

Xavier University  
Yale University  
Yeshiva University

# FY14 GHG Analysis

Champlain College

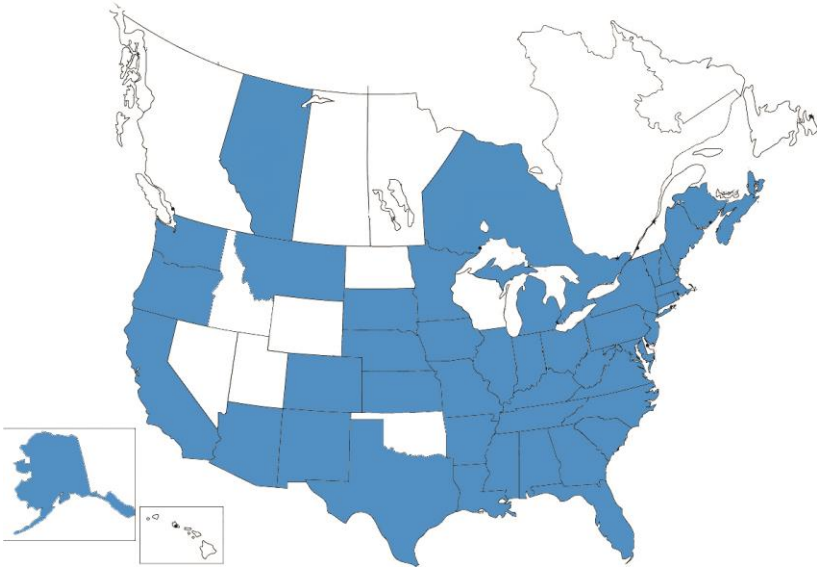
Presented by: Jeff Murphy



# 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\***
- **33 Flagship State Universities**
- **13 of the 14 Big 10 Institutions**
- **9 of the 12 Ivy Plus Institutions**
- **7 of 12 Selective Liberal Arts Colleges**

## Sightlines is proud to announce that:

- 450 colleges and universities are Sightlines clients including over 325 ROPA members.
- 93% of ROPA members renewed in 2014
- We have clients in 41 states, the District of Columbia and four Canadian provinces
- More than 100 new institutions became Sightlines since 2013

## Sightlines advises state systems in:

- Alaska
- California
- Connecticut
- Hawaii
- Maine
- Massachusetts
- Minnesota
- Mississippi
- Missouri
- Nebraska
- New Hampshire
- New Jersey
- Pennsylvania
- Texas
- West Virginia

# Defining Champlain's Carbon Footprint



## Scope 1 – Direct GHGs

- On-Campus Stationary Combustion (Natural Gas)
- Vehicle Fleet Fuel
- Refrigerants

## Scope 2 – Upstream GHGs

- Purchased Electricity

## Scope 3 – Indirect GHGs

- Faculty/Staff/ Student Commuting
- Directly Financed Air Travel
- Study Abroad
- Solid Waste
- Paper
- Transmission & Distribution Losses

***Increasingly Difficult to Control and/or Mitigate***

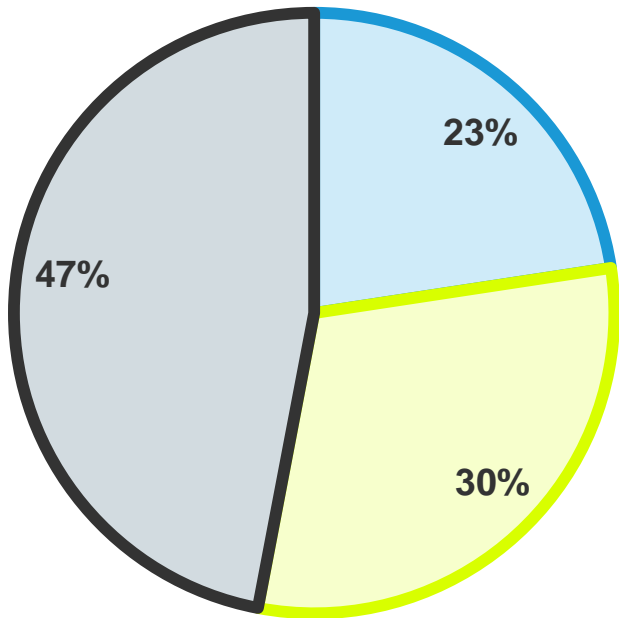
*Emissions sources are only for institutionally owned facilities and does not include leased space like Spinner, Quarry Hill, Sears St., etc.*

# Distribution of GHGs by Scope and Source



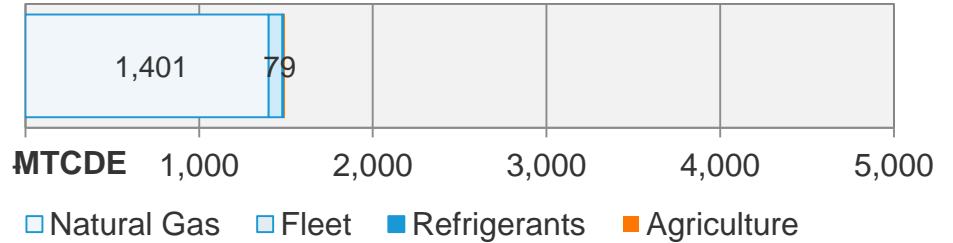
*Challenging profile given lack of direct control over most GHGs sources*

**Champlain's FY14 Emissions by Scope**

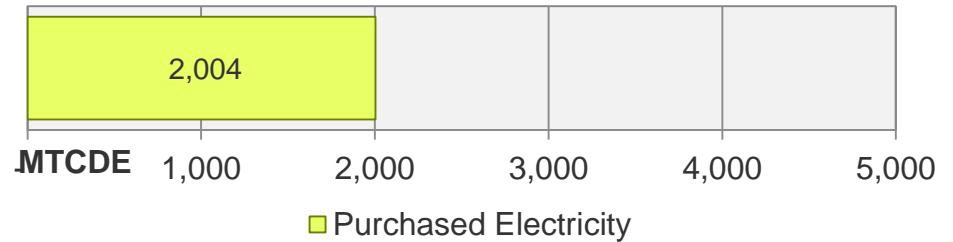


■ Scope 1   
 ■ Scope 2   
 ■ Scope 3

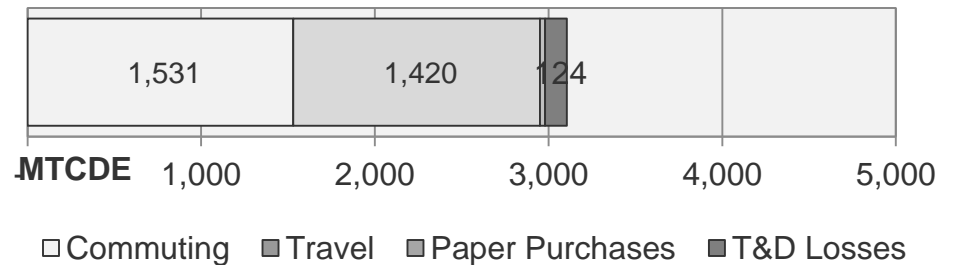
**Scope 1 Sources**



**Scope 2 Sources**



**Scope 3 Sources**

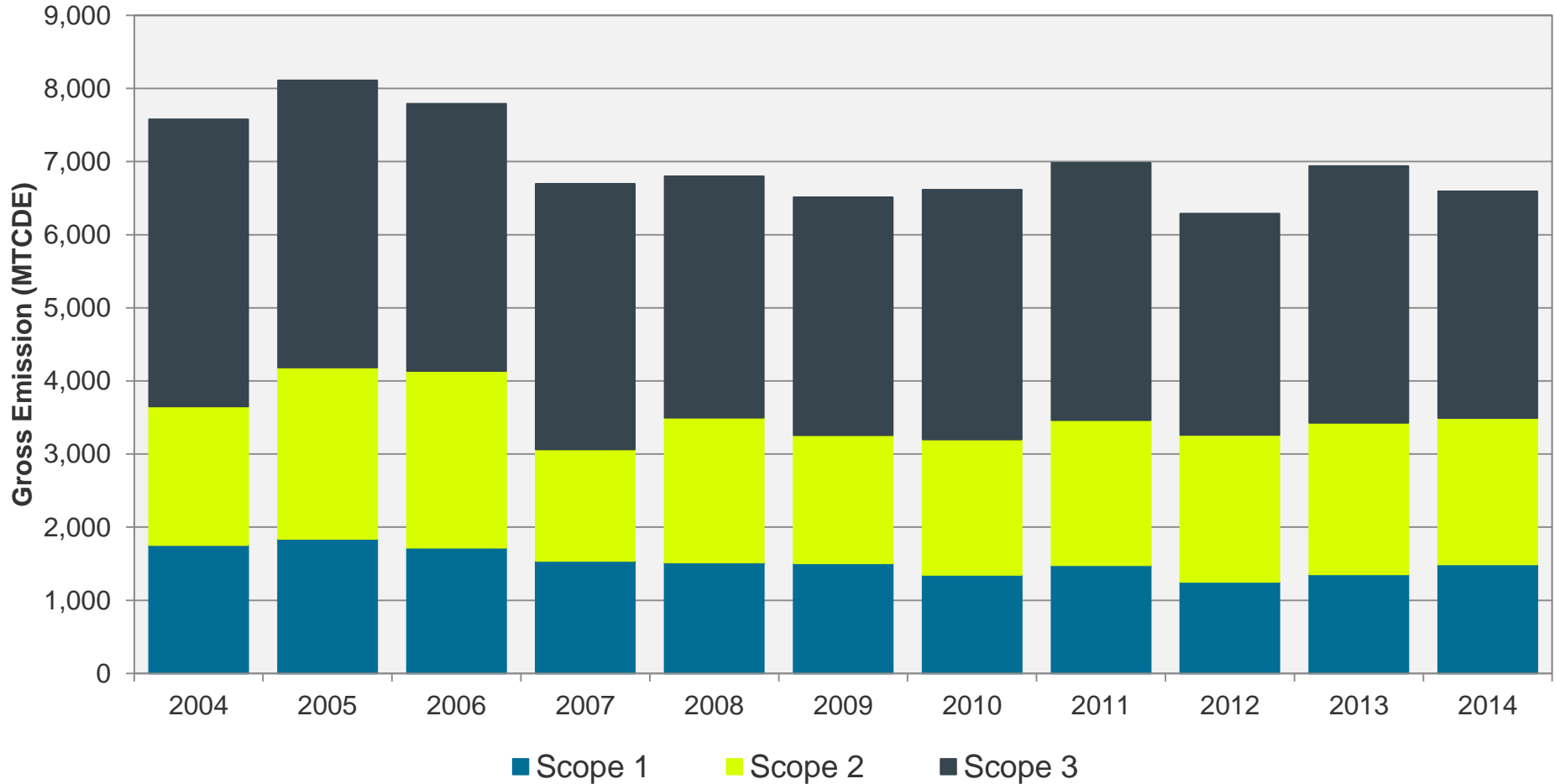


*Emissions totals are only for institutionally owned facilities and do not include leased space like Spinner, Quarry Hill, Sears St., etc.*

# Champlain's GHG Inventory 2004-2014



## Champlain's Gross Emissions



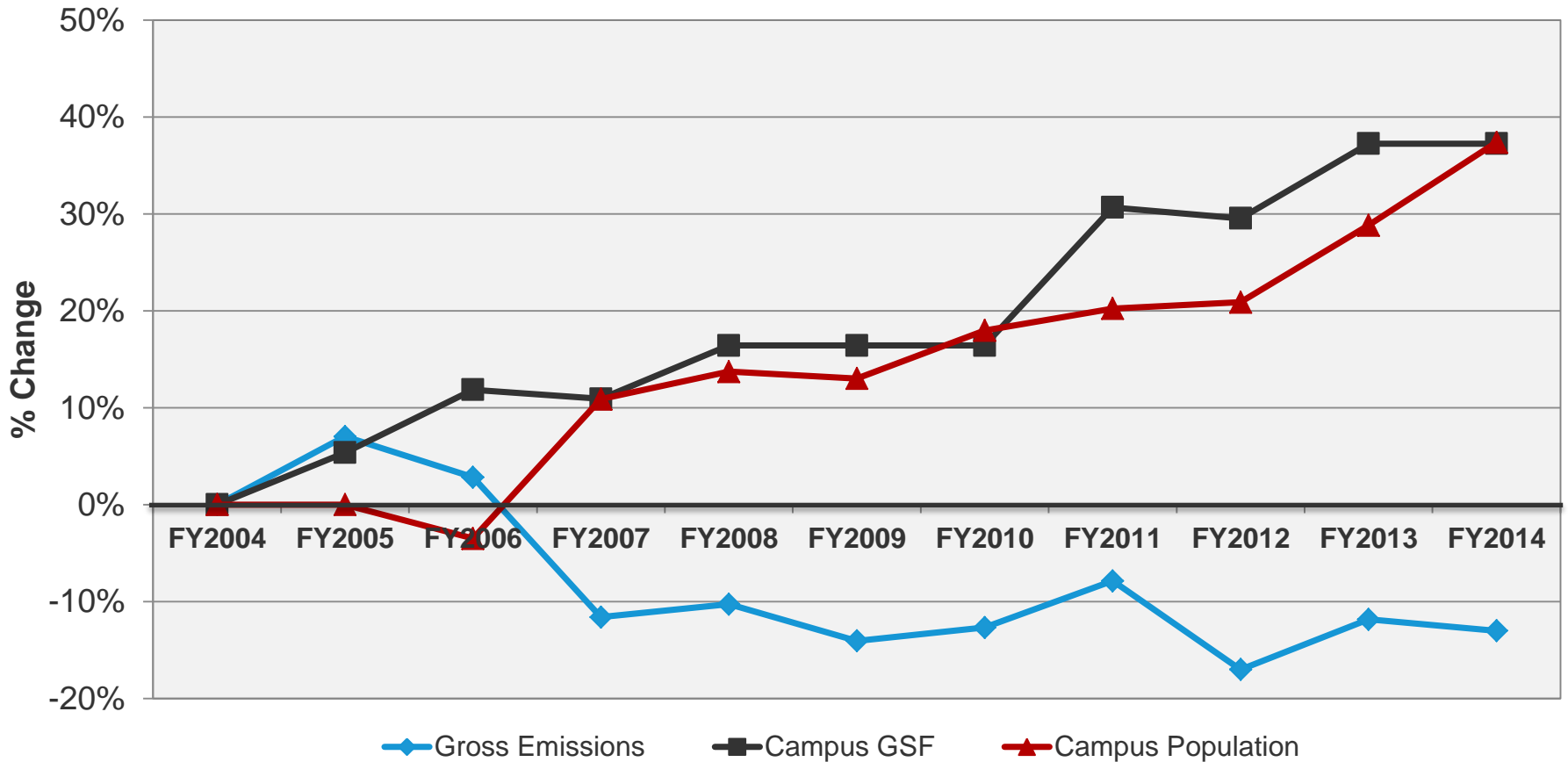
*Emissions totals are only for institutionally owned facilities and do not include leased space like Spinner, Quarry Hill, Sears St., etc.*

# Change in GHGs Relative to Campus Growth



*Champlain's performance quite impressive in context of growth*

## Change in Emissions vs. Change in Campus Size and Population Indexed to FY2004

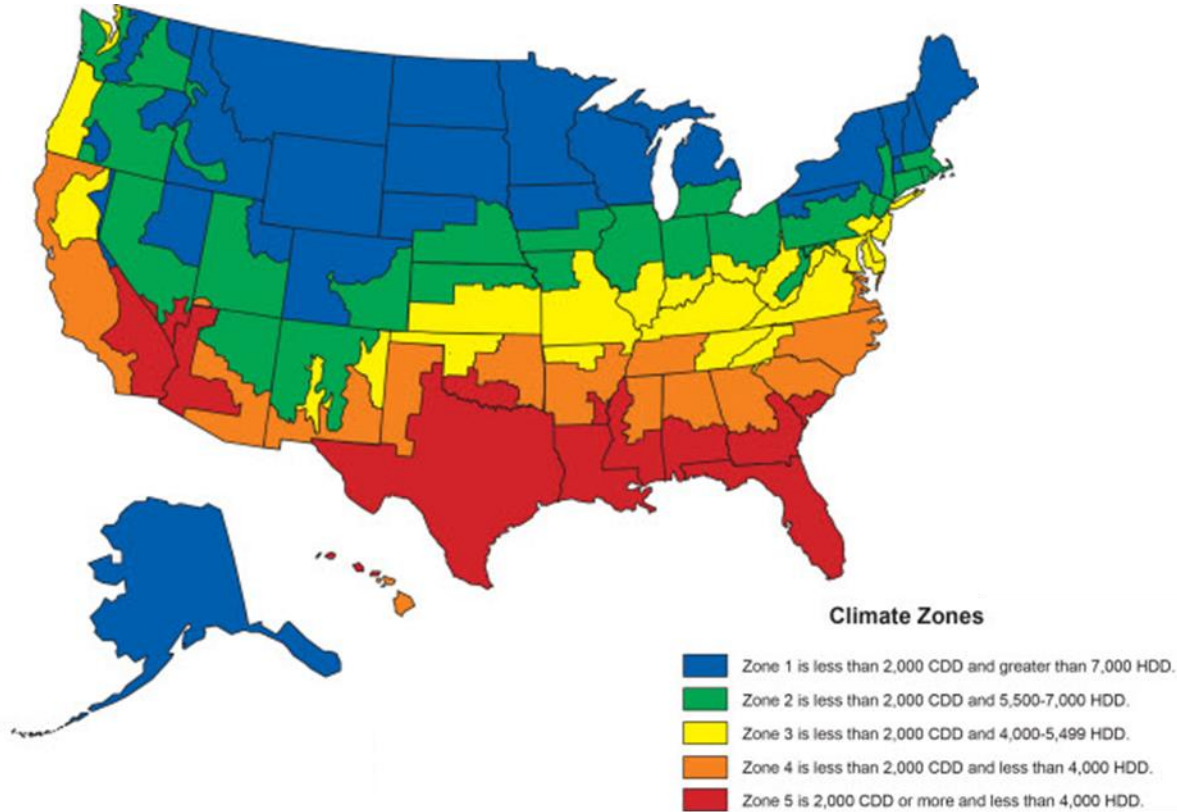


*Emissions totals are only for institutionally owned facilities and do not include leased space like Spinner, Quarry Hill, Sears St., etc.*

# Peer institutions for Champlain



*Using the same peer group as FY2013 analysis*



## Go-Green Peer Institutions

Babson College

Bentley University

Boston College

Carleton College

Hamilton College

Hampshire College

Siena College

University of Vermont

Wesleyan University

## Peer Group Based On

- Size
- Technical Complexity
- Climate Zone

# Two ways to benchmark against peers



*Per student and per 1k GSF normalization show emissions differently*

## GHG Emissions per Student



Stresses efficient use of space.

$$\frac{\text{Gross GHG Emissions}}{\text{Total Student FTE}}$$

## GHG Emissions per 1,000 GSF



Stresses intensity of operations and commuting.

$$\frac{\text{Gross GHG Emissions}}{\text{Total GSF in Footprint}} \times 1,000$$

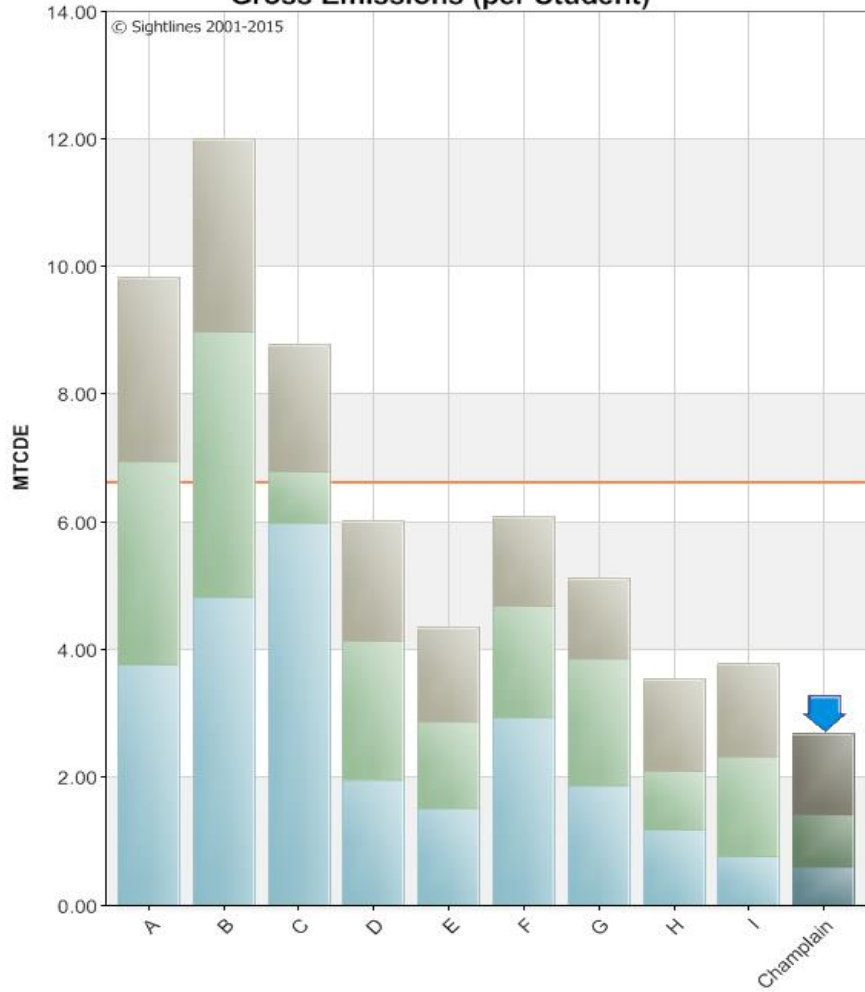


# Comparing Champlain to Other Institutions



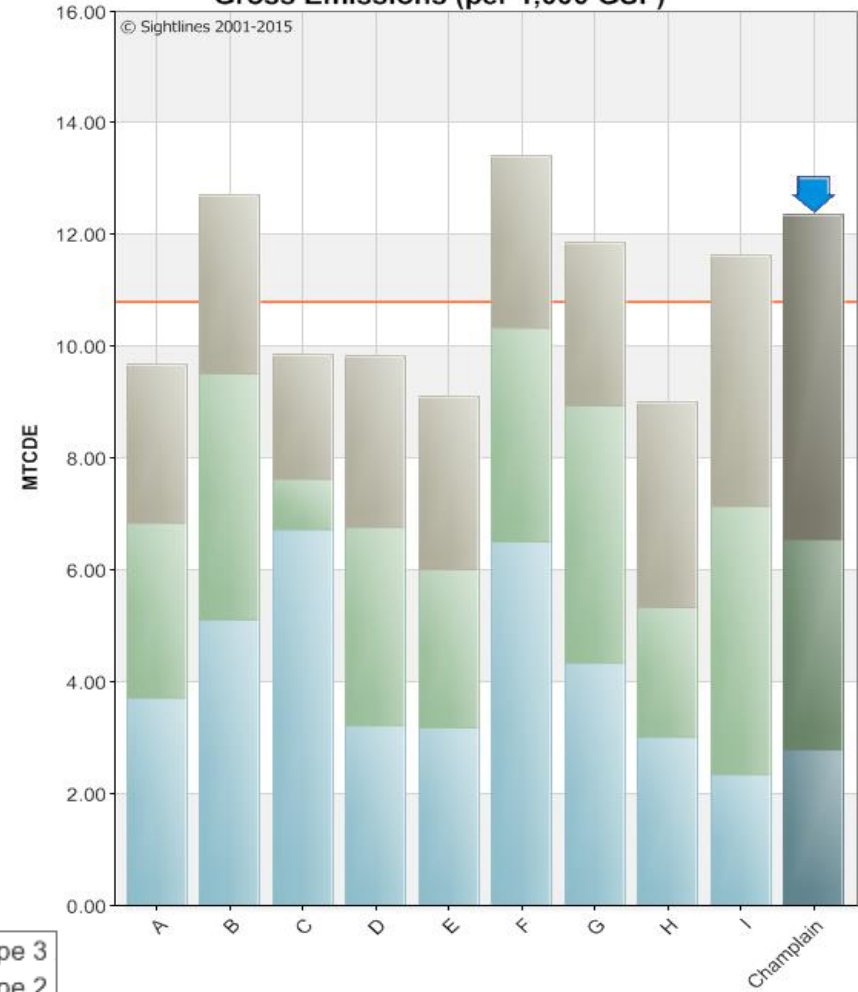
*Institutions ordered by increasing Density Factor*

**Gross Emissions (per Student)**

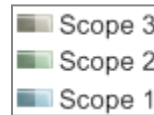


Institutions Ordered By: Density Factor

**Gross Emissions (per 1,000 GSF)**



Institutions Ordered By: Density Factor



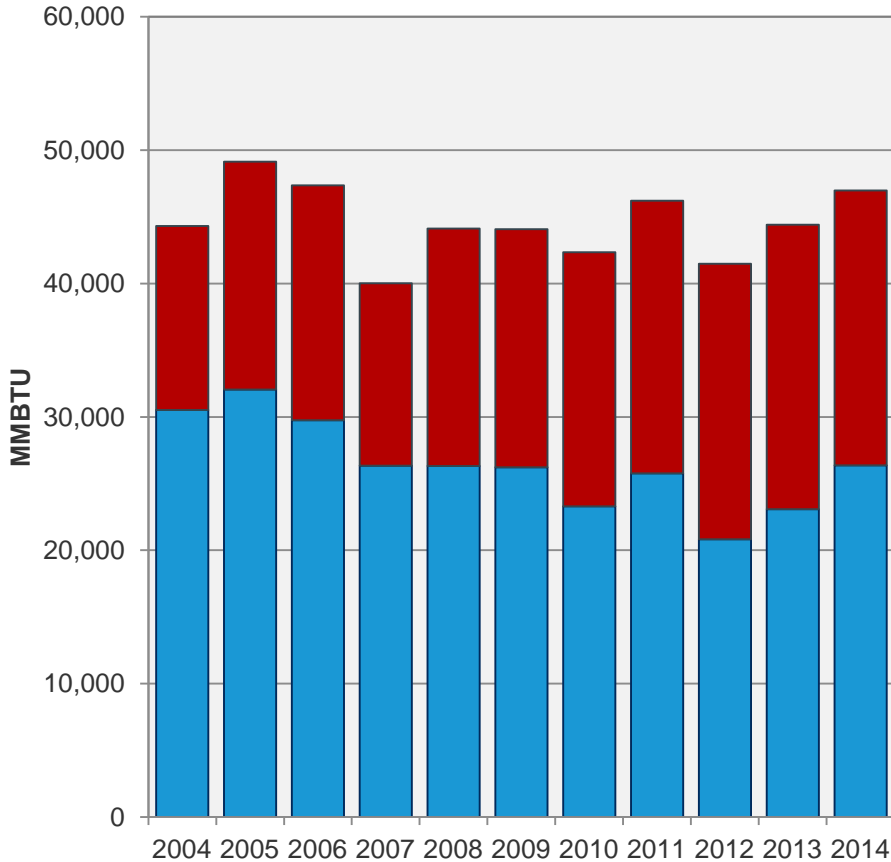
# Energy Trends

# Overall Energy Consumption



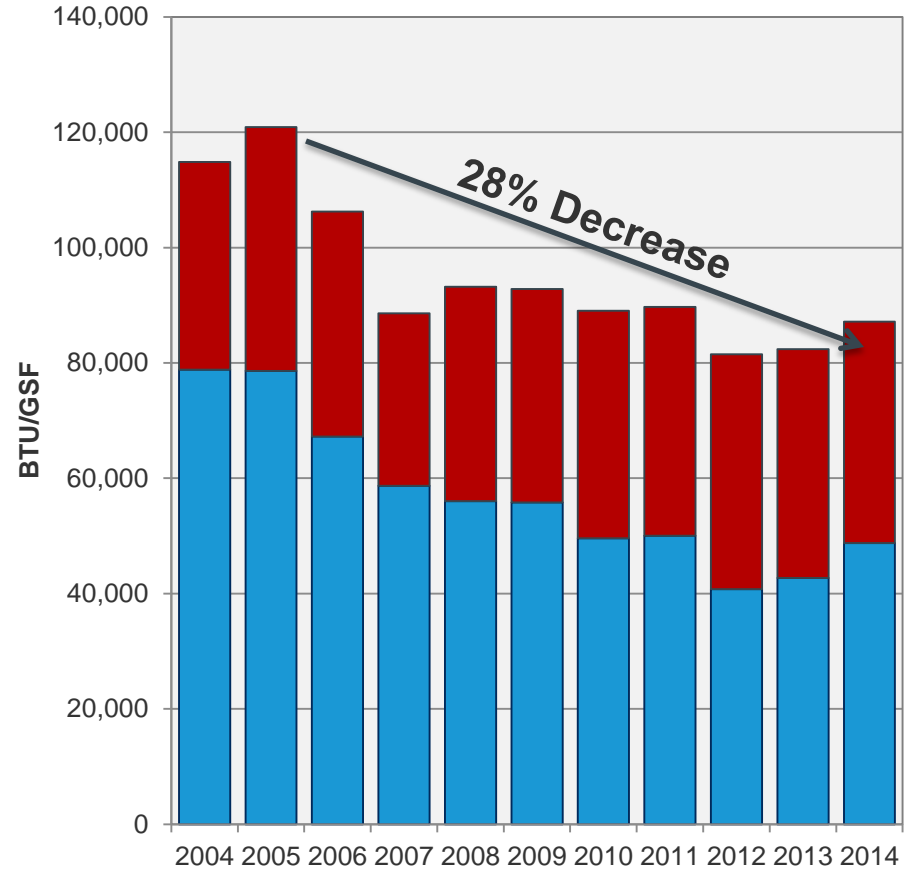
Total energy use flat since FY06, nearly 30% less on a per GSF basis

**Energy Consumption**  
FY2004-FY2014 – MMBTU



Fossil

**Energy Consumption**  
FY2004-FY2014 – BTU/GSF

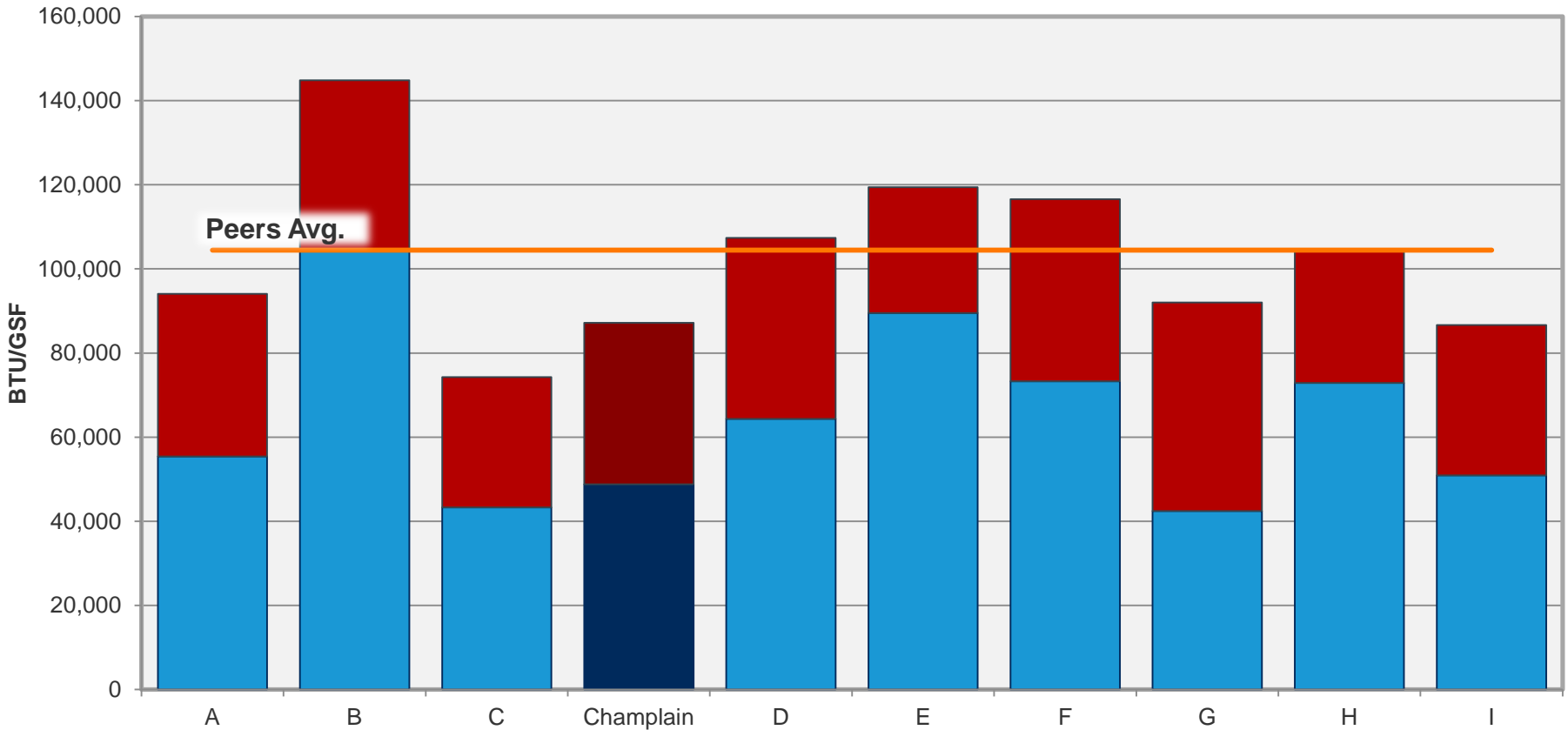


Electric

# Energy Consumption Lower Than Peers



Energy Consumption  
Facilities Peers – BTU/GSF



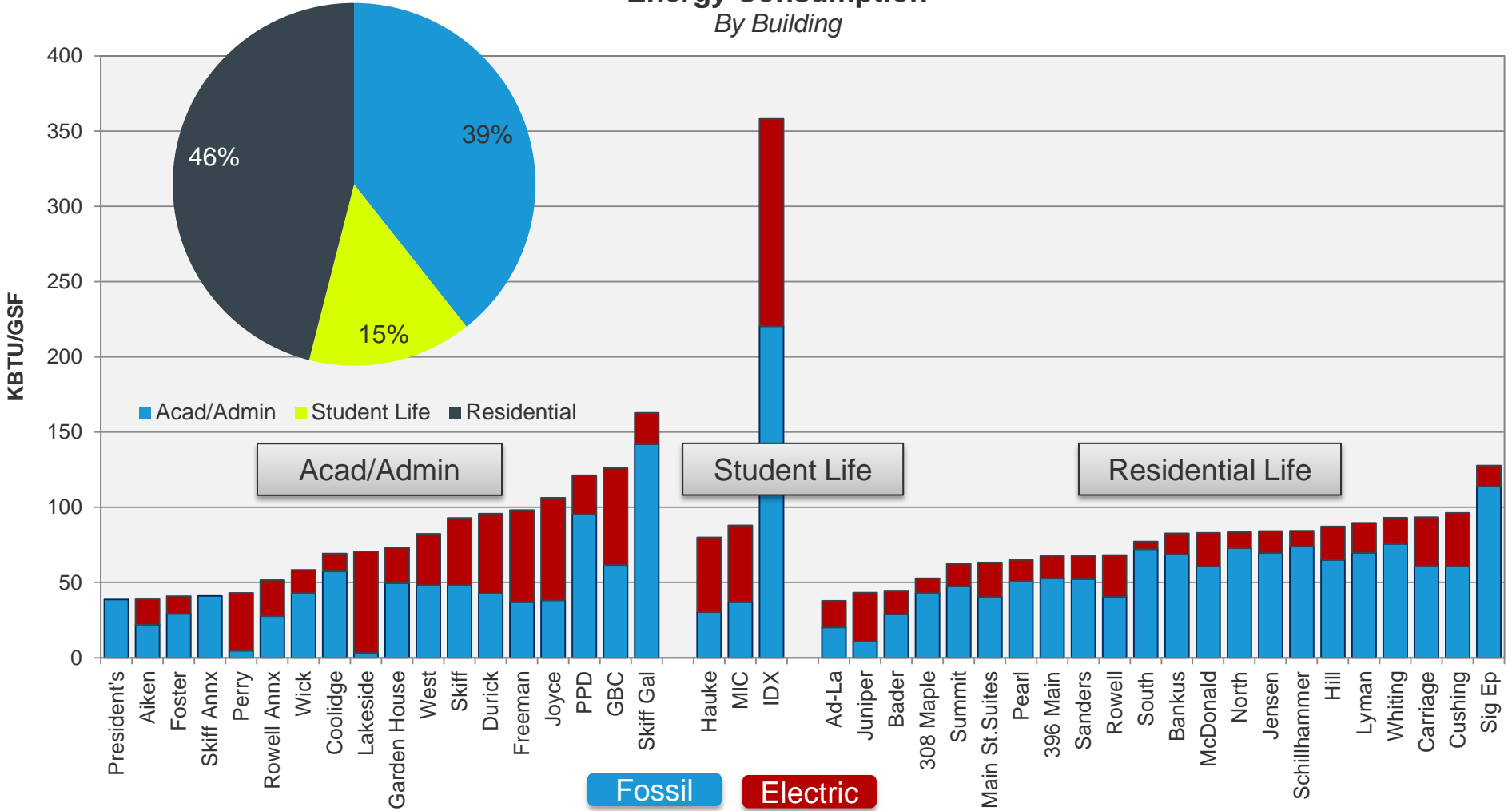
Fossil

Electric

# Energy Consumption by Building



Energy Consumption  
By Building



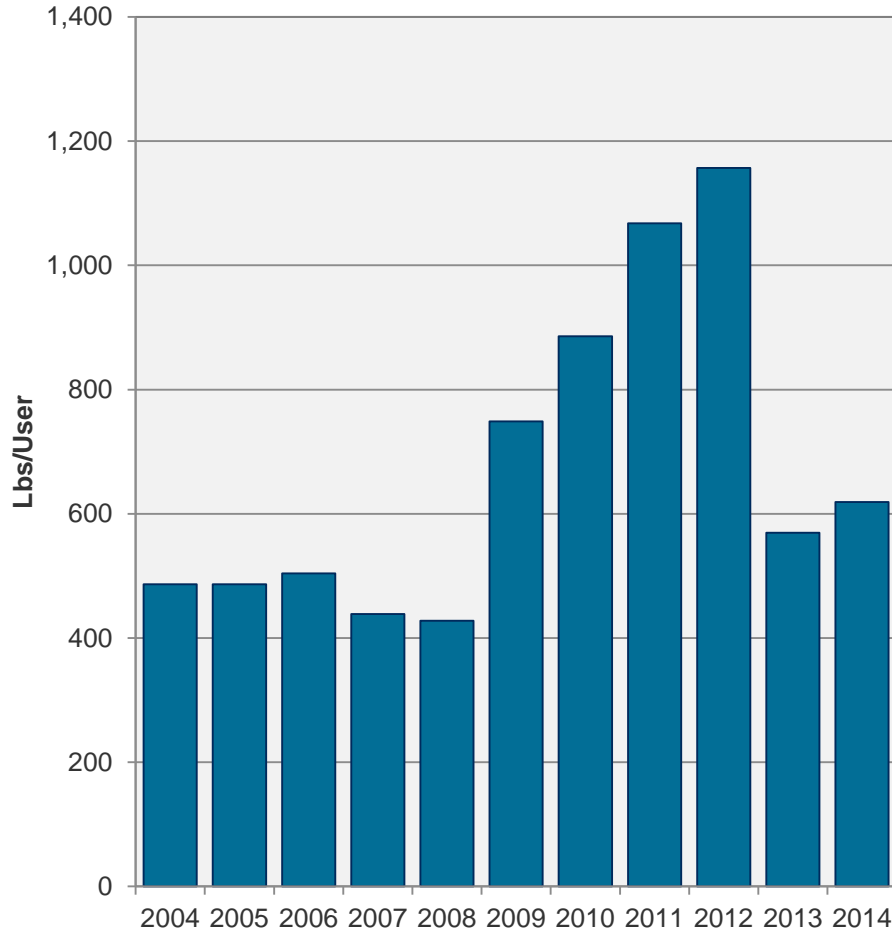
# **Waste Production and Diversion Trends**

# Waste Production and Diversion at Champlain

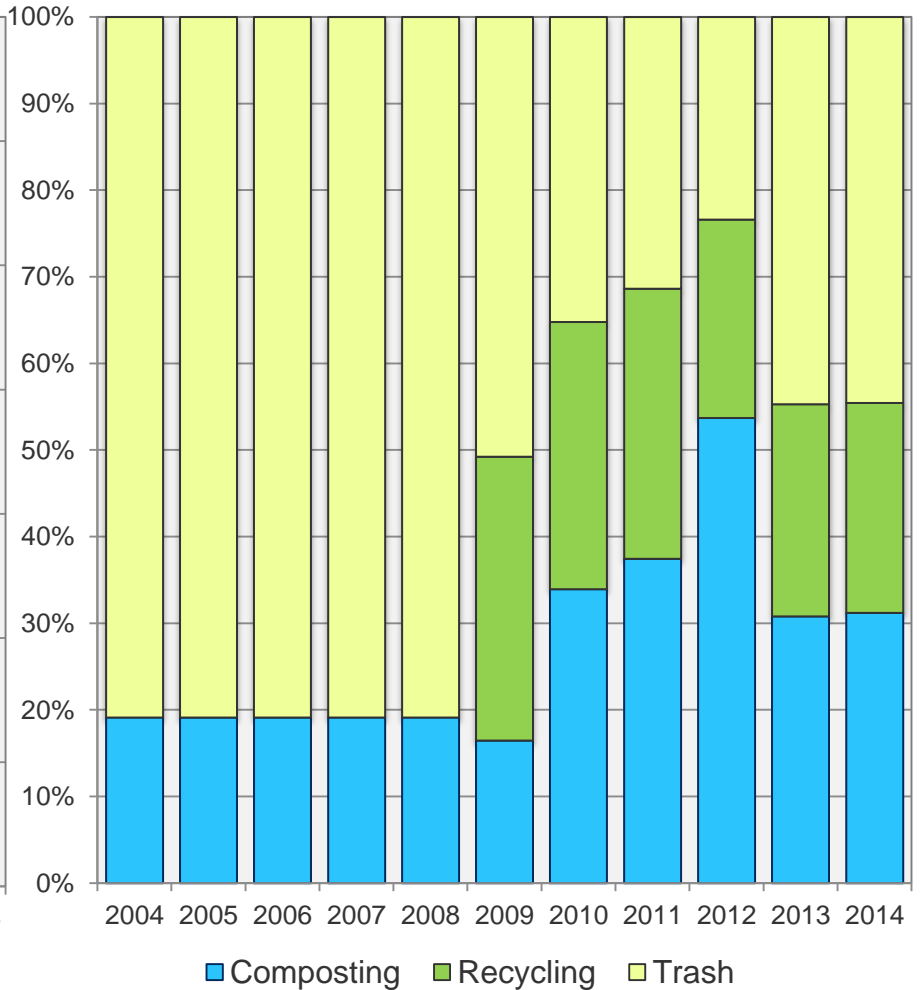


*FY13 result of shift in data collection, improve quality of analysis*

### Total Waste Stream



### Total Waste Distribution

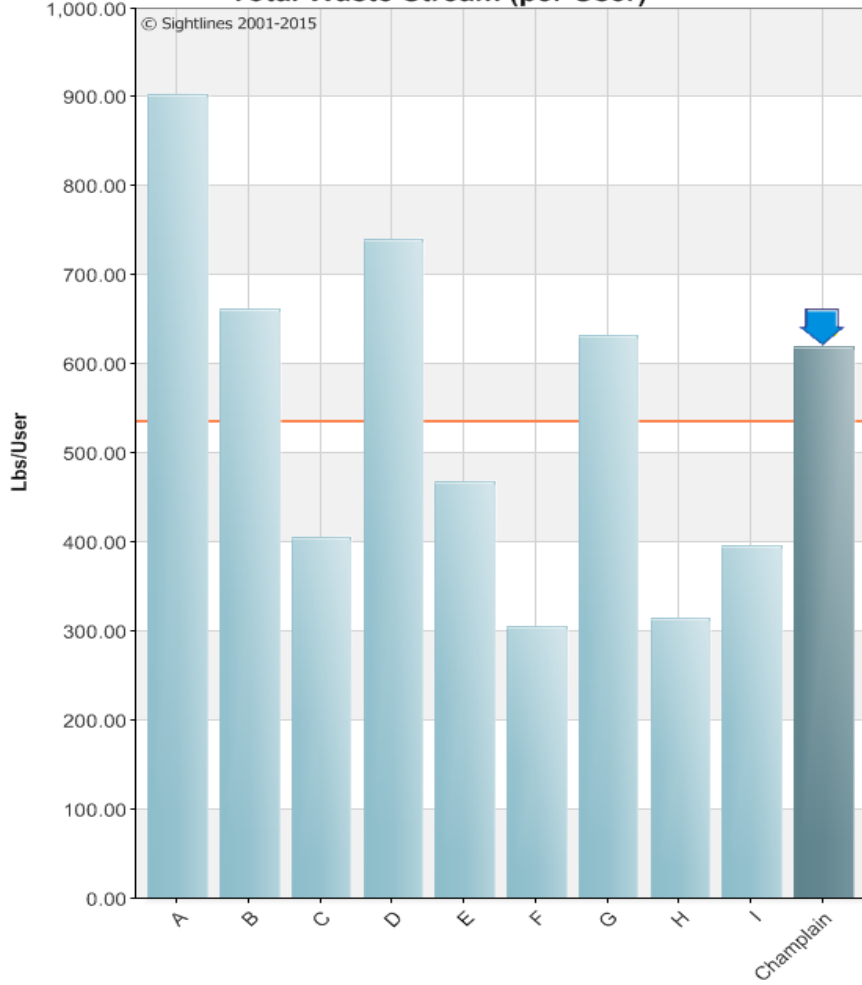


# Waste Stream and Diversion



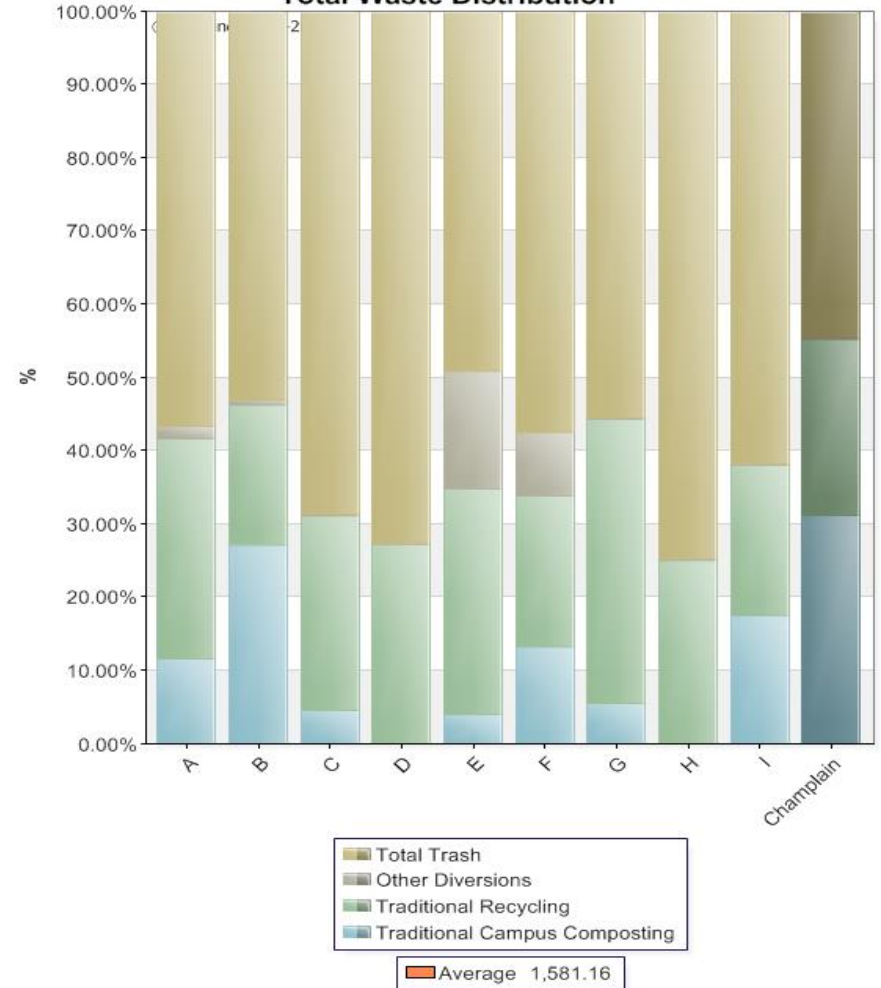
*Champlain is generating and diverting more waste than peers*

**Total Waste Stream (per User)**



Institutions Ordered By: Density Factor

**Total Waste Distribution**



Institutions Ordered By: Density Factor



# Concluding Comments

# Major Takeaways – Energy



Energy Represents Nearly 55% of all GHG Emissions at Champlain College. Residence Halls Represent 46% of Total Energy Usage

Total Institutional Energy Use Has Flat Lined Since FY06 Despite a 37% Growth in Campus GSF

This Highlights the Impact of Reinvestment into Existing Facilities and a Focus on 'Green' Construction for New Buildings.

Consumption Will Decrease Further as the Geothermal Plan is Implemented and Remaining Buildings are Renovated

# Major Takeaways – Transportation and Waste

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Transportation, Including Daily Commuting and Study Abroad Travel Represent the Majority of Remaining Emissions

Campus Waste is Not a Significant Source of Emissions, but it's Still Important as This is Often the Most Tangible and Visible Indicator of Campus Sustainability Efforts

Champlain College Generates More Waste Than Peer Institutions, but is Also Diverting More of This Waste to Recycling and Compost

# Questions & Discussion