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
Wesleyan Peer Institutions

**SLAC Institutions**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst College</td>
<td>Amherst, MA</td>
</tr>
<tr>
<td>Bowdoin College</td>
<td>Brunswick, ME</td>
</tr>
<tr>
<td>Bryn Mawr College</td>
<td>Bryn Mawr, PA</td>
</tr>
<tr>
<td>Carleton College</td>
<td>Northfield, MN</td>
</tr>
<tr>
<td>Davidson College</td>
<td>Davidson, NC</td>
</tr>
<tr>
<td>Hamilton College</td>
<td>Clinton, NY</td>
</tr>
<tr>
<td>Mount Holyoke College</td>
<td>South Hadley, MA</td>
</tr>
<tr>
<td>Pomona College</td>
<td>Pomona, CA</td>
</tr>
<tr>
<td>Swarthmore College</td>
<td>Swarthmore, PA</td>
</tr>
<tr>
<td>Williams College</td>
<td>Williamstown, MA</td>
</tr>
</tbody>
</table>

Comparative Considerations

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

Density Factor

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

Technical Complexity

Technical Complexity Impacts:
- Daily Operating Costs
- Maintenance Trades Staffing Mix
- Energy Consumption
- Capital Replacement Costs
Space Profile
Wesleyan’s GSF Consistent Over Time

Institutional GSF Over Time

Rental Properties GSF Over Time

- Rental Properties
- Main Campus

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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

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Putting Your Campus Building Age in Context

% of GSF by Construction & Renovation Year

Pre-War
Built pre-1951
- Durable construction
- Older but lasts longer

43% of Wesleyan’s Space

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

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

Wesleyan

Sightlines Database- Construction Age

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67% of Wesleyan’s Campus Over 50 Years Old

**Campus Reno Age by Category**

- **Buildings Under 10 (Less than 10 years old)**
  - Under 10: 14%
  - 10 to 25: 14%
  - 25 to 50: 14%
  - Over 50: 72%
- **Wesleyan Renovation Age (10 to 25 years old)**
  - Under 10: 14%
  - 10 to 25: 14%
  - 25 to 50: 17%
  - Over 50: 67%
- **SLAC Renovation Age (25 to 50 years old)**
  - Under 10: 14%
  - 10 to 25: 14%
  - 25 to 50: 18%
  - Over 50: 36%

**Risk Levels**

- **Low Risk**
  - Buildings 10 to 25: Short life-cycle needs; primarily space renewal.
  - Buildings 25 to 50: Major envelope and mechanical life cycles come due.
  - Buildings Over 50: Life cycles of major building components are past due. Failures are possible. Core modernization cycles are missed.

- **Medium Risk**

- **High Risk**
  - Buildings Over 50: Core modernization cycles are missed.

- **Highest Risk**
  - Buildings Over 50: Life cycles of major building components are past due. Failures are possible.
Waves of Construction Drive Increasing Capital Need

<table>
<thead>
<tr>
<th>System</th>
<th>SL Standard Life Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofing</td>
<td>25 years</td>
</tr>
<tr>
<td>Electrical</td>
<td>25 years</td>
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<tr>
<td>Exteriors</td>
<td>30 years</td>
</tr>
<tr>
<td>HVAC</td>
<td>30 years</td>
</tr>
<tr>
<td>Plumbing</td>
<td>35 years</td>
</tr>
</tbody>
</table>

Driver: Enrollment Growth

Driver: Program/Amenity Growth

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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
FY18 Investments Similar to Peers

Total Investment $/GSF vs. Peers

- Wesleyan
- SLAC Peers

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

Annual Funding Target: $14.4M

FY18 Annual Investment Target

- 3% Replacement Value: $34.7M
- Life Cycle Need:
  - Envelope/Mechanical: $13.1M
  - Space/Program: $13.2M
- Annual Investment Target:
  - Envelope/Mechanical: $4.6M
  - Space/Program: $9.8M

Replacement Value: $1.15B

Sightlines Recommendation
Chasing A Growing Target

Capital/Major Maintenance Investments to Target

- Increasing Net Asset Value
- Lowering Risk Profile
- Increasing Backlog & Risk

*Investment into existing space

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

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

FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13 FY14 FY15 FY16 FY17 FY18

$ in Millions

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Chasing A Growing Target

Capital/Major Maintenance Investments to Target

- Increasing Net Asset Value
- Lowering Risk Profile
- Increasing Backlog & Risk

*Investment into existing space

Annual Stewardship | Asset Reinvestment | Annual Investment Target | Life Cycle Need
FY18 % of Target Funded

Wesleyan is meeting 86% of target

% of Target Funded

Wesleyan is above the peer average.
Total Asset Reinvestment Need

Wesleyan’s Backlog is at $104/GSF; SLAC Peers: $74/GSF; SL database: $89/GSF
Wesleyan’s Ten Year Backlog of Need - $288M total need

Sightlines quantifies $162 Million in system-specific need

<table>
<thead>
<tr>
<th>Total Dollars (Millions)</th>
<th>FY18 Wesleyan AR Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td>$92</td>
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<tr>
<td>$50</td>
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<td>$250</td>
<td>$300</td>
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<tr>
<td>$300</td>
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</tr>
</tbody>
</table>

Asset Reinvestment Need Distribution

- Wesleyan University
  - Modernization and Infrastructure Need: 44%
  - Renewal Need: 24%
  - Current Need: 32%

- SLAC Peer Comparison
  - Modernization and Infrastructure Need: 31%
  - Renewal Need: 44%
  - Current Need: 24%

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Buildings with Need Greater than $100/GSF

These buildings make up 16% of Wesleyan’s space

Buildings with Need >$100/GSF

*Includes only current and renewal needs

High Risk
$100/GSF and greater
Analysis of Building Needs

Buildings within the Prediction Analysis

- **Low Risk** (Less than $59/GSF): 164 buildings
- **Medium Risk** ($60-99/GSF): 122 buildings
- **High Risk** ($100/GSF and greater): 13 buildings

Total Square Footage

- **50%**: Low Risk
- **34%**: Medium Risk
- **16%**: High Risk

Total Campus Building Needs

- **37%**: High Risk ($100/GSF and greater)
- **44%**: Medium Risk ($60-99/GSF)
- **19%**: Low Risk (Less than $59/GSF)

*Includes only current and renewal needs*
Database Continues to use Recurring Dollars for Envelope and Mechanical Projects

*Investment Amounts Shown do not include Grounds + Utility Infrastructure
Wesleyan Uses Recurring Dollars for Envelope and Mechanical Projects

*Investment Amounts Shown do not include Grounds + Utility Infrastructure
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)
- High Risk – HVAC, Electrical, Plumbing: 25%
- Medium Risk – Exteriors, Roofing: 21%
- Low Risk – Interiors: 54%

Current and Renewal Need by Risk Category (FY19-FY28)
- High Risk – HVAC, Electrical, Plumbing: 60%
- Medium Risk – Exteriors, Roofing: 25%
- Low Risk – Interiors: 15%
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

$7.9M
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
Wesleyan’s Historical Utility Consumption and Cost

**Energy Consumption**

- BTU/GSF
- FY02 to FY18
- Electric and Fossil

**Energy Costs**

- $/MMBTU
- FY02 to FY18
- Average
FY18 CT Peer Consumption and Unit Costs

Energy Consumption – CT Utility Peer Group

Energy Costs – CT Utility Peer Group

*CT Utility Peer Group - Connecticut College, Fairfield University, Mitchell College, Trinity College, University of Connecticut, University of Hartford, University of New Haven
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.
Appendix
Comparing the SLAC Institutions

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

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Comparing the SLAC Institutions

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

Replacement Value per GSF

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Construction Age and Renovation Age vs. Peers

Construction Age vs Renovation Age

- Peer Construction Age
- Wesleyan Construction Age
- Peer Renovation Age
- Wesleyan Renovation Age

<table>
<thead>
<tr>
<th>Years of Age</th>
<th>Construction Age vs. Peers</th>
<th>Peer Construction Age</th>
<th>Wesleyan Construction Age</th>
<th>Peer Renovation Age</th>
<th>Wesleyan Renovation Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>Wesleyan</td>
<td>E</td>
</tr>
<tr>
<td>-45</td>
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<td>-40</td>
<td>-35</td>
<td>-30</td>
<td>-25</td>
<td>-20</td>
</tr>
</tbody>
</table>

Weighted Construction Age:
- A: -27.1
- B: -41.1
- C: -32.8
- D: -26.0
- E: -14.1
- F: -18.6
- G: -25.0
- H: -17.4
- I: -25.8

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

Average Building Size vs. SLAC Peers

- SLAC Average: 16,930
- 10 to 25: 27,629
- 25 to 50: 16,794
- Over 50: 6,967

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Investment into Existing Space Decreases In FY2018

Average annual investment: $18.5M

Total Capital/Major Maintenance Investments from FY02-FY18

*Excludes new space and non-facilities investments
**Includes Infrastructure
Wesleyan Meets Higher % of Target

% of Target Funded

Wesleyan

SLAC Peers

FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13 FY14 FY15 FY16 FY17 FY18

0% 100% 200% 300% 400% 500% 600% 700%

Average
Goal=100%
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
Wesleyan’s Ten Year Backlog of Need

Sightlines quantifies $162 Million in system-specific need

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)
Understanding Wesleyan’s Building Needs

**Total Square Footage**

<table>
<thead>
<tr>
<th>Percent of Space</th>
<th>Total Square Footage</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>16%</td>
<td></td>
</tr>
</tbody>
</table>

**Total Campus Building Needs**

<table>
<thead>
<tr>
<th>Total Campus Building Needs</th>
<th>Total Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>19%</td>
</tr>
</tbody>
</table>

*Includes only current and renewal needs*
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

Number of Buildings

Total Buildings

299

164

122

13
Examining Facilities Need Geographically

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Facilities Operating Expenditures

Facilities Operating Actuals

$/GSF

PM | Daily Service


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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

$/GSF


$0 $1 $2 $3 $4 $5 $6 $7 $8 $9

PM Daily Service 3% Inflation

$8.3M
FY18 Facilities Operating Expenditures

Operates with $662K less in Daily Service dollars or $830K less than total Operating Actuals, including PM

Facilities Operating Actuals

$/GSF

A
B
C
D
Wesleyan
E
F
G
H
I
J

PM
Daily Service
Average
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

<table>
<thead>
<tr>
<th></th>
<th>Wesleyan</th>
<th>SLAC Average</th>
<th>Private School Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maintenance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTE’s per Supervisor</td>
<td>8.88</td>
<td>16.10</td>
<td>13.20</td>
</tr>
<tr>
<td>Total Materials $/GSF</td>
<td>$0.32</td>
<td>$0.22</td>
<td>$0.27</td>
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<tr>
<td><strong>Custodial</strong></td>
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<td></td>
</tr>
<tr>
<td>FTE’s per Supervisor</td>
<td>16.87</td>
<td>19.67</td>
<td>19.56</td>
</tr>
<tr>
<td>Total Materials $/GSF</td>
<td>$0.09</td>
<td>$0.13</td>
<td>$0.14</td>
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<tr>
<td><strong>Grounds</strong></td>
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<tr>
<td>FTE’s per Supervisor</td>
<td>25.67</td>
<td>14.44</td>
<td>13.02</td>
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<tr>
<td>Total Materials $/Acre</td>
<td>$429</td>
<td>$660</td>
<td>$928</td>
</tr>
</tbody>
</table>
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*

$0.00
$0.10
$0.20
$0.30
$0.40
$0.50
$0.60
$0.70
$0.80

$/GSF

Planned Maintenance
Reactive Maintenance

$1.00

Increments of Operational Spending

Temporary Service
Failure Mitigation
Reduced Life
Construction Costs

*Data from Ozanne Analytics – research of Sightlines database of work orders comparing costs of corrective and emergency work orders to planned and preventative work orders
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
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?