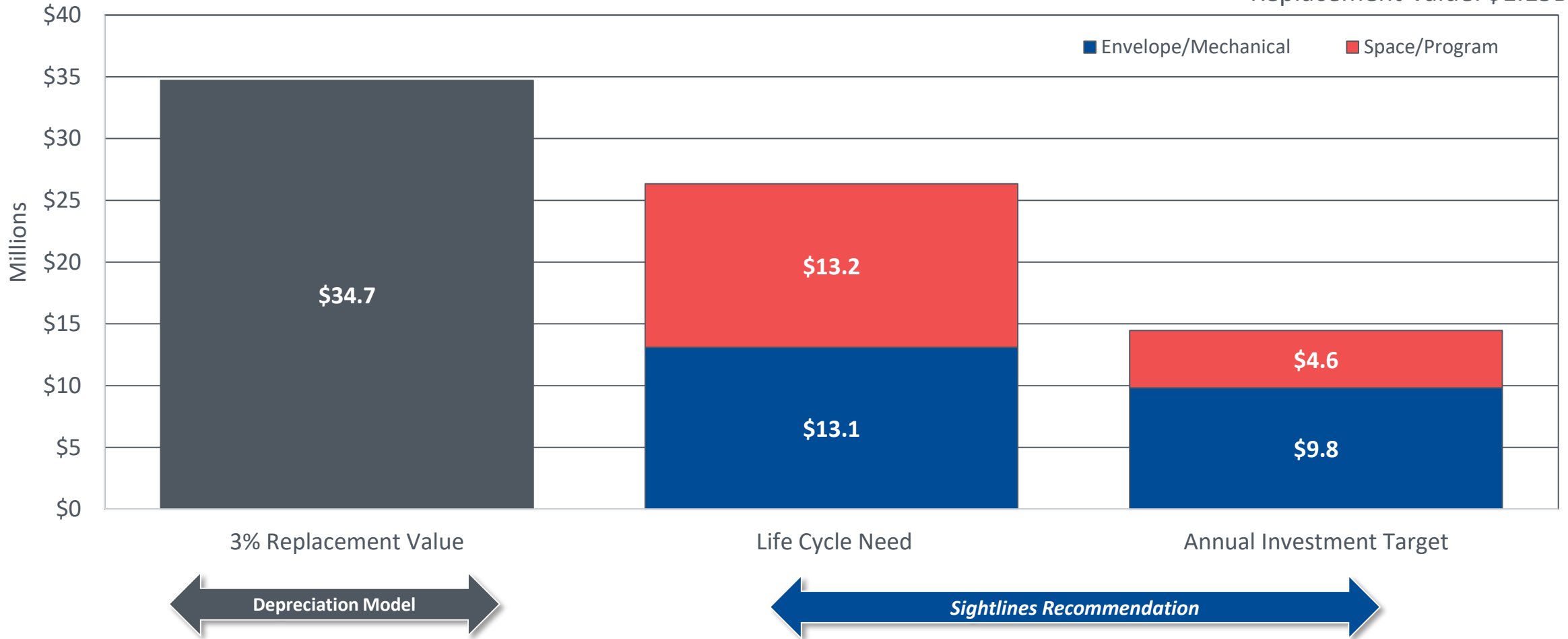## Total Capital/Major Maintenance Investments from FY02-FY18



FY17 New Space:
Mystical 7- 100 Lawn Avenue

Legend: ■ Existing Space Investment ■ New Space Investment ■ Non-Facilites — Average

Y-axis: Millions — $0, $10, $20, $30, $40, $50, $60

X-axis: FY02, FY03, FY04, FY05, FY06, FY07, FY08, FY09, FY10, FY11, FY12, FY13, FY14, FY15, FY16, FY17, FY18

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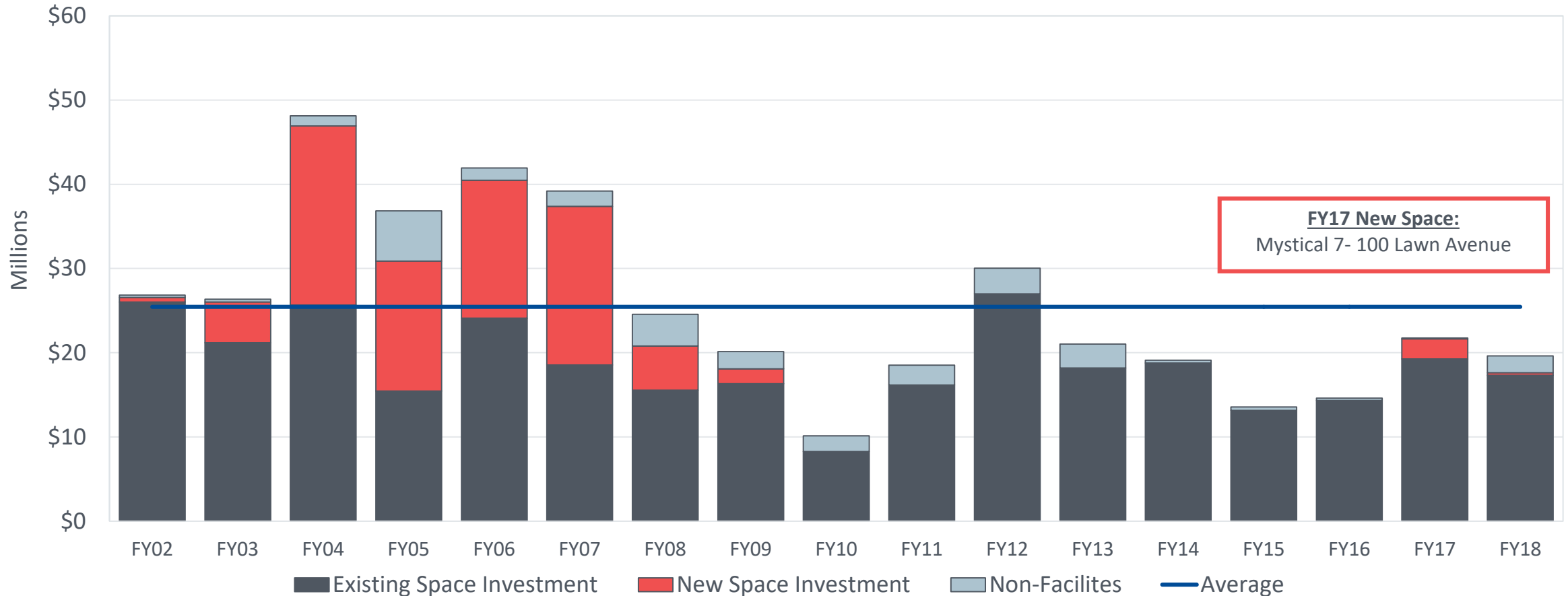
# FY18 Investments Similar to Peers

## Total Investment $/GSF vs. Peers



Wesleyan — SLAC Peers

Average

*Investment into existing space
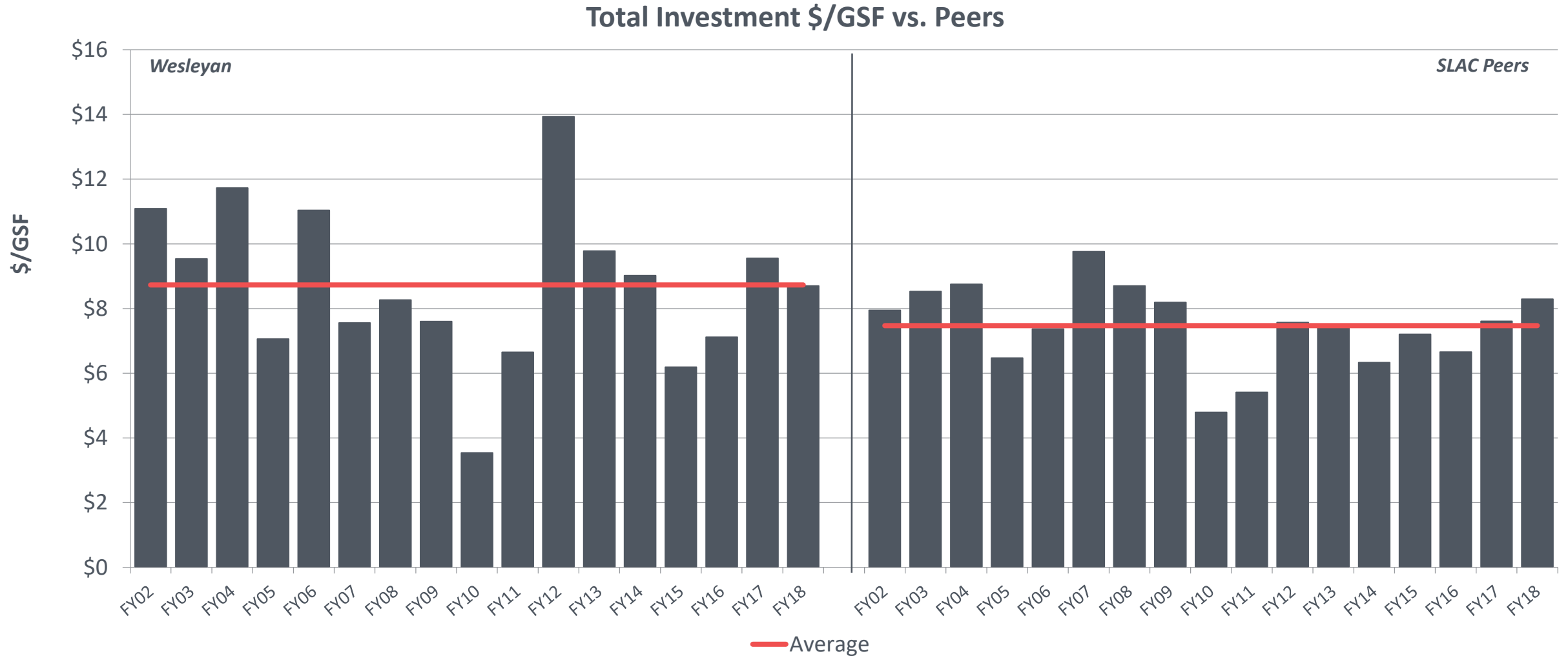
# Defining an Annual Investment Target for Wesleyan

Annual Funding Target: $14.4M

**FY18 Annual Investment Target**

Replacement Value: $1.15B

# Chasing A Growing Target

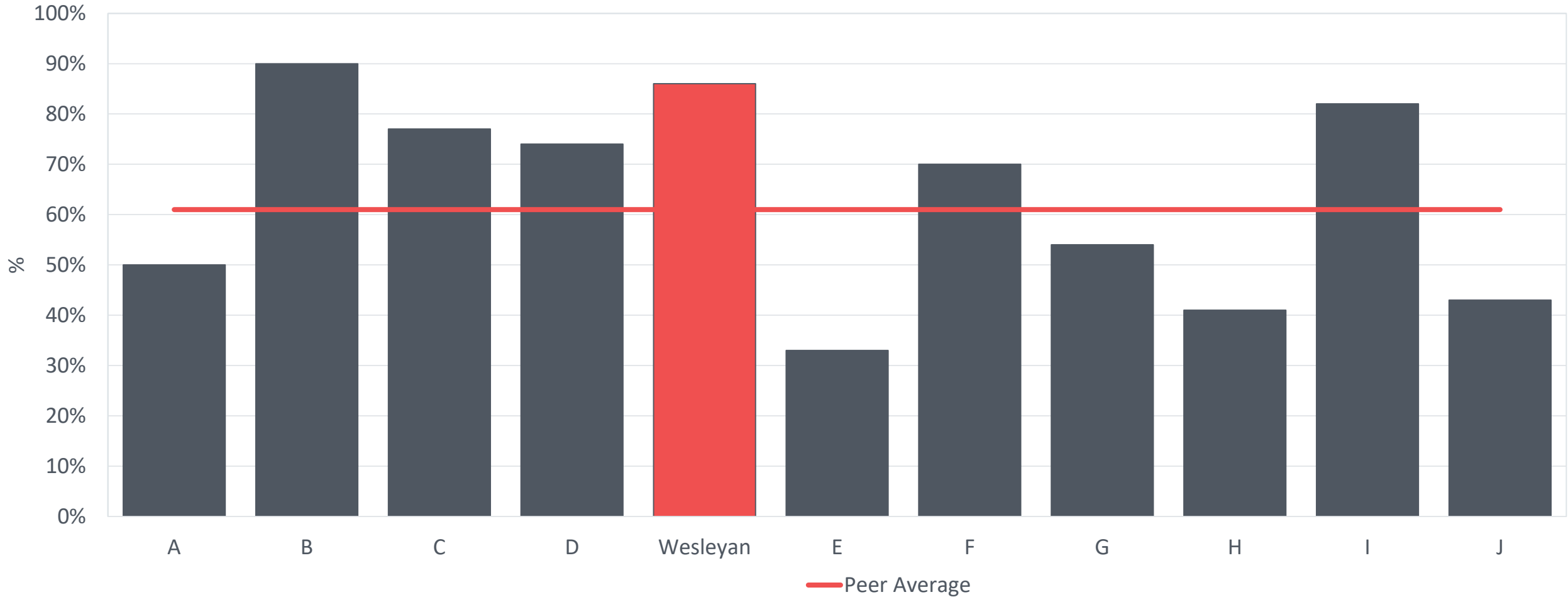## Capital/Major Maintenance Investments to Target



$ in Millions

Legend:
- Annual Stewardship
- Asset Reinvestment
- Infrastructure
- Annual Investment Target
- Life Cycle Need

Chart annotations:
- Increasing Net Asset Value
- Lowering Risk Profile
- Increasing Backlog & Risk

X-axis: FY02, FY03, FY04, FY05, FY06, FY07, FY08, FY09, FY10, FY11, FY12, FY13, FY14, FY15, FY16, FY17, FY18

Y-axis: $0, $5, $10, $15, $20, $25, $30

*Investment into existing space

**Sightlines Annual Investment target does not include infrastructure need.  Wesleyan estimates approximately $2M of infrastructure need each year.

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# Chasing A Growing Target



Capital/Major Maintenance Investments to Target

*Increasing Net Asset Value*

*Lowering Risk Profile*

*Increasing Backlog & Risk*

$ in Millions

Legend: Annual Stewardship | Asset Reinvestment | Annual Investment Target | Life Cycle Need

*Investment into existing space

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# Total Asset Reinvestment Need

Wesleyan's Backlog is at $104/GSF; SLAC Peers: $74/GSF; SL database: $89/GSF
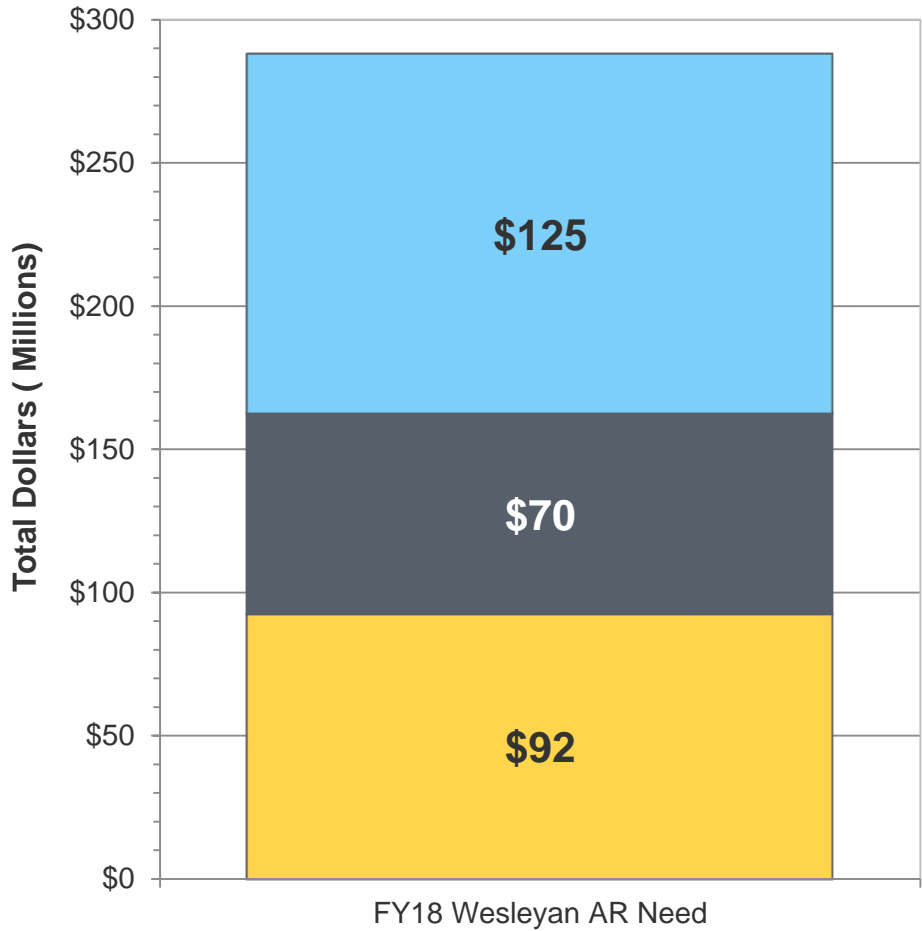


Total Asset Reinvestment Need

Total Asset Reinvestment Need vs. SLAC Average
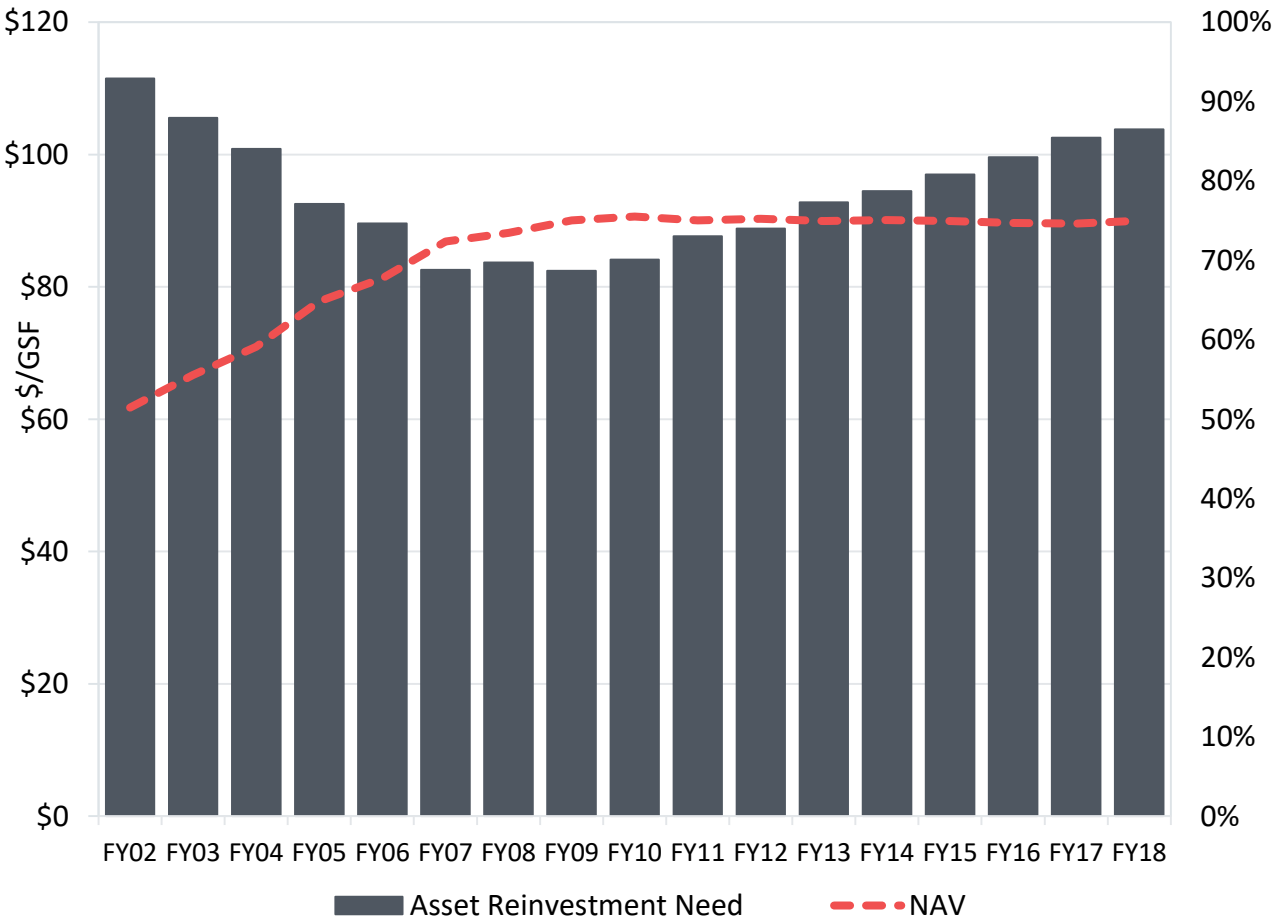
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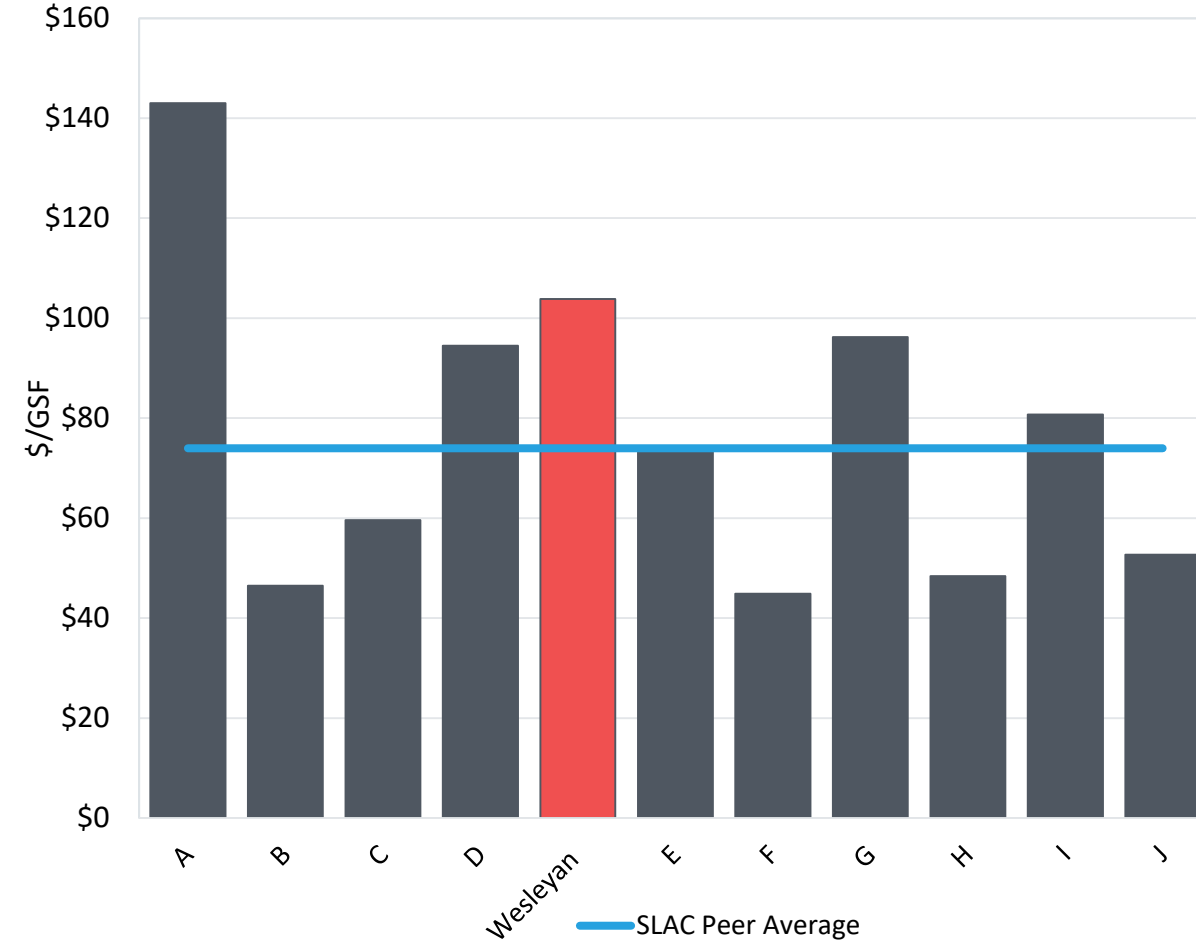
# Wesleyan's Ten Year Backlog of Need - $288M total need

Sightlines quantifies $162 Million in system-specific need



**Asset Reinvestment Need**
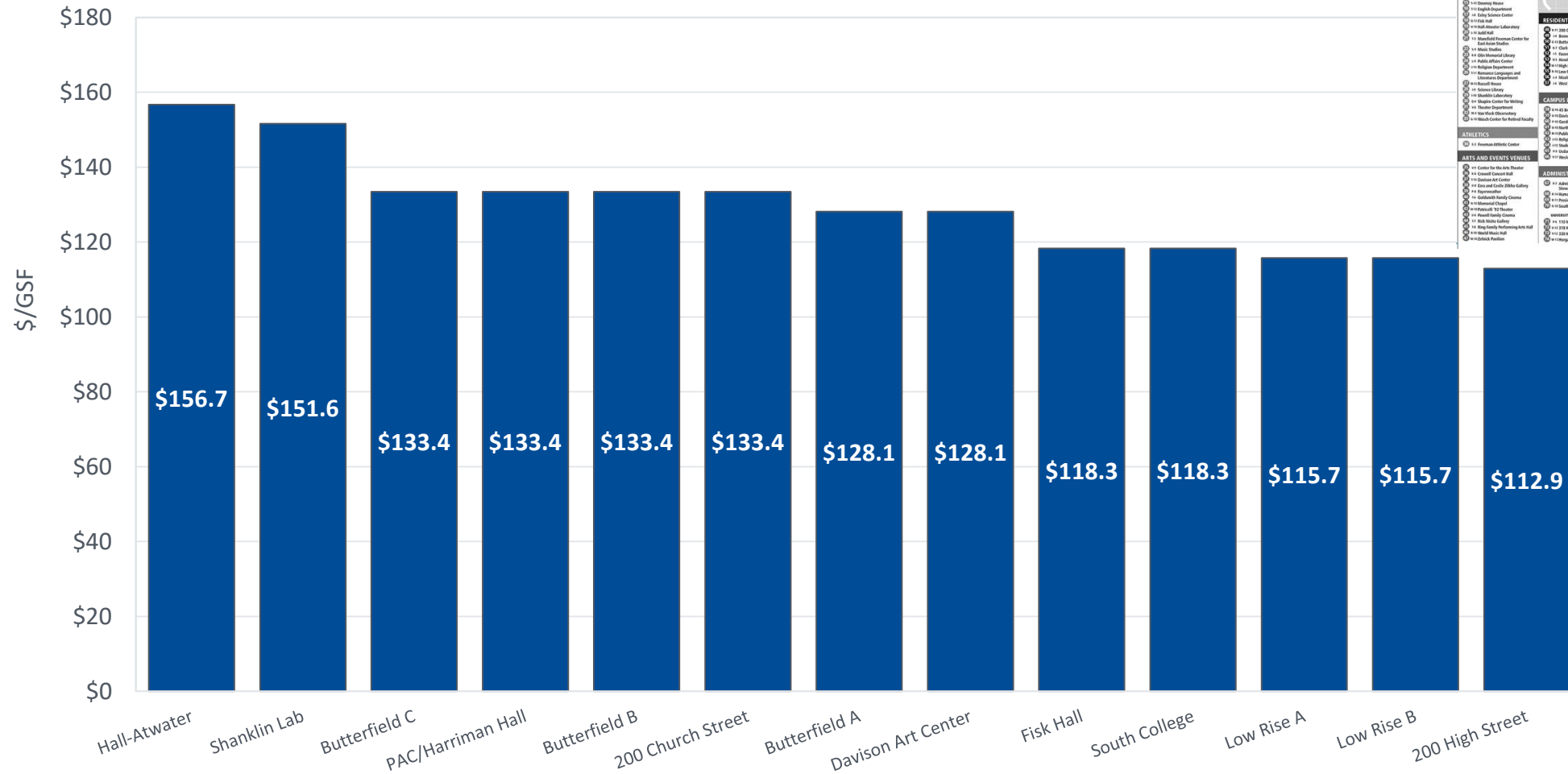
- $125
- $70
- $92

Total Dollars ( Millions)

FY18 Wesleyan AR Need

**Asset Reinvestment Need Distribution**

**Wesleyan University**
- 44%
- 32%
- 24%

**SLAC Peer Comparison**
- 31%
- 24%
- 44%

Legend:
- Modernization and Infrastructure Need
- Renewal Need
- Current Need

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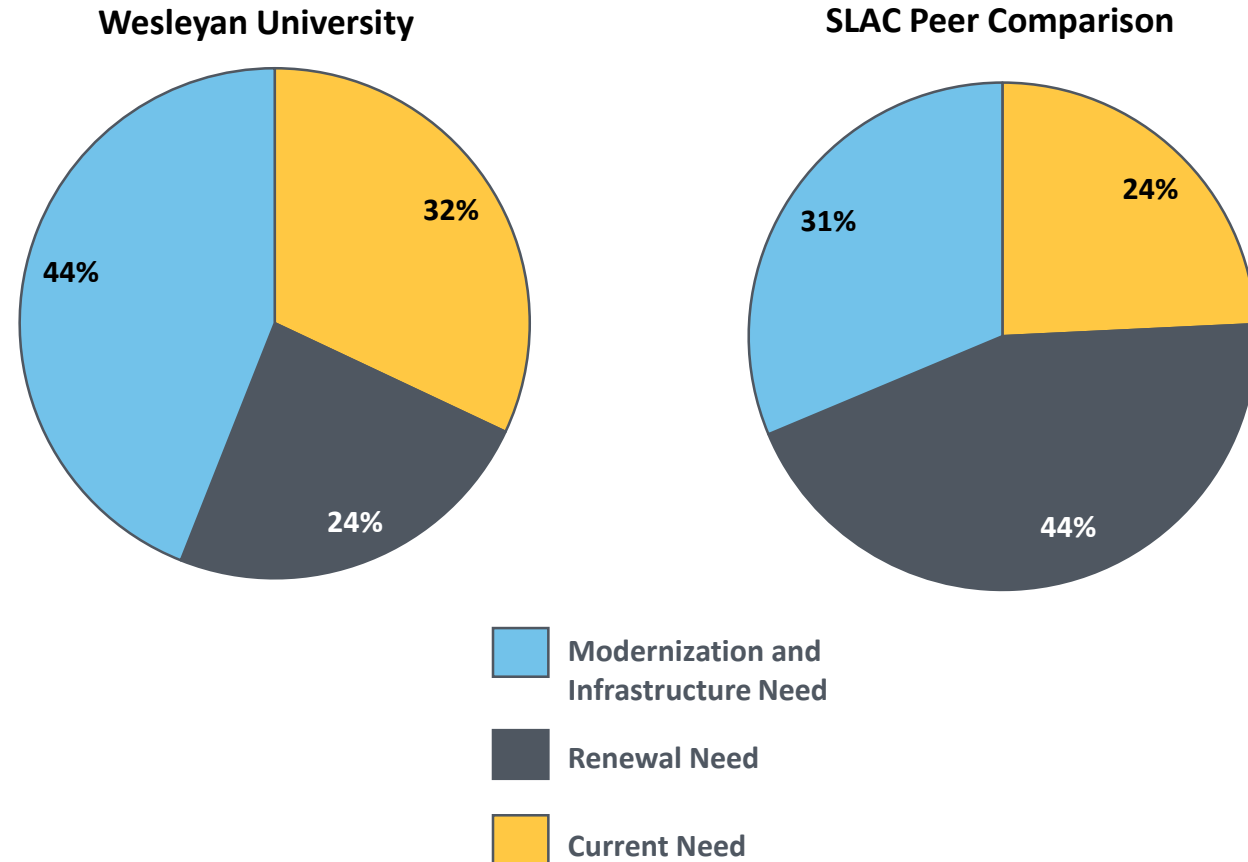
# Buildings with Need Greater than $100/GSF

*These buildings make up 16% of Wesleyan' space*

**Buildings with Need >$100/GSF**
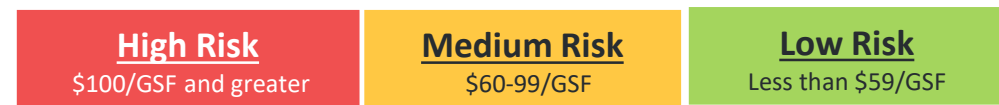


**High Risk**
**$100/GSF and greater**



| Building | $/GSF |
|---|---|
| Hall-Atwater | $156.7 |
| Shanklin Lab | $151.6 |
| Butterfield C | $133.4 |
| PAC/Harriman Hall | $133.4 |
| Butterfield B | $133.4 |
| 200 Church Street | $133.4 |
| Butterfield A | $128.1 |
| Davison Art Center | $128.1 |
| Fisk Hall | $118.3 |
| South College | $118.3 |
| Low Rise A | $115.7 |
| Low Rise B | $115.7 |
| 200 High Street | $112.9 |

*Includes only current and renewal needs

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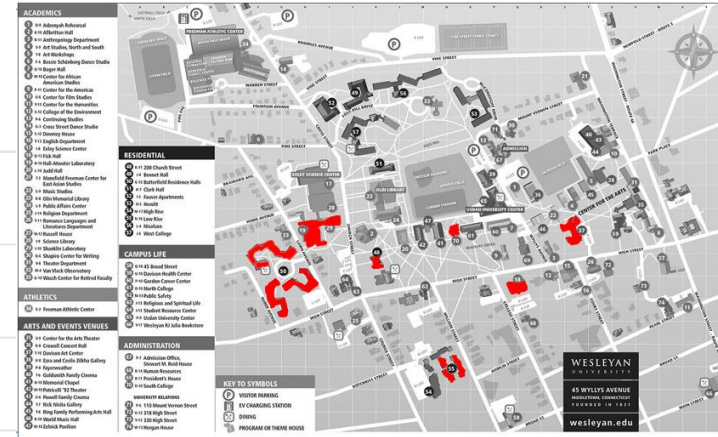
# Analysis of Building Needs

### Buildings within the Prediction Analysis



**Number of Buildings** (y-axis, 0–350)

- 299 (total)
- Low Risk — Less than $59/GSF: 164
- Medium Risk — $60-99/GSF: 122
- High Risk — $100/GSF and greater: 13
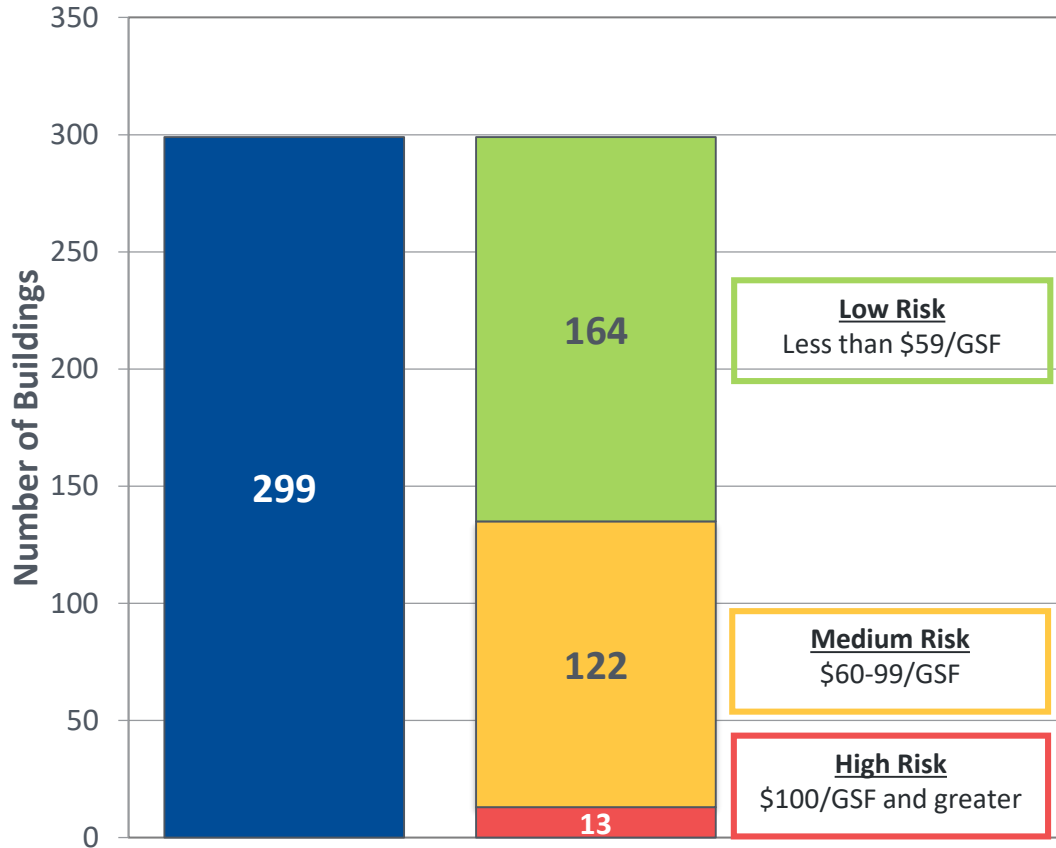
### Total Square Footage
*Percent of Space*

- 16% (High Risk)
- 34% (Medium Risk)
- 50% (Low Risk)
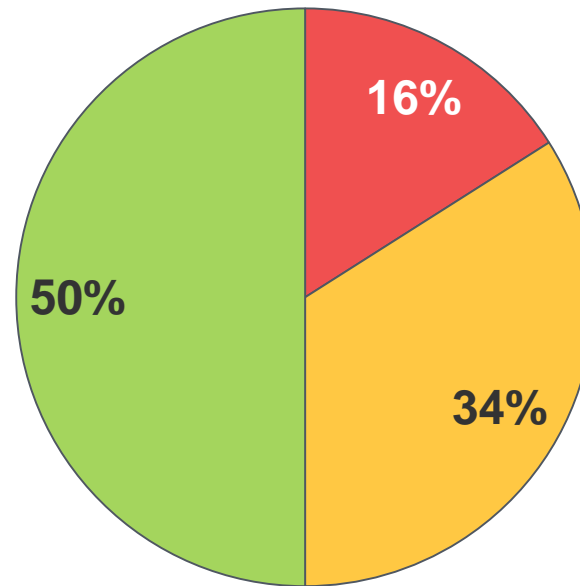
### Total Campus Building Needs
*Total Dollars*

- 37% (High Risk)
- 44% (Medium Risk)
- 19% (Low Risk)

| High Risk $100/GSF and greater | Medium Risk $60-99/GSF | Low Risk Less than $59/GSF |
|---|---|---|

*Includes only current and renewal needs*

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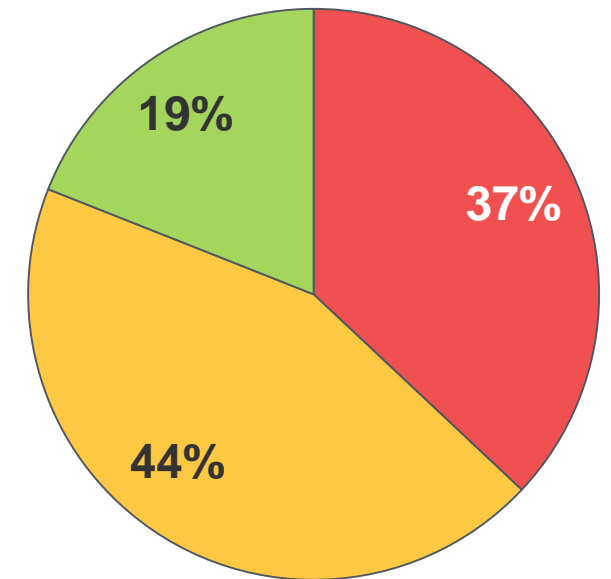
# Database Continues to use Recurring Dollars for Envelope and Mechanical Projects



Recurring Capital Spending Composition

One-Time Capital Spending Composition

■ AS Env/Mech  ■ AS Space/Prog

■ AR Env/Mech  ■ AR Space/Prog
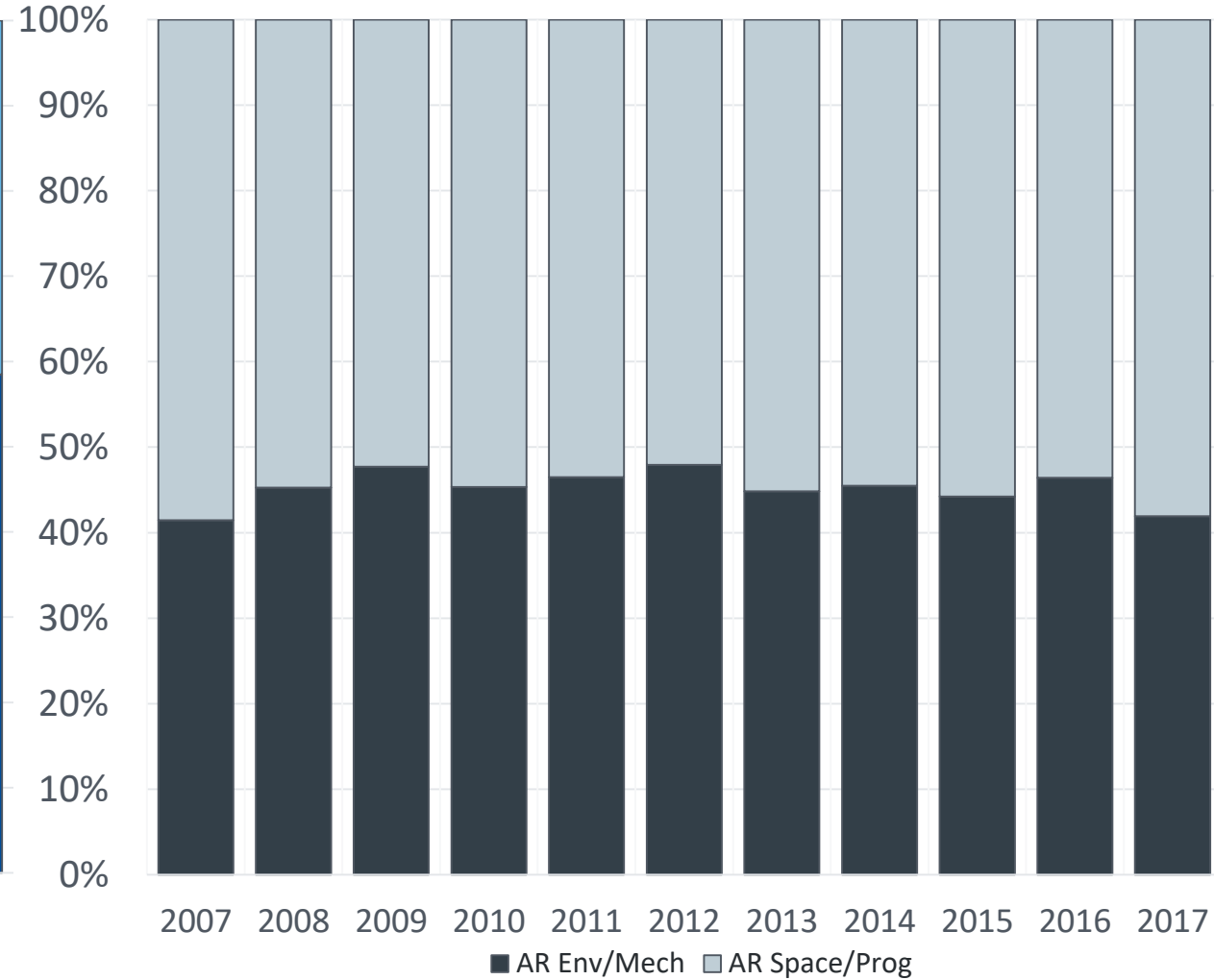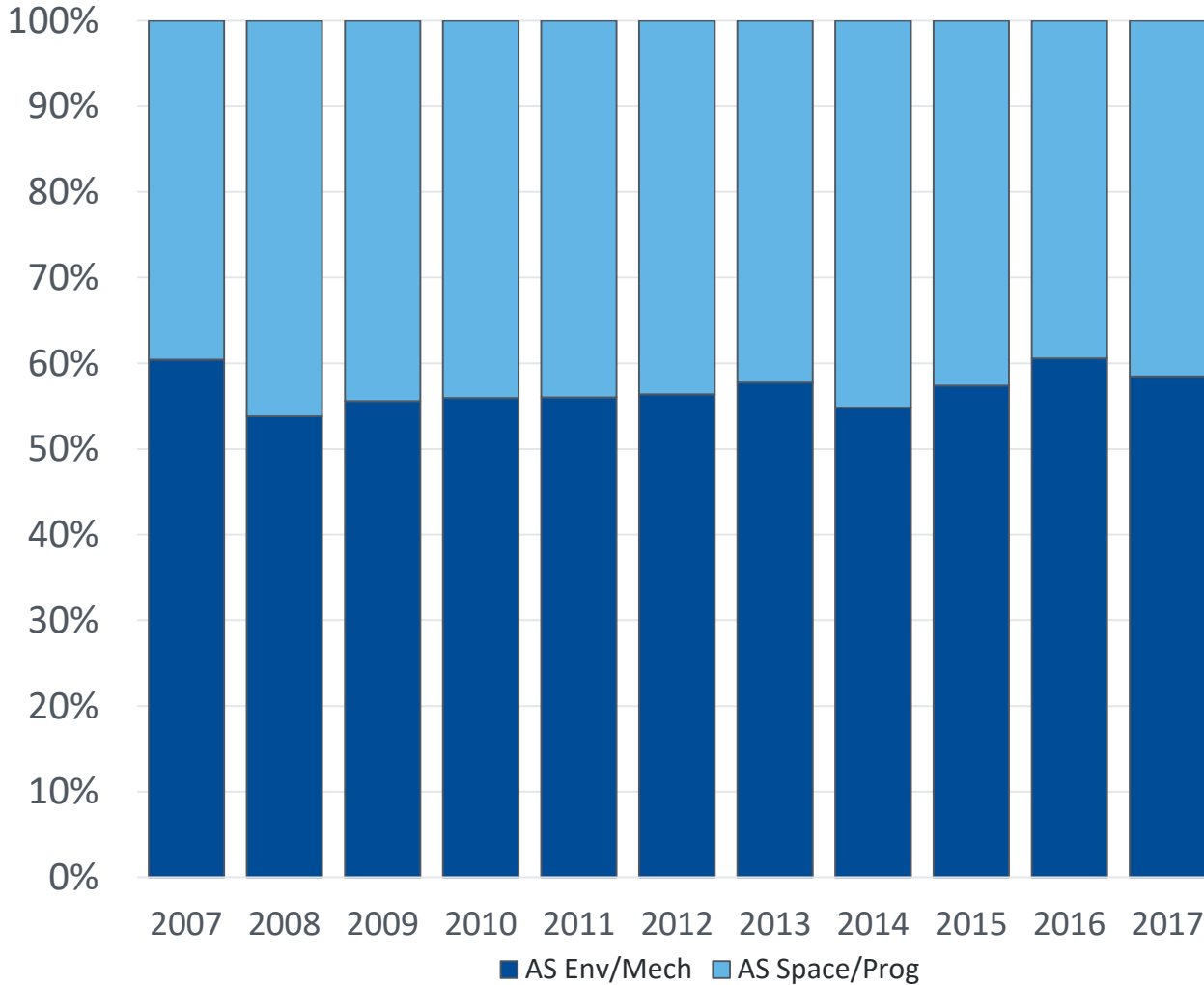
*Investment Amounts Shown do not include Grounds + Utility Infrastructure

# Wesleyan Uses Recurring Dollars for Envelope and Mechanical Projects



Recurring Capital Spending Composition

One-Time Capital Spending Composition

■ AS Env/Mech  ■ AS Space/Prog

■ AR Env/Mech  ■ AR Space/Prog

*Investment Amounts Shown do not include Grounds + Utility Infrastructure

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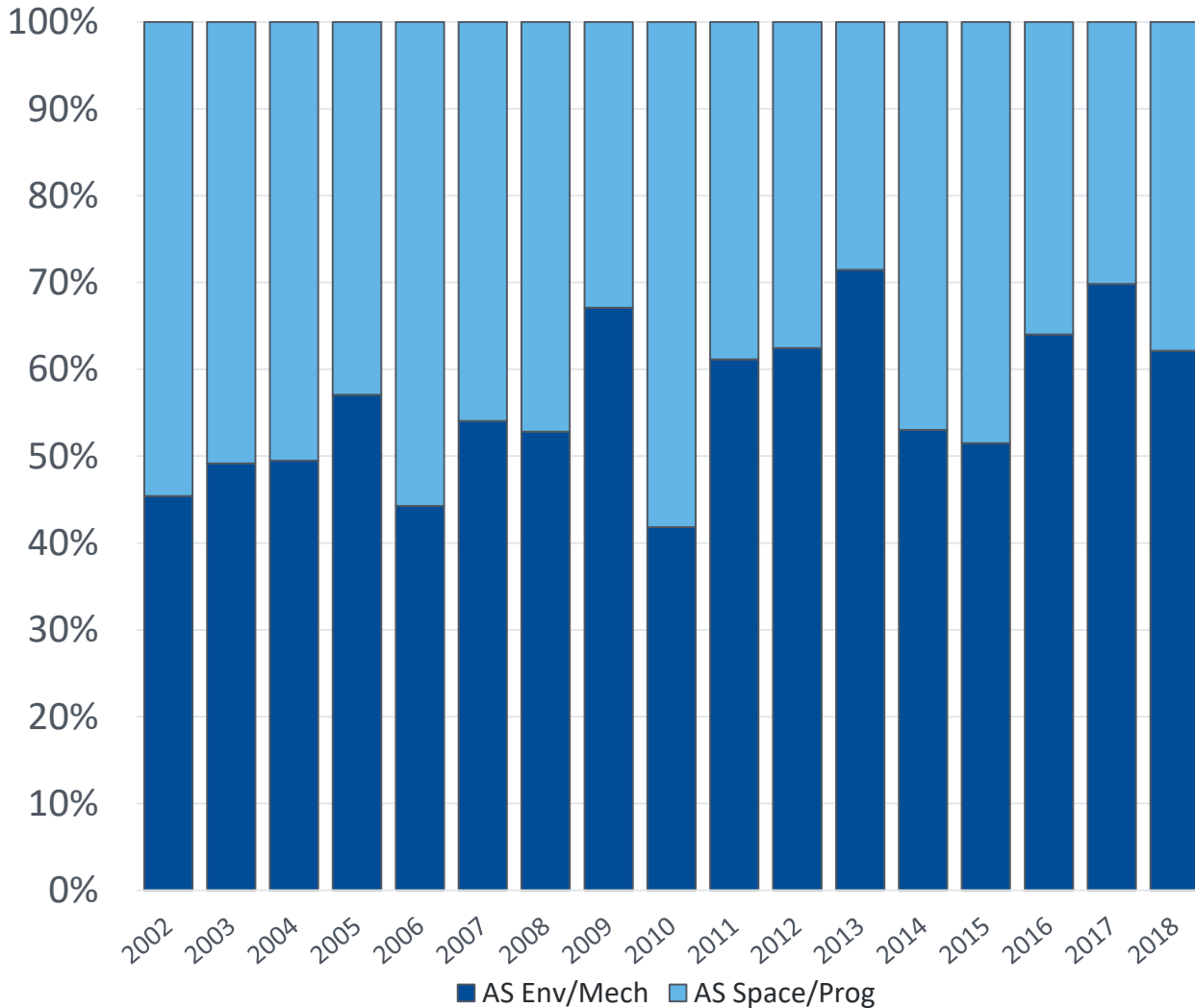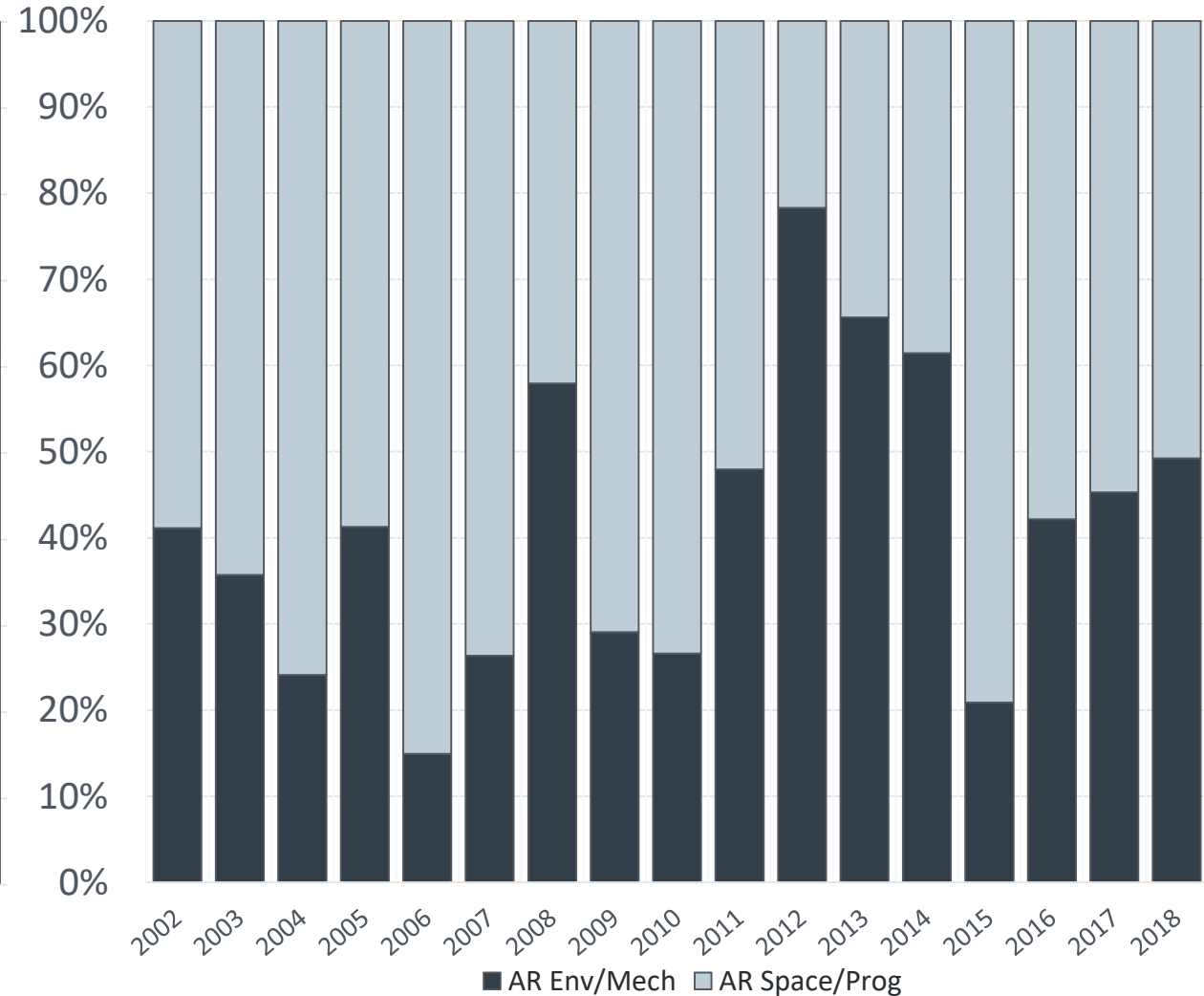
# Historic Investment in Existing Space vs. Future Needs

## Upcoming Needs Will Shift Project Investment Portfolio to Focus on MEP Projects

**Historic Investment
by Risk Category (FY02-FY18)**

- 25%
- 21%
- 54%
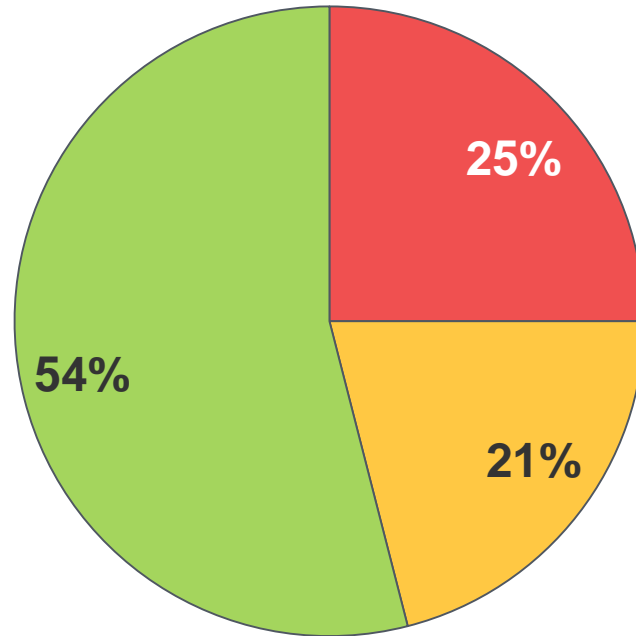
**Current and Renewal Need
by Risk Category (FY19-FY28)**

- 15%
- 25%
- 60%
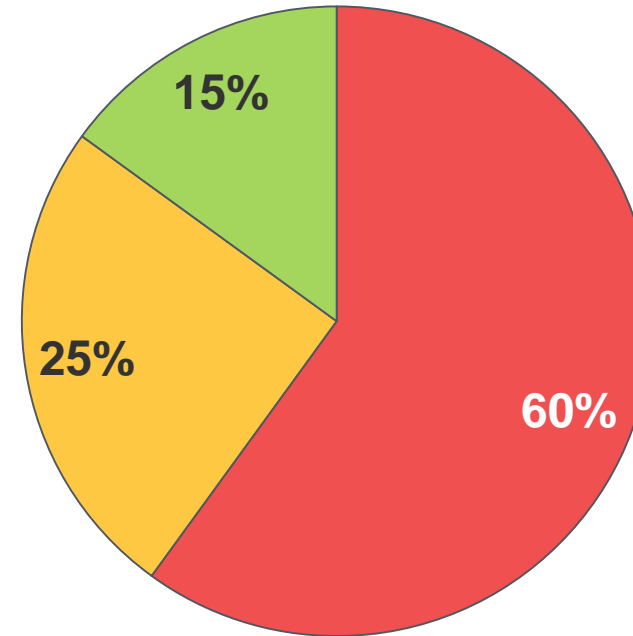
High Risk – HVAC, Electrical, Plumbing
Medium Risk – Exteriors, Roofing
Low Risk – Interiors

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# Operations

# Main Campus Operating Efficiencies Save $7.9M

Investment of $3.05/GSF or $7.9M additional resources to match inflation growth in FY18



Facilities Operating Actuals

Legend: PM (red) · Daily Service (dark gray) · 3% Inflation (dashed line)
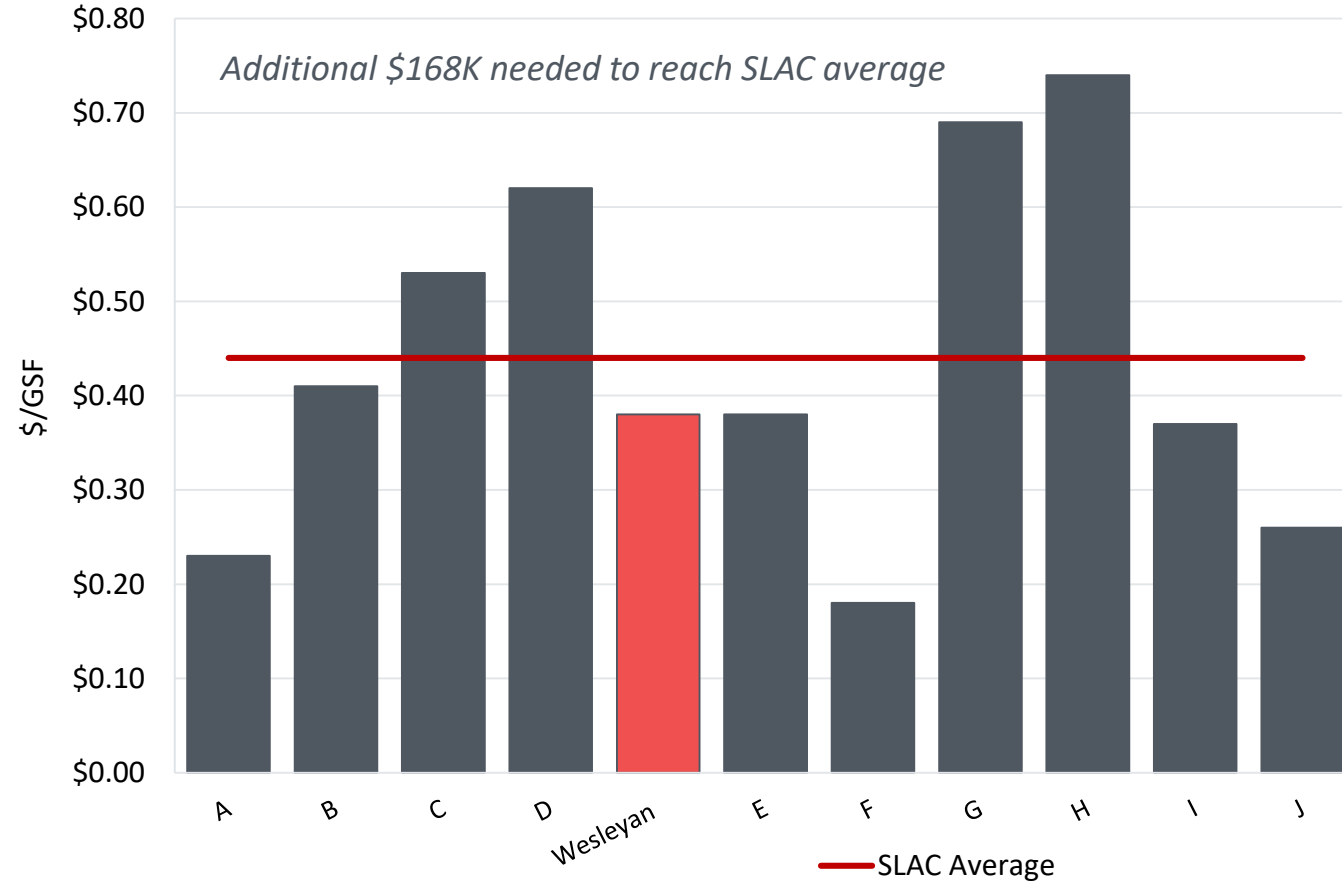
$7.9M

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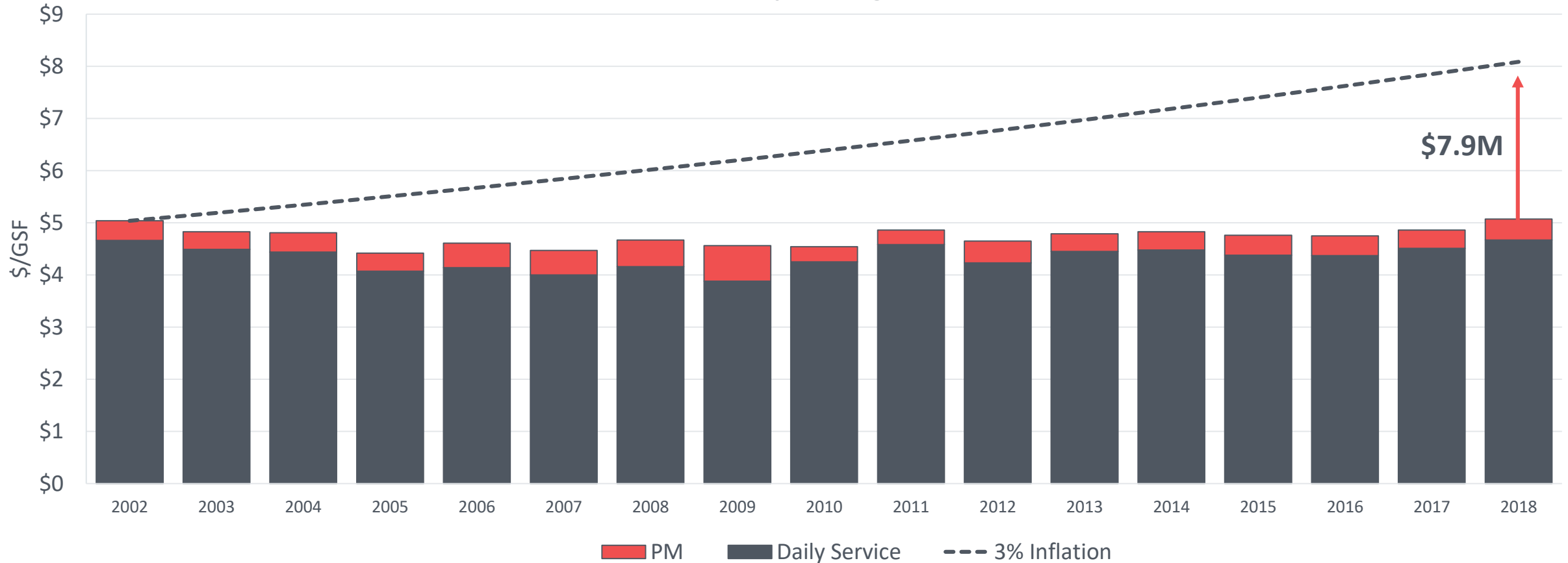
# FY18 Main Campus Facilities Operating Expenditures

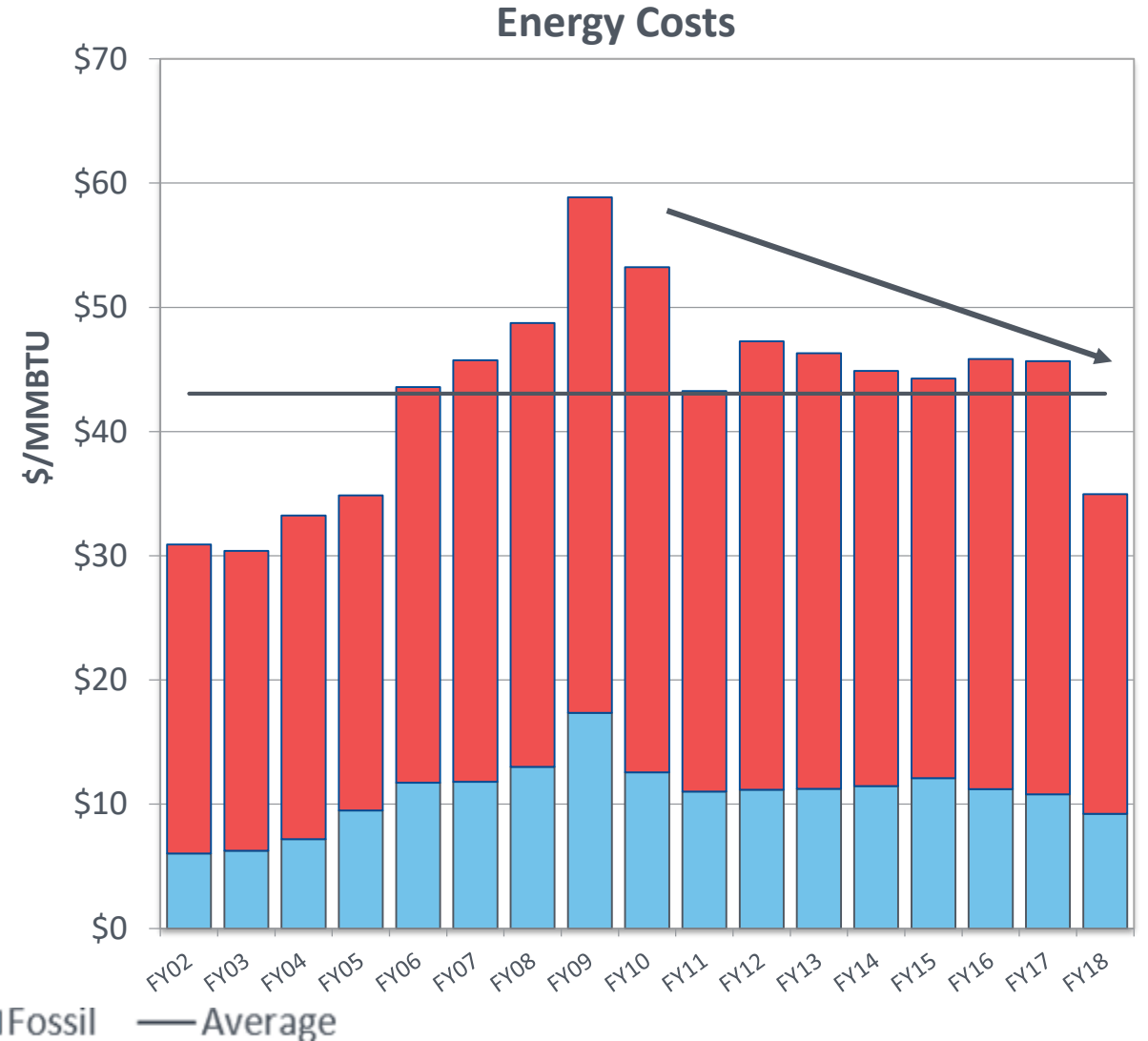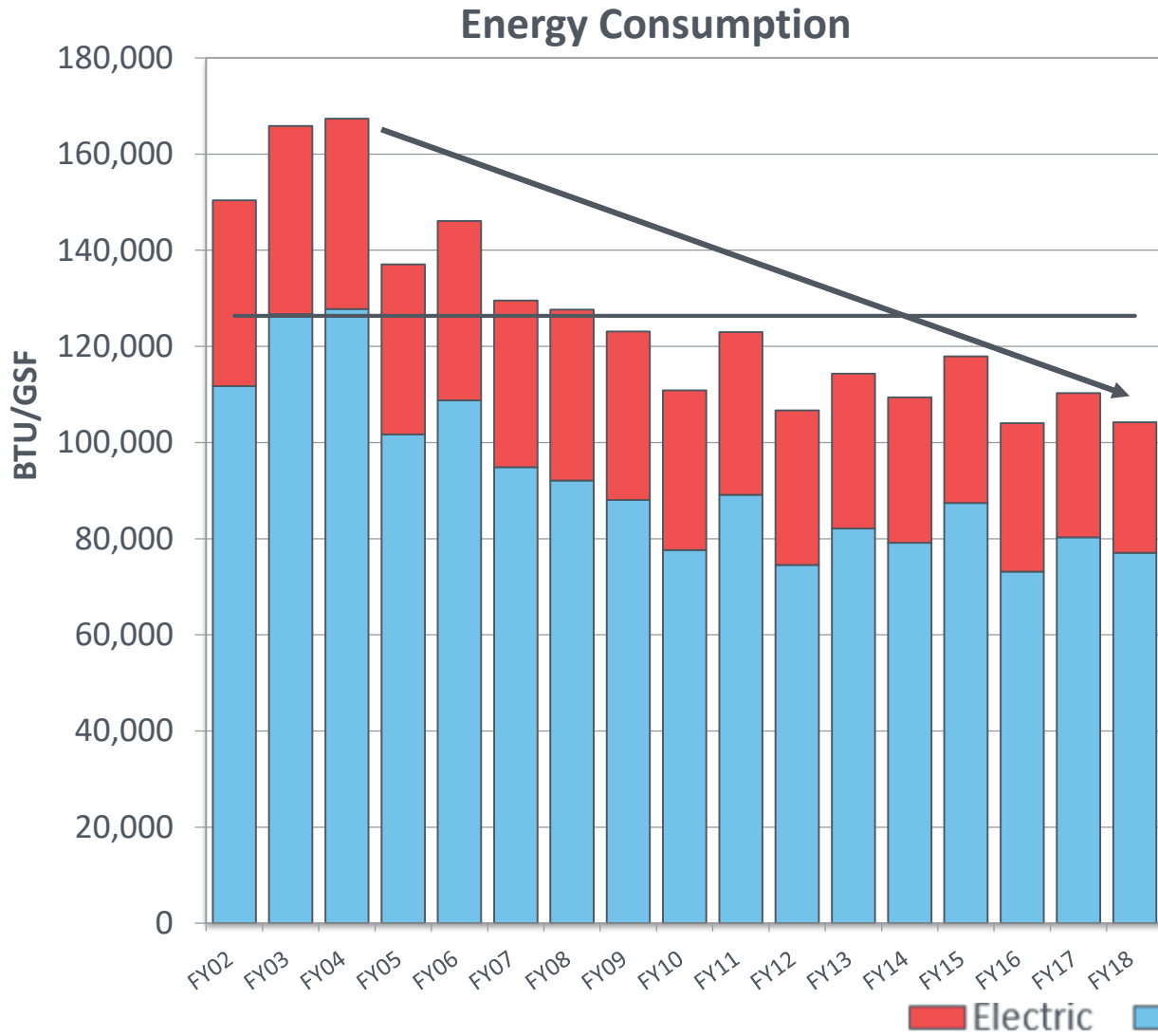Operates with $259K less in Daily Service dollars or $367K less than total Operating Actuals, including PM



Facilities Operating Actuals

Total Planned Maintenance
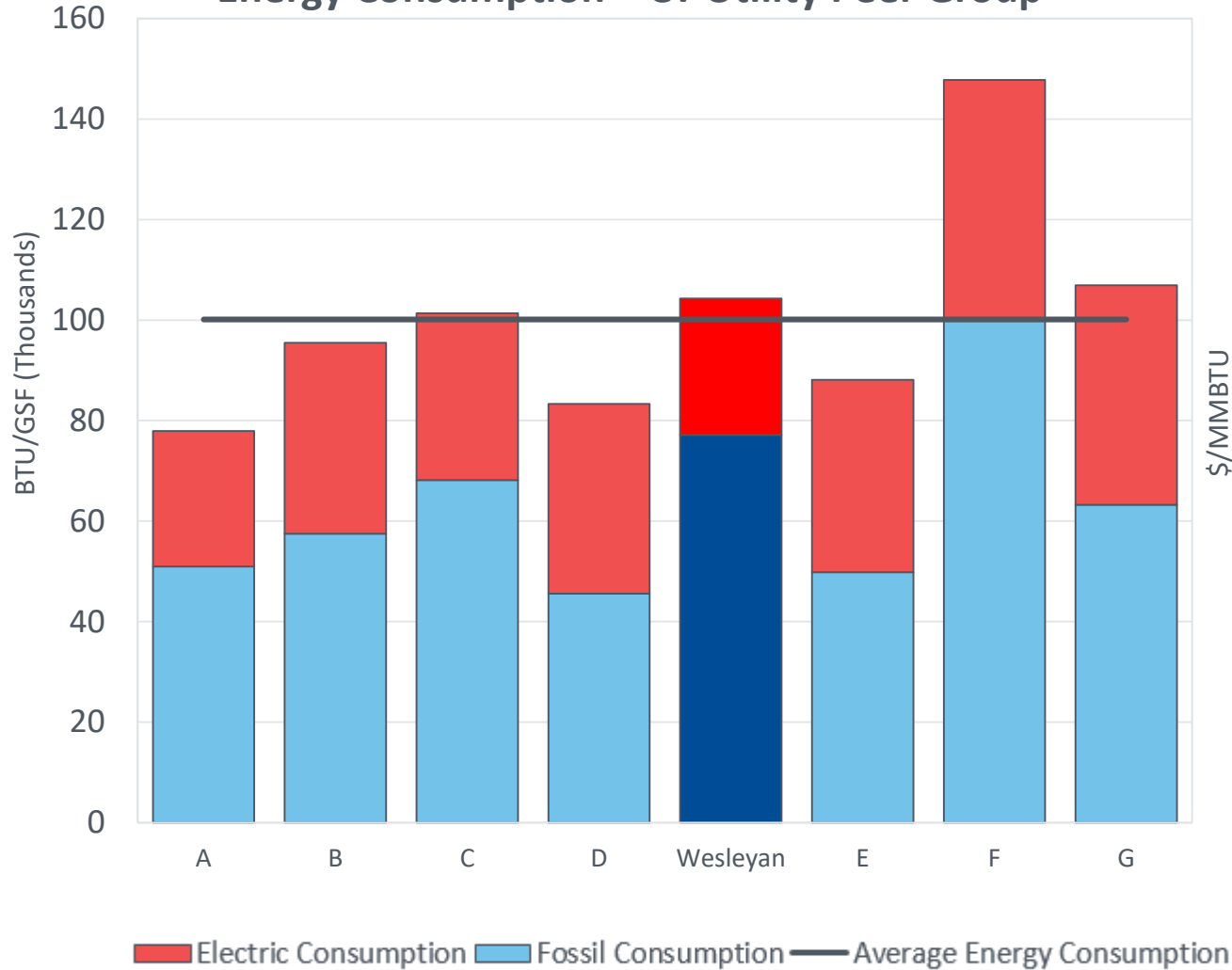
*Additional $168K needed to reach SLAC average*

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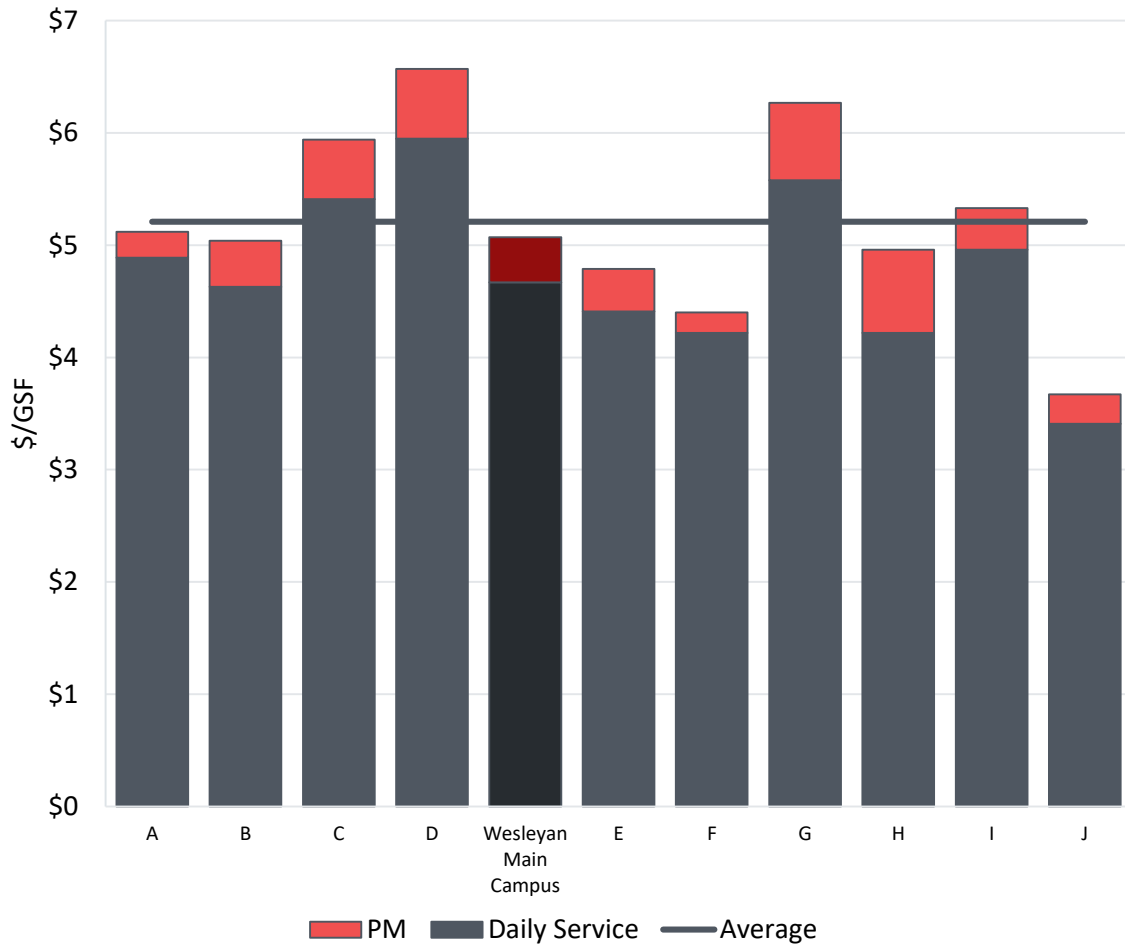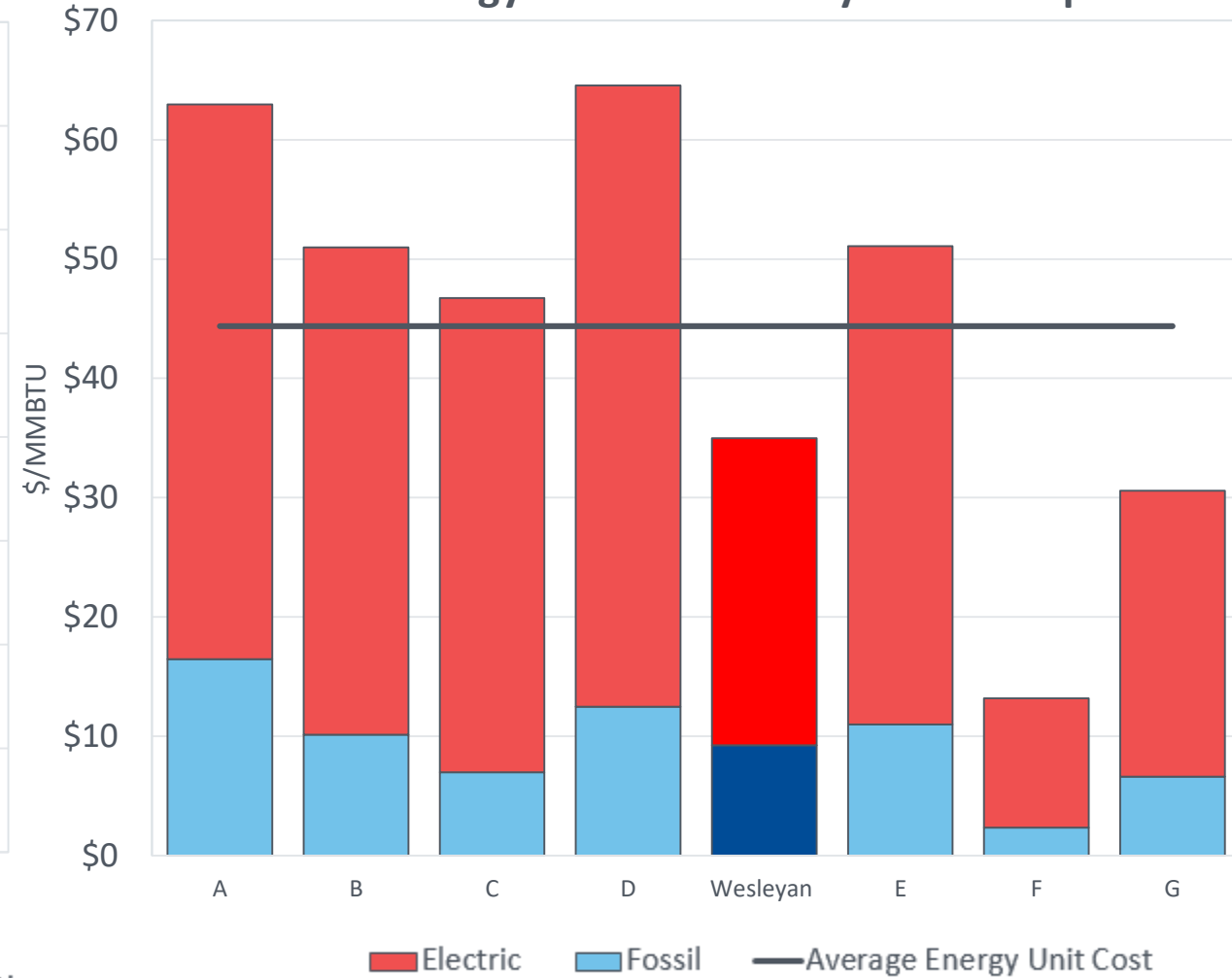
# Wesleyan's Historical Utility Consumption and Cost

# FY18 CT Peer Consumption and Unit Costs

**Energy Consumption – CT Utility Peer Group**

**Energy Costs – CT Utility Peer Group**

Electric Consumption — Fossil Consumption — Average Energy Consumption

Electric — Fossil — Average Energy Unit Cost

*CT Utility Peer Group* - Connecticut College, Fairfield University, Mitchell College, Trinity College, University of Connecticut, University of Hartford, University of New Haven

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Concluding Comments

# Concluding Comments

- **Proactively Implement "Portfolios"**
  - Intentionally allocate resources to certain assets and avoid others. These priorities must be developed and communicated throughout the entire institution.

- **Develop Resiliency and Efficiency in Operations**
  - Leverage data and technology to improve efficiencies and create operations that are resilient to economic uncertainty or demographic headwinds.

- **Make Communication a Priority**
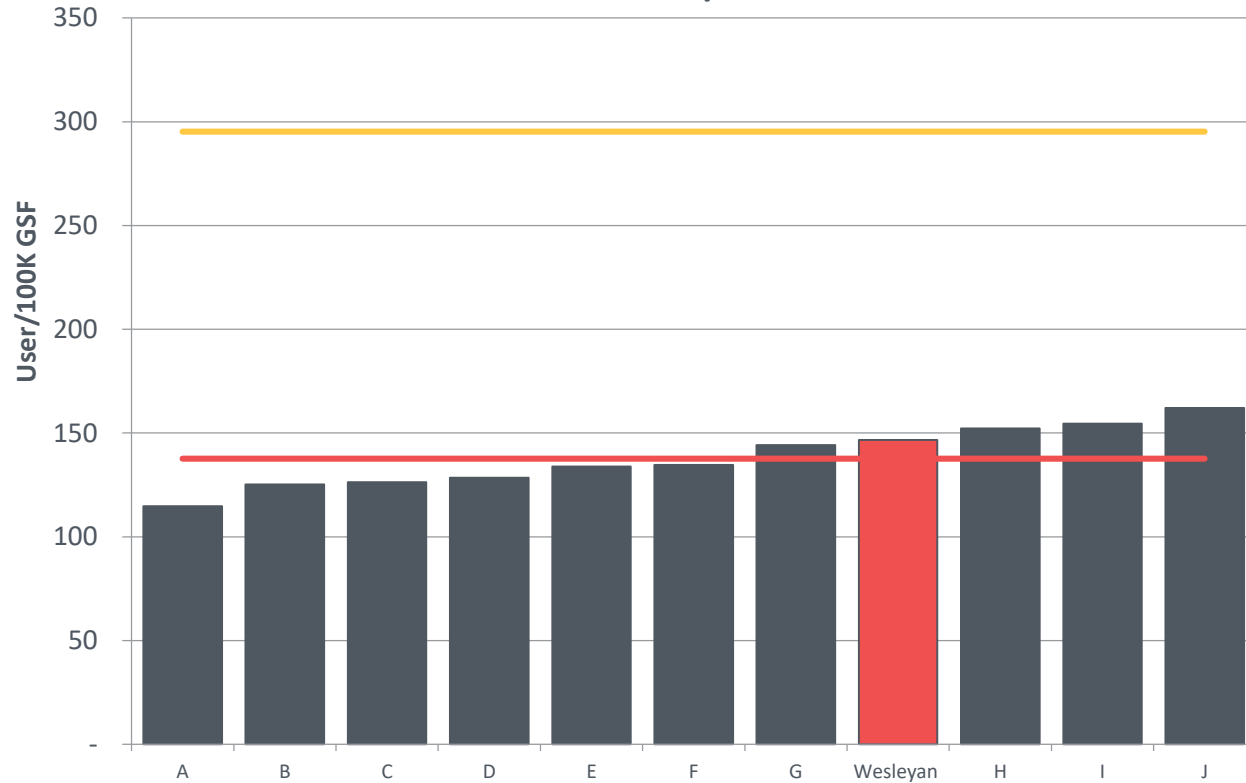  - Communicate directly with customers and "tell their story" throughout the institution.

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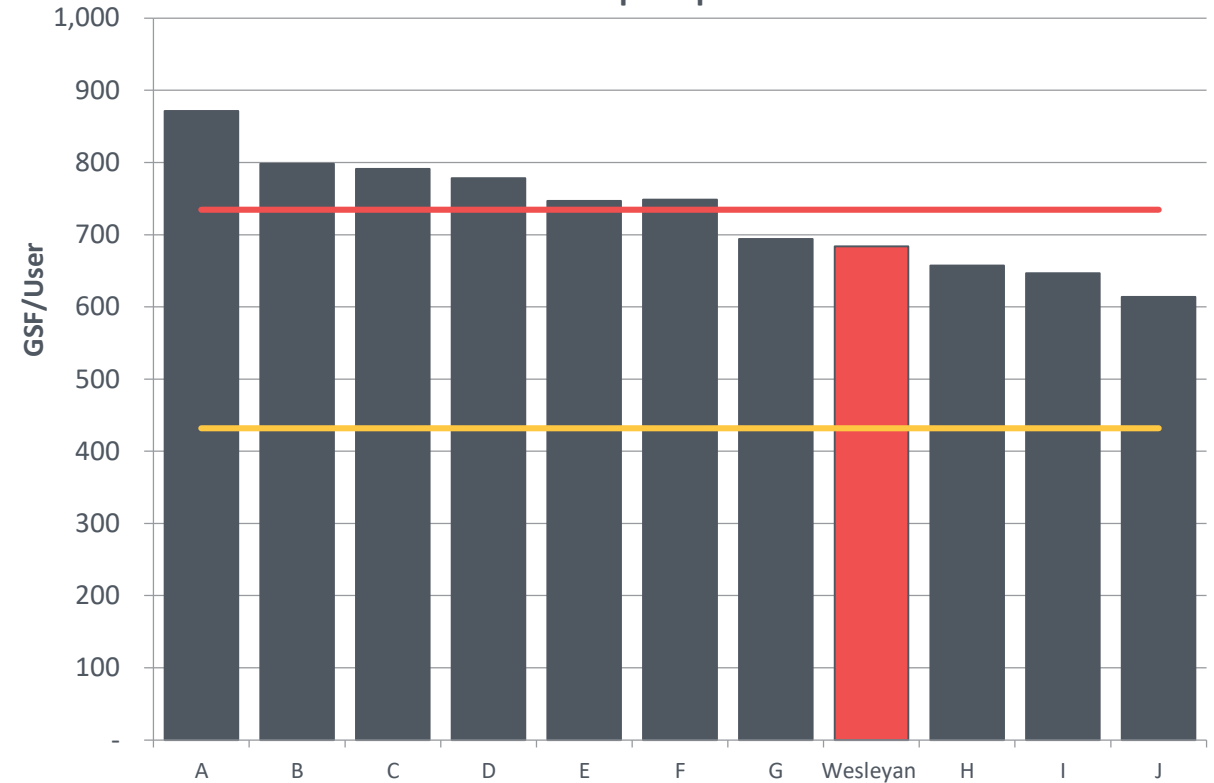Questions & Discussion

# Appendix

# Comparing the SLAC Institutions

**Density Factor**



**Total Space per User**



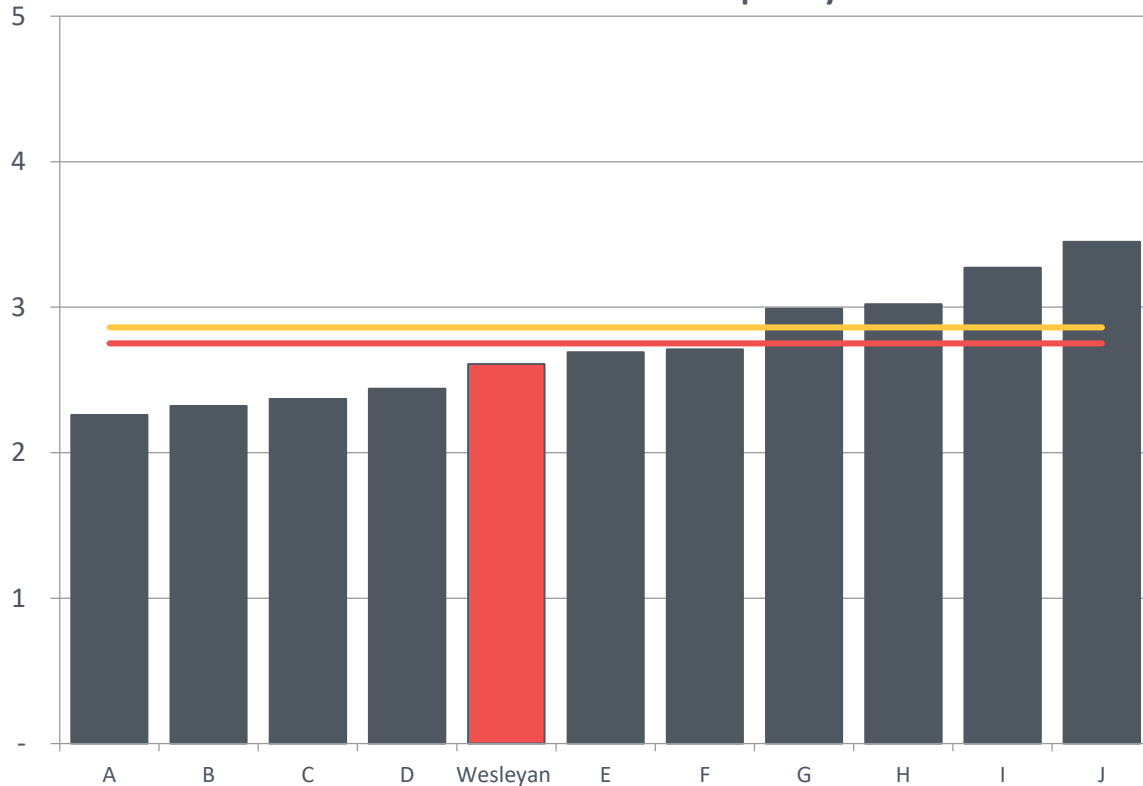**Density Factor Impacts:**
- Daily Operating Costs
- 'Wear and Tear' on Facilities
- Maintenance & Custodial Operations
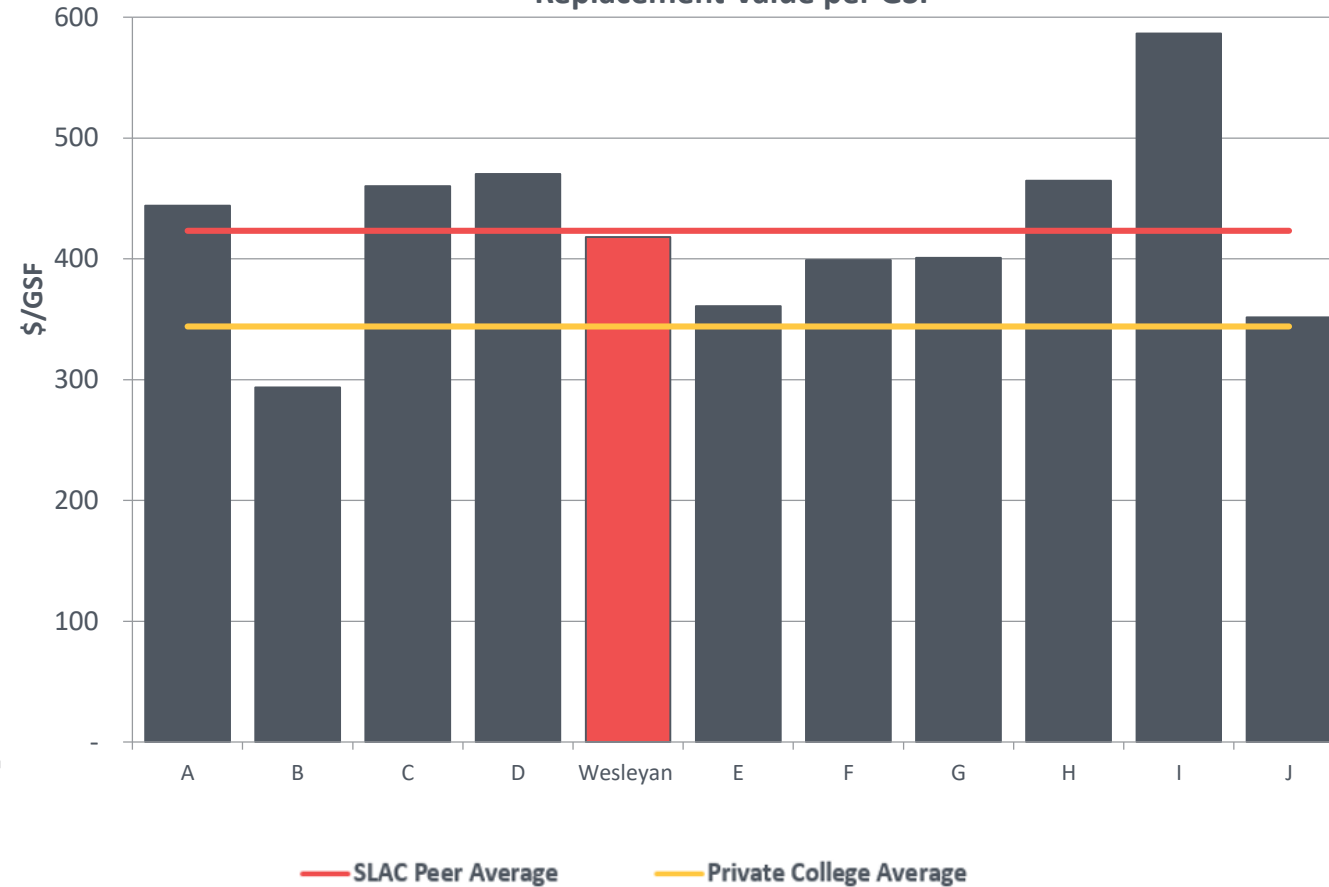- Capital Replacement Timelines

— SLAC Peer Average        — Private College Average

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# Comparing the SLAC Institutions



**Technical Complexity**
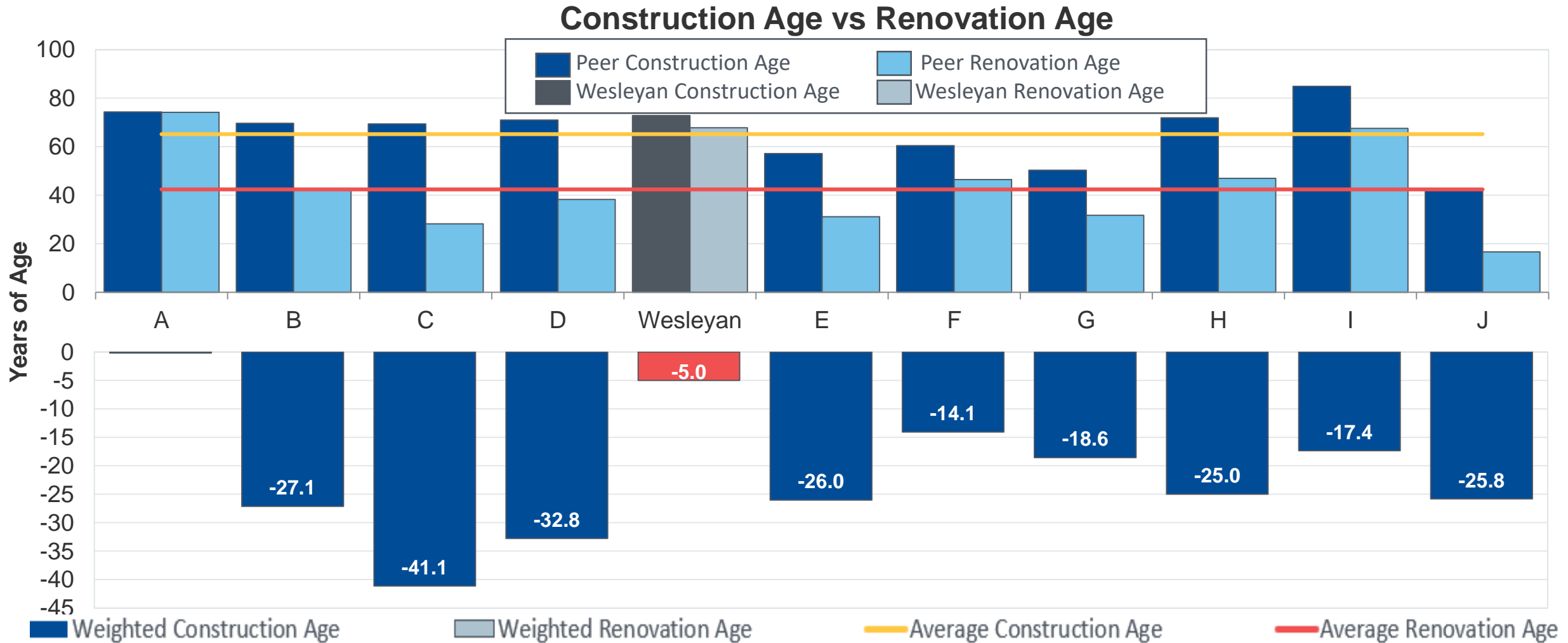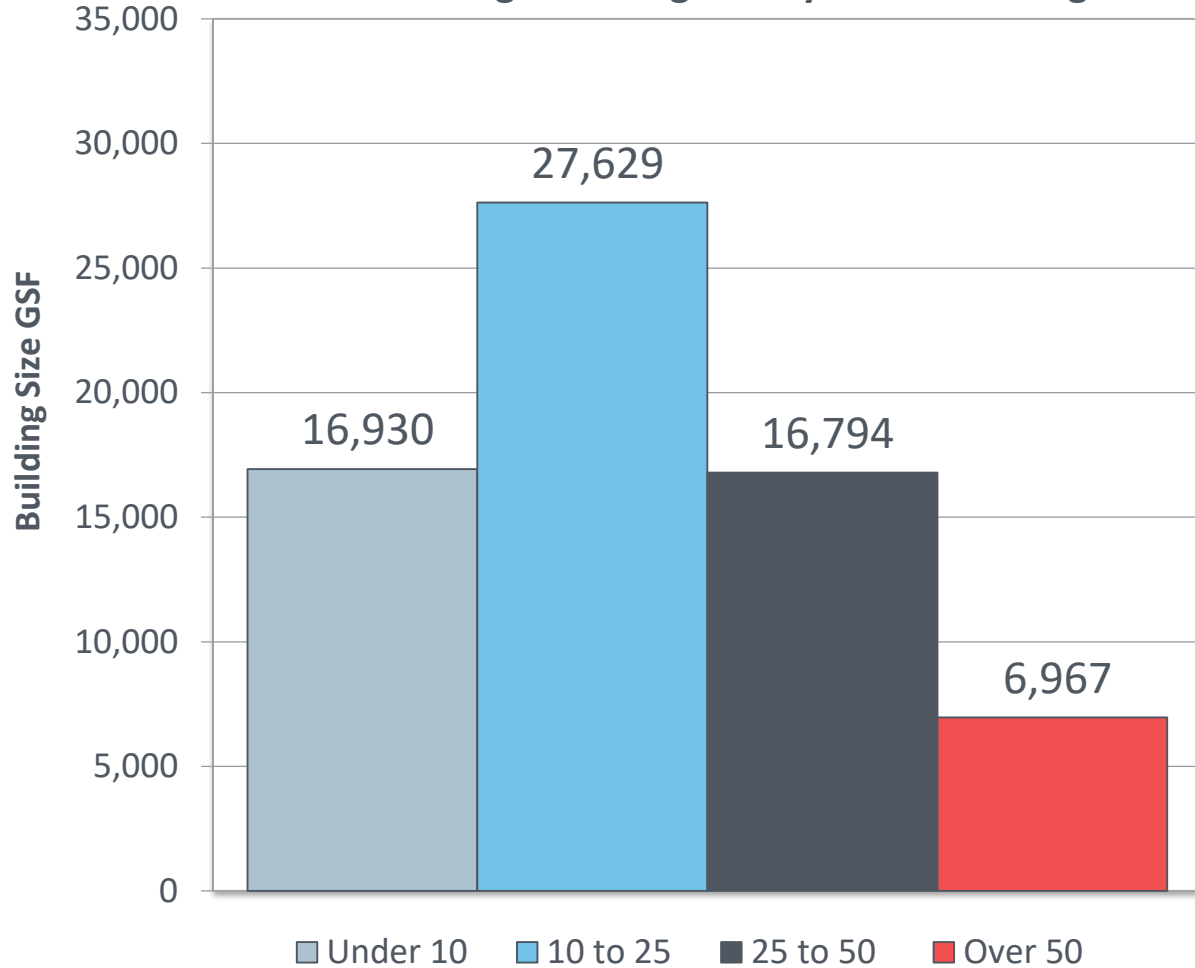
Technical Complexity Impacts:
- Daily Operating Costs
- Maintenance Trades Staffing Mix
- Energy Consumption
- Capital Replacement Costs

**Replacement Value per GSF**

— SLAC Peer Average     — Private College Average

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# Construction Age and Renovation Age vs. Peers



Construction Age vs Renovation Age

Legend:
- Peer Construction Age
- Peer Renovation Age
- Wesleyan Construction Age
- Wesleyan Renovation Age

Y-axis (top chart): Years of Age

Bottom chart values by category:
- A: (none)
- B: -27.1
- C: -41.1
- D: -32.8
- Wesleyan: -5.0
- E: -26.0
- F: -14.1
- G: -18.6
- H: -25.0
- I: -17.4
- J: -25.8

Legend (bottom):
- Weighted Construction Age
- Weighted Renovation Age
- Average Construction Age
- Average Renovation Age

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# Smallest Buildings are the Oldest



**Average Building Size by Renovation Age**

Under 10: 16,930
10 to 25: 27,629
25 to 50: 16,794
Over 50: 6,967

Legend: Under 10 | 10 to 25 | 25 to 50 | Over 50

**Average Building Size vs. SLAC Peers**

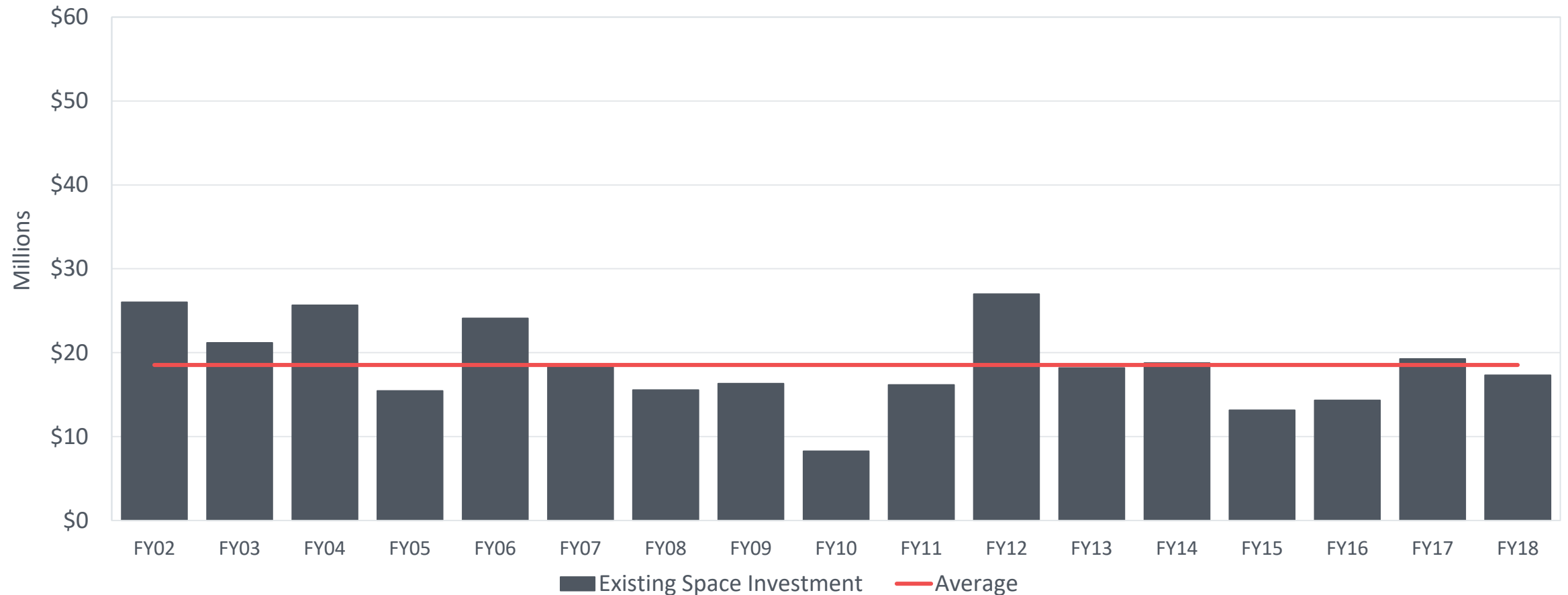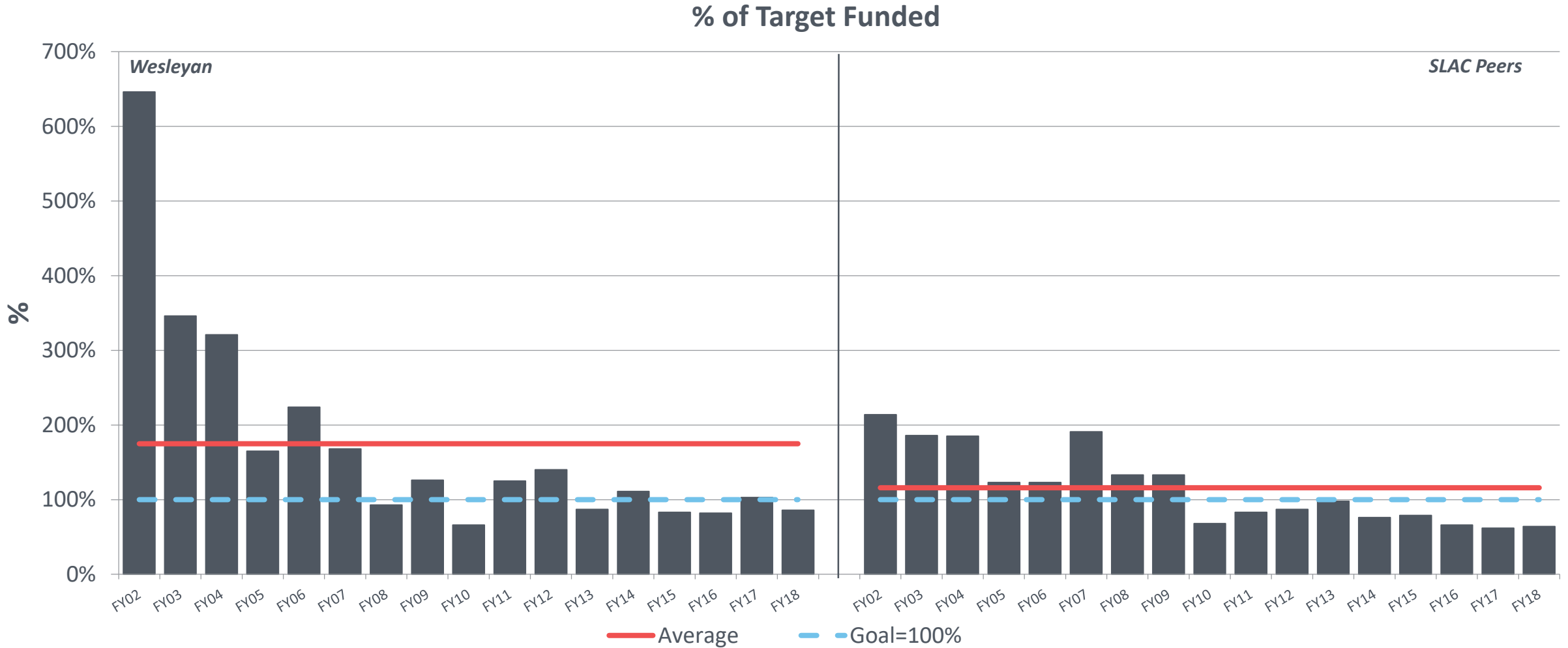Categories: A, B, C, D, Wesleyan, E, F, G, H, I, J

SLAC Average

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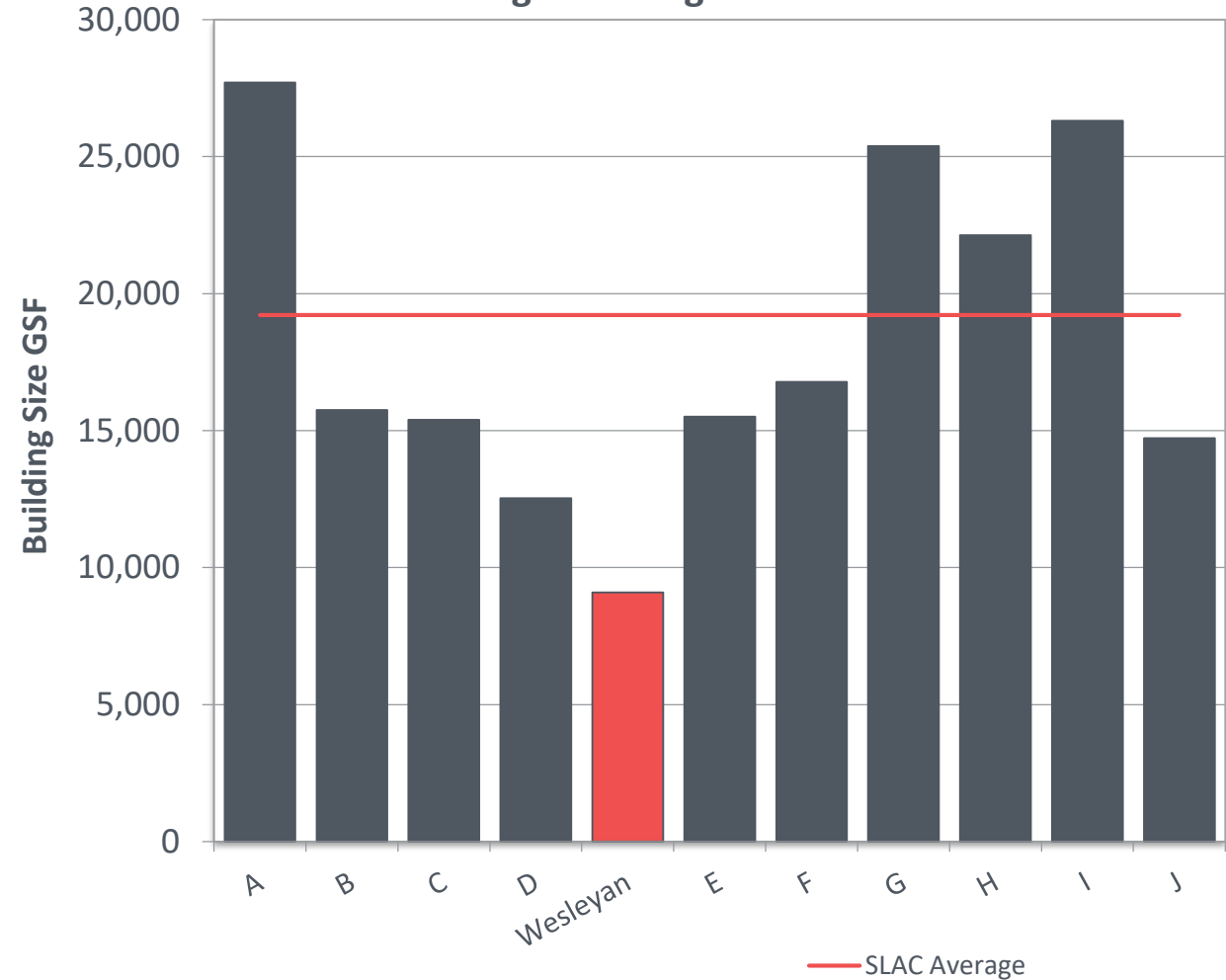
# Investment into Existing Space Decreases In FY2018

Average annual investment: $18.5M

**Total Capital/Major Maintenance Investments from FY02-FY18**

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# Wesleyan Meets Higher % of Target

**% of Target Funded**
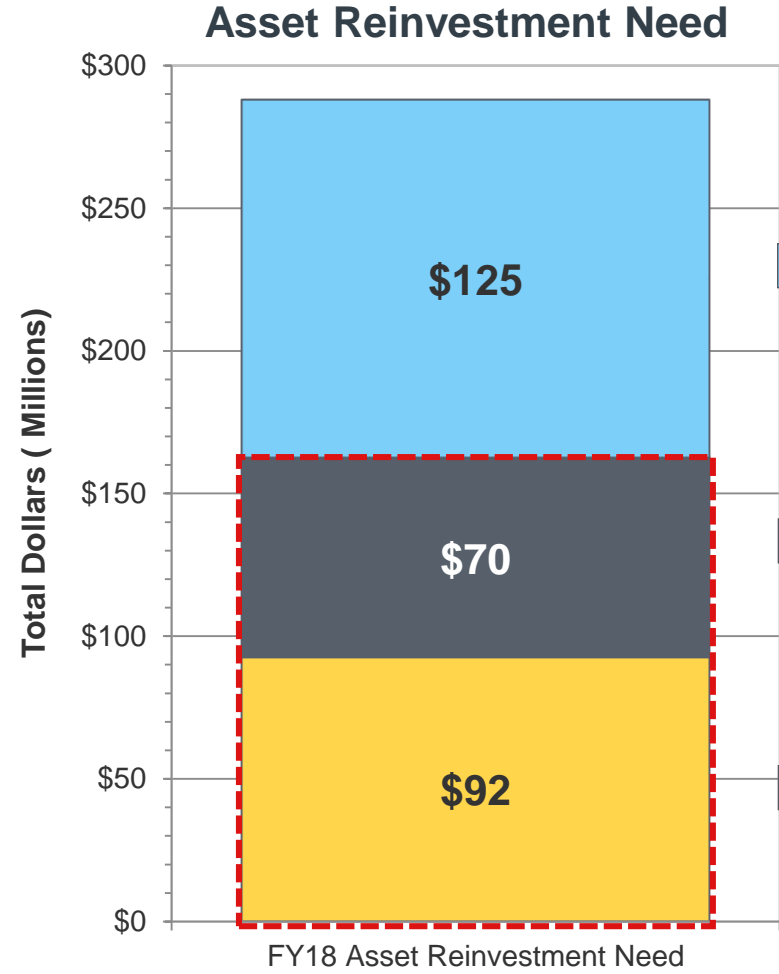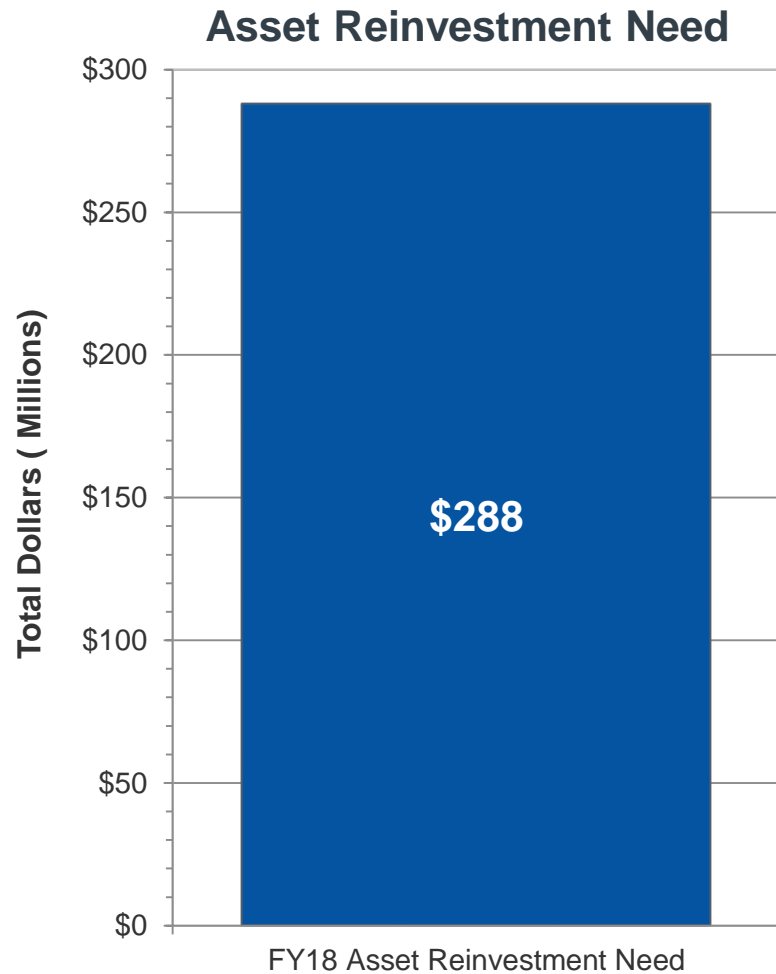
# FY18 Total Asset Reinvestment Need Above SLAC Average

Wesleyan's Backlog is at $104/GSF;  SLAC Peers: $74/GSF; SL database: $89/GSF

**Total Asset Reinvestment Need vs. SLAC Average**



*SLAC average is $66/GSF without Peer A*

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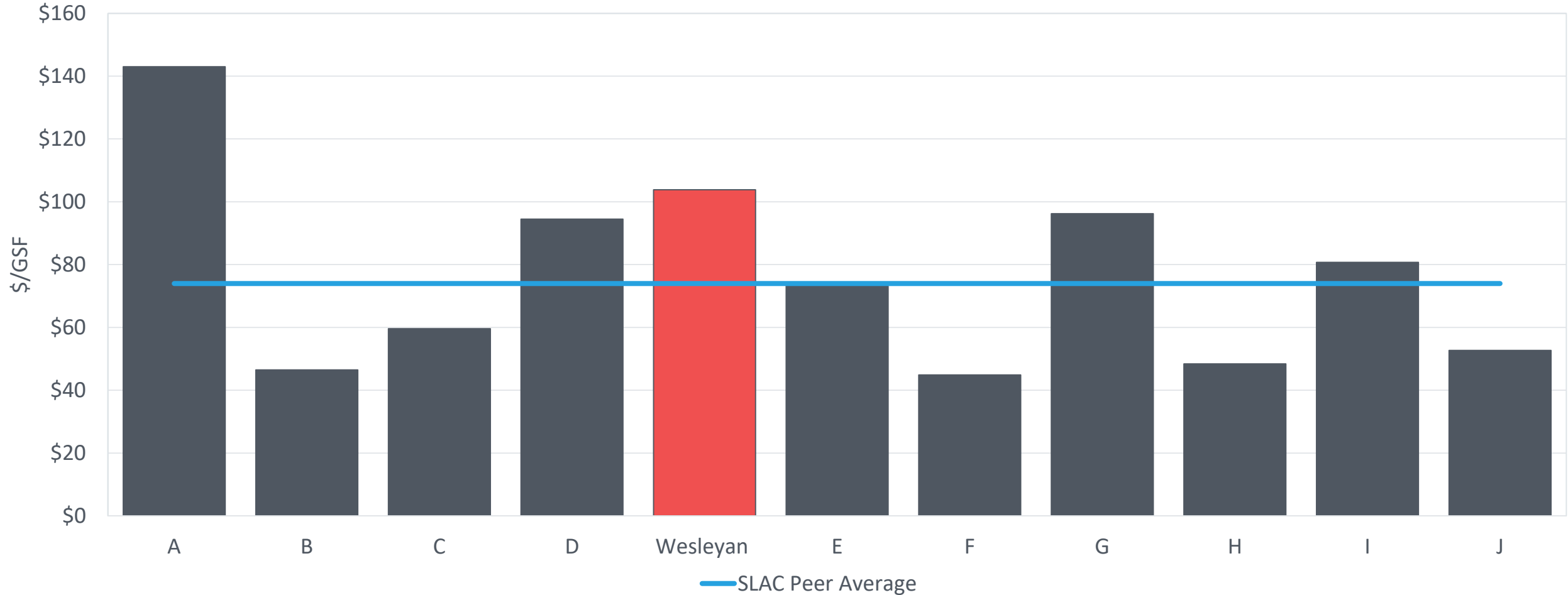
# Wesleyan's Ten Year Backlog of Need

Sightlines quantifies $162 Million in system-specific need

## Asset Reinvestment Need

**$288**

FY18 Asset Reinvestment Need

Total Dollars ( Millions)

## Asset Reinvestment Need

**$125**

**$70**

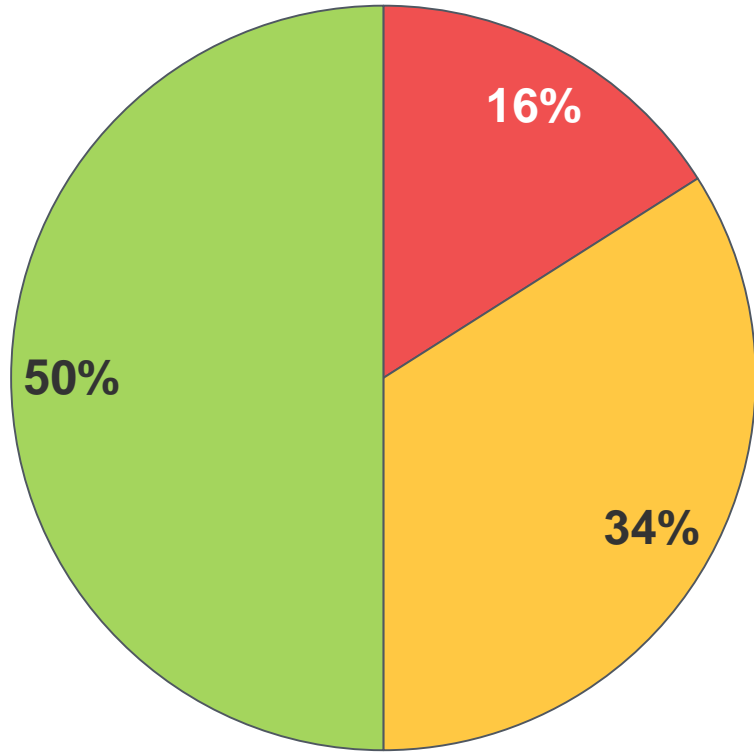**$92**

FY18 Asset Reinvestment Need

Total Dollars ( Millions)

✓ Modernization/Programmatic need is $125M.
✓ Sightlines recommends a 10 year capital strategy to address the total need.

✓ Total 10 year renewal need is $70M.
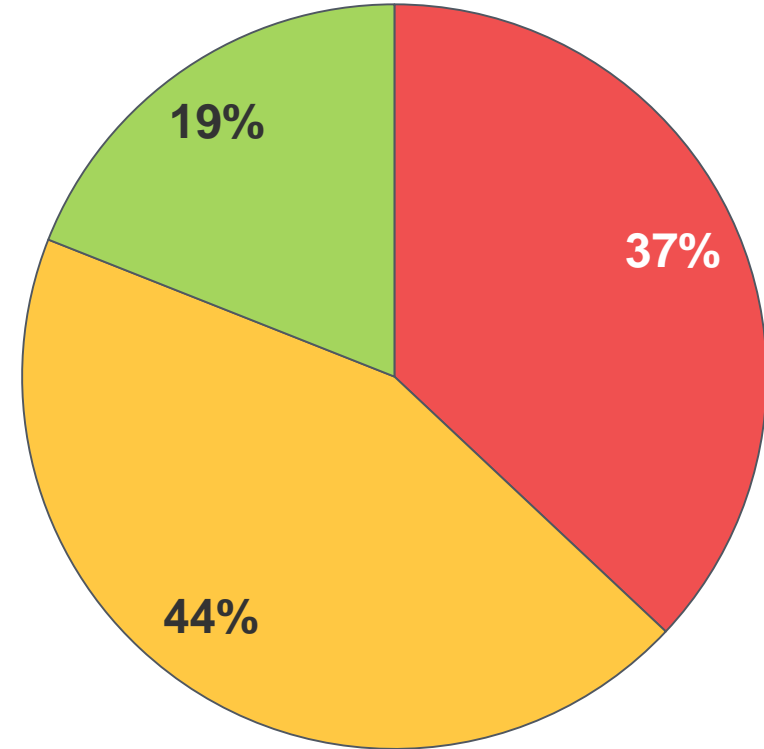✓ This represents the life cycle needs coming due between 2019-2028.

✓ Current Need Today *(Backlog)*

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# Understanding the Risk of Wesleyan's Backlog of Need

**Buildings Within the Prediction Analysis**



38 Buildings of Wesleyan's Top 100 Highest Need Buildings

49 Buildings of Wesleyan's Top 100 Highest Need Buildings

13 Buildings of Wesleyan's Top 100 Highest Need Buildings

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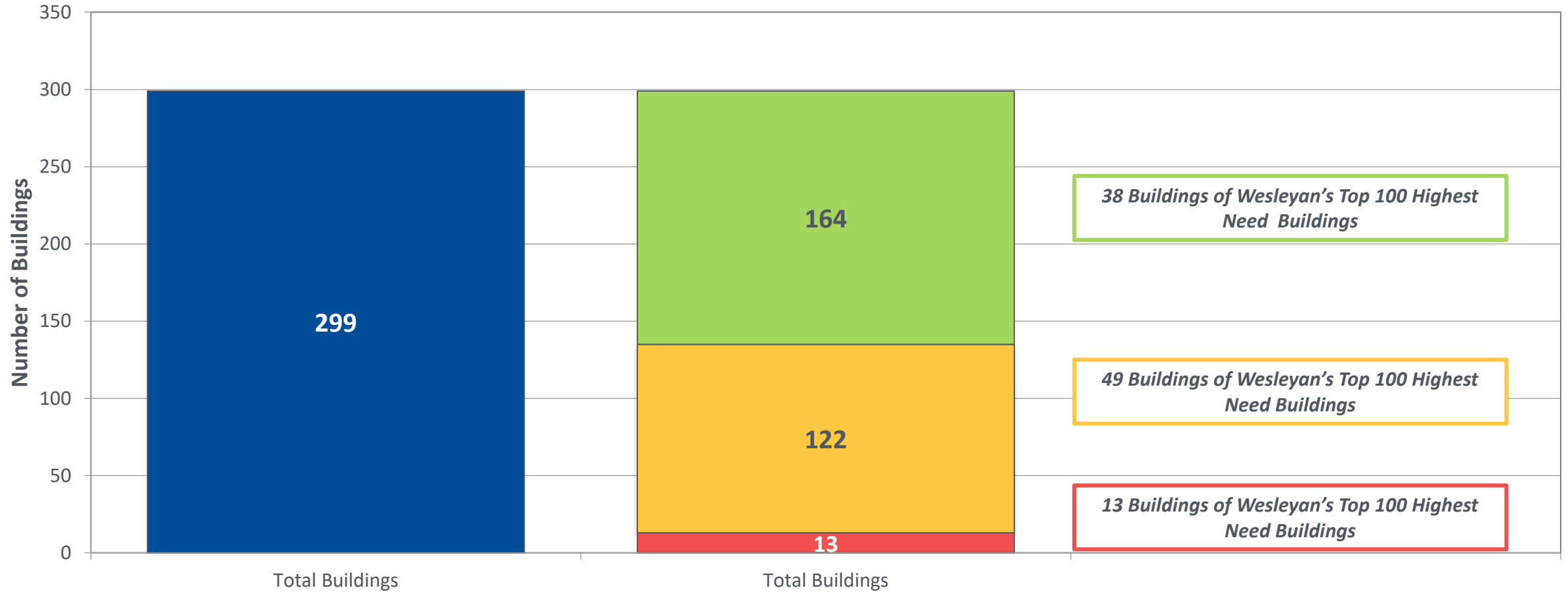
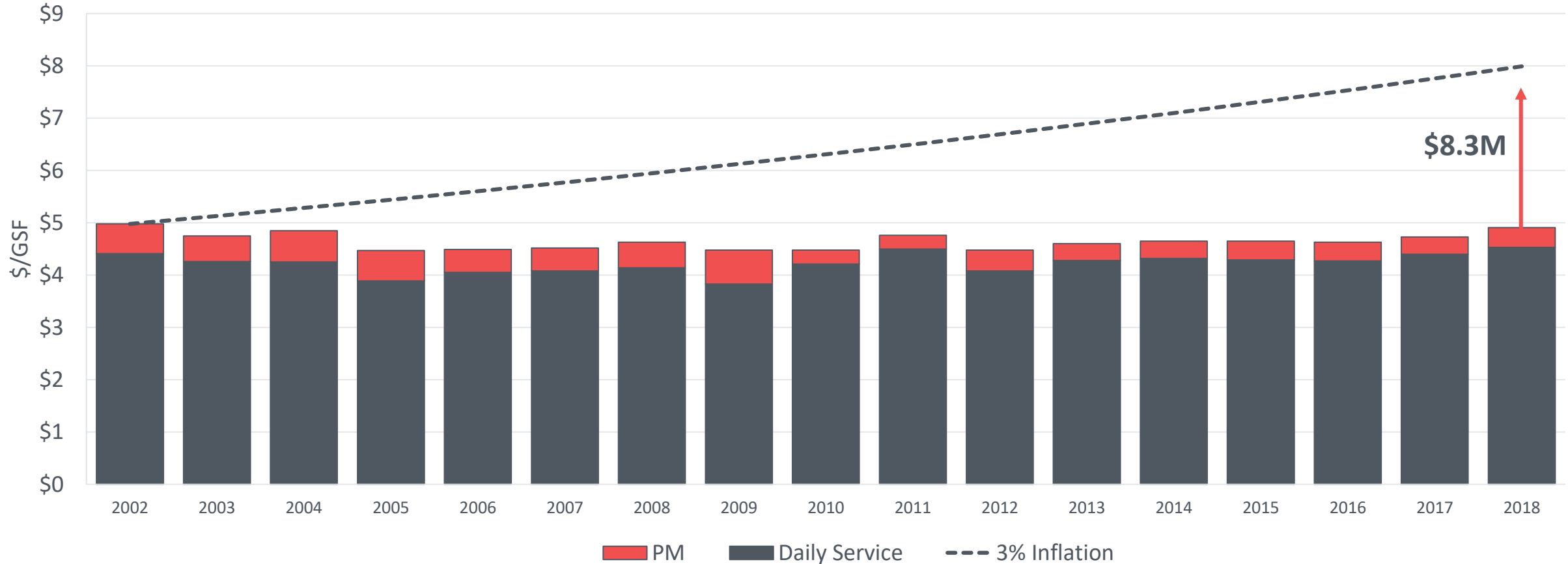# Examining Facilities Need Geographically
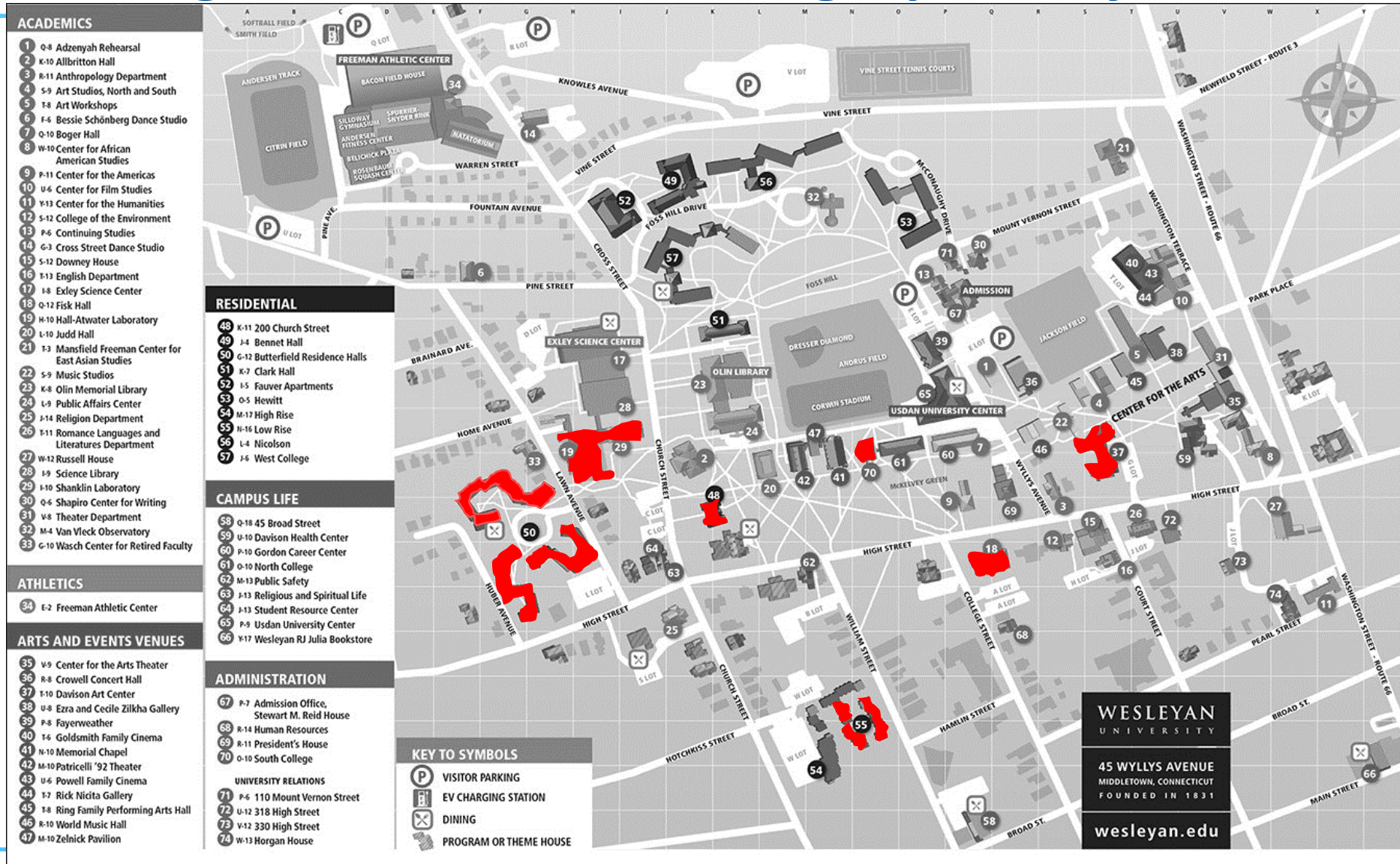
# Facilities Operating Expenditures



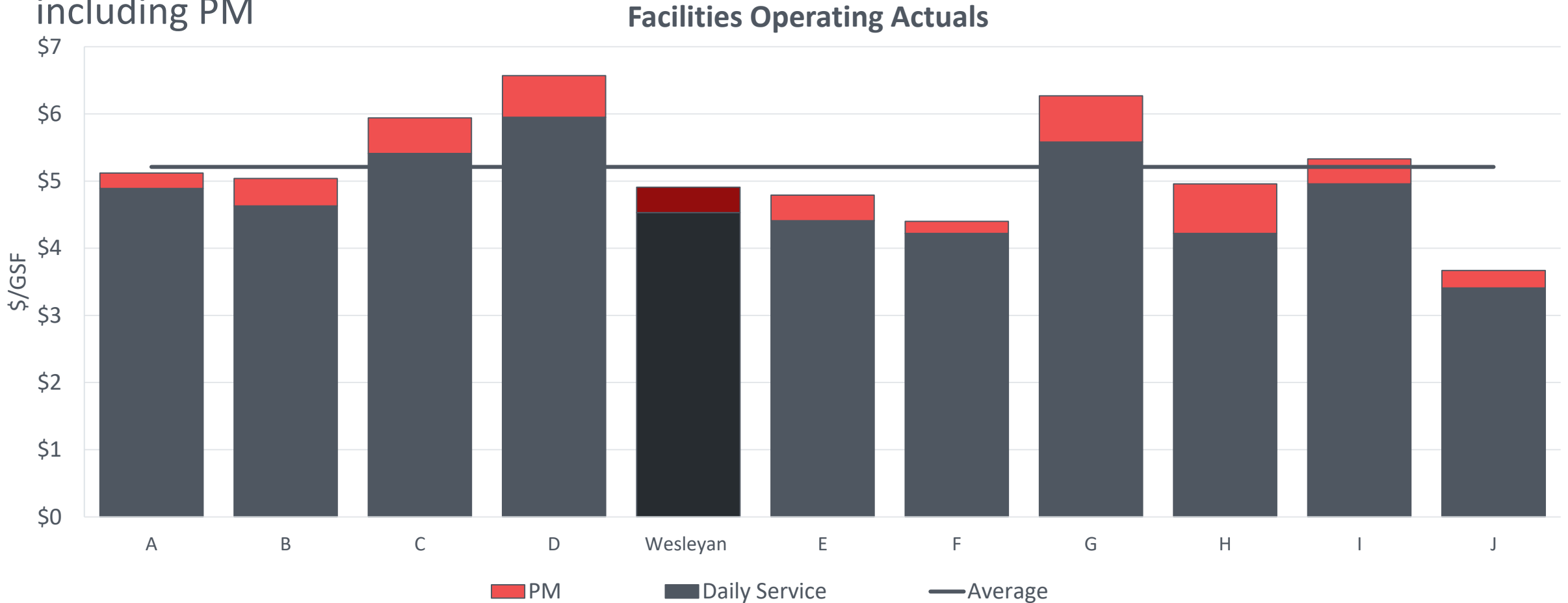Facilities Operating Actuals
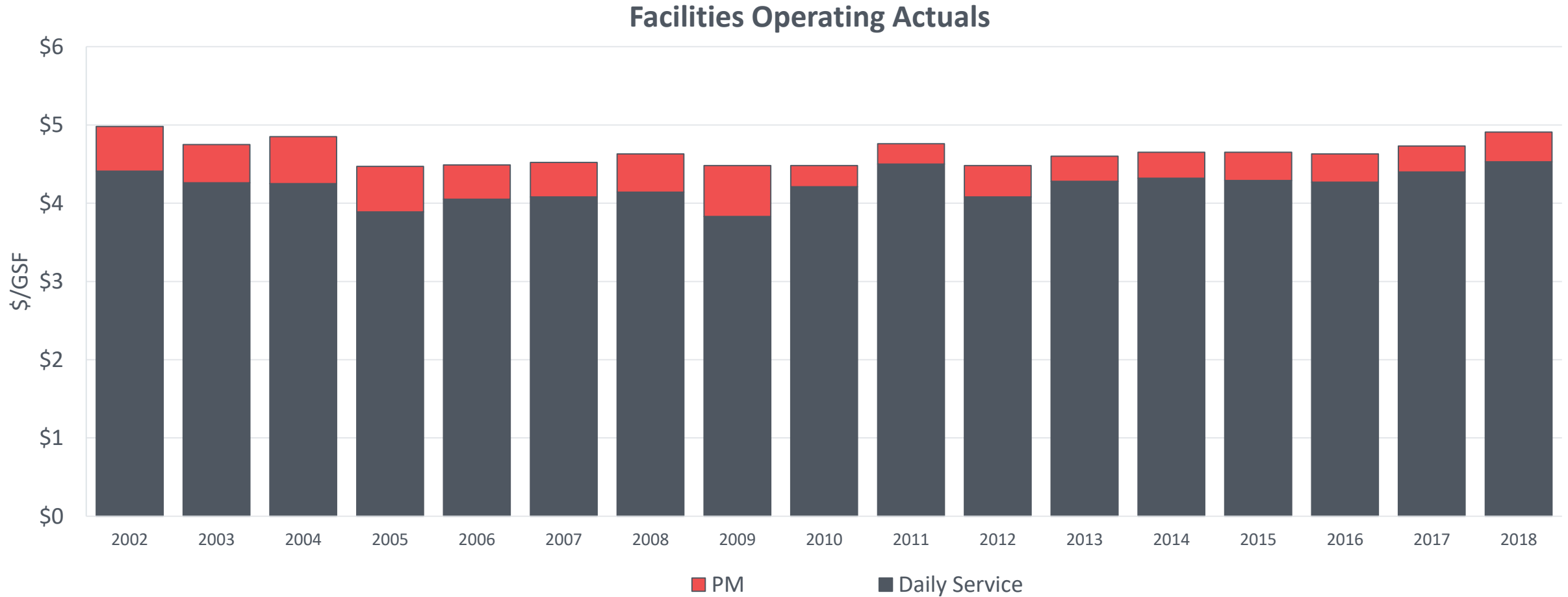
# Operating Efficiencies Save $8.3M Annually by FY18

Investment of $3.01/GSF or $8.3M additional resources to match inflation growth in FY18

**Facilities Operating Actuals**

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# FY18 Facilities Utilities Costs



**Facilities Utilities Costs**
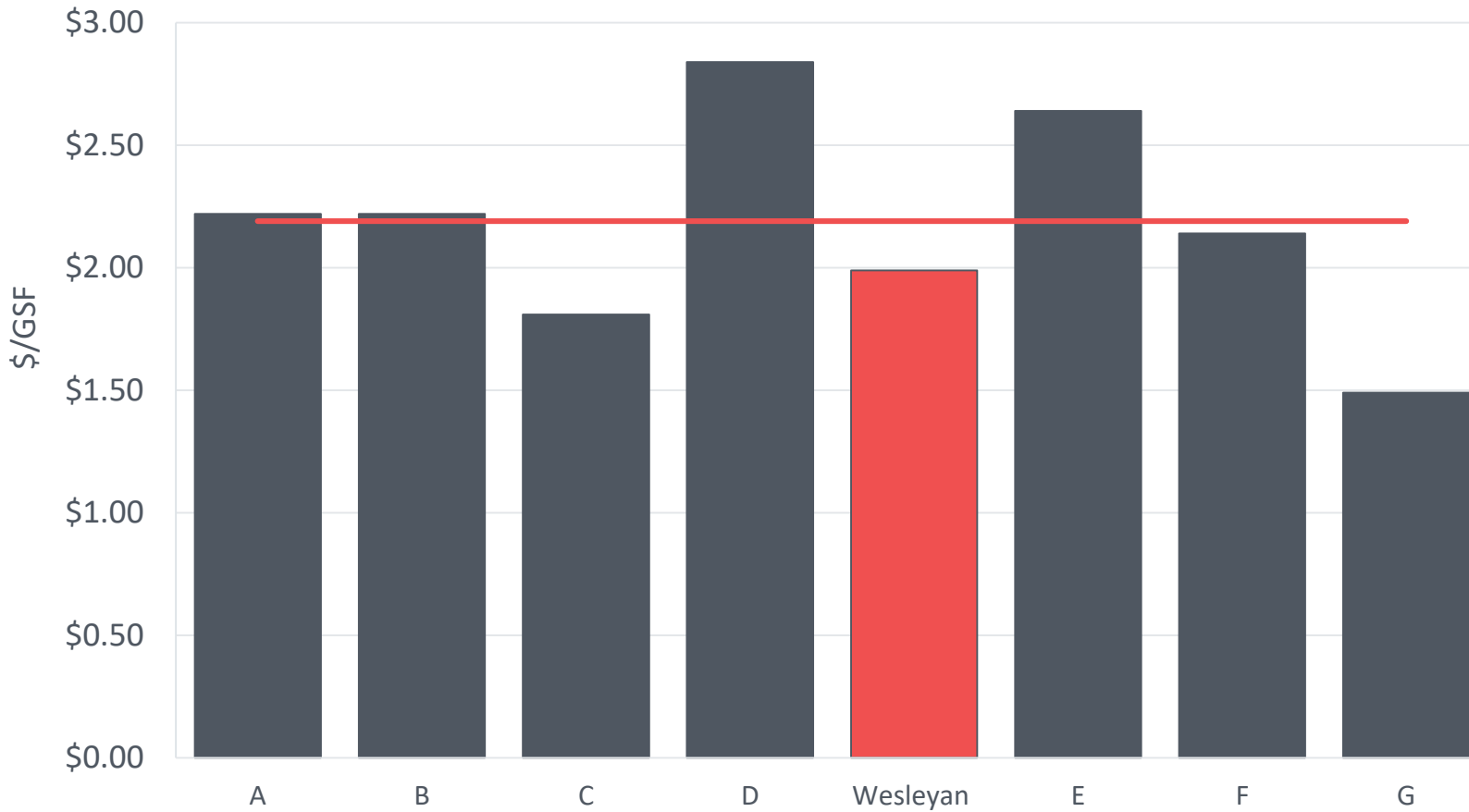
**Connecticut Utility Average**

- Connecticut College
- Fairfield University
- Mitchell College
- Trinity College
- University of Connecticut
- University of Hartford
- University of New Haven

# Supervision Levels and Material Costs

| Maintenance | Wesleyan | SLAC Average | Private School Average |
|---|---|---|---|
| FTE's per Supervisor | 8.88 | 16.10 | 13.20 |
| Total Materials $/GSF | $0.32 | $0.22 | $0.27 |

| Custodial | Wesleyan | SLAC Average | Private School Average |
|---|---|---|---|
| FTE's per Supervisor | 16.87 | 19.67 | 19.56 |
| Total Materials $/GSF | $0.09 | $0.13 | $0.14 |

| Grounds | Wesleyan | SLAC Average | Private School Average |
|---|---|---|---|
| FTE's per Supervisor | 25.67 | 14.44 | 13.02 |
| Total Materials $/Acre | $429 | $660 | $928 |

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# Planned Maintenance Below SLAC Average

Additional $168K needed to reach SLAC average



**Total Planned Maintenance**

**Opportunity for Cost Avoidance:**

Invest $1.00 in Planned Maintenance now
OR
Spend $2.73 in reactive maintenance later*

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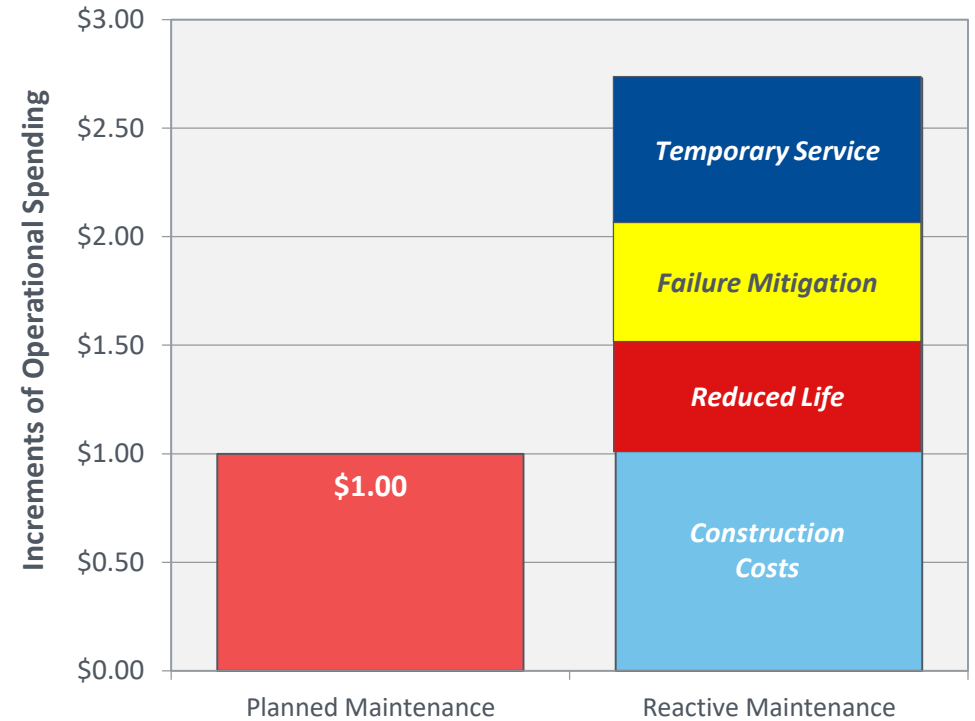
# Proactively Implement "Portfolios"

**Successful institutions will intentionally allocate resources to certain assets and avoid others. These priorities must be developed and communicated throughout the entire institution.**

**(1)** **Which assets are not long term assets?**
- **Will these receive any funding?**
- **Are these targets for demolition or replacement?**

**(2)** **Which assets are core to the mission/strategy of the institution?**
- **How will these be invested in differently from other assets?**

**(3)** **What is our strategy around new space?**
- **Replacement or "net-new" space?**
- **What is the strategy for understanding operating and future capital costs?**

# Develop Resiliency and Efficiency in Operations

**Operating without the resources you had a decade ago, it will be critical for facilities organizations to leverage data and technology to improve efficiencies and create operations that are resilient to economic uncertainty or demographic headwinds.**

**(1)** **How can data be used to target limited resources to the highest needs?**
- **Tying capital needs to operational costs through the work order system**

**(2)** **Where can technology be implemented to minimize the personnel needed to maintain a building?**
- **Building automation to control systems and pinpoint problems**
- **Sensing and detection technology to predict component failures or reduced operating capacity**

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# Make Communication a Priority

Facilities organizations must communicate directly with customers and "tell their story" throughout the institution.

(1) What is most important to your customers and how do you deliver on it?

(2) Do your customers understand the constraints you are under?

(3) How can you involve your customers in the decision around resource trade offs?

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