Sightlines by the Numbers

Robust membership includes colleges, universities, consortiums and state systems

170 New members since 2013
4 Canadian provinces
52k buildings
90% Member retention rate
450 Colleges & Universities
335+ ROPA Members

Sightlines advises state systems in:
- Alaska
- California
- Florida
- Hawaii
- Maine
- Massachusetts
- Minnesota
- Missouri
- New Hampshire
- Nebraska
- Pennsylvania
- Texas

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A Vocabulary for Measurement

The Return on Physical Assets – ROPA®

- **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**
Shippensburg: Key Facilities Asset Measurements

Data
Member Since: 2006
Data Years: FY03-17

Footprint
2.4 Million GSF
50 buildings

CRV
$589 Million

Total Needs
$176 Million
$103 / gsf

Budgets
$15.2 Million
Capital & Operations

Staff
118

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Key Concepts

Past Priorities & Successes
An infrastructure overhaul in 2014 results in high energy efficiencies: decreased consumption & carbon emissions, $964K/annum in utility cost avoidance.
Demolition of old residential facilities replaced by new construction eliminated deferred maintenance, and improved the student experience on campus.

Defining Future Priorities
Focus on infrastructure and auxiliary new construction in recent years has led to an accumulation of deferred need in the E&G facilities.

Strategies to Develop a Plan
With finite capital resources, investment allocation demands a comprehensive strategy that evaluates the building condition, as well as the capacity each building has to support the programs it serves.
Changing Campus Profile: New Space & Renovations

Over time Ship has renovated portions of campus while increasing the footprint

Space Characteristics Since 2003

- Total GSF
- Space Constructed Before 2003
- Renovated Space
- New Space

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Infrastructure Overhaul Improves Energy Efficiencies

Since 2014, Ship has avoided $964,000 in utility costs

FY17 Energy Consumption vs. Peers

Scope 1 Stationary Emissions

73% Reduction
Putting Your Campus In Context

E&G construction timeframes impact investment needs

- **Pre-War**: Built before 1951
  - Durable construction
  - Older but typically lasts longer

- **Post-War**: Built from 1951 to 1975
  - Lower-quality construction
  - Already needing more repairs and renovations

- **Modern**: Built from 1976 to 1990
  - Quick-flash construction
  - Low-quality building components

- **Complex**: Built in 1991 and newer
  - Technically complex spaces
  - Higher-quality, more expensive to maintain & repair

---

**E&G Construction vs. Renovation Age**

- **Construction Age**
- **Renovation Age**

- **Sightlines Database - Construction Age**
- **Shippensburg - E&G**

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Putting Your Campus In Context

Auxiliary construction timeframes impact investment needs

- **Pre-War**: Built before 1951. Durable construction. Older but typically lasts longer.
- **Post-War**: Built from 1951 to 1975. Lower-quality construction. Already needing more repairs and renovations.
- **Complex**: Built in 1991 and newer. Technically complex spaces. Higher-quality, more expensive to maintain & repair.

**Graph**

- **Sightlines Database - Construction Age**
- **Shippensburg - Aux**

**Bar Chart**

- **Construction Age**: 17
- **Renovation Age**: 11

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Differences in Campus Age Profile – E&G vs. Auxiliary

Most young space on campus is auxiliary space

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

<table>
<thead>
<tr>
<th></th>
<th>E&amp;G</th>
<th>Auxiliary</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Total Campus GSF</td>
<td>Ship</td>
<td>Peer Average</td>
</tr>
<tr>
<td>Under 10</td>
<td>9%</td>
<td>8%</td>
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<tr>
<td>10 to 25</td>
<td>23%</td>
<td>7%</td>
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<tr>
<td>25 to 50</td>
<td>47%</td>
<td>4%</td>
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<tr>
<td>Over 50</td>
<td>21%</td>
<td>11%</td>
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</table>

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Spending Reflects Balanced Investments Into E&G and Auxiliary Buildings

Historical Spending by Type of Space

5 Year Average Spend

- 48% E&G
- 52% Auxiliary

Renovation Age by Campus
- Auxiliary – 11.3 Years
- E&G – 33.8 Years

Millions

<table>
<thead>
<tr>
<th>Year</th>
<th>E&amp;G</th>
<th>Auxiliary</th>
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<tbody>
<tr>
<td>2013</td>
<td>$1.00</td>
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<td>2014</td>
<td>$2.00</td>
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<td>2015</td>
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<tr>
<td>2017</td>
<td>$2.50</td>
<td>$1.50</td>
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</table>

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Similar Investment Levels Compared to Peers

Spending into existing buildings averages $3/GSF
Defining an Annual Investment Target

Annual Institutional Funding Target: $8.4M; of that, E&G target is $6M

FY17 Annual Investment Target

Replacement Value: $589M

3% Replacement Value: $17.7

Life Cycle Need: $9.1
  - Envelope/Mechanical: $6.9
  - Space/Program: $2.2

Annual Investment Target: $3.2
  - Envelope/Mechanical: $1.6
  - Space/Program: $1.6

E&G Target: $2.3
  - Envelope/Mechanical: $1.3
  - Space/Program: $1.0

Auxiliary Target: $0.9
  - Envelope/Mechanical: $0.3
  - Space/Program: $0.6

Functional obsolescence drives investment prior to life cycles & discounts the annual investment target.
Defining an Annual Investment Target

Annual Institutional Funding Target: $8.4M; privatized housing accounts for additional $6.2M

FY17 Annual Investment Target

Replacement Value: $589M

- 3% Replacement Value: $17.7M
- Life Cycle Need: $9.1M
- Annual Investment Target: $3.2M
- E&G Target: $2.3M
- Auxiliary Target: $6.2M

Functional obsolescence drives investment prior to life cycles & discounts the annual investment target.
Capital Investment Has Not Met Targets In Recent Years

Includes only the investment into existing facilities

Capital Investment vs. Funding Target

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

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

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Privatized Housing Has Major Impacts on Investment Needs

Includes only the investment into existing facilities

Capital Investment vs. Funding Target

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

Increasing Net Asset Value
Lowering Risk Profile
Increasing Backlog & Risk

Millions

$0.0
$5.0
$10.0
$15.0
$20.0
$25.0
$30.0
$35.0

Asset Reinvestment Need 4th Highest Among Peers

Asset Reinvestment Need
Defined as deferred & 10-Year Renewal Building Need, Estimated Infrastructure & Modernization Need

![Graph showing Asset Reinvestment Need across different entities.](image)

- **AR Backlog**
- **Peer Average**

*Ordered by Tech Rating

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Capital Renewal: Financial Modeling to Predict Need

Asset Reinvestment Need

Infrastructure & Modernization Need:
- Estimated based on building function and age, against a Sightlines database of needs.

Renewal Need:
- Life cycle needs coming due between 2018-2027.

Current Need:
- The subsystem is functioning with substantial degradation of efficiency or performing at increased cost.
Capital Renewal by Campus

83% of current need in E&G; 76% of needs coming due in 10 years

Current Need

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Renewal Need

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</tr>
</tbody>
</table>
Strategy to Drive Investment Decisions

Diversify needs, understand risk and manage investments

- Not all buildings are created equal.
- Campuses are too complex to manage by a single strategy.
- Break down the buildings into “portfolios” that take into consideration condition and institutional value. This should reflect the program’s mission and strategic directions.
- Guide investment to portfolios in a multi-year strategy, as opposed to “pay-as-you-go” project by project investment.
Service Outputs: Auxiliaries Outperforming Older E&G Space

Auxiliary spaces receive consistently higher scores in campus inspection and survey results.

**Campus Inspection Scores**
- General Repair / Impression: E&G 4.0, Auxiliary 4.5
- Cleanliness: E&G 4.5, Auxiliary 4.0
- Exterior: E&G 3.5, Auxiliary 4.5
- Mechanical: E&G 5.0, Auxiliary 5.0
- Grounds: E&G 4.0, Auxiliary 4.5

**Building Performance Customer Survey Results**
- E&G: 3.5, Auxiliary: 4.0

Includes various questions regarding building performance (cleanliness, temperature, general repair, etc.)
Tracking Space & Resource Changes Over Time

Ship maintains 15% more space with less staff and operating resources compared to 2012

- **FY17 Snapshot**
  - **Space:** 2,449,921 GSF
  - **Facilities Staff:** 117.5 FTEs
  - **Facilities Operating Budget:** $11,877,614

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Fewer Operational Resources Compared to Peers

High levels of planned maintenance extends life cycles & alleviates capital demand

PASSHE Operating Actuals

% of Operating Budget

Sightlines PM Target: 10% of Operating Budget

*Ordered by Tech Rating
Key Takeaways
Key Takeaways

Past Priorities

- Shippensburg made strategic decisions in the past to overhaul the utility infrastructure and build new residential facilities. Both initiatives led to improved services to campus and customers. Consumption and carbon emissions are reduced significantly, while the student experience improved with the new living spaces.

Strategies for E&G Facility Investments

- E&G facilities are aging and require more capital investment in order to decrease deferral, and keep up with future renewal needs. With finite resources, not all buildings will be rejuvenated.

- Investment strategies need to align with the building condition and the institutional value of each building. This can be evaluated in multiple forms such as: utilization, programmatic fit, student experience of the space, etc. Collaborating with multiple constituents on campus to drive the investment strategy direction will gain buy-in and influence the master plan.

Preventive Maintenance

- Shippensburg has been able to invest more than peers into PM. Align PM allocation to complement future capital investment moving forward.
Key Performance Indicator
# Key Performance Indicator Calculation

<table>
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<tr>
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<th>Annual Stewardship</th>
<th>Stewardship and Operating Budget – PM</th>
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<tbody>
<tr>
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<td>Preventive Maintenance</td>
<td>PM (% of facilities operating budget)</td>
<td>5%</td>
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<tr>
<td></td>
<td>Maintenance</td>
<td>Coverage (GSF/FTE)</td>
<td>1.67%</td>
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<tr>
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<td></td>
<td>Supervision (FTE/Supervisor)</td>
<td>1.67%</td>
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<tr>
<td></td>
<td></td>
<td>Materials ($/FTE)</td>
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<td>Custodial</td>
<td>Coverage (GSF/FTE)</td>
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<tr>
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<td>Materials ($/FTE)</td>
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<td>Grounds</td>
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<td>Supervision (FTE/Supervisor)</td>
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<td>Consumption (BTU/GSF)</td>
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<td>Service Process</td>
<td>12.5%</td>
</tr>
</tbody>
</table>
KPI Scores By Campus

Distribution of Peer KPI Index Value

- 3% Increase
- 2% Increase
- 1% Increase

LO BL: 88% 97%

WE

KU

SL

MI

SH

IN

MA

CA

EA

ED

CL

CH

-1.5 SD (32.50%)
-3/4 SD (40.17%)
Average: (47.86%)
+3/4 SD (55.35%)
+1.5 SD (63.21%)

27%, 29%, 32%, 34%, 36%, 39%, 41%, 44%, 46%, 48%, 51%, 53%, 56%, 58%, 60%, 63%, 65%, 68%, 70%, 72%, 75%, 77%, 80%, 82%, 84%, 87%