

# **Sightlines LLC**

## **FY2012 Facilities MB&A Presentation**

### **Montana State University**

*Colin Sanders, Thomas Huberty, Gabriella Rosas*

*Date: February 6<sup>th</sup>, 2013*

Sightlines



290+ campuses, 1.2 Billion GSF in Sightlines database





## **Facilities Measurement, Benchmarking, and Analysis**

- All State and Auxiliary Facilities
  - Annual Stewardship
  - Asset Reinvestment
  - Operating Effectiveness
  - Service

## **Go-Green Measurement Benchmarking and Analysis.**

- Total Campus

# Facilities Benchmarking- How Are We Doing?

## Core Objectives for the Analysis



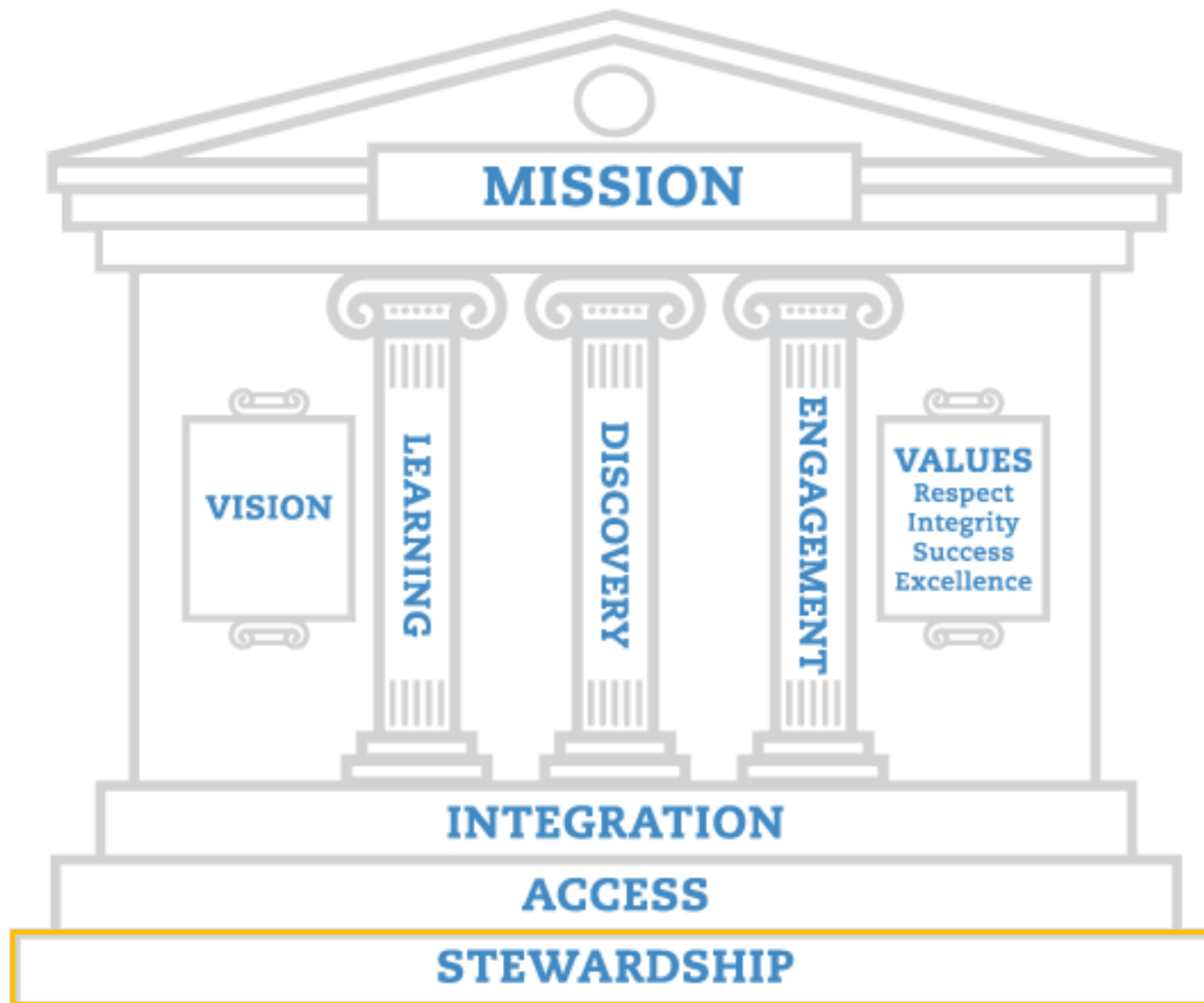
Sightlines

- **Identify opportunities to improve operational effectiveness**
- **Separate fact from fiction by providing objective measures on key issues**
  - Operational performance
  - Service levels
  - Funding needs
- **Document trends, provide consistent measurement, and comparable benchmarking**
- **Act as a catalyst for discussion and improvement**
- **Develop a common vocabulary for operational managers and business officers as we discuss issues**
- **Develop a shared context for strategic decision making**

# Facilities' role in supporting MSU's strategic plan



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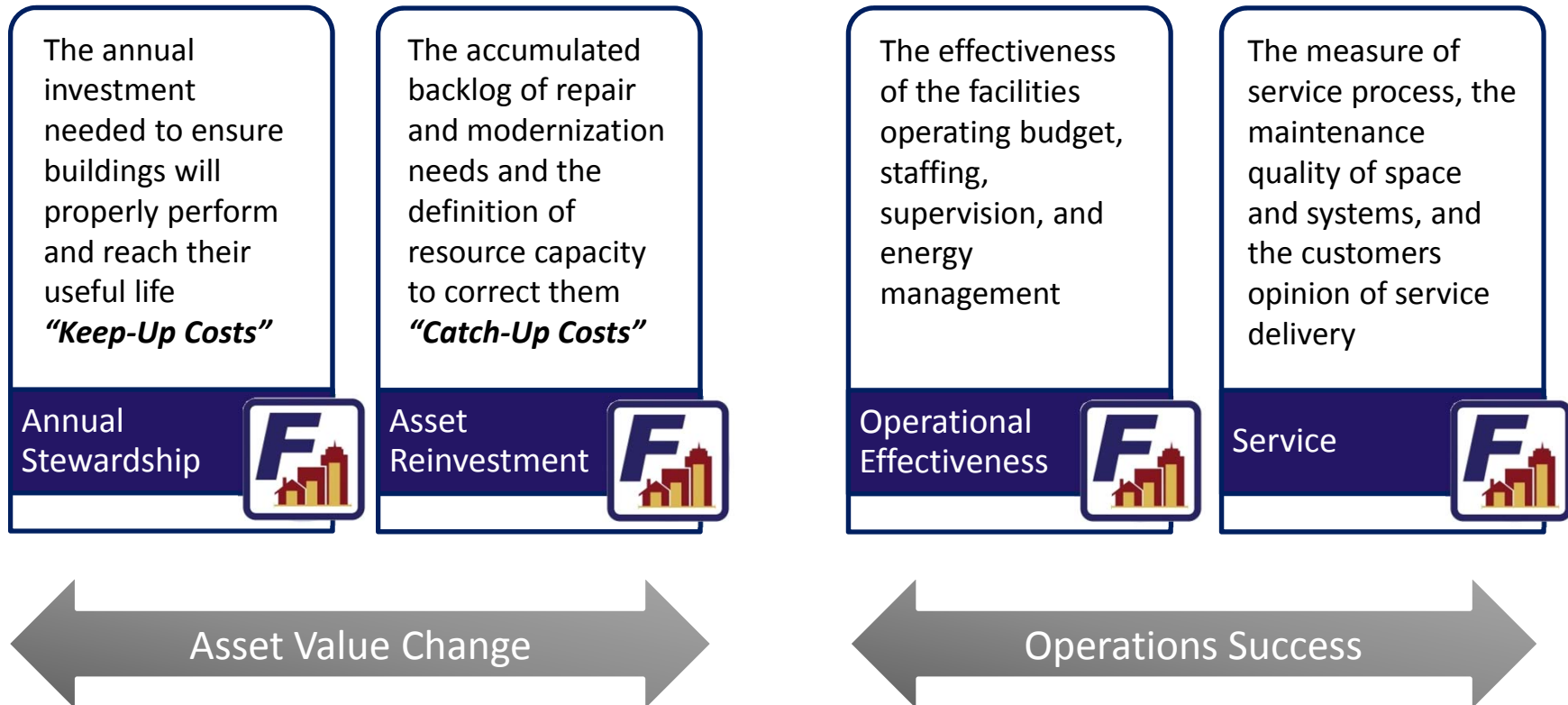


# A vocabulary for measurement

## The Return on Physical Assets – ROPA<sup>SM</sup>



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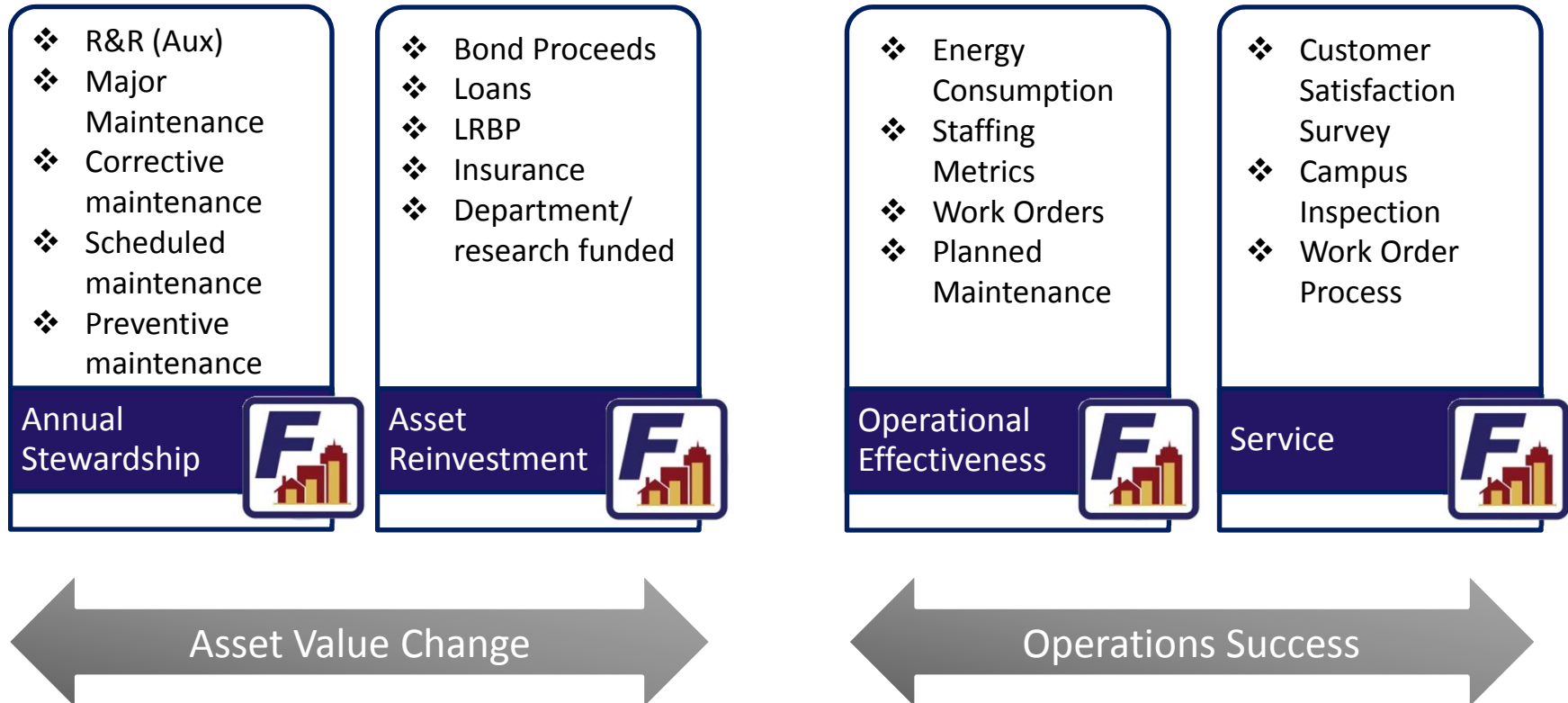


# A vocabulary for measurement

## The Return on Physical Assets – ROPA<sup>SM</sup>



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# Peer Institutions

Comparable and qualified benchmarking



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## Academic & Research (A&R) Peer Institutions

Iowa State University

Kansas State University

New Mexico State University

Oregon State University

University of Arizona

University of Colorado - Boulder

University of Idaho

University of Missouri

University of Oregon

## Auxiliary (AUX) Peer Institutions

Mississippi State University - Housing

New Mexico State University - Housing

Portland State University - Auxiliary

The University of Maine - Aux

University of Colorado - Boulder - Housing

University of Idaho - Housing

University of New Hampshire - Auxiliary

University of Rhode Island-Housing

University of Southern Mississippi - Housing





## **More challenging physical profile**

- Less new construction and fewer large-scale renovations has lead to an older campus profile, with 72% of A&R space and 79% of Auxiliary space more than 25 years old
- Campus characteristics complicate both capital investment and maintenance strategies

## **Recent capital spending tracking near target, focused on energy improvements**

- Academic & Research funding over past five years ahead of peers, however it has been supplemented with historically unique sources that may not be sustainable or reliable
- Auxiliary funding on par with younger peers. Given physical profile funding has not been able to arrest growth in backlog
- Older facilities and historically low spending has resulted in an elevated backlog on both campus profiles

## **Operational performance shows impacts of higher backlog, campus profile**

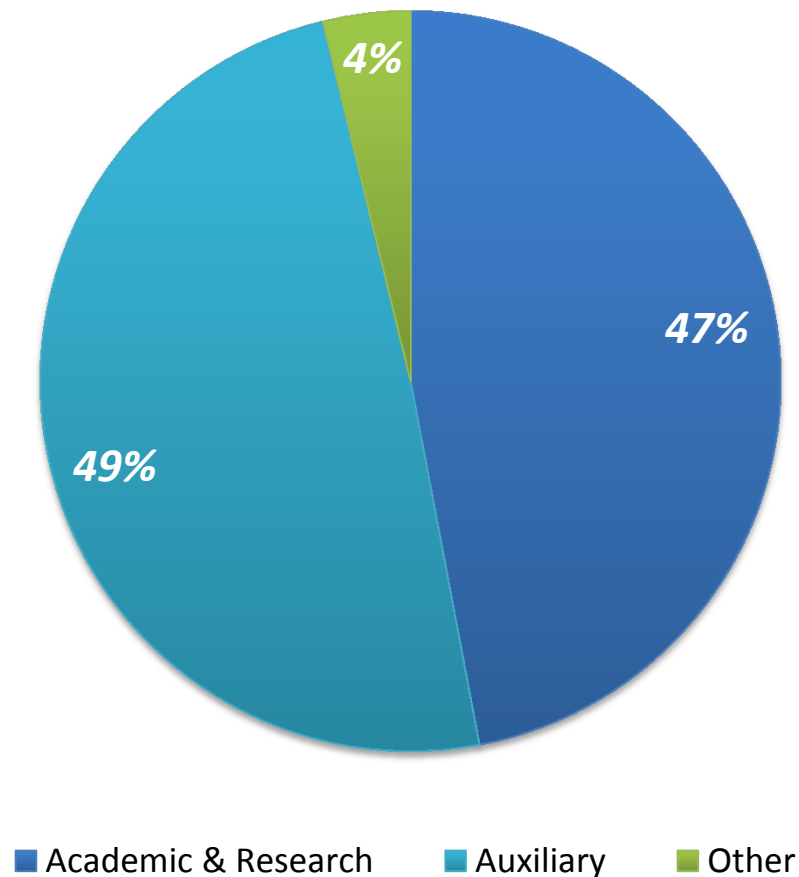
- Facilities operating budget for A&R is comparable to peers, but Auxiliary's operating budget is lower, and *both* are well below the Sightlines database average
- Despite challenging physical profile, operations team is producing competitive results based on inspection and customer satisfaction scores

# Physical Profile





## Distribution of Montana State GSF



### Academic & Research

Total GSF:	2,180,337
# Buildings:	101
# Buildings Cleaned:	55
Weighted Reno. Age:	42.5

### Auxiliary

Total GSF:	2,270,664
# Buildings:	184
# Buildings Cleaned:	38
Weighted Reno. Age:	41.6

### Other

Total GSF:	393,388
# Buildings:	119
# Buildings Cleaned:	119
Weighted Reno. Age:	20.7

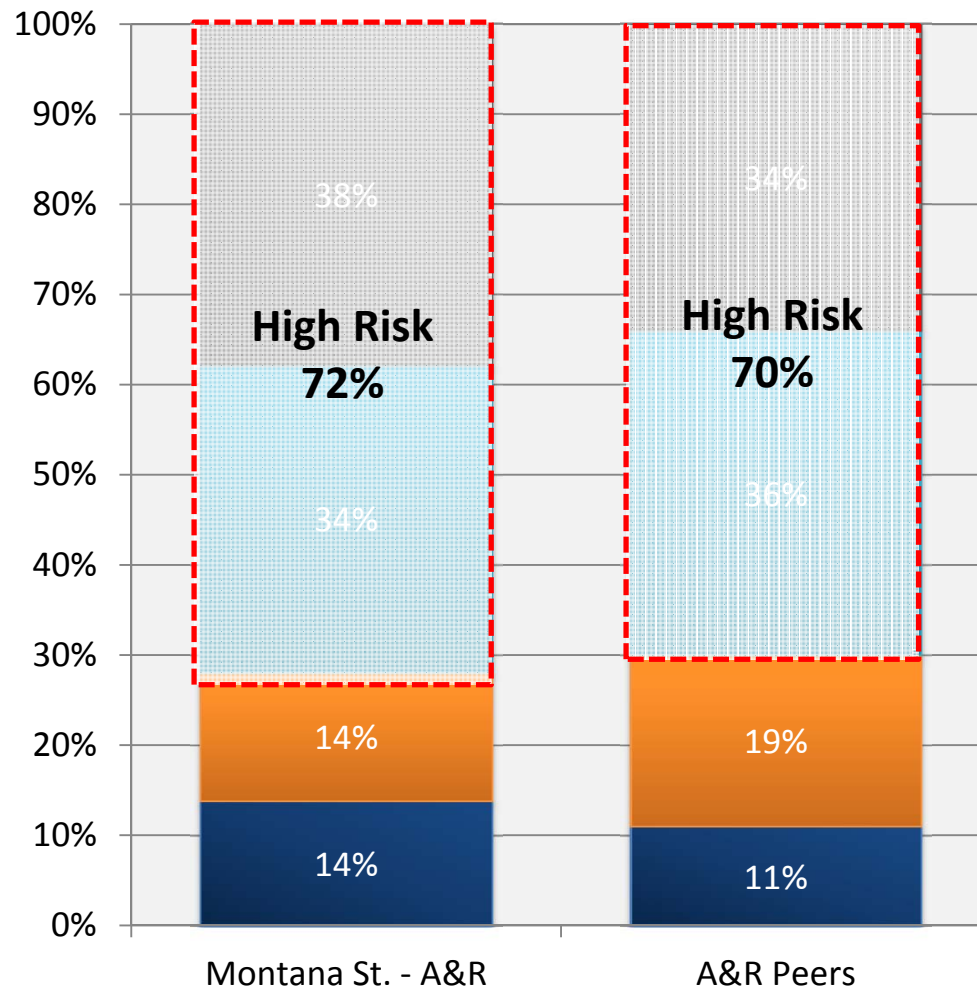
# MSU in context: Age Profile

Both MSU profiles older than peers



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## % of Space by Age 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

Life cycles are coming due in envelope and mechanical systems. Functional obsolescence prevalent.

Higher Risk

### Buildings 10 to 25

Lower cost space renewal updates and initial signs of program pressures

Medium Risk

### Buildings Under 10

Little work, "honeymoon" period.

Low Risk

■ Under 10 ■ 10 to 25 ■ 25 to 50 ■ 50 and Above

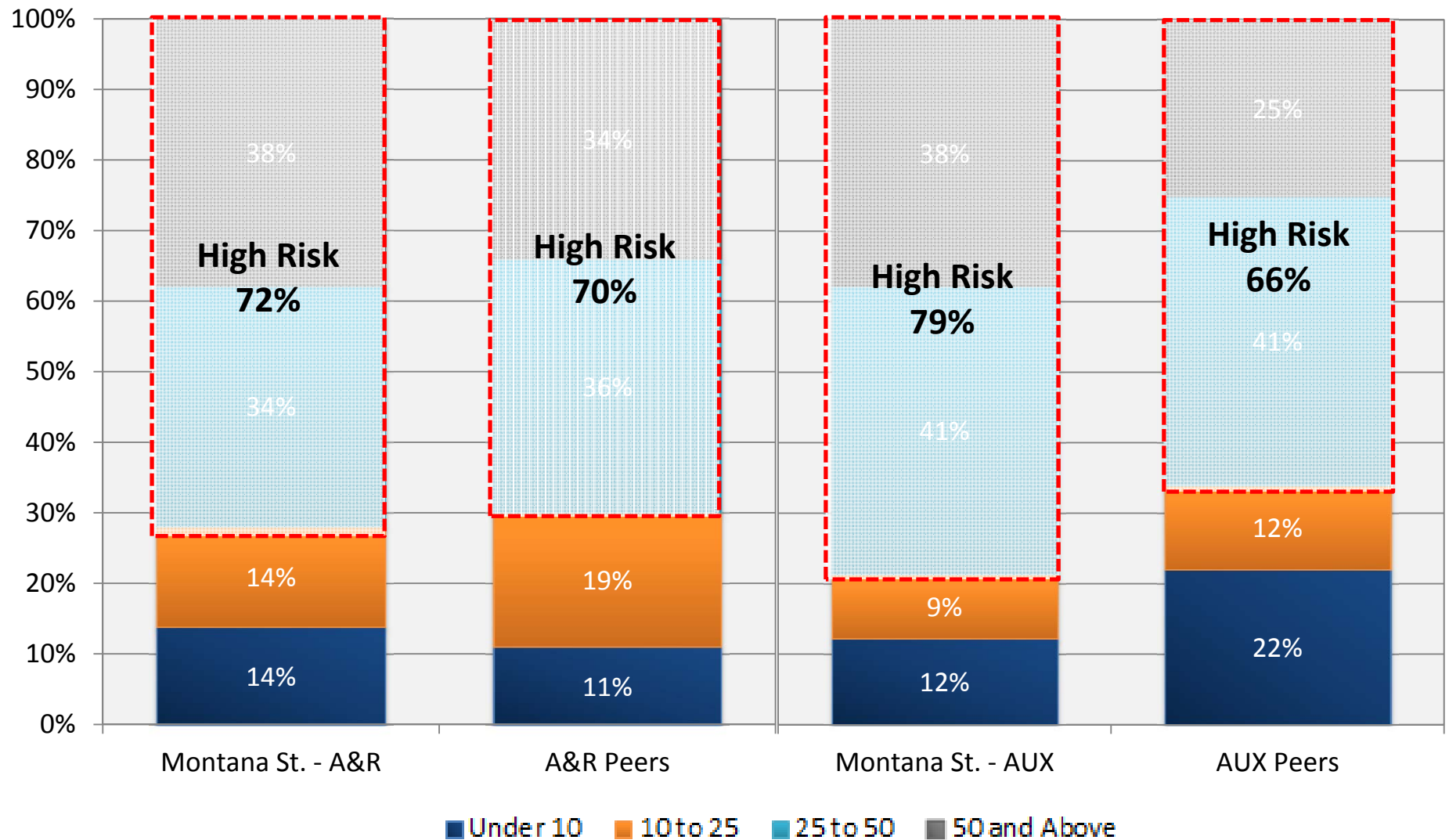
# MSU in context: Age Profile

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Sightlines

## % of Space by Age Category





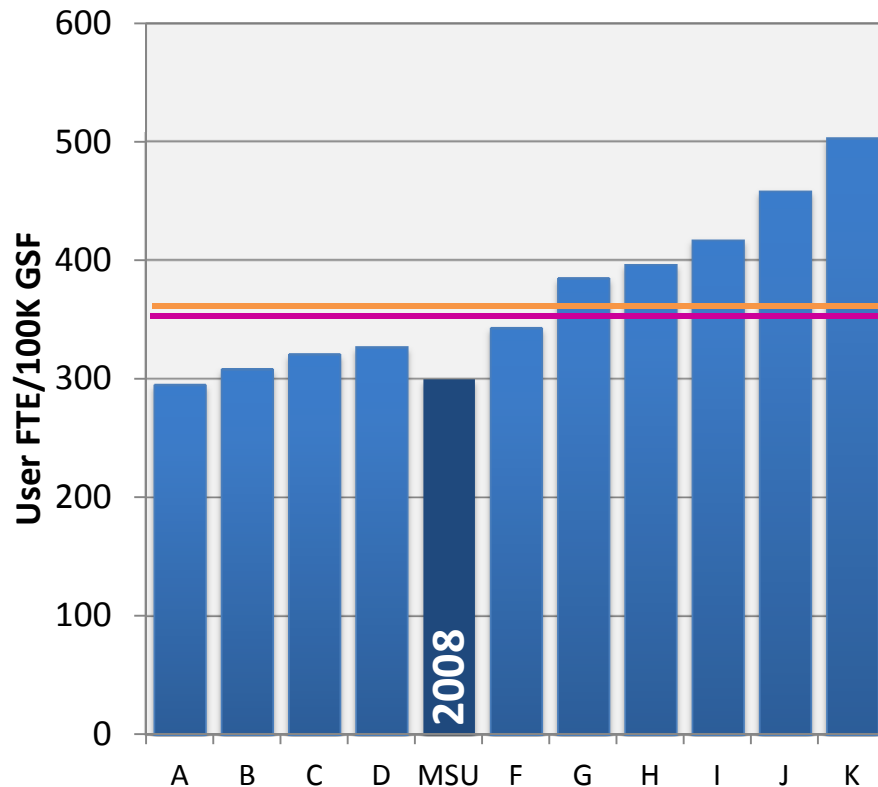
# MSU in context: Density Factor

Density increasing with growing enrollment



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## Density Factor

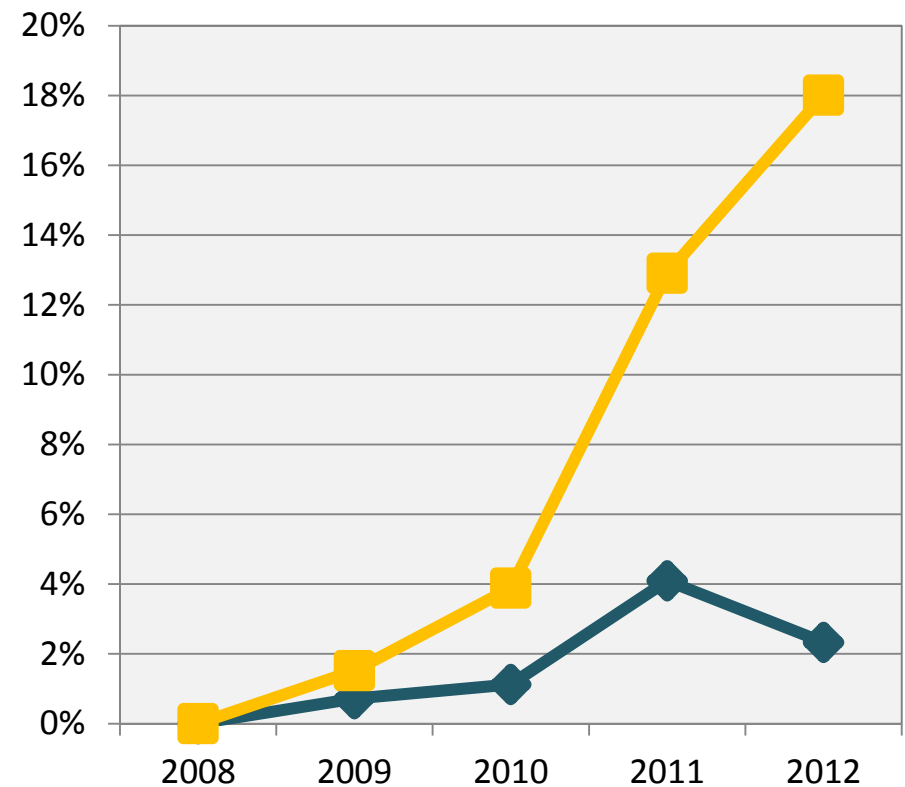


Peer Average  
Database Average

Benchmark using A&R Peers

\*2020 Enrollment estimate from the "MSU Strategic Plan 2012: Metric A.1.7"

## MSU Total Campus Change in Space & Population



% change in Student FTEs  
% change in Campus GSF

### Density Factor Impacts:

- Wear and tear on facilities
- Custodial staffing
- Campus appearance

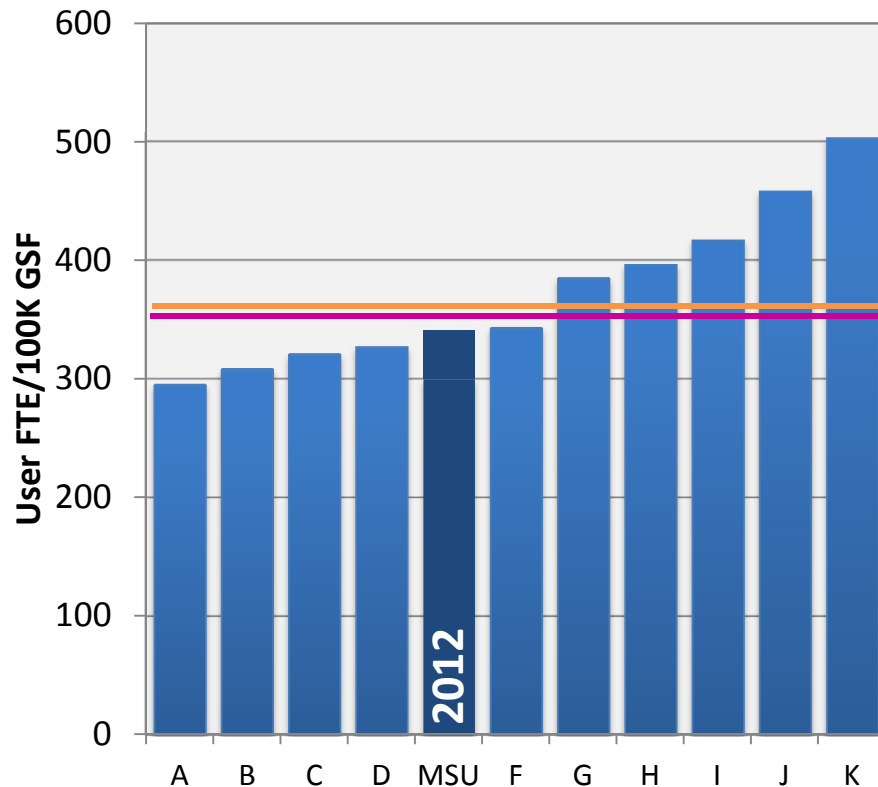
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## Density Factor

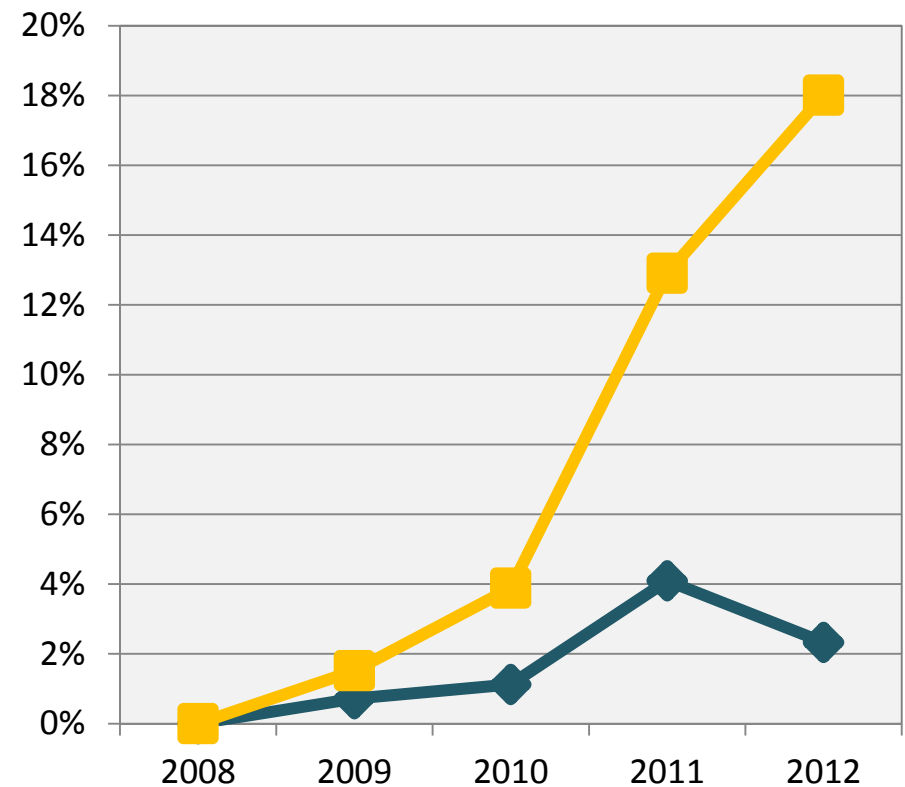


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# MSU in context: Building Intensity

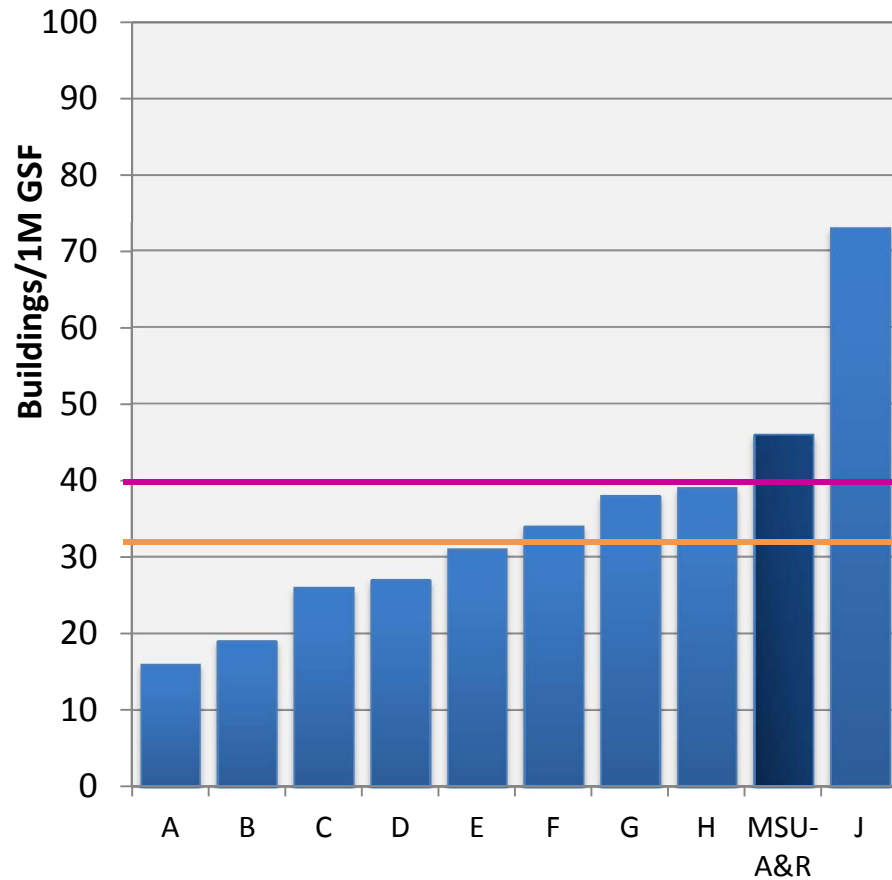
Far more buildings comprise campus GSF than at peer institutions



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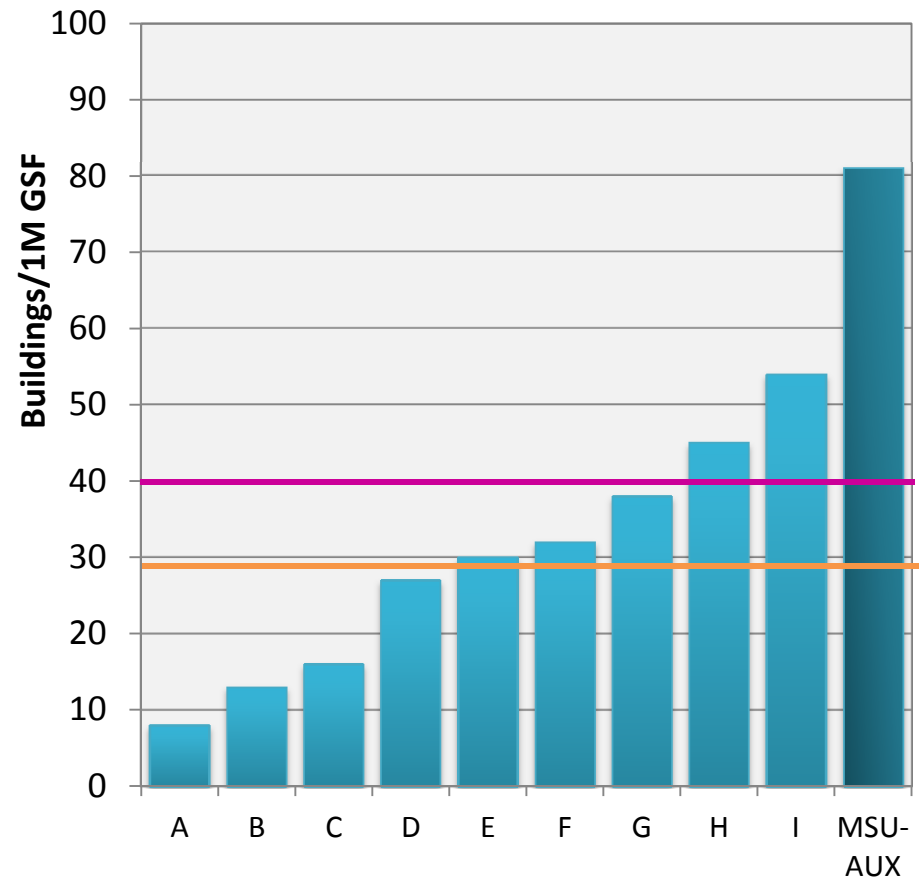
## Building Intensity

A&R vs. Peers



## Building Intensity

AUX vs. Peers



— Database Average  
— Peer Average

### Building Intensity Impacts:

- Capital demand
- Operational efficiency
- Energy consumption

# MSU in context: Building Intensity

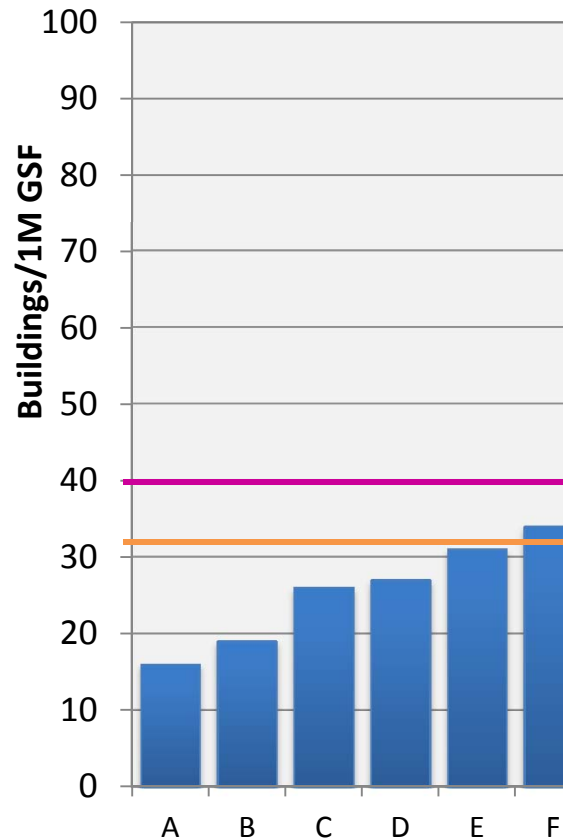
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## Building Intensity

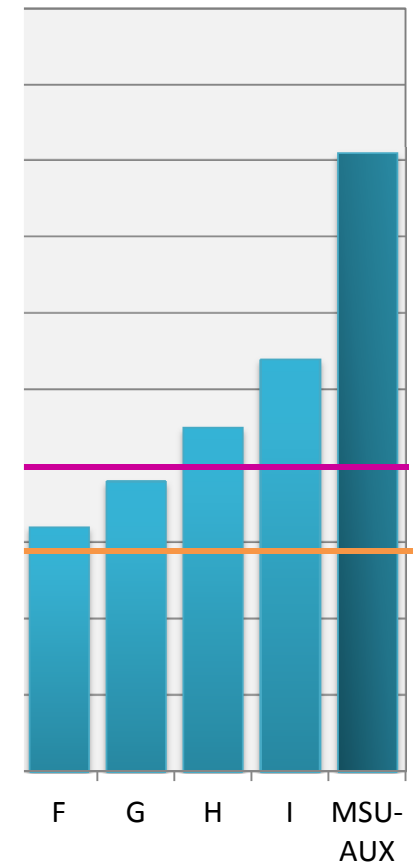
A&R vs. Peers



— Database Average  
— Peer Average

## Building Intensity

AUX vs. Peers



### Building Intensity Impacts:

- Capital demand
- Operational efficiency
- Energy consumption

# Capital Analysis

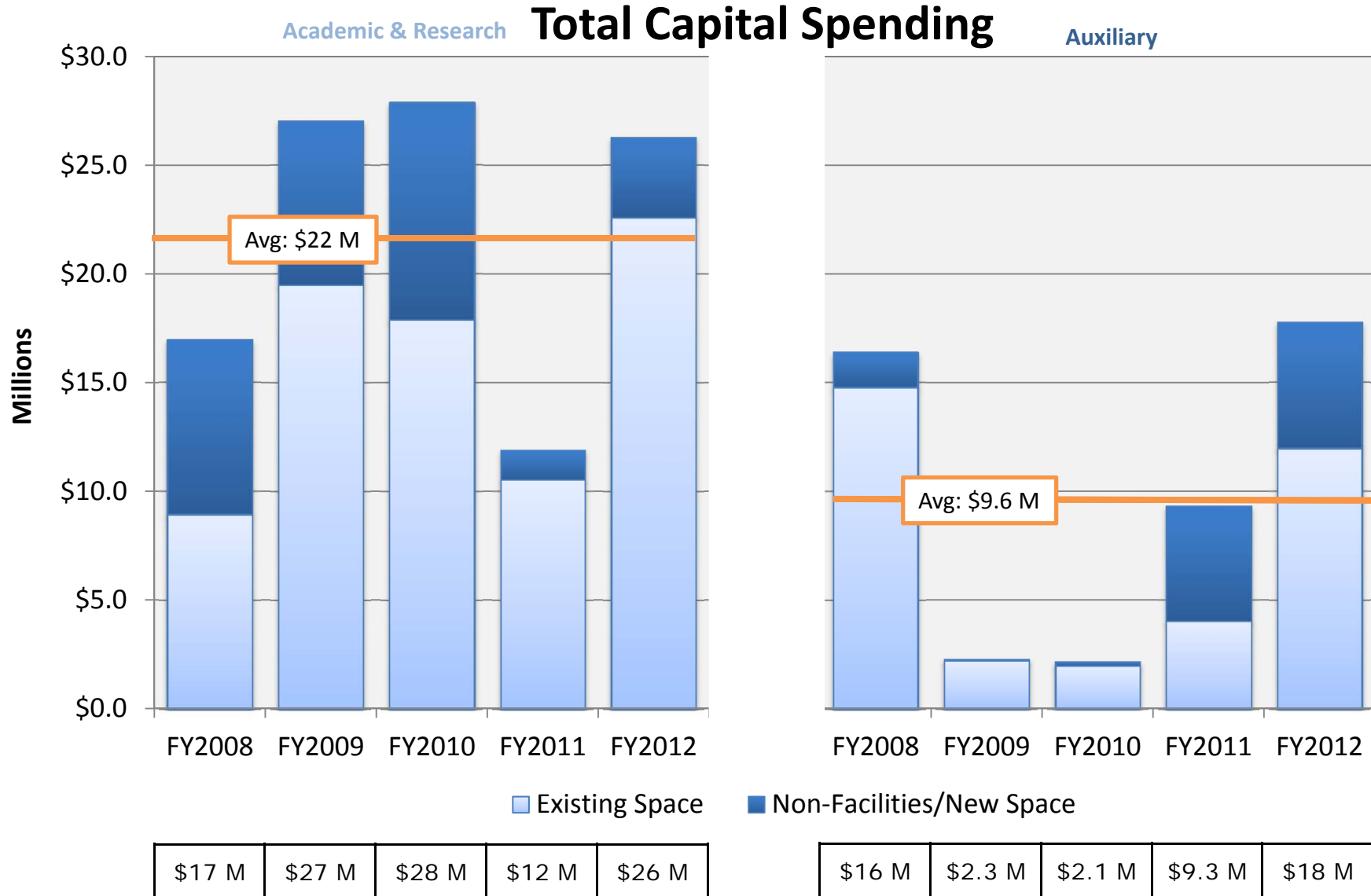


# Total capital spending

Total FY12 investment was \$44M



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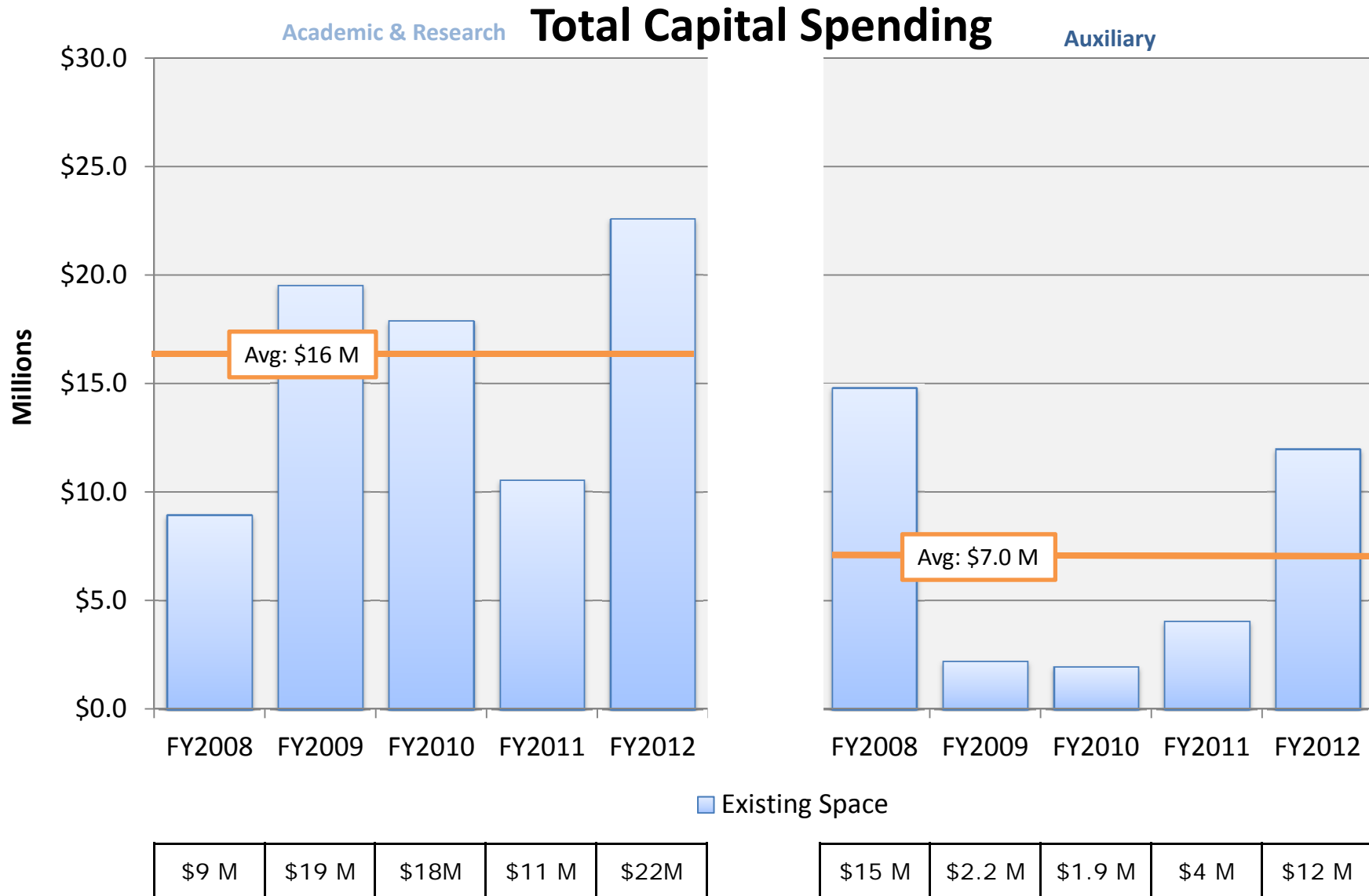


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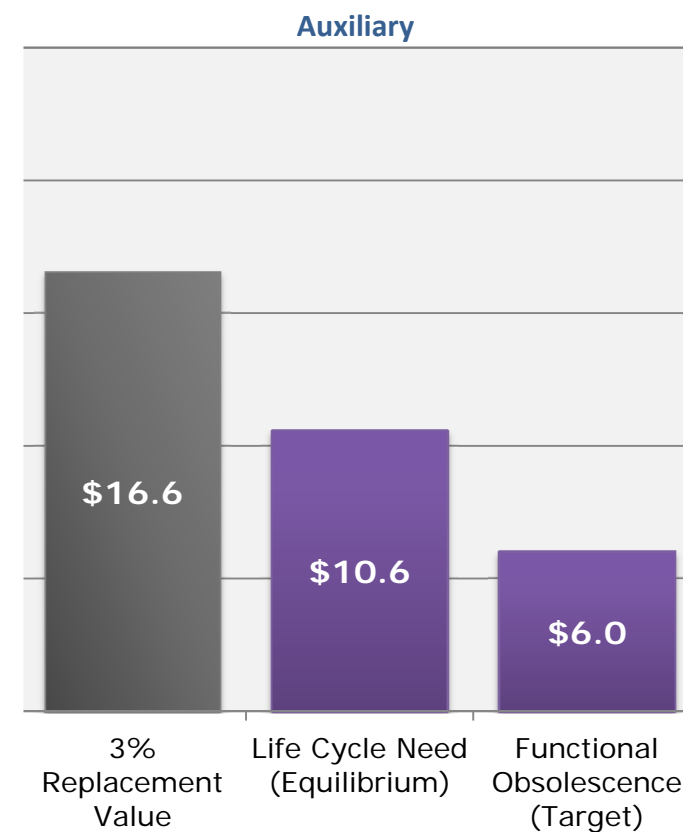
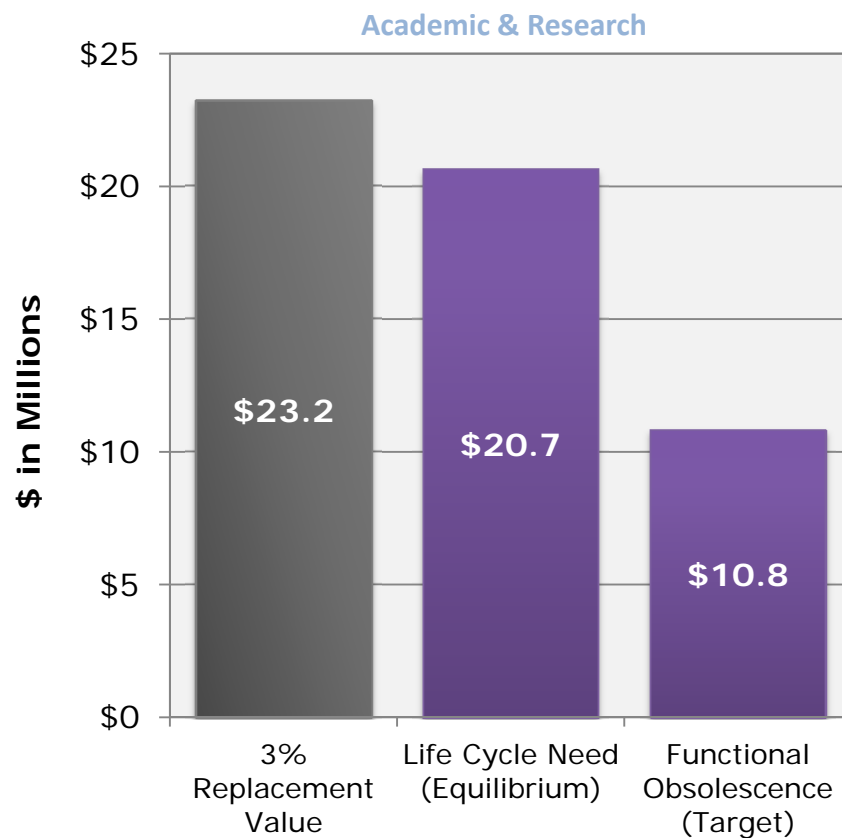


# Defining a stewardship target



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## Montana State University – Entire Campus FY2012 Stewardship Targets



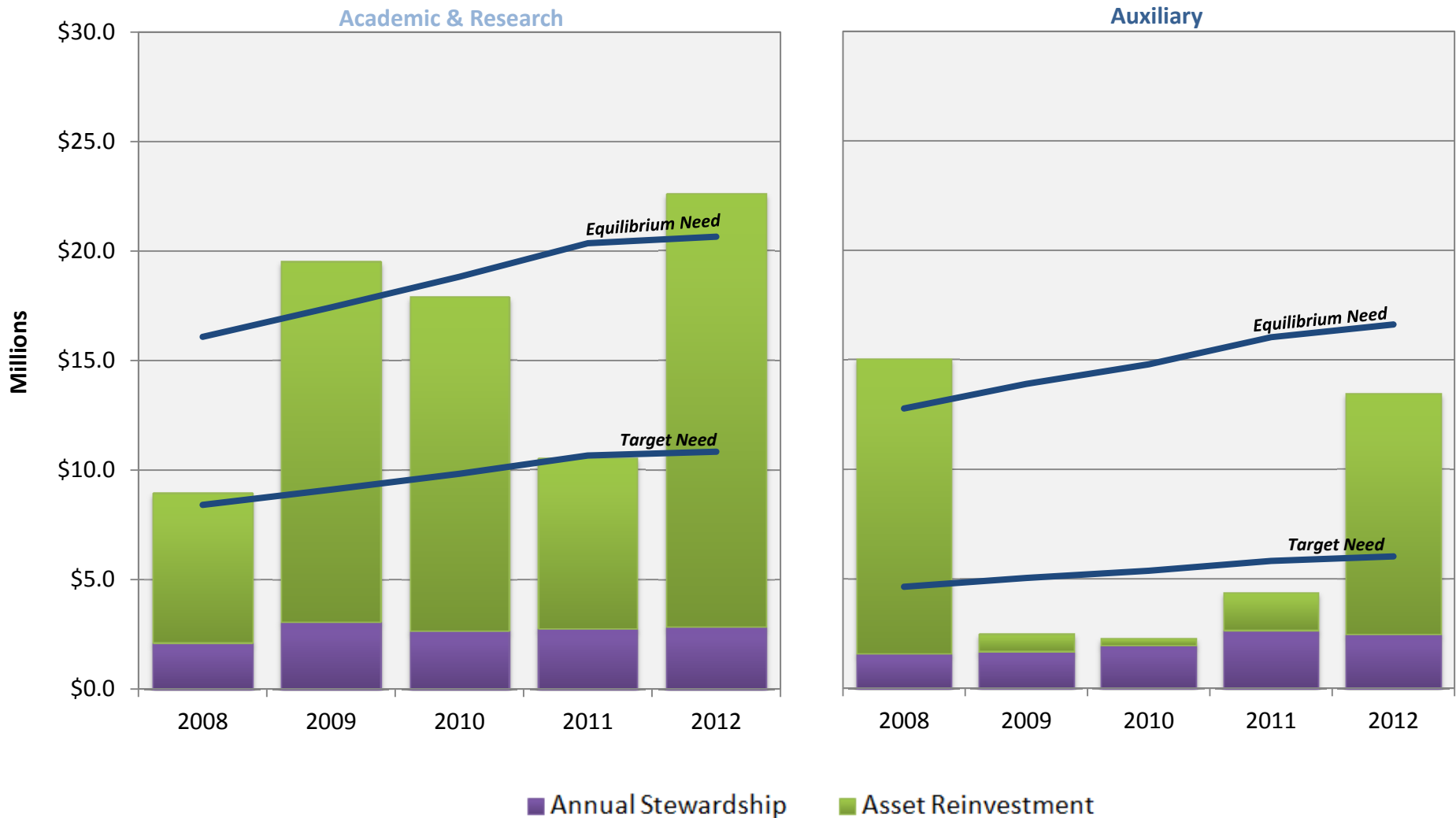
# Total investment vs. targets

Gaines and Cooley renovations push total A&R spending into target range



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## Total Project Spending vs. Target





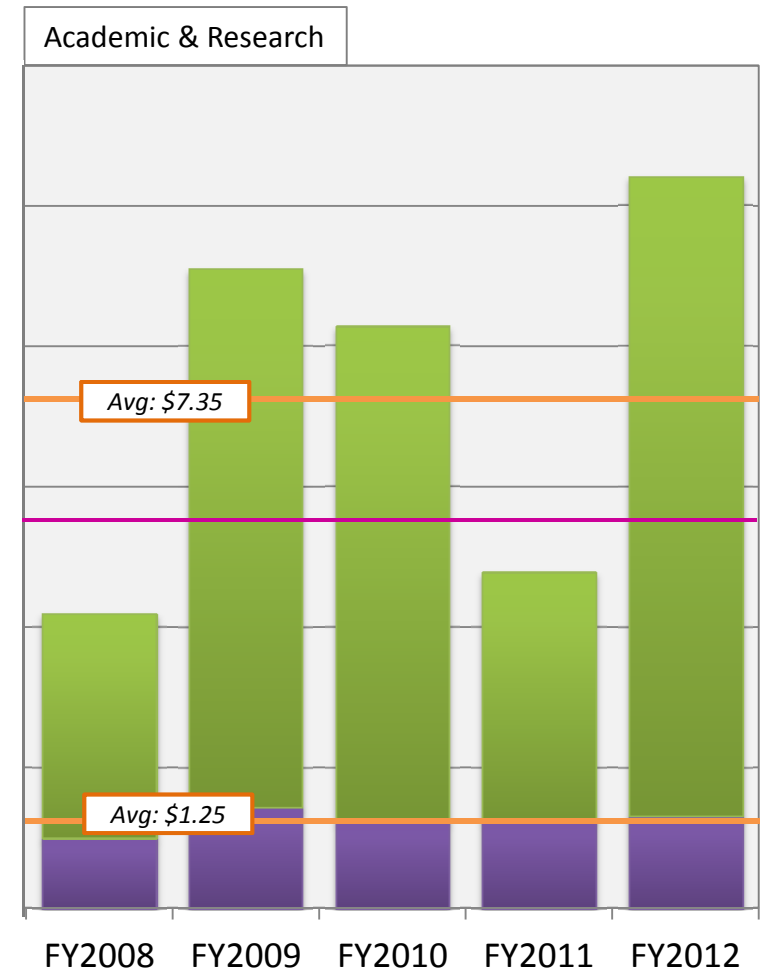
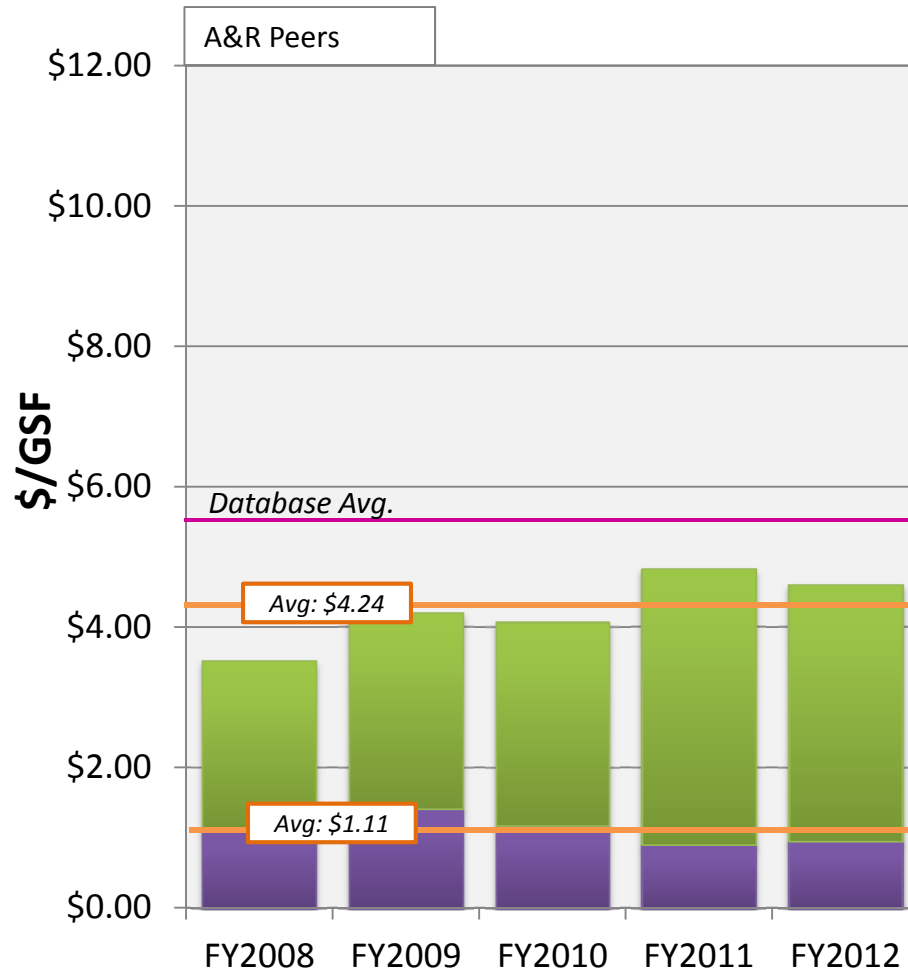
# Total funding compared to peers

Unique funding amounts to \$4.07/GSF annually during this period



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## Total Project Spending vs. Peers



■ Annual Stewardship

■ Asset Reinvestment

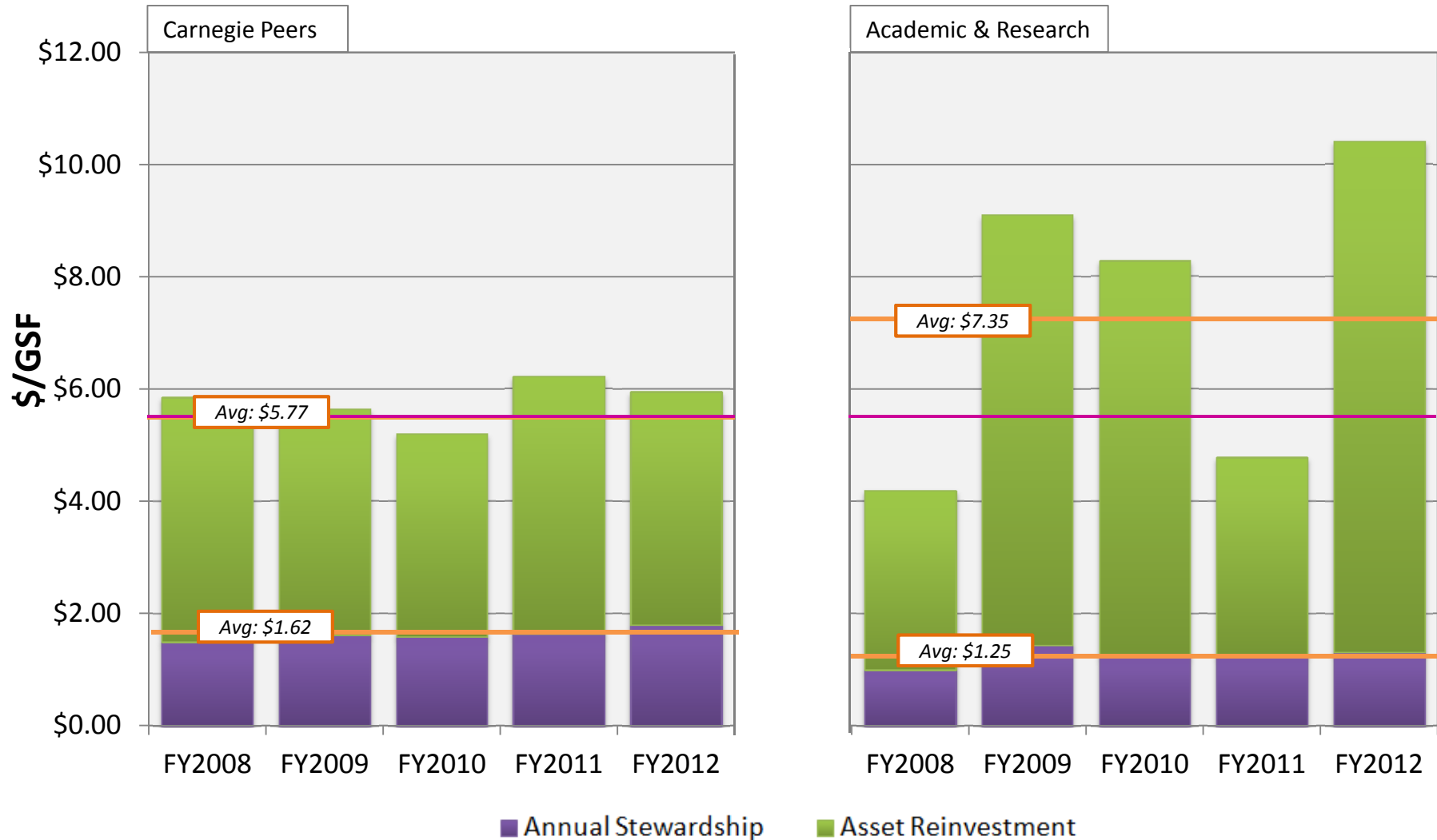
# Total funding compared to Carnegie peers

Comparing to other universities with “very high research activity”



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## Total Project Spending vs. Peers



Note change in Peer Group

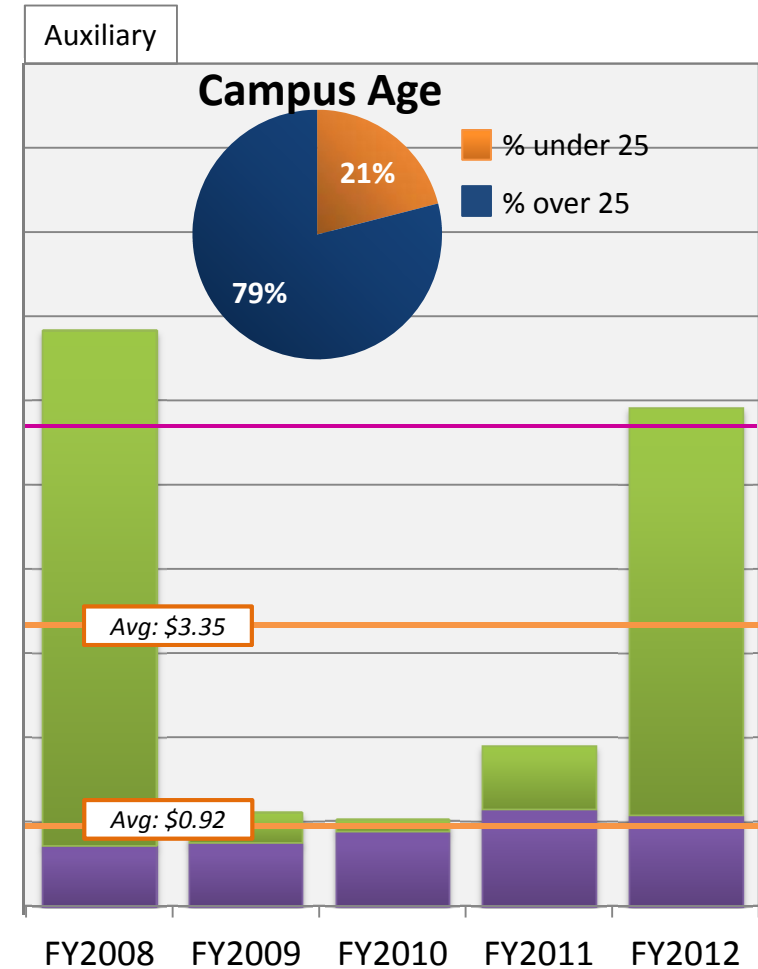
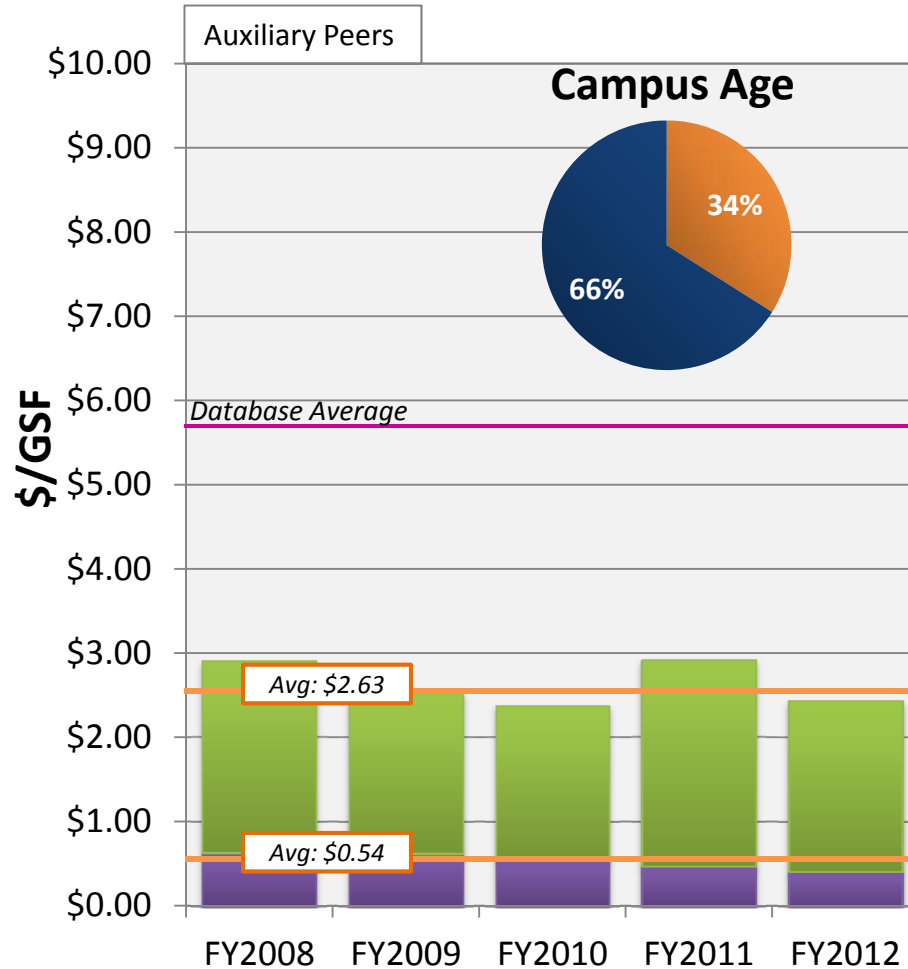
# Total funding compared to peers

Younger peers investing at very low levels; MSU Auxiliary average below database



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## Total Project Spending vs. Peers



Annual Stewardship

Asset Reinvestment

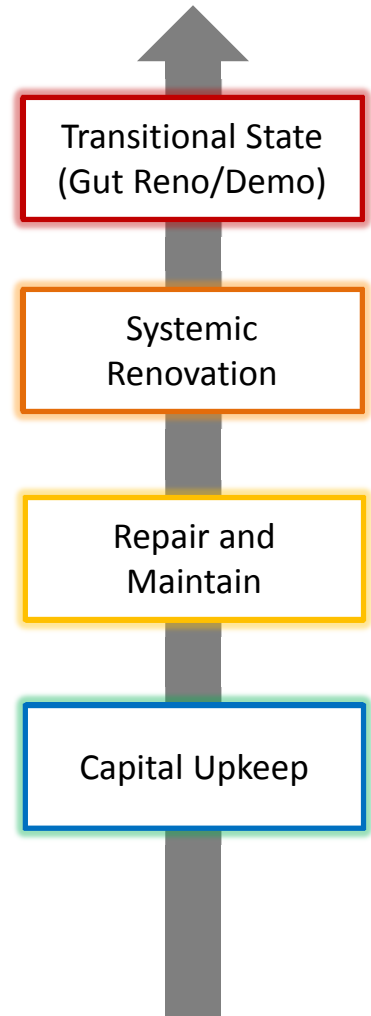
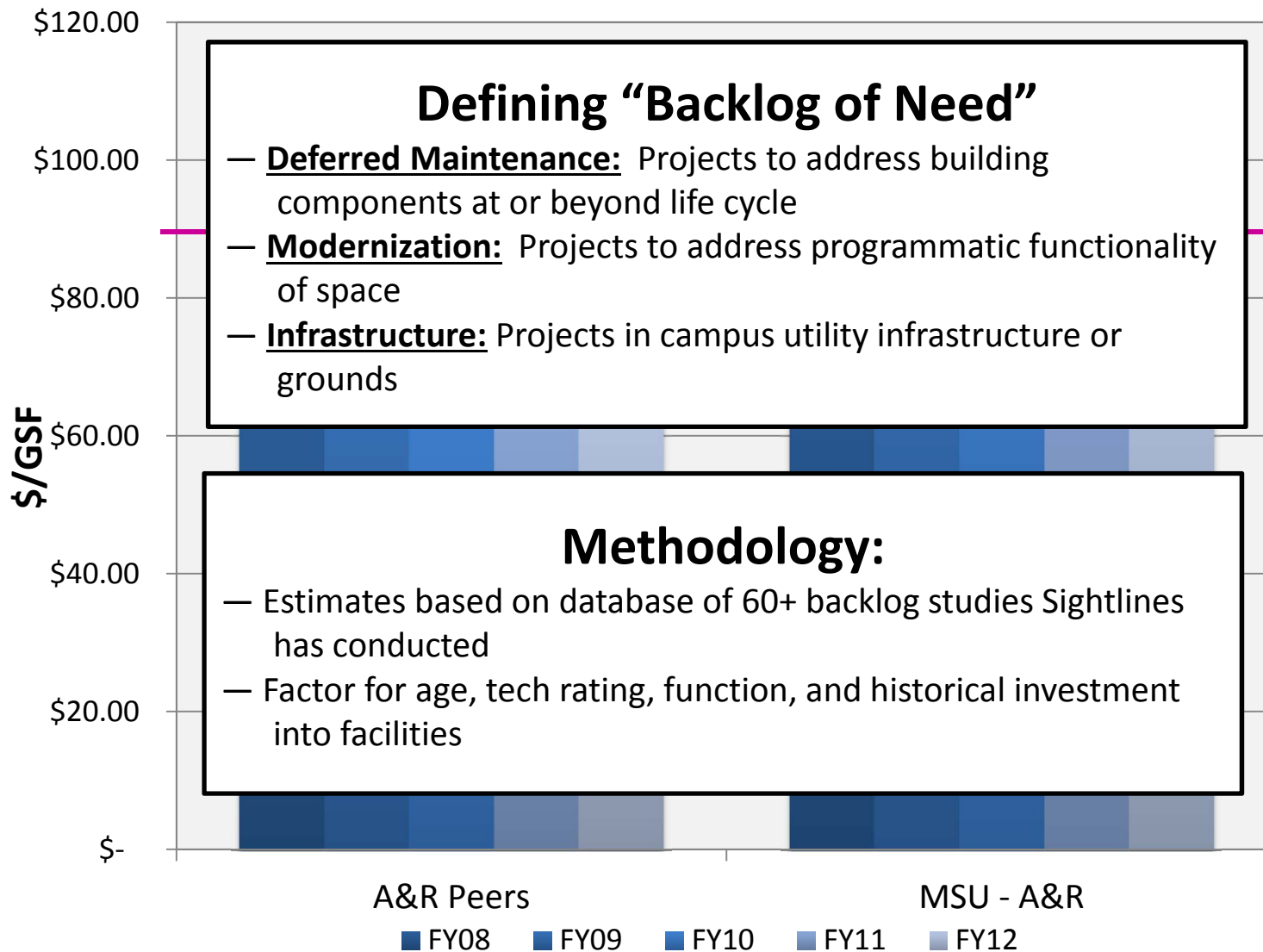
# Backlog \$20/GSF (\$40M) higher than peers

Total backlog of need – A&R



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## Total Backlog of Need – A&R (\$/GSF)



Database Average: \$89/GSF

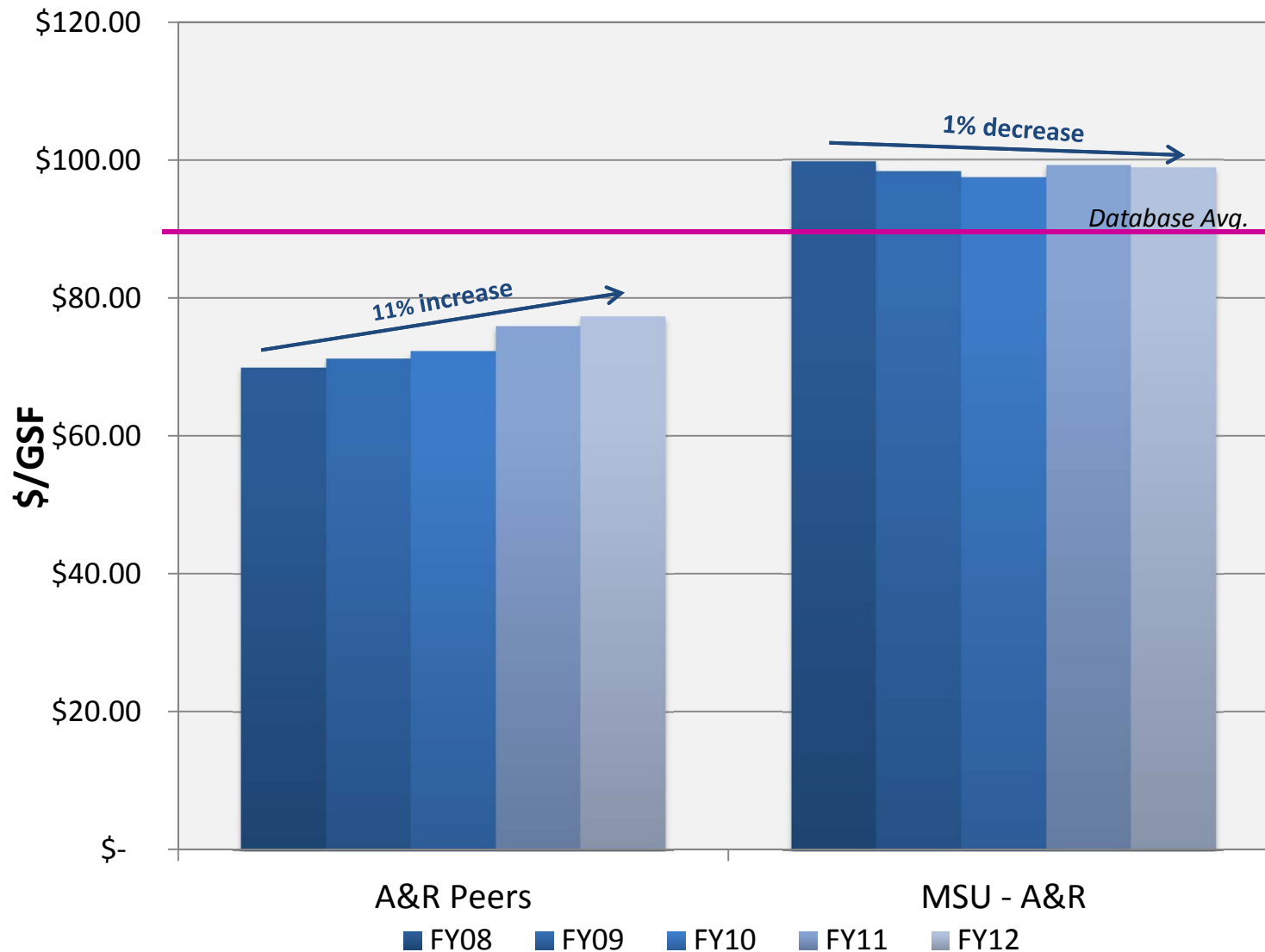
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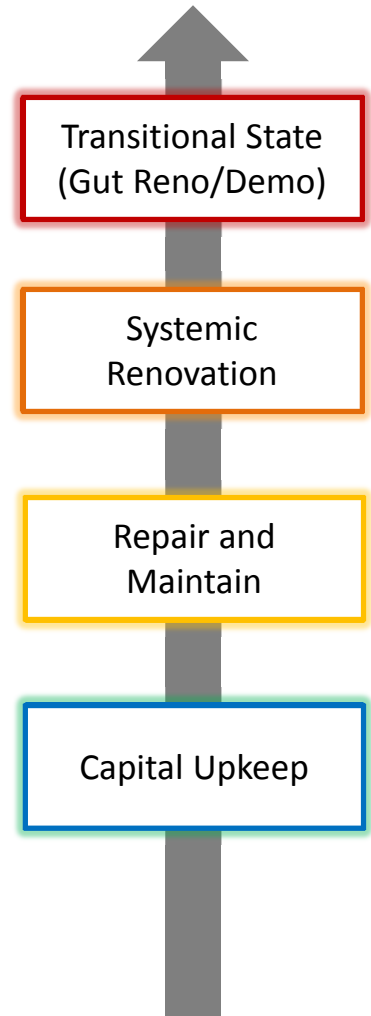


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## Total Backlog of Need – A&R (\$/GSF)



— Database Average: \$89/GSF



# Auxiliary facilities' backlog higher than peers

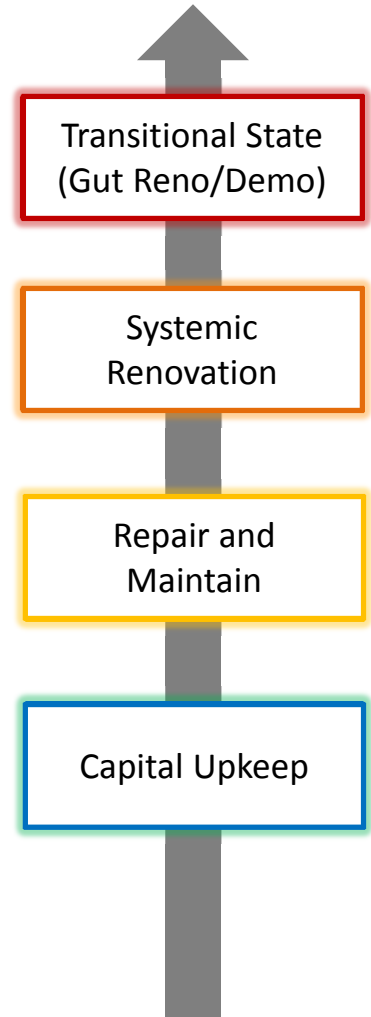


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## Total Backlog of Need – Auxiliary (\$/GSF)



Database Average: \$89/GSF



# Operational impact of higher backlog and older facilities





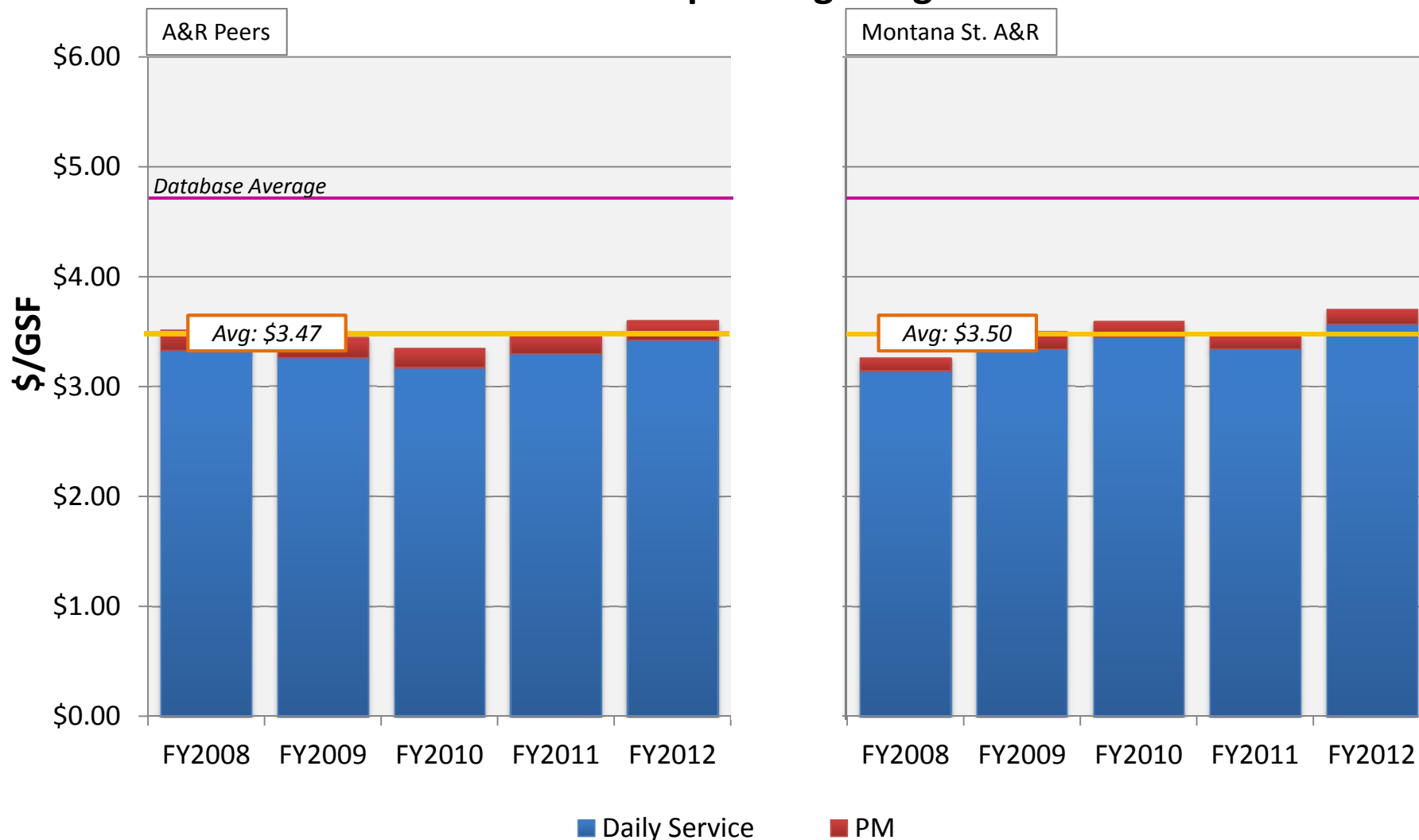
# Despite high backlog operating budget on par with peers

## Facilities operating budget – A&R



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### Facilities Operating Budget



Data shown excludes utilities costs

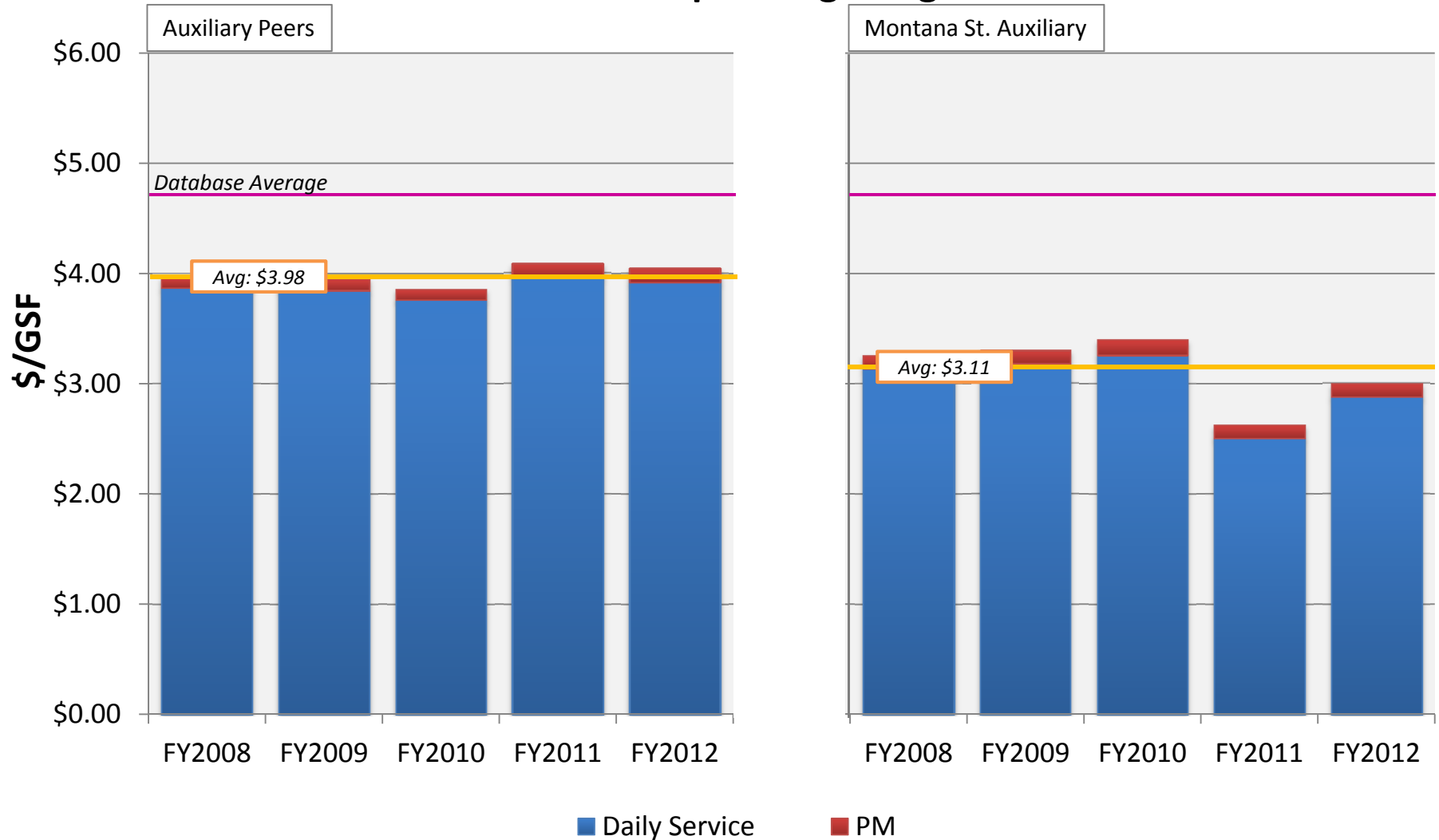
# Auxiliary budget \$2M lower than peers

## Facilities operating budget – Auxiliary



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### Facilities Operating Budget



Data shown excludes utilities costs

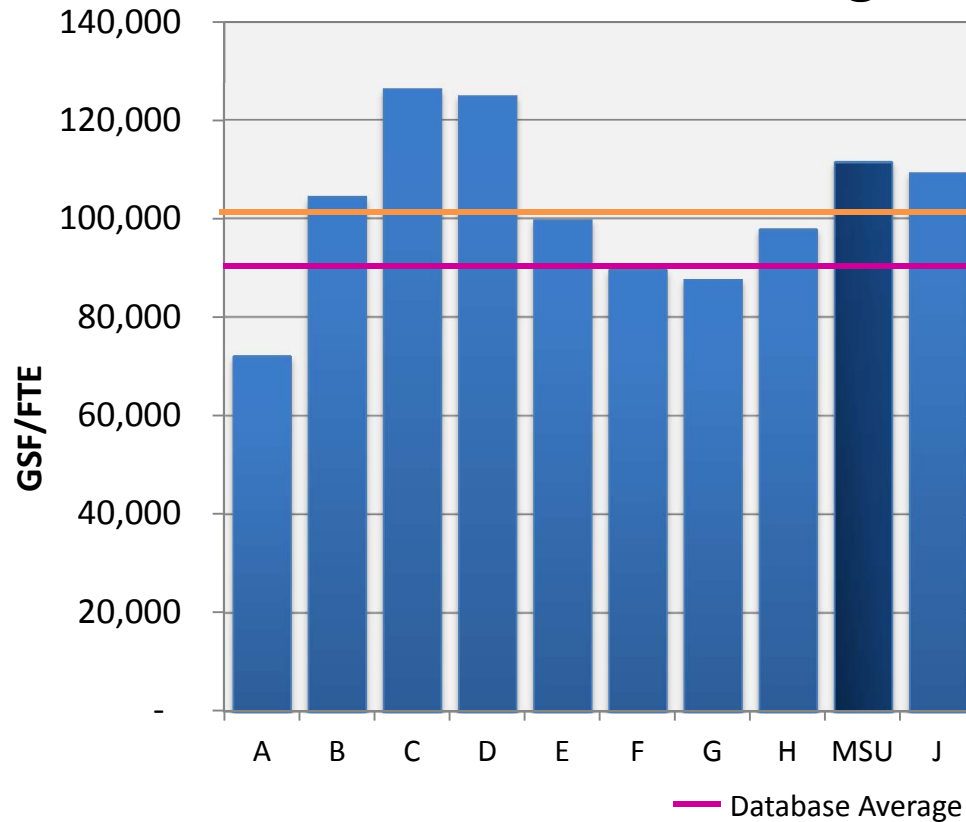
# Asking more of maintenance staff

Maintenance workers covering more space, twice as many buildings

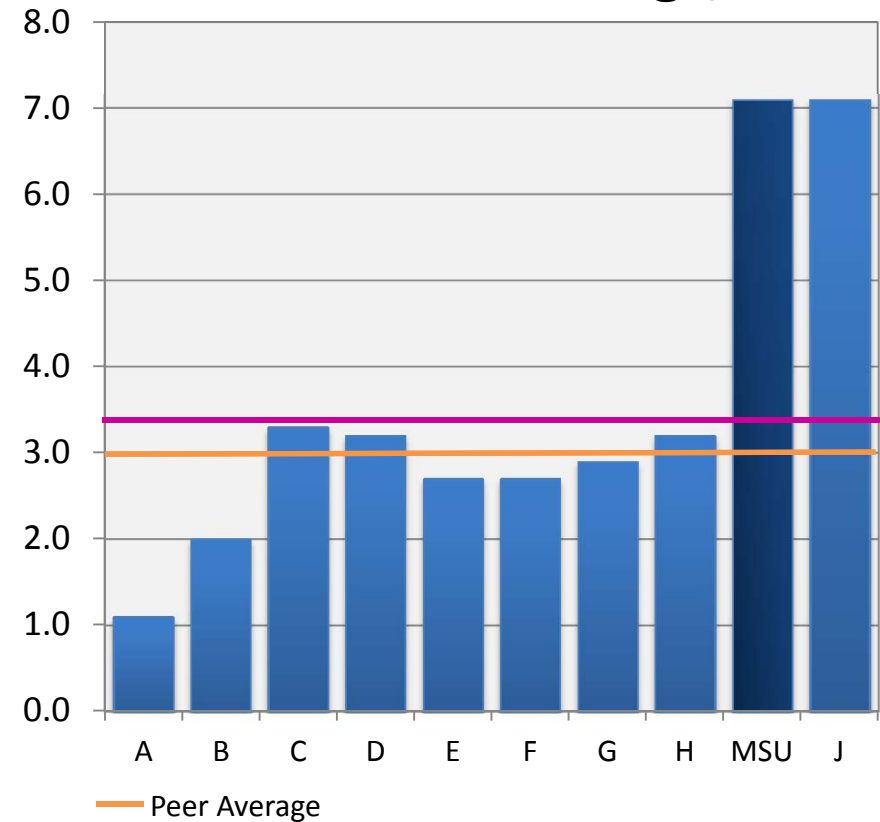


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## Maintenance Coverage



## Maintained Buildings/FTE



	MSU	Peers	Database Average
General Repair Inspection	3.7 out of 5.0	3.7 out of 5.0	3.9 out of 5.0
Customer Satisfaction	4.2 out of 5.0	4.1 out of 5.0	

Chart arranged by Building Intensity

Data shown is entire campus, as Auxiliary does not have a separate Maintenance crew. Using A&R Peers

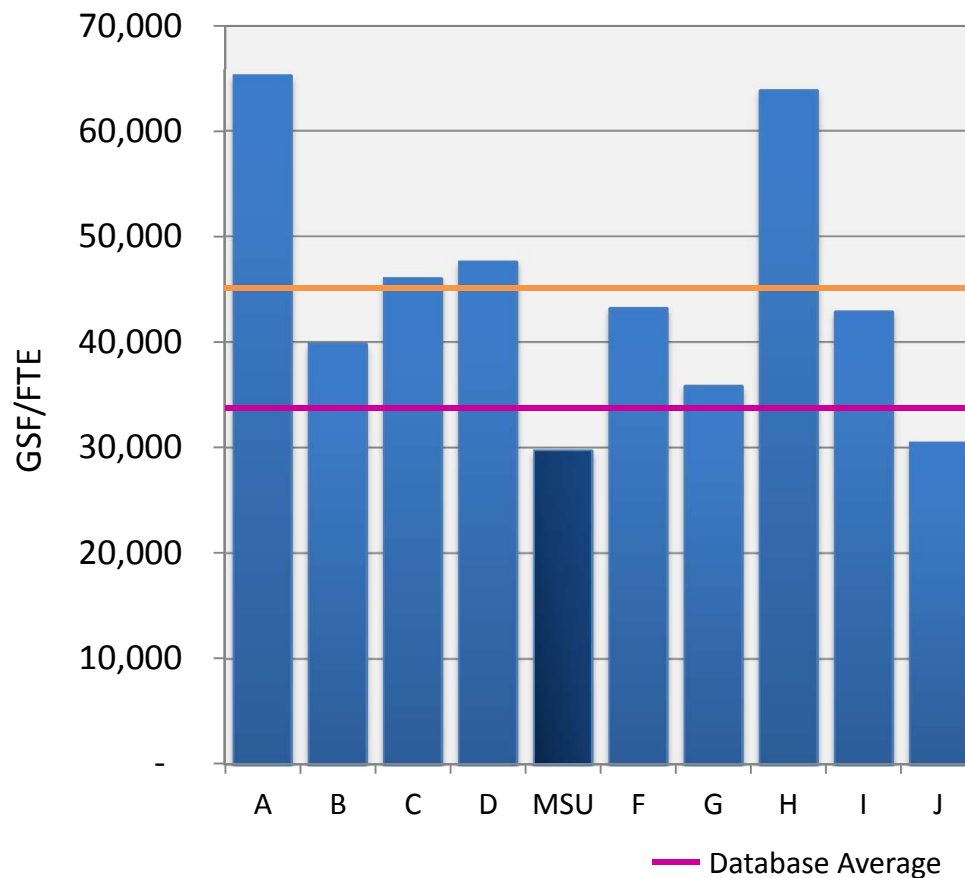
# Custodial Coverage – A&R

Older facilities, higher backlog, and increasing campus density contribute to metrics

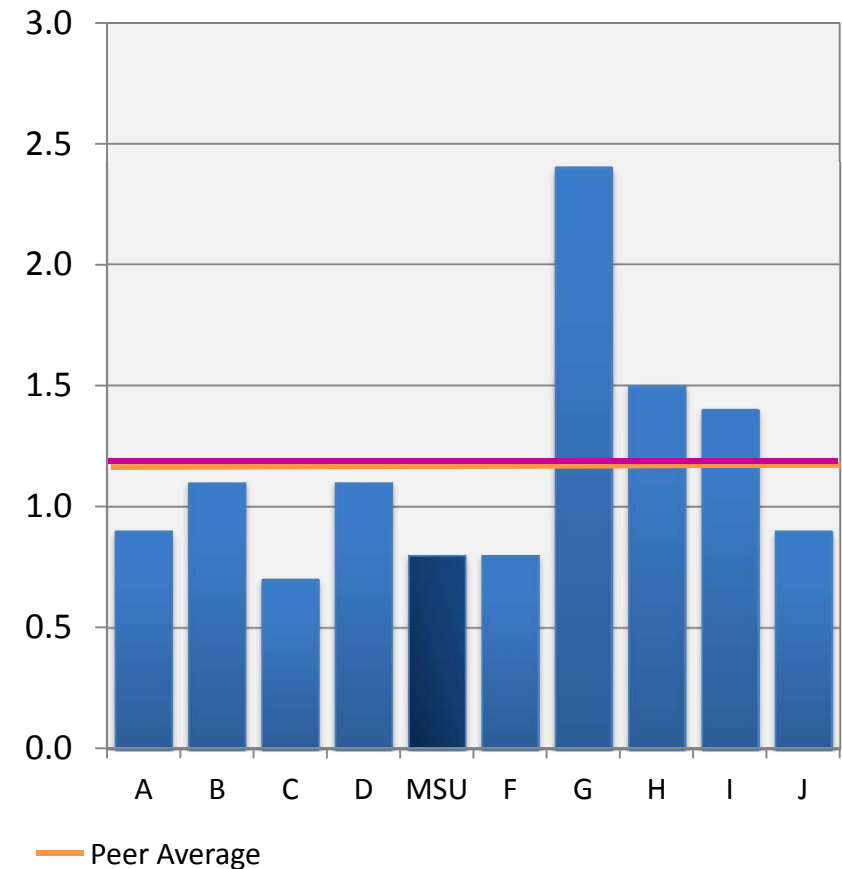


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## Custodial Coverage – A&R



## Cleaned Buildings/FTE – A&R



	A&R	Peers
Cleanliness Inspection	4.0 out of 5.0	4.1 out of 5.0
Customer Satisfaction	3.9 out of 5.0	3.8 out of 5.0

Chart arranged by Density Factor  
Using A&R Peers

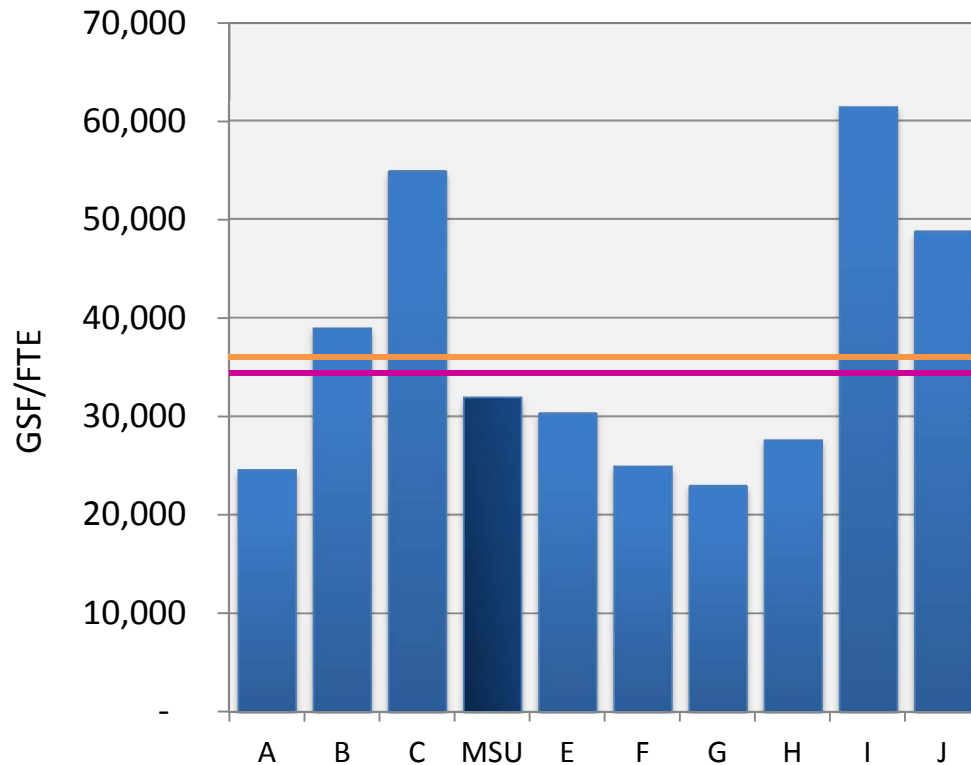
# Custodial Coverage - Auxiliaries

Older facilities, higher backlog, and increasing campus density contribute to metrics

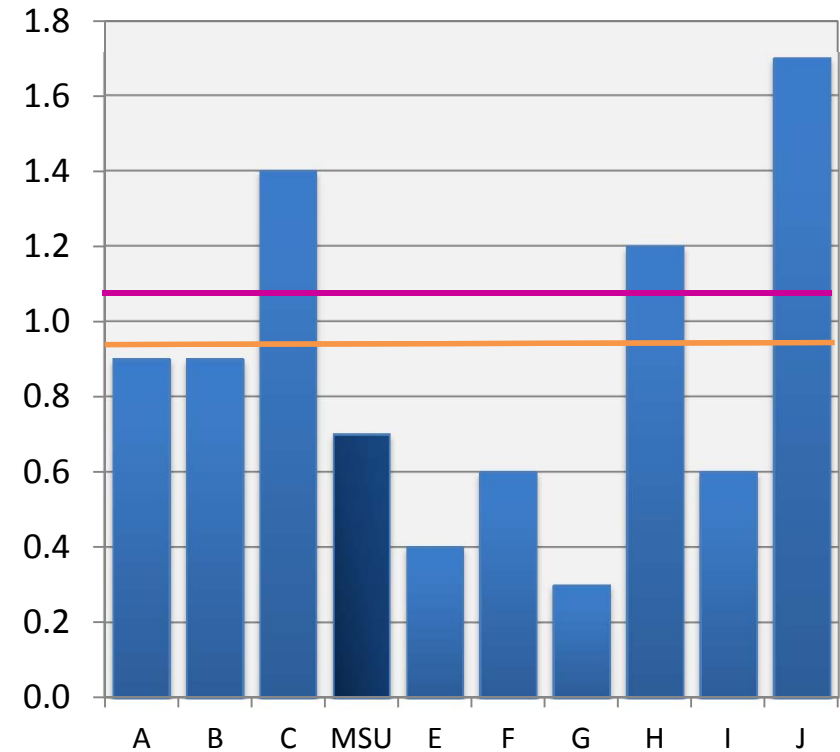


Sightlines

## Custodial Coverage – AUX



## Cleaned Buildings/FTE – AUX



Database Average

Peer Average

	AUX	Peers
Cleanliness Inspection	4.1 out of 5.0	4.1 our of 5.0

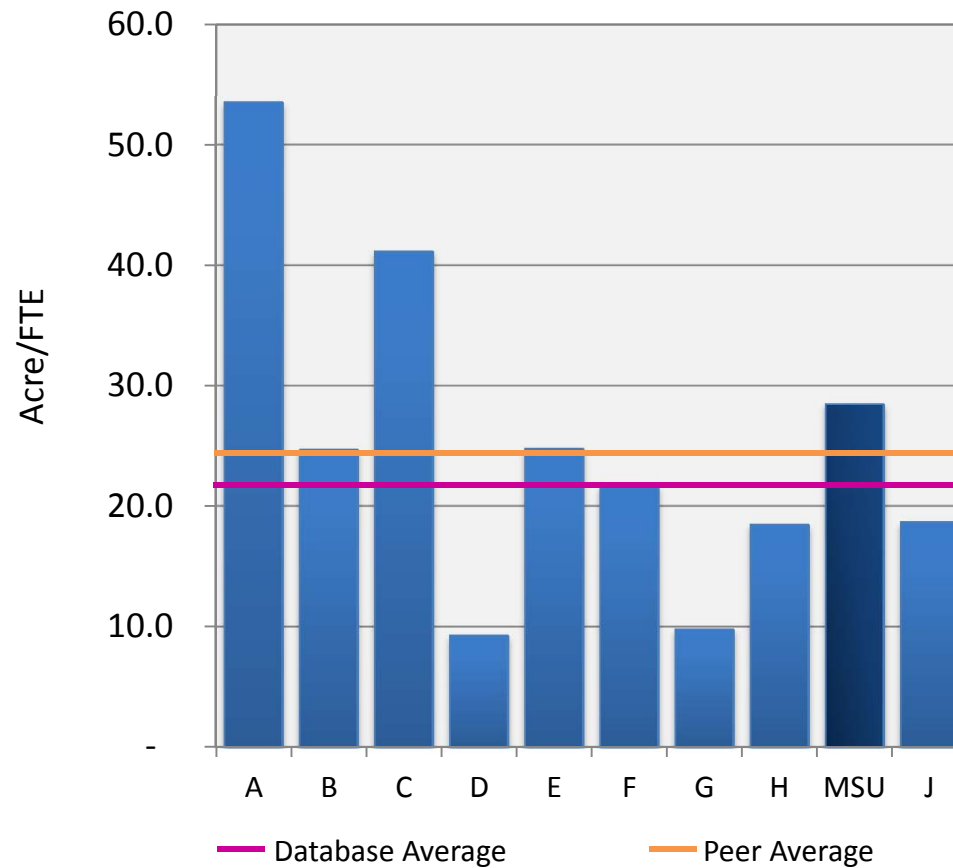
Chart arranged by Density Factor  
Using AUX Peers

# Grounds Coverage – Campus Wide



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Grounds Coverage



	MSU	Peers
Grounds Inspection	4.2 out of 5.0	4.0 out of 5.0

Chart arranged by Grounds Intensity

Data shown is entire campus, as Auxiliary does not have a separate Grounds crew. Using A&R Peers

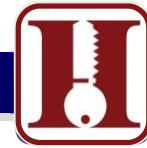
# Housing MB&A



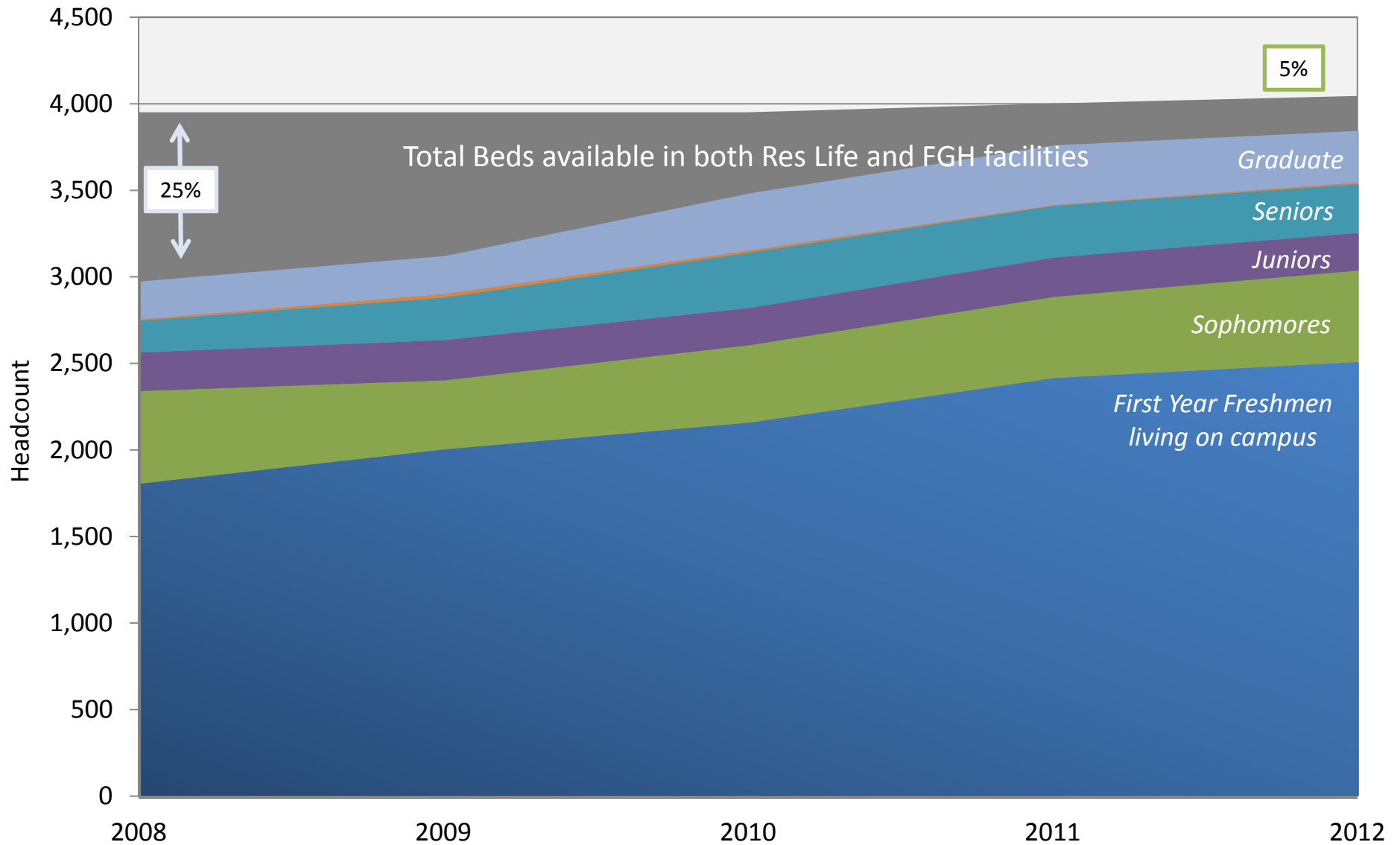


# Highest Occupancy in Housing in 5 years

Utilizing more beds in recent years



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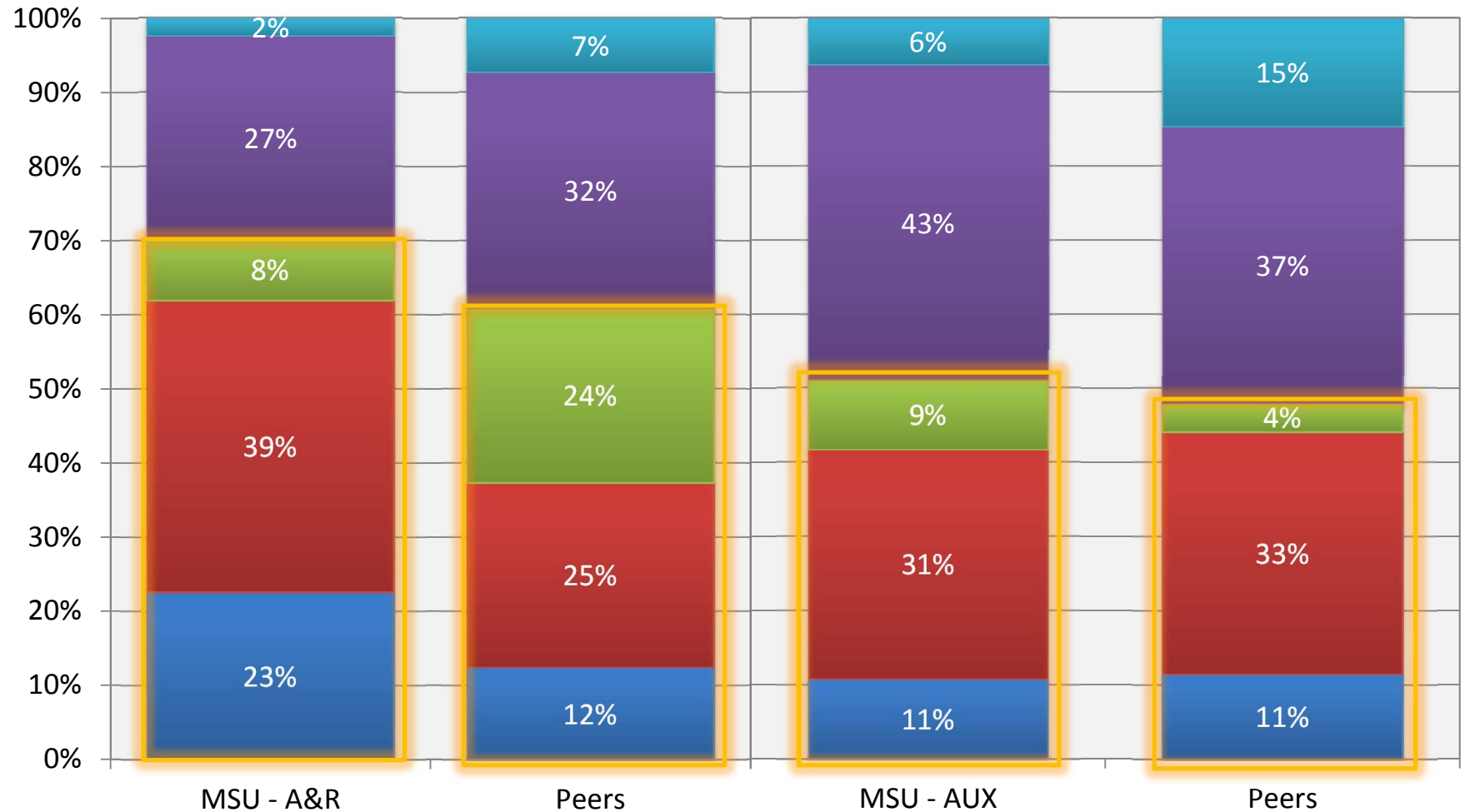


# GO-GREEN MB&A





## Longitudinal Mix of Spending



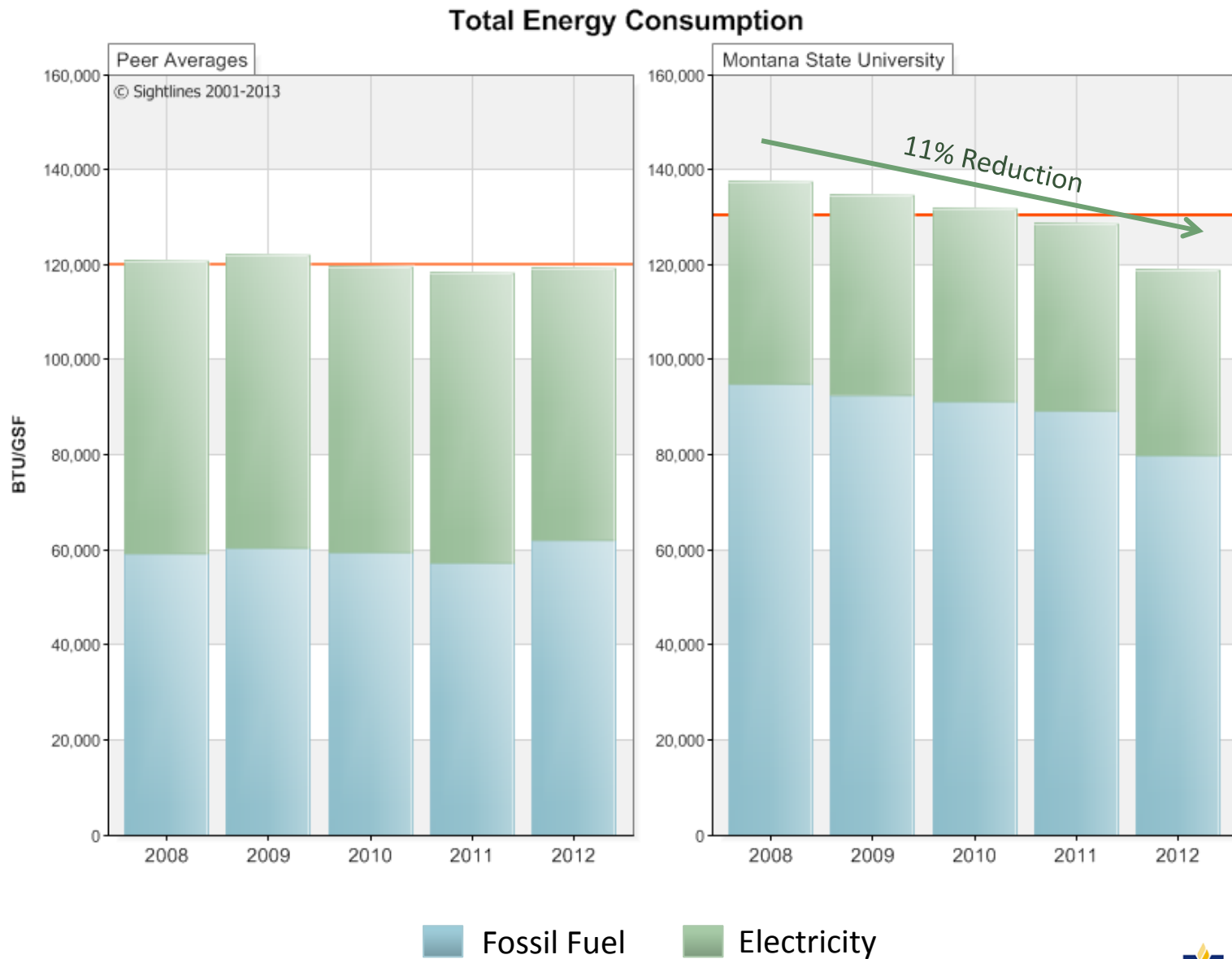
■ Bldg. Envelope ■ Bldg. System ■ Infrastructure ■ Space ■ Code

# Total Utility Consumption

11% energy conservation correlates to a \$1.2M cost avoidance



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Go-Green Peers shown

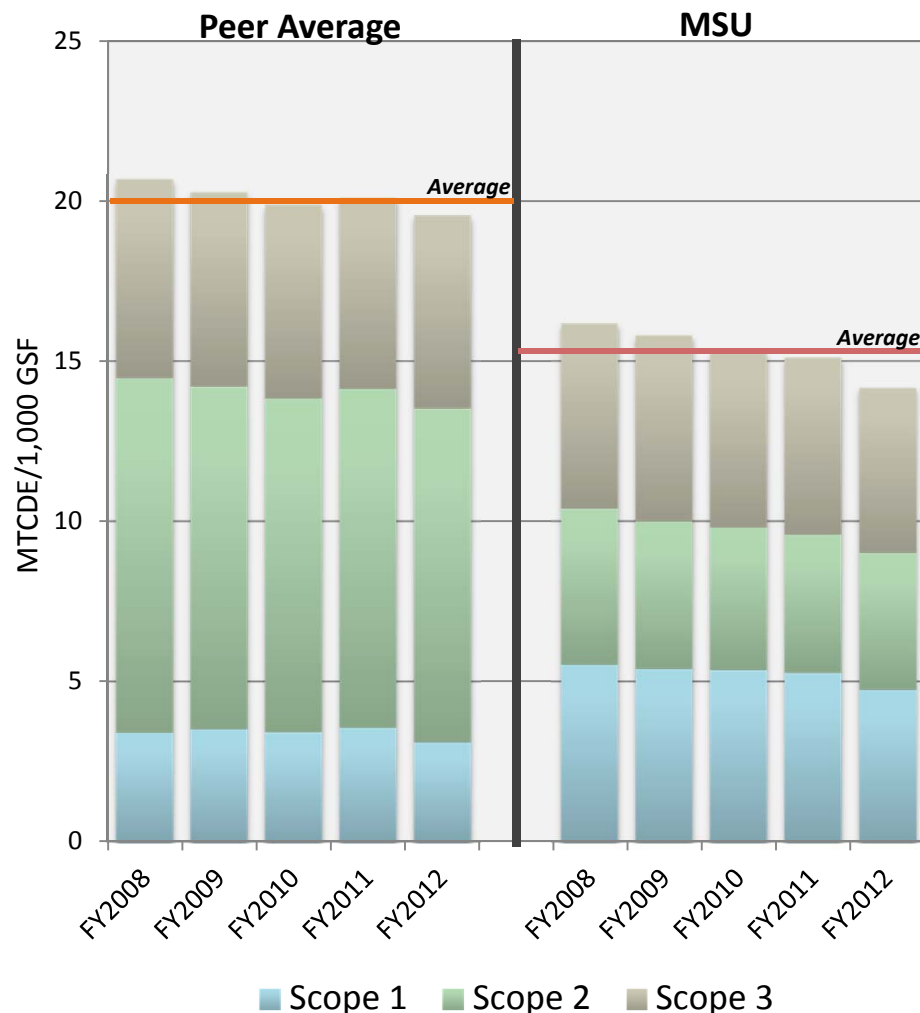
# MSU has seen strong reductions in total emissions

Emissions picture further improves when normalizing by enrollment

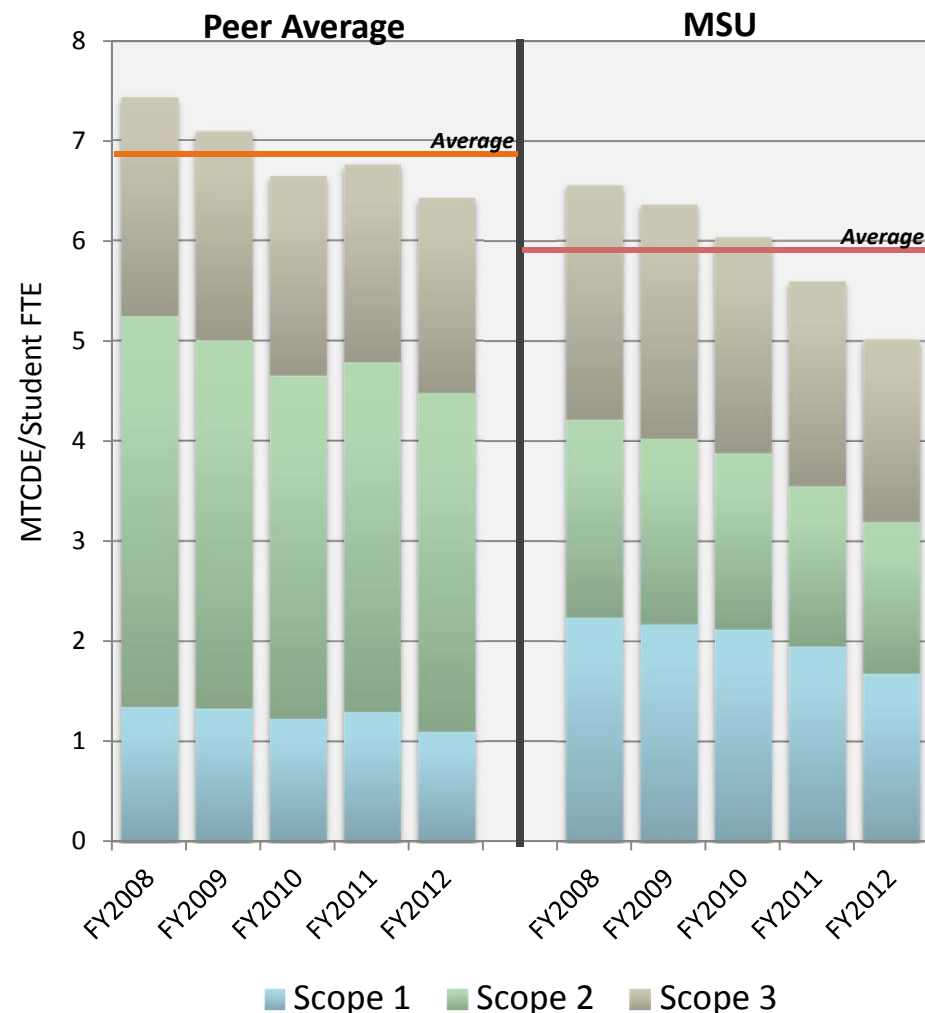


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## Gross Emissions (per 1,000 GSF)



## Gross Emissions (per student FTE)



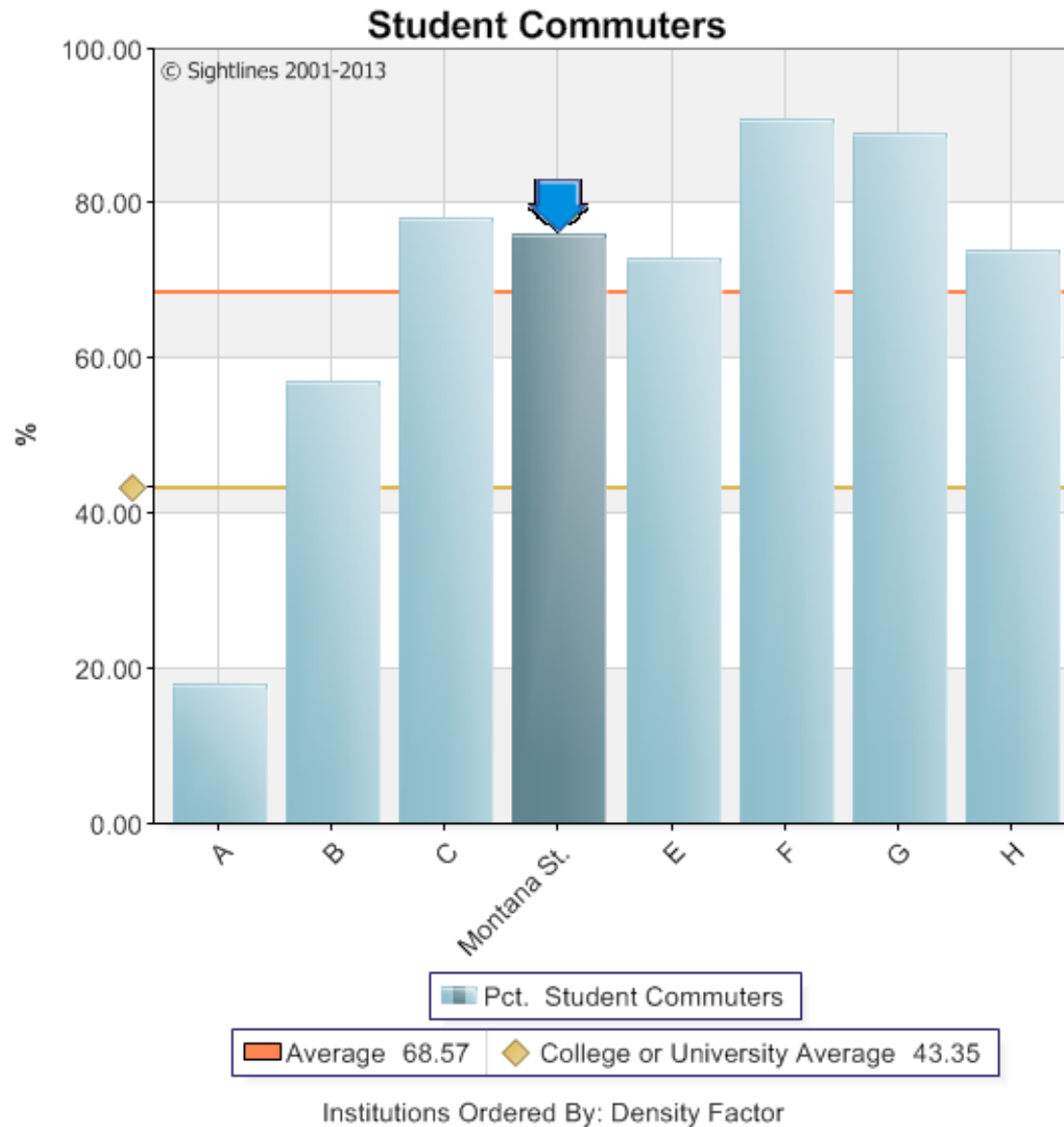
Go-Green Peers shown

# Campus commuting profile- Students

A higher rate of student commuters than average



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## Major Impacts for Commuting Emissions

How Many?

	% of Users Commuting
MSU	75%
Peers	69%

Note: Information from MSU FY12 commuter survey

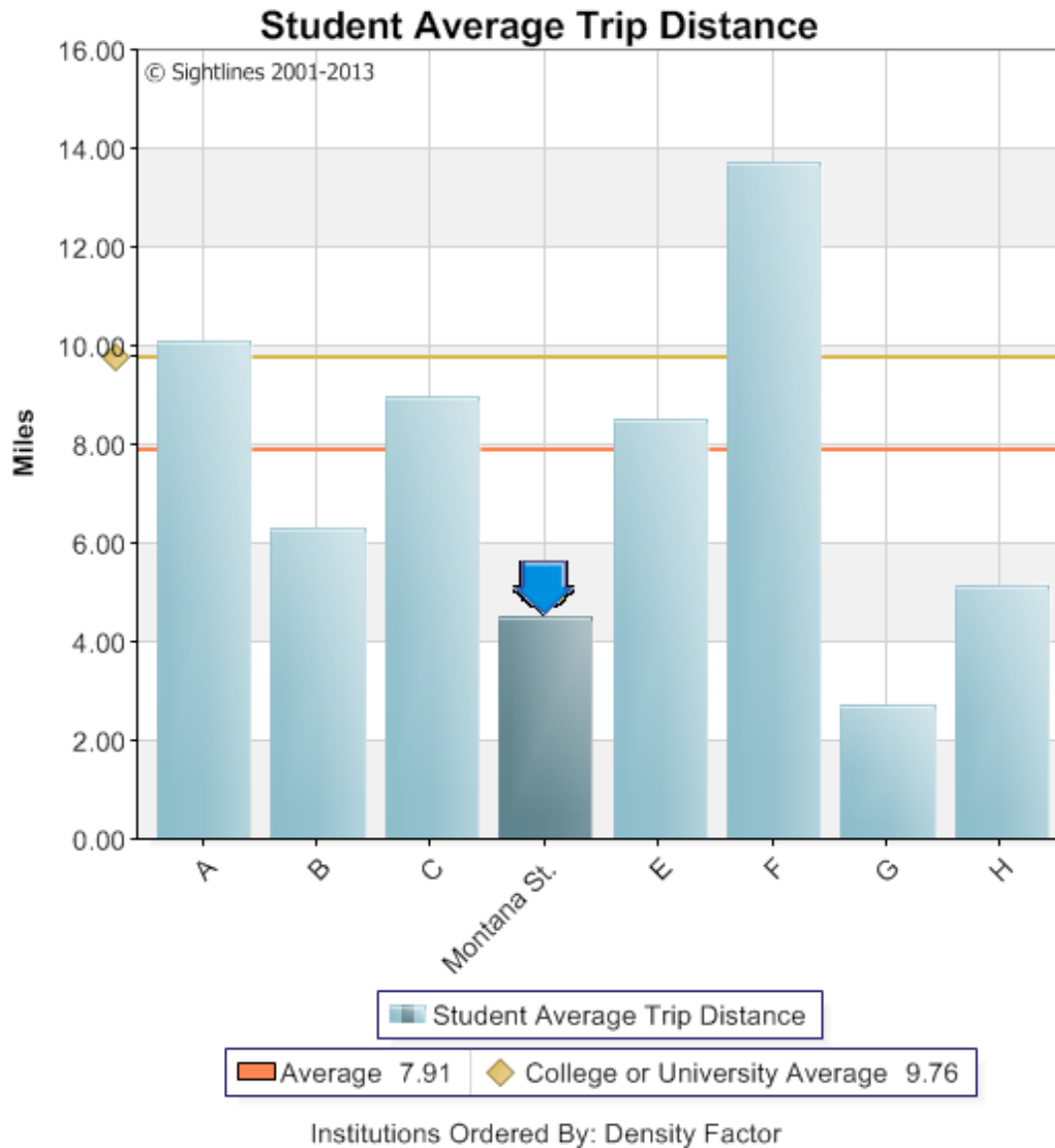


# Campus commuting profile- Students

Traveling a shorter distance than peers



Sightlines  
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## Major Impacts for Commuting Emissions

### How Many?

	% of Users Commuting
MSU	75%
Peers	67%

### How Far?

	Average One-Way Trip
MSU	4.5 Miles
Peers	7.9 Miles

Note: Information from MSU FY12 commuter survey

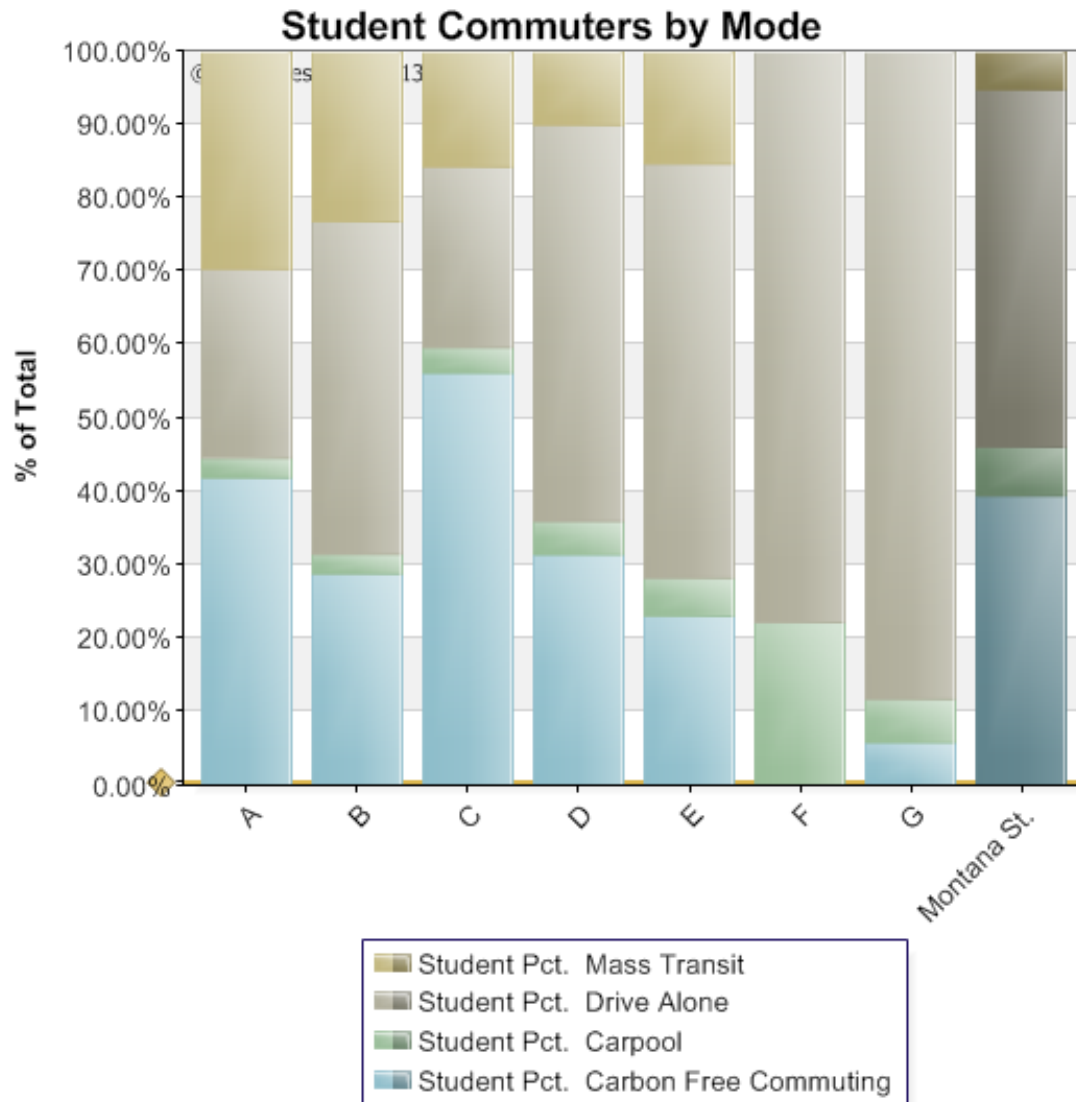


# Campus commuting profile- Students

Commuting profile defined by longer trip distance and drive alone habits



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## Major Impacts for Commuting Emissions

### How Many?

	% of Users Commuting
MSU	75%
Peers	67%

### How Far?

	Average One-Way Trip
MSU	4.5 Miles
Peers	7 Miles

### What Mode?

	% by Automobile
MSU	37%
Peers	33%

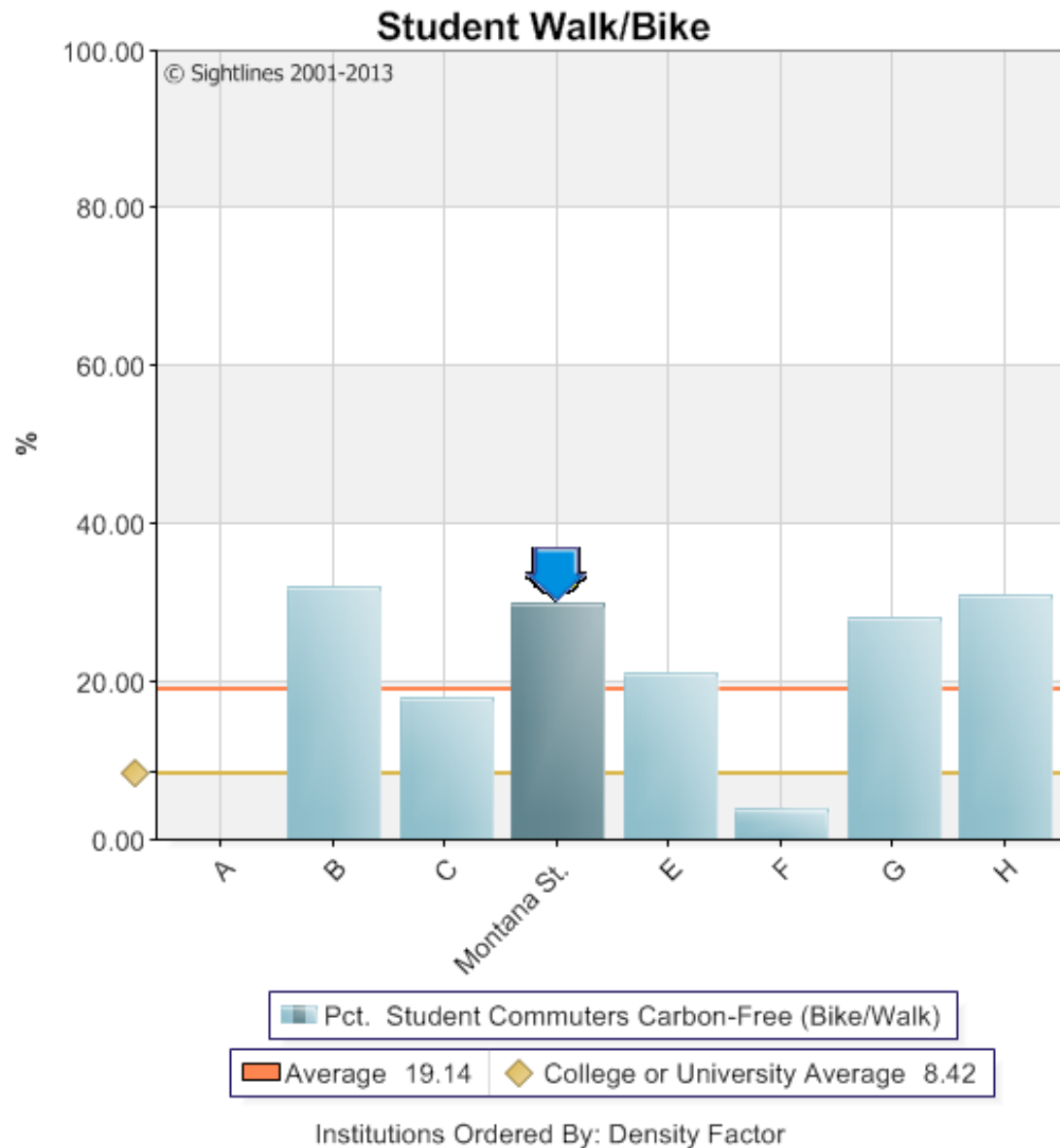
Note: Information from MSU FY12 commuter survey

# Campus commuting profile- Students

Carbon-free mode above peer and database average



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## Carbon Free Modes (Walk/Bike)

	% Carbon Free (Walk/Bike)
MSU	30%
Peers	19%

Commuting Carbon Savings Annually:  
**746 MTCDE**

*If MSU's carbon free commuters were at 20% and the additional 10% were drive alone commuters instead*

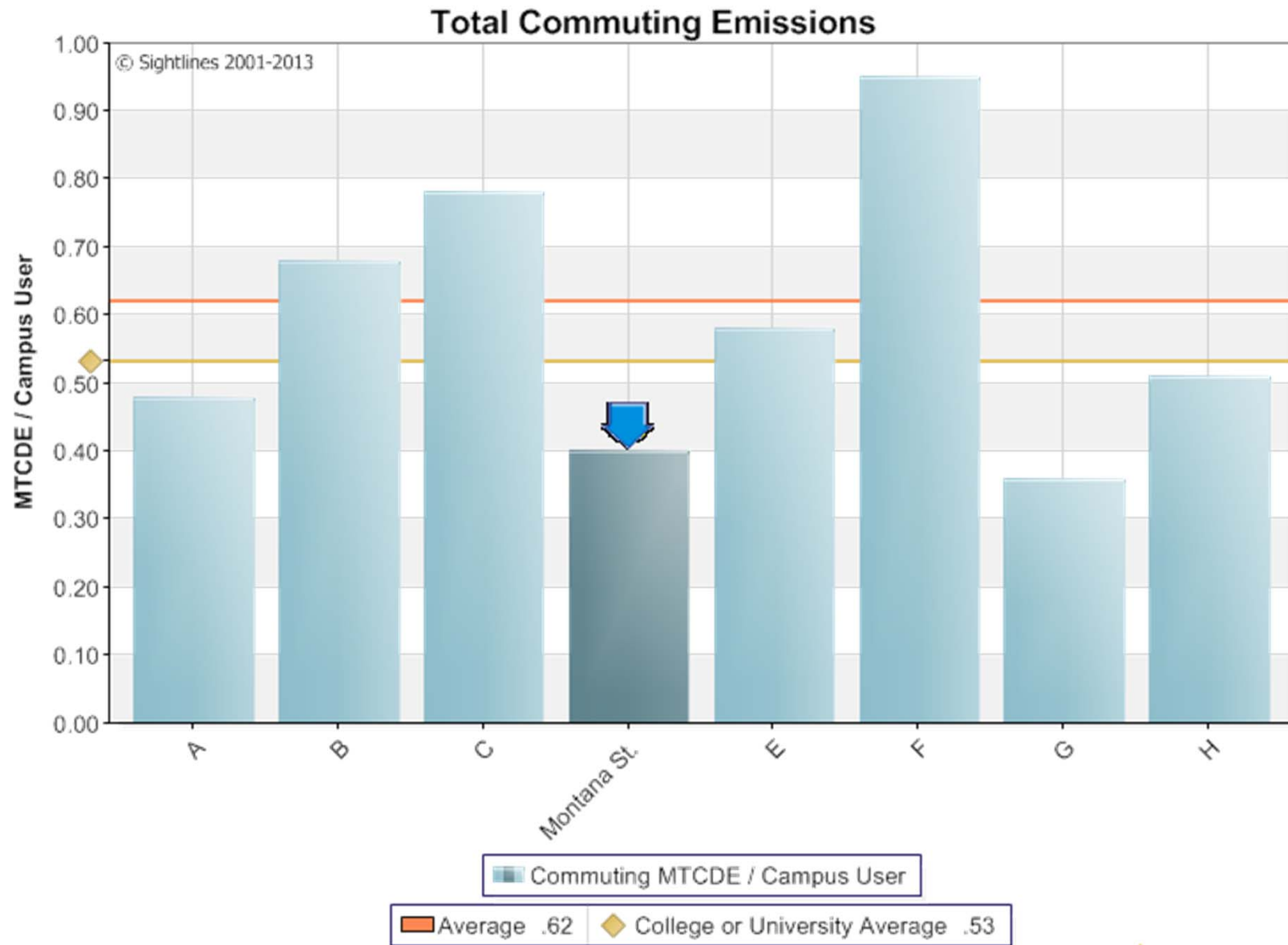
Note: Information from MSU FY12 commuter survey

# Low total commuting emission

Mode, distance, and miles factor into total commuting emissions



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Institutions Ordered By: Density Factor

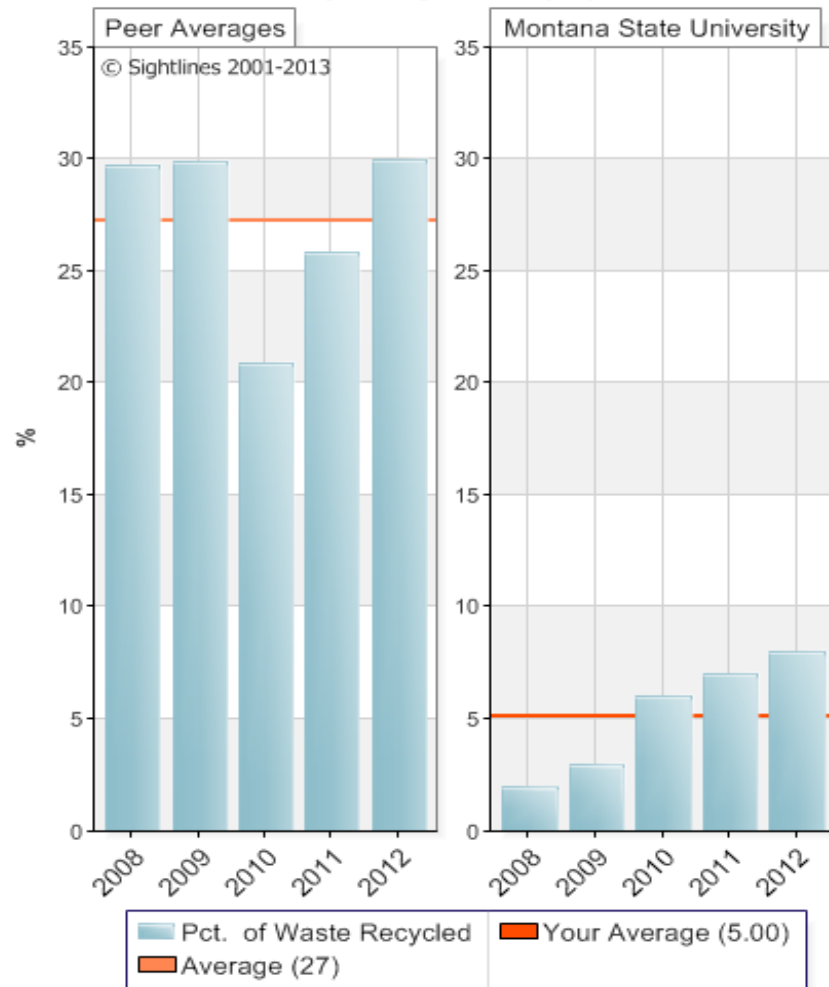
# Total waste stream and recycling rates

Room for improvement for recycling rate on campus

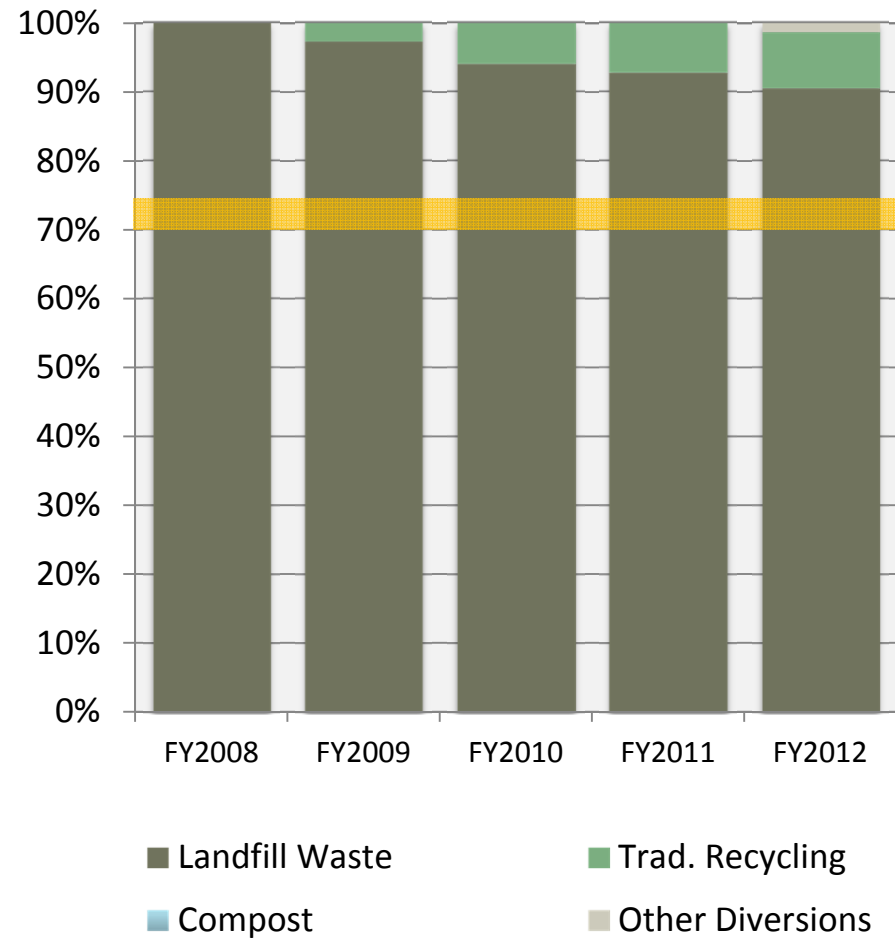


Sightlines  
© Sightlines 2010

## Recycling Rate (%)



## Landfill vs. Diversion Rates

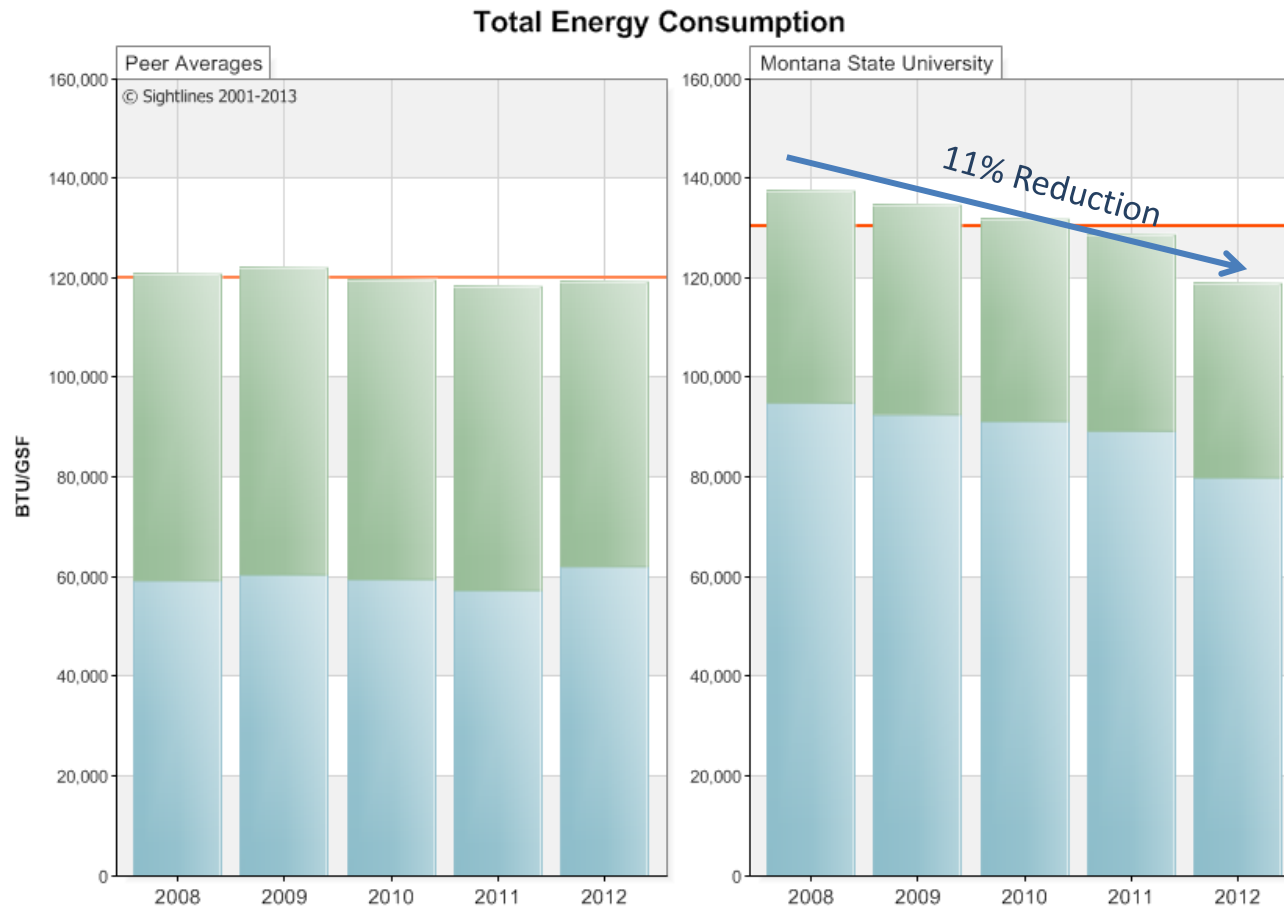


# Conclusion





## Summary

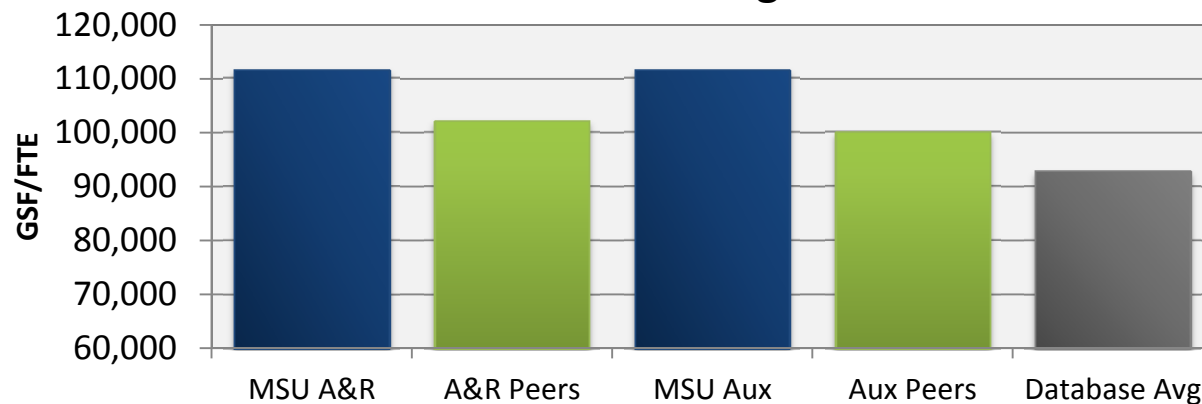


***Focus on  
Energy  
Initiatives  
Paying  
Dividends***



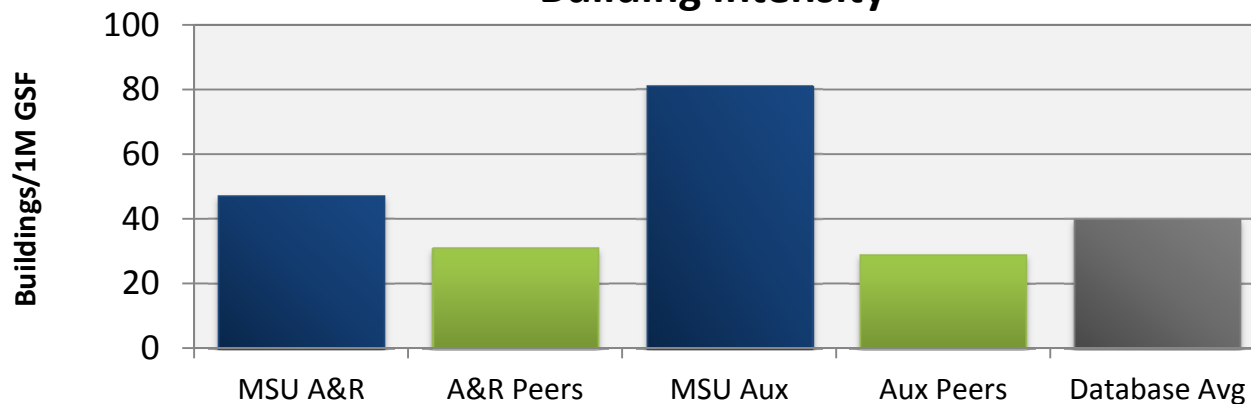
## Summary

### Maintenance Coverage



***Higher  
Coverage***

### Building Intensity



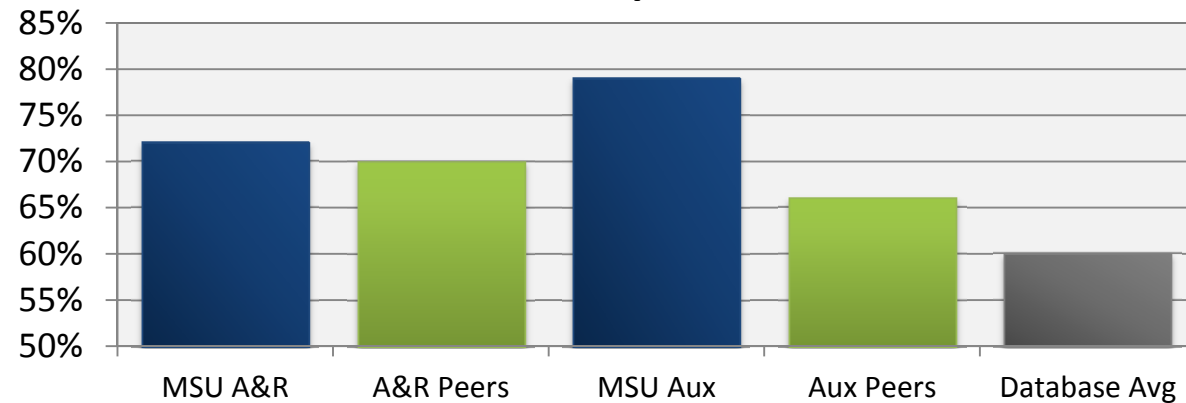
***More  
buildings***





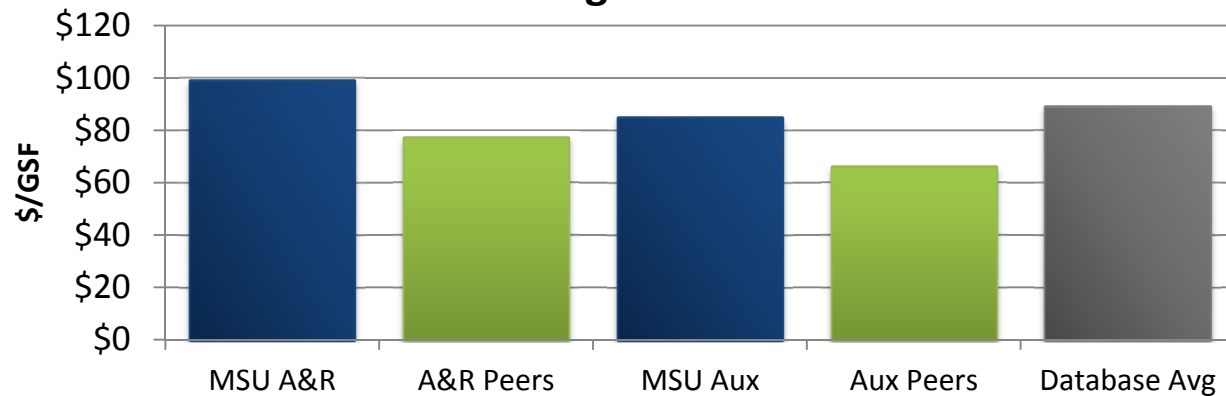
## Summary

**% of Space >25**



***Older  
Facilities***

**Backlog of Need**



***Higher  
Backlog***

# Questions and Comments

