Who Partners with Sightlines?

Robust membership includes colleges, universities, consortiums and state systems

Serving the Nation’s Leading Institutions:

- 70% of the Top 20 Colleges*
- 75% of the Top 20 Universities*
- 34 Flagship State Universities
- 14 of the 14 Big 10 Institutions
- 9 of the 12 Ivy Plus Institutions

*Serving the Nation’s Leading Institutions:

Sightlines is proud to announce that:

- 450 colleges and universities are Sightlines clients including over 325 ROPA members.
- Consistently over 90% member retention rate
- We have clients in over 40 states, the District of Columbia and four Canadian provinces
- More than 125 new institutions became Sightlines members since 2013

Sightlines advises state systems in:

- Alaska
- California
- Florida
- Hawaii
- Maine
- Massachusetts
- Minnesota
- Mississippi
- Missouri
- Nebraska
- New Hampshire
- New Jersey
- Pennsylvania
- Texas

* U.S. News 2016 Rankings
A Vocabulary for Measurement

The Return on Physical Assets – ROPA℠

Asset Value Change

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

Operations Success

Asset Value Change
Key Concepts

**Space:**
As space ages, expensive systems need to be replaced.

**Capital:**
Risk profile can be used to identify buildings for renovation.

**Operations:**
Customers are satisfied with campus overall, though E&G spaces need more attention.
Space Profile
Putting Your Campus Building Age in Context

The campus age drives the overall risk profile

**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

---

The campus age drives the overall risk profile:

- **Pre-War**
- **Percent of Total Space 34%**

- **Post-War**
- **Percent of Total Space 49%**

Sightlines Database - Construction Age

Shippensburg
Gut Renovations Make Campus Younger

Peers have reduced their campus age by an average of 14 years.

Construction Age vs. Renovation Age

15 Year Decrease
Campus Age Profile

The E&G campus is older, driving the capital investment need

Campus 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

The E&G campus is older, driving the capital investment need
Capital Implications of Existing Space

The first boom needs major renovations; the complex second boom needs expensive upkeep.

**Total Database Need 1950-2050**

3-Year Moving Average Using ROPA+ Prediction
Capital Investment
Majority of Capital Spending Goes to Existing Space

Spending almost entirely into existing space in FY15 and FY16

Total Capital Investment

New Space Spending:
- Performing Arts Center
- Student Rec Center
- Ceddia Union Building Expansion
- Chiller Plant Building

$ in Millions


Existing Space Investment  New Space Investment  Average

64%  36%
Defining an Annual Investment Target

Annual Funding Target: $8 million

FY16 Annual Investment Target

Replacement Value: $573 M

Functional obsolescence drives investment prior to life cycles & discounts the annual investment target

3% Replacement Value: $17.2

Life Cycle Need:
- Envelope/Mechanical: $6.7
- Space/Program: $8.9

Annual Investment Target:
- Envelope/Mechanical: $5.0
- Space/Program: $3.1
Backlog Now Accounts for Demolitions

Total Asset Reinvestment Need

<table>
<thead>
<tr>
<th>Year</th>
<th>$ in Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>$150</td>
</tr>
<tr>
<td>2007</td>
<td>$175</td>
</tr>
<tr>
<td>2008</td>
<td>$190</td>
</tr>
<tr>
<td>2009</td>
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<td>2010</td>
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</tr>
<tr>
<td>2011</td>
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<td>2012</td>
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<td>2013</td>
<td>$265</td>
</tr>
<tr>
<td>2014</td>
<td>$280</td>
</tr>
<tr>
<td>2015</td>
<td>$295</td>
</tr>
<tr>
<td>2016</td>
<td>$310</td>
</tr>
</tbody>
</table>

Demolitions reduce backlog

Asset Reinvestment Need vs. Peers

Institutions arrayed by tech rating

$/GSF

*Benchmarked backlog does NOT include elevators or fire safety needs as identified in capital renewal needs.*
Projected Investment vs. 10 Year Needs

Asset Reinvestment Need

- Current funding will NOT address all the needs over the next 10 years.
- Prioritizing buildings needs is critical

Projected Investment vs. 10 Year Needs

Projected investment is a 5 year average of existing space spending without infrastructure
Projected Investment vs. 10 Year Needs

- Current funding will NOT address all the needs over the next 10 years.
- Prioritizing buildings needs is critical.

*Projected investment is a 5 year average of existing space spending without infrastructure.
Over Half of Current Need is High Risk

Need to start addressing high risk backlog

10 Year Renewal Need by Risk Level

Current Need by Risk Level

- High Risk = HVAC, Electrical, Plumbing
- Medium Risk = Exteriors, Roofing
- Low Risk = Interiors, Equipment/Specialties

- Current Need:
  - High Risk: $57 million
  - Medium Risk: $13 million
  - Low Risk: $13 million

- Total need by risk level:
  - High Risk: 32%
  - Medium Risk: 3%
  - Low Risk: 65%
Continuing to Spend Above Targets will Reduce Backlog

**Envelope/Mech Spending**

- **Buildings with Env/Mech Upgrades**
  - Reisner Dining Hall
  - Dauphin Humanities
  - Huber Art Center

**Space/Prog Spending**

- **Buildings with Space/Prog Upgrades**
  - Reisner Dining Hall
  - Dauphin Humanities
  - Huber Art Center

### Chart Details

- **Envelop/Mech Spending**
  - **Millions**
  - **Years**: 2006 to 2016
  - **Categories**: AS Env/Mech, AR Env/Mech, Env/Mech Target Need, Env/Mech Equilibrium Need

- **Space/Prog Spending**
  - **Millions**
  - **Years**: 2006 to 2016
  - **Categories**: AR Space/Prog, AS Space/Prog, Space/Prog Target Need, Space/Prog Equilibrium Need
Buildings 10-50 Years Old Have Most Upcoming Need

Age category can be used to prioritize spending

Current Need by Age Category

- Under 10: $9
- 10 to 25: $23
- 25 to 50: $50
- Over 50: $23

10 Year Renewal Need by Age Category

- Under 10: $0, 5%
- 10 to 25: $2, 18%
- 25 to 50: $4, 38%
- Over 50: $10, 39%

Total $ in Millions

2017: $2, 10%  
2018: $4, 20%  
2019: $6, 30%  
2020: $8, 40%  
2021: $10, 50%  
2022: $12, 60%  
2023: $14, 70%  
2024: $16, 80%  
2025: $18, 90%  
2026: $20, 100%

- Under 10
- 10 to 25
- 25 to 50
- Over 50
Each of these buildings required over 1,000 maintenance labor hours last year.

Buildings with Highest Labor Hours for FY16
(excludes Reed Operations and PH housing)

- Ceddia Union Building
- Reisner Dining Hall
- Chilled Water Plant
- Kriner Dining Hall
- H. Ric Luhrs Performing Arts Center
- Mathematics & Computing Tech Center
- Martin House
- Grove Hall
- Franklin Science Center
- McLean Hall
- Seth Grove Stadium
- Ezra Lehman Memorial Library
- Old Main
- Heiges Field House
- Horton Hall

*Labor hour counts exclude hours from automotive, grounds, custodians, spec crew, and move crew.
Prioritizing Buildings by High Risk Need

Includes all buildings with current and/or 10 year renewal need as identified in capital renewal data

**Priority Matrix**

<table>
<thead>
<tr>
<th>High Risk Need</th>
<th>Systemic Renovation</th>
<th>Repair/Maintain</th>
<th>Capital Upkeep</th>
</tr>
</thead>
<tbody>
<tr>
<td>% High Risk Need</td>
<td>Over 50%</td>
<td>0 – 50%</td>
<td>Low Risk</td>
</tr>
<tr>
<td>Low Risk</td>
<td></td>
<td>Franklin Science Center, H. Ric Luhrs Performing Arts Center</td>
<td>Ceddia Union Building, Chilled Water Plant, Dauphin Humanities Center, Huber Art Center, Kriner Dining Hall, Reed Operations Center, Reisner Dining Hall (original and addition), Rowland Hall, Shearer Hall, Street Hockey Pavilion, Student Recreation Building</td>
</tr>
<tr>
<td>Over 50%</td>
<td>Ezra Lehman Memorial Library, Heiges Field House, Horton Hall, McLean Hall (99,878 GSF), Old Main</td>
<td>Henderson Gym, Mathematics and Computing Technologies Center, Memorial Auditorium, Mowrey Hall (91,015 GSF)</td>
<td>GB Luhrs School, Gilbert Hall, Seth Grove Stadium, Shippen Hall, Stewart Hall, Wright Hall</td>
</tr>
</tbody>
</table>

- More Need
- Less Need

Total Need

*academic buildings are in bold font*
Operations
Total Operating Expenditures

Ship and PASSHE are operating below the rate of inflation

Facilities Operating Expenditures

<table>
<thead>
<tr>
<th>$/GSF</th>
<th>Ship</th>
<th>Peers</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$2</td>
<td></td>
<td></td>
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<tr>
<td>$3</td>
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<tr>
<td>$4</td>
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<tr>
<td>$8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Daily Service, PM, Utilities, Rate of Inflation
FY16 Facilities Operating Expenditures vs. Peers

*Ship is operating with 19% less investments than the PASSHE average*

FY16 Facilities Operating Actuals

*Institutions arranged by Tech Rating*
Planned Maintenance Above Peer Average

Proactive investments extend life cycles and avoid operational failures on campus

Planned Maintenance Compared to Peers

Sightlines Best Practice Zone: >$0.50/GSF

Planned Maintenance As A % of Budget

Peer Average
All Shops Devoting Some Time to PM

Zone maintenance and energy shops perform high amounts of PM

Hours Spent on Corrective and Preventative Maintenance by Shop

- Spec Crew
- Locksmith
- Energy
- PM Shop
- Electrical
- Zone - Aux
- Paint
- Carpentry
- HVAC/Steam
- Zone - E & G

- Corrective Maintenance
- Preventive Maintenance
Maintenance – Heavy Coverage and Supervision

Staffing levels appropriate given technical complexity

Tech Rating

<table>
<thead>
<tr>
<th>Tech Rating</th>
<th>Operational costs</th>
<th>Maintenance staffing</th>
<th>Energy Consumption</th>
<th>Capital Investment Need</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Maintenance Staffing

Maintenance Supervision

Tech Rating Affects:
- Operational costs
- Maintenance staffing
- Energy Consumption
- Capital Investment Need
E&G Buildings Need Additional Attention

Aux buildings score higher on general repair in both Sightlines inspection and customer satisfaction survey.

Customer Ratings of Exterior and Interior General Repair

- Exterior: 3.89 (E&G), 4.26 (Aux)
- Interior Shell: 3.62 (E&G), 3.93 (Aux)
- Furnishings: 3.53 (E&G), 3.90 (Aux)

Campus Inspection – General Repair Score

- Aux: 4.2
- E&G: 3.9

“Windows are loose, rattle in the wind, vent cold air inside in winter…” (Horton Hall)

“Ceiling tiles bend downward…” (Wright Hall)

“Many chairs need to be reupholstered.” (Grove Hall)
Custodial – Light Staffing and Supervision

Staffing levels appropriate given density factor

Density Affects:
- Wear & tear on facilities
- Custodial staffing
- Maintenance staffing
- Capital investment need

Density Factor

Custodial Staffing

Custodial Supervision
E&G and Aux Score Similarly in Cleanliness

E&G buildings are kept clean despite their age.

Customer Ratings of Cleanliness

<table>
<thead>
<tr>
<th>Category</th>
<th>E&amp;G</th>
<th>Auxiliary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior</td>
<td>3.72</td>
<td>3.78</td>
</tr>
<tr>
<td>Restrooms</td>
<td>3.76</td>
<td>3.95</td>
</tr>
<tr>
<td>Restroom Resources</td>
<td>3.98</td>
<td>4.10</td>
</tr>
</tbody>
</table>

Campus Inspection – Cleanliness Score

- **Aux**: 4.1
- **E&G**: 4.0

“Custodian Dale does a fantastic job and is very friendly.” (Seavers Hall)

“Other than need of being updated, the building is fairly clean and a comfortable environment” (Franklin Science Center)
Ship Has Less Intense Grounds than Most PASSHEs

Staffing levels about at peer average

Grounds Intensity Affects:
- Operational costs
- Demand on grounds staff to maintain acreage
Hardscapes Need More Focus

Customers love the look of campus, but highlighted disrepair of sidewalks

Customer Ratings of Grounds

<table>
<thead>
<tr>
<th></th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardscapes</td>
<td>3.89</td>
</tr>
<tr>
<td>Green Space</td>
<td>3.91</td>
</tr>
<tr>
<td>Flower Beds</td>
<td>3.81</td>
</tr>
<tr>
<td>Trees</td>
<td>4.14</td>
</tr>
<tr>
<td>Athletic Fields</td>
<td>4.16</td>
</tr>
</tbody>
</table>

“I love the trees and green space. Have heard comments from visitors that SU has a beautiful campus.”

“Lovely plantings. I feel a sense of pride when I walk across our campus and when we welcome visitors to campus at an Admissions Open House or New Student Orientation.”

“More flowers and more trees would be great. (Facilities is already doing an excellent job at tree planting, but you can never have too many trees).”

“Sidewalks need to be fixed, they are uneven and someone could easily fall and hurt themselves.”

“Put more sidewalks where students have made dirt paths…”
Measuring Service Outputs

Campus Inspection Index

Customer Satisfaction Index
Concluding Comments

Space

• The E&G campus is aging and will have increasing renewal needs.
• Ship will see an overlap of needs of the post-war spaces and the young auxiliary buildings in the next 10 years, resulting in an increased demand of capital investment.

Capital

• Existing space spending met targets in FY16, and recent demolitions have reduced backlog. However, current funding will not address upcoming need.
• When planning renovations, focus on buildings in the 10-25 and 25-50 age categories, as these are high need and high risk spaces.

Operations

• Overall, Shippensburg has been able to do more with less – service output remains strong despite budget cuts.
• Continue to maintain strong PM spending, focusing on extending the life cycles of low risk spaces.
• Though staffing performance is strong, maintenance is unable to keep up on the aging E&G spaces. Consider aligning capital investment to buildings that consume major operational resources. Grounds should focus on campus hardscapes.
Maintenance Coverage and Supervision

**Maintenance Coverage**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>GSF/FTE</th>
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<tbody>
<tr>
<td>2011</td>
<td>76,800.00</td>
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<tr>
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<td>2013</td>
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<td>2014</td>
<td>76,800.00</td>
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<tr>
<td>2015</td>
<td>76,800.00</td>
</tr>
<tr>
<td>2016</td>
<td>76,800.00</td>
</tr>
</tbody>
</table>

**Maintenance Supervision**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>FTE/Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>5.60</td>
</tr>
<tr>
<td>2012</td>
<td>5.60</td>
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<tr>
<td>2013</td>
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<td>2014</td>
<td>5.60</td>
</tr>
<tr>
<td>2015</td>
<td>5.60</td>
</tr>
<tr>
<td>2016</td>
<td>7.00</td>
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</table>
Custodial Coverage and Supervision

Custodial Coverage

<table>
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<tr>
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<tr>
<td>GSF/FTE</td>
<td>27,000</td>
<td>28,000</td>
<td>30,000</td>
<td>32,000</td>
<td>34,000</td>
<td>36,000</td>
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Custodial Supervision

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>FTE/Supervisor</td>
<td>14.40</td>
<td>15.00</td>
<td>15.60</td>
<td>16.20</td>
<td>16.80</td>
<td>17.40</td>
</tr>
</tbody>
</table>
Shippensburg University of PA
Presenters: Erica Barbuto and Emily Medina
January 2017
Decreasing Energy Consumption Creates Savings

*Ship spends 28% less on utilities than peers*

**Energy Consumption Since FY13**

- 2013: 80,000 BTU/GSF
- 2014: 100,000 BTU/GSF
- 2015: 120,000 BTU/GSF
- 2016: 140,000 BTU/GSF

**Utility Actuals Compared to Peers**

*Peers arrayed by tech rating*
Ship Now Second Lowest Consumer in PASSHE

FY16 Energy Consumption vs. Peers

Institutions ordered by decreasing consumption

Composite Fossil BTU/GSF
Composite Electric BTU/GSF

31% below peer average
### Sustainability Solutions Peer Institutions

<table>
<thead>
<tr>
<th>Peer Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Babson College*</td>
</tr>
<tr>
<td>Bentley University*</td>
</tr>
<tr>
<td>Boston College</td>
</tr>
<tr>
<td>Emerson College</td>
</tr>
<tr>
<td>Fitchburg State University</td>
</tr>
<tr>
<td>Hamilton College*</td>
</tr>
<tr>
<td>Loyola University Maryland*</td>
</tr>
<tr>
<td>Millersville University*</td>
</tr>
<tr>
<td>Rensselaer Polytechnic Institute</td>
</tr>
<tr>
<td>Stockton University</td>
</tr>
<tr>
<td>The Catholic University of America</td>
</tr>
</tbody>
</table>

*Institutions previously benchmarked in Shippensburg’s GHG analysis

**Key Concepts:**
- Major Reductions in Scope 1 Emissions due to Infrastructure Overhaul
- Opportunities to Reduce Scope 2 and 3
Carbon Management for Energy

- **AVOIDANCE:**
  Don’t consume energy

- **ACTIVITY:**
  Consume less by increasing efficiency

- **INTENSITY:**
  Switch high-carbon energy sources for low-carbon ones

- **OFFSET:**
  Offset the emissions from consumption
Distribution of Emissions by Level of Control

Scope 1 makes up the smallest portion of Ship’s emissions footprint

Emissions by Scope

- **Scope 1** – Direct GHGs
  - Natural Gas, Coal
  - Vehicle Fleet
  - Refrigerants
  - Fertilizer

- **Scope 2** – Upstream GHGs
  - Purchased Electricity

- **Scope 3** – Indirect GHGs
  - Faculty/Staff/ Student Commuting
  - Directly Financed Travel
  - Study Abroad Travel
  - Solid Waste
  - Wastewater
  - Paper Purchasing
  - Transmission & Distribution Losses

Scope 1 – Direct GHGs

Scope 2 – Upstream GHGs

Scope 3 – Indirect GHGs
### Distribution of Emissions by Level of Control

*Purchased electric and commuting/travel generate the most emissions*

#### Emissions by Scope

<table>
<thead>
<tr>
<th>Scope 1</th>
<th>Scope 2</th>
<th>Scope 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>37%</td>
<td>24%</td>
<td>39%</td>
</tr>
</tbody>
</table>

#### Scope 1 Sources

- **Other On-Campus Stationary**: 5,010 MTCDE
- **Direct Transportation**: 4,000 MTCDE
- **Refrigerants**: 6,000 MTCDE
- **Agriculture**: 8,000 MTCDE

#### Scope 2 Sources

- **Purchased Electricity**: 9,059 MTCDE

#### Scope 3 Sources

- **Commuting**: 6,421 MTCDE
- **Travel**: 979 MTCDE
- **Wastewater**: 915 MTCDE
- **Paper Purchasing**: 6,000 MTCDE
- **Scope 2 T&D Losses**: 8,000 MTCDE
Infrastructure Project Led to a Strong Emissions Profile

Gross emissions decreased 32% since 2013, driven by scope 1

Gross Emissions from FY13 to FY16

- Scope 1
- Scope 2
- Scope 3
Two Ways to Compare Emissions to Peers

Benchmarking by GSF is useful for emissions that are affected by space characteristics, such as age, technical complexity, and systems efficiency.

Benchmarking by Student FTE is useful for emissions that are affected by individual habits, such as commuting and waste production/recycling.
Infrastructure upgrades have kept campus efficient

Change in Emissions vs. Change in Campus Size and Population
Indexed to FY2013

Change in Space, Population, and Emissions
Indexed to FY2013

Nation-wide emissions dropped 3% since 2013
Drastic Drop in Scope 1 Emissions Due to Coal Avoidance

Fuel carbon intensity affects scope 1 emissions

Emissions from Stationary Sources

Shippensburg’s Stationary Fuel Mix

Carbon Intensity of Commonly Used Fossil Fuels

- 68% decrease
- 2013-2016 emissions drop
- Shippensburg's stationary fuel mix
- Carbon intensity of fuels

Sightlines
Success in Reducing Refrigerants Emissions

Though these sources are a smaller portion of scope 1, they provide additional successes and opportunities.
Ship Emissions Below Peer Average

Fleet and refrigerants make up a greater portion of Scope 1 emissions for some peers.

2016 Scope 1 Emissions/1,000 GSF

- **Stationary**
- **Fleet**
- **Agriculture**
- **Refrigerants**
- **Peer Average**

27% below peer average
No Change in Scope 2 Emissions

Scope 2 includes electric consumption

Scope 2 Consumption

Scope 2 Emissions

RFCE Grid Fuel Mix (2007)
- Natural Gas
- Nuclear
- Renewable
- Coal
- Other Fossil

RFCE Grid Fuel Mix (2012)
- Natural Gas
- Nuclear
- Renewable
- Coal
- Other Fossil
Scope 2 Emissions Below Peer Average

Ship outperforming peers in both Scope 1 and Scope 2 emissions levels

2016 Scope 2 Emissions/1,000 GSF

36% below peer average

Electric
Steam
Peer Average
No Change in Scope 3 Emissions

**Total Scope 3 Emissions**

<table>
<thead>
<tr>
<th>Year</th>
<th>MTCDE</th>
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</thead>
<tbody>
<tr>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
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<tr>
<td>2015</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
</tr>
</tbody>
</table>

**FY16 Scope 3 Breakdown**

- Commuting: 75%
- T&D Losses: 11%
- Study Abroad: 6%
- Directly Financed Travel: 5%
- Wastewater: 2.0%
- Paper: 1%

Commuting accounts for the majority of Scope 3 emissions.
**Scope 3 Emissions Closer to Peer Average**

_FTEs (rather than GSF) has greater impact on Scope 3 emissions_

2016 Scope 3 Emissions/student FTE

19% below peer average
Ship Commuting Emissions are Among Highest in Peer Group

Carpool and mass transit incentives could reduce Scope 3 footprint

Total Commuting Emissions Compared to Peers

Shippensburg Commuter Mode Mix

Carbon Free 20%
Mass Transit 2%
Carpool 6%
Drive Alone 72.3%
Peers Do More Recycling and Composting

Total waste in FY16 was about 290 lbs/campus user

Waste Stream Compared to Peers

Waste Mix Compared to Peers

- Total Trash
- Recycling
- Composting
- Other Diversions

Peer Average

Lbs/Campus User

0 100 200 300 400 500 600 700
A B C SH D E F G H I J K
Scope 1 Accounts for Almost All Emissions Reductions

Scope 2 and 3 should be prioritized for gradual decreases moving forward

- Ship Emissions Decrease 32%
- FY13-FY16 Peers reduced emissions by 6%
Concluding Comments

Scope 1

• The infrastructure project has produced a drastic drop in Scope 1 emissions – focus must now turn to smaller and consistent reductions over time.

• Continue reducing emissions by switching to less intense refrigerants and improving fleet fuel efficiency.

• Consider implementing anti-idling policies and combining work order requests to reduce travel.

Scope 2

• Identify a plan for electric reductions and implement efficiency measures.

• Focus on implementing LED lighting across campus.

Scope 3

• Educate commuters about less carbon intense commuting options.

• Review options to condense class scheduling to increase more carpooling opportunities.

• Continue to improve recycling program, and consider composting as an additional option to divert waste.

• Electric reductions will also decrease emissions from T&D losses.