

Energy at Tufts

Cummings School of Veterinary Medicine, Grafton
January 30, 2014



Photo Simulation

Energy and Utilities: Grafton Campus

Largest plants served by natural gas with fuel back-up

- LAH/SAH
- RBL

All other facilities served by natural gas except:

- Captain O'Brien Road, #2 fuel
- Remote areas, propane and #2 fuel

Main electrical distribution point near Wildlife Clinic

- National Grid Electric
- Nstar Gas
- Grafton Water District
- Grafton Sewer Department



Switching to Natural Gas

Small houses on #2 fuel

Natural gas not available yet

Solar Electricity in Grafton

Site	System Size (kW DC)	System Size (kW AC)	Energy (kWh/year)	Area (Acres)
Grafton Campus			11,325,421	
Science Park	1,296	1,000	1,702,000	4.8
Knoll	<u>2,580</u>	<u>2,000</u>	<u>3,380,000</u>	<u>14.00</u>
Total	3,876	3,000	5,082,000	18.80
Grafton solar % Grafton Total			45%	
Grafton solar % University Total			8%	



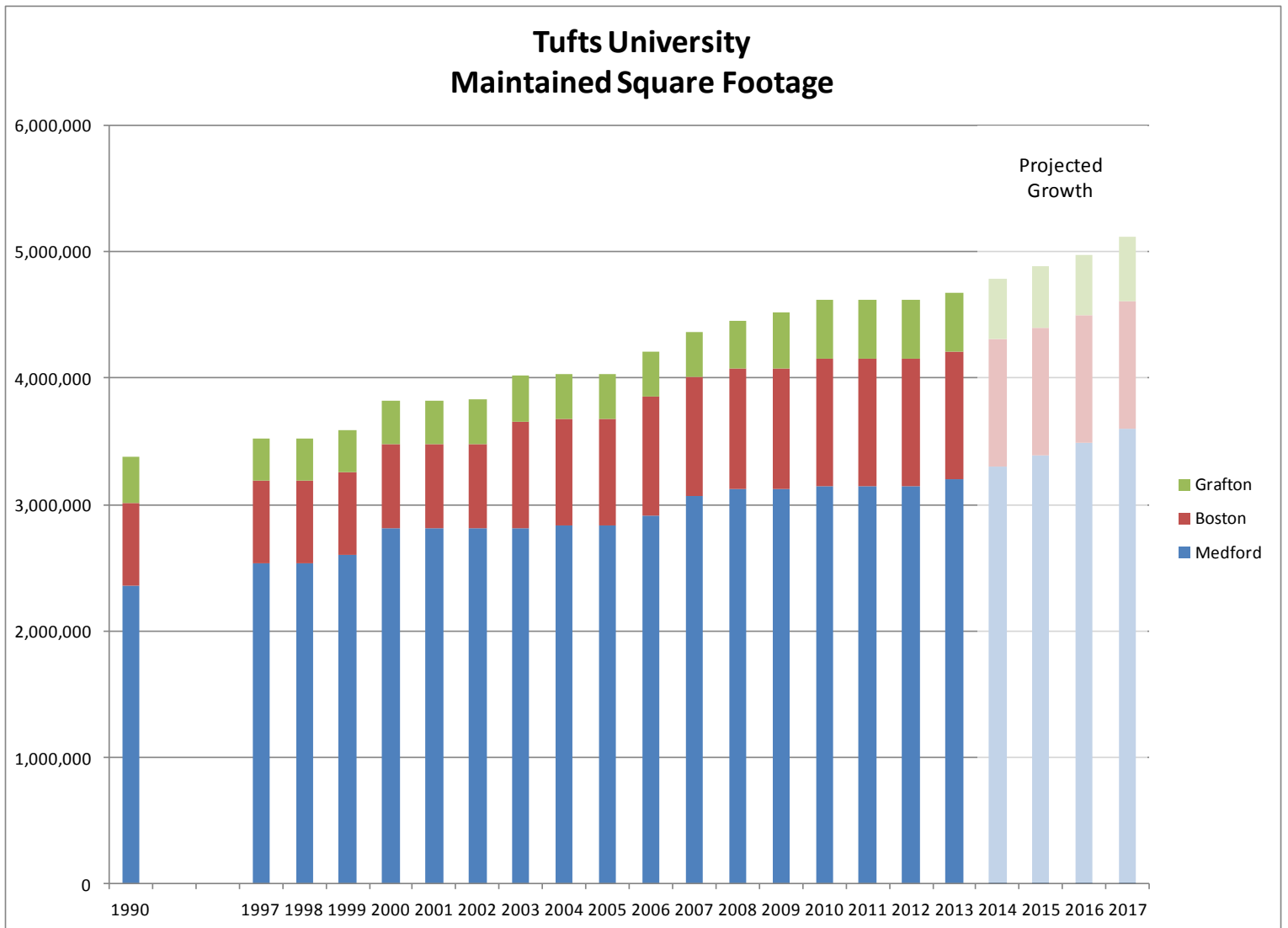
Sites Selected for Development



Science Park
Phase II

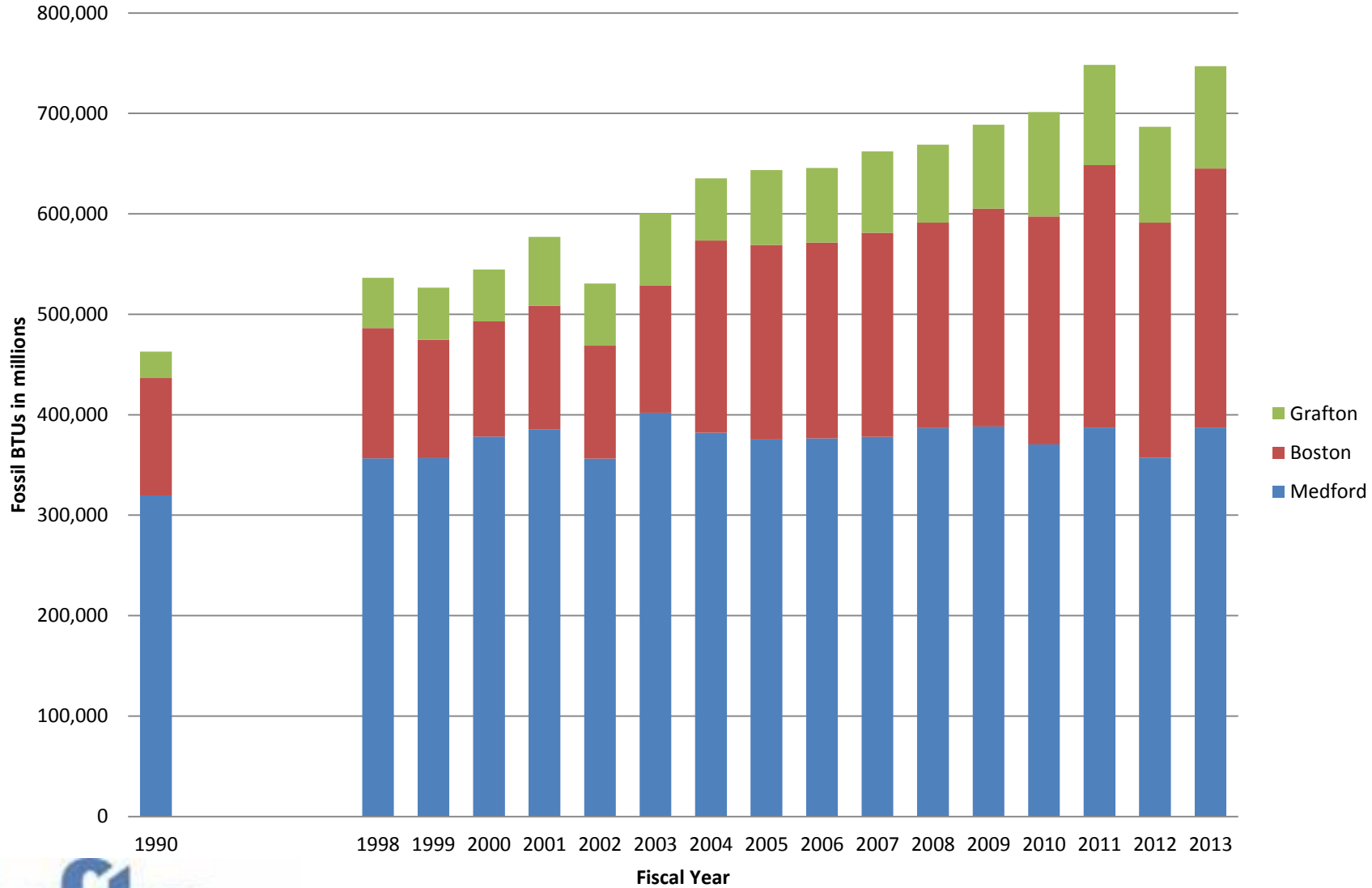
The Knoll

A growing university...

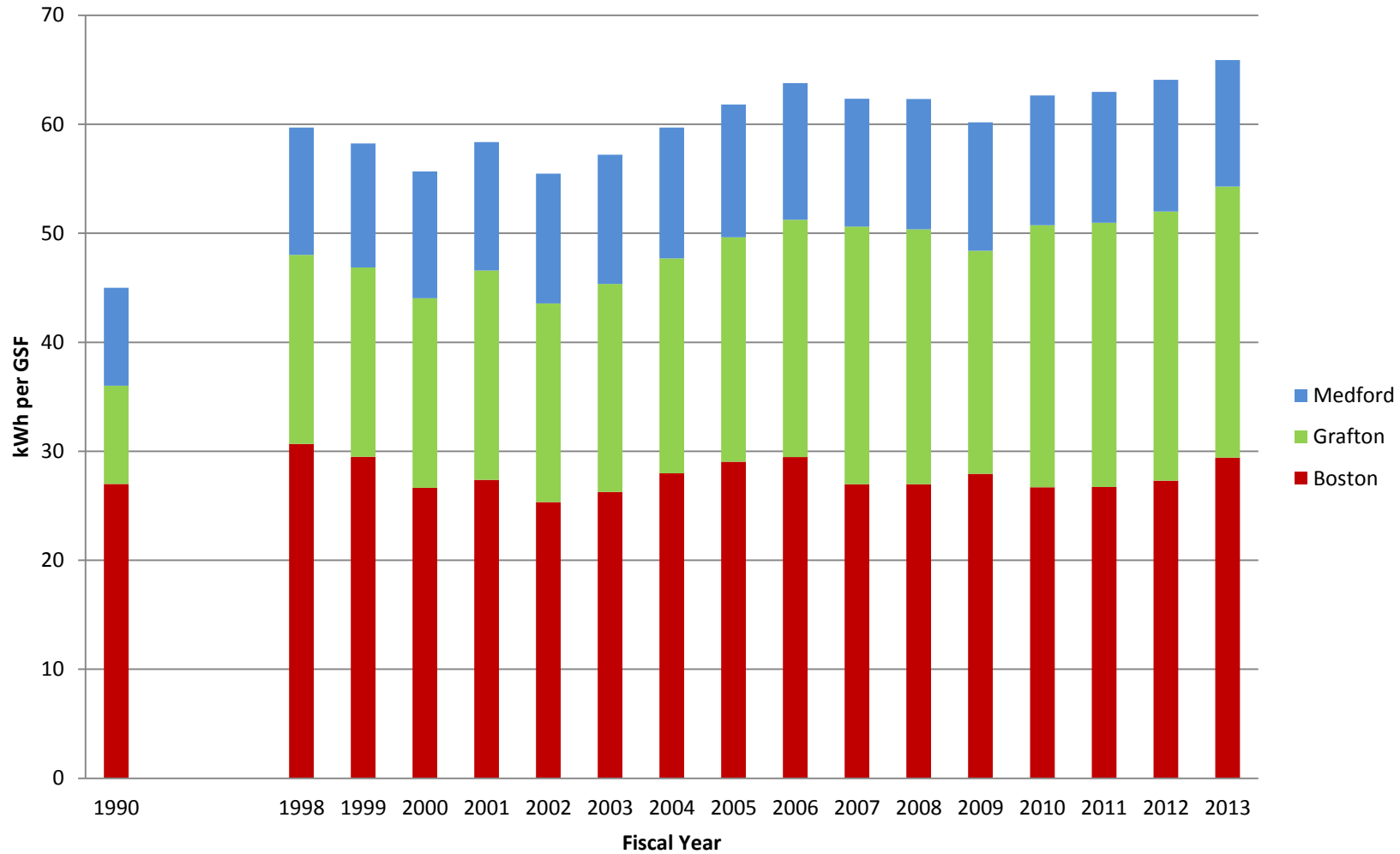


Energy Consumption

Includes Transportation Fuels

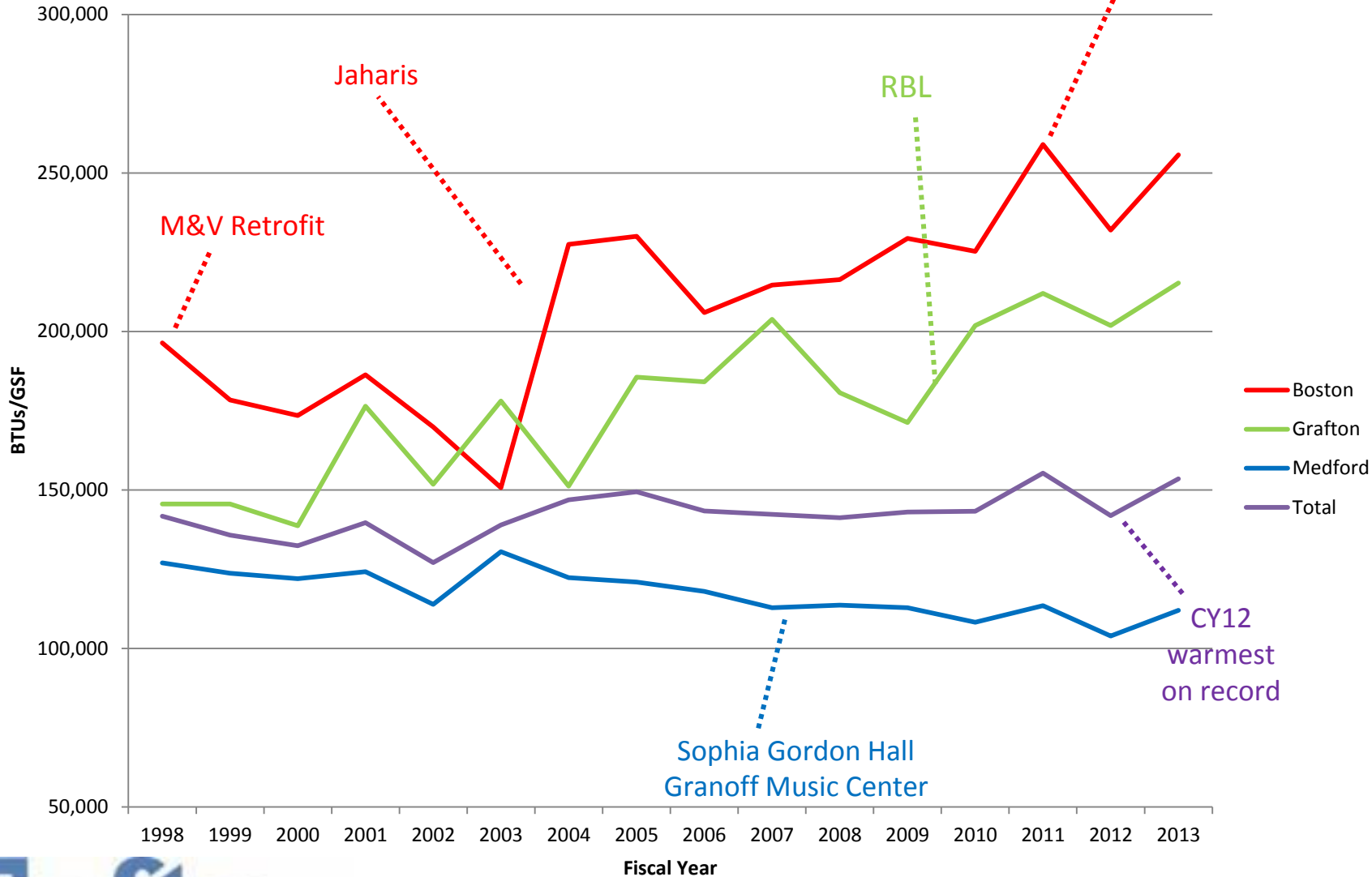


Electric Consumption per GSF



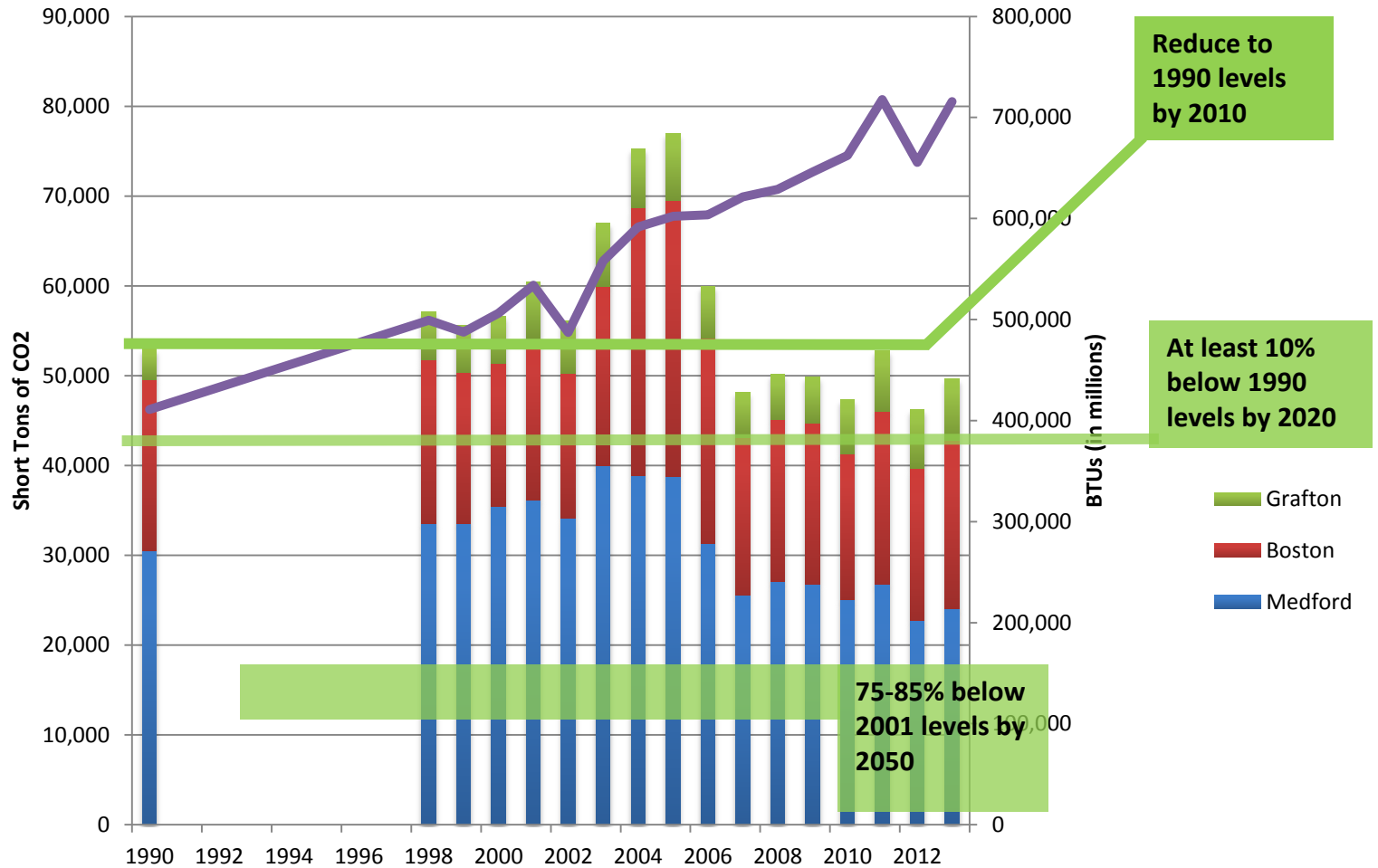
Energy Consumption

Excludes Transportation

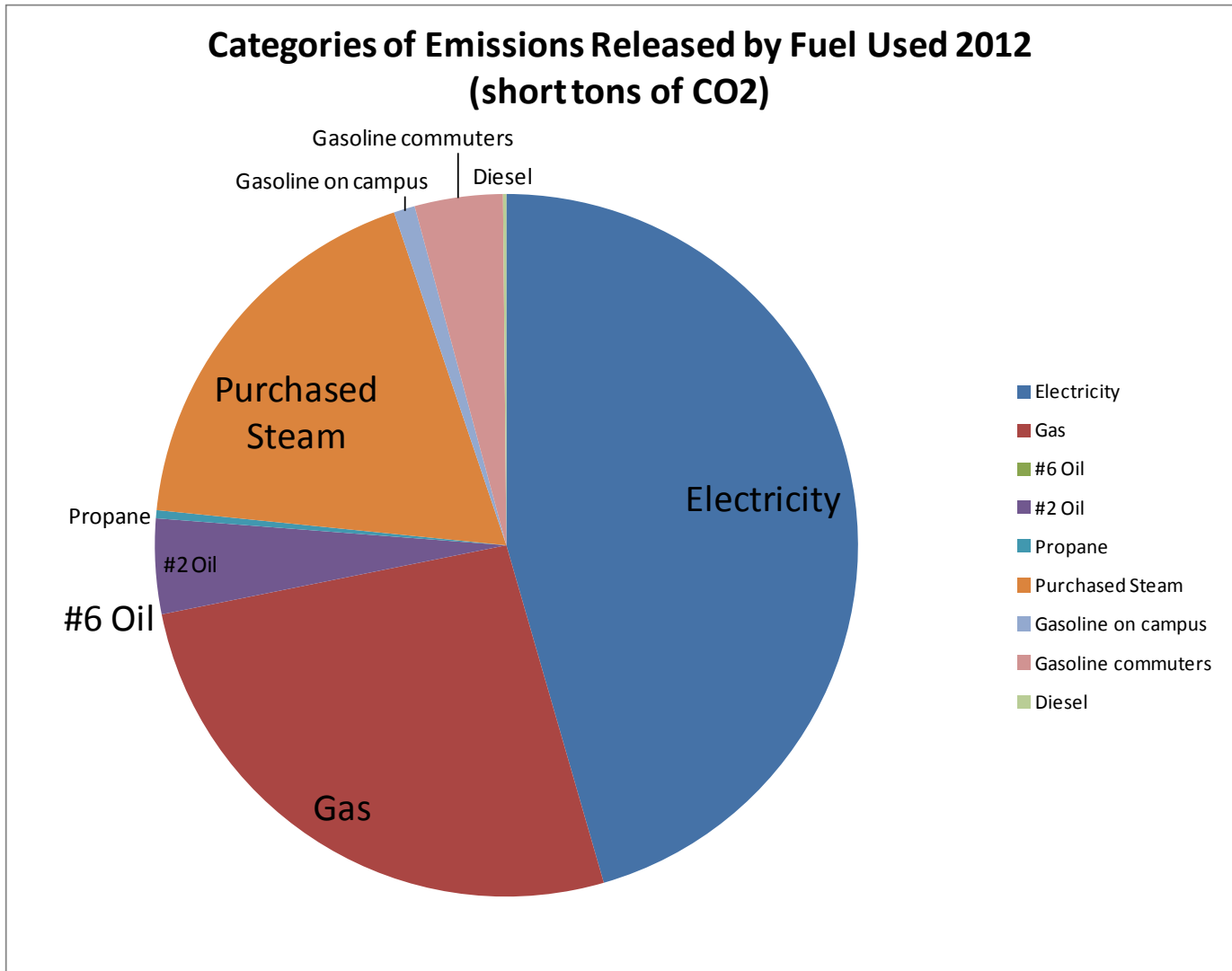


Emissions vs. Energy "All University"

Emissions vs. Fossil BTUs



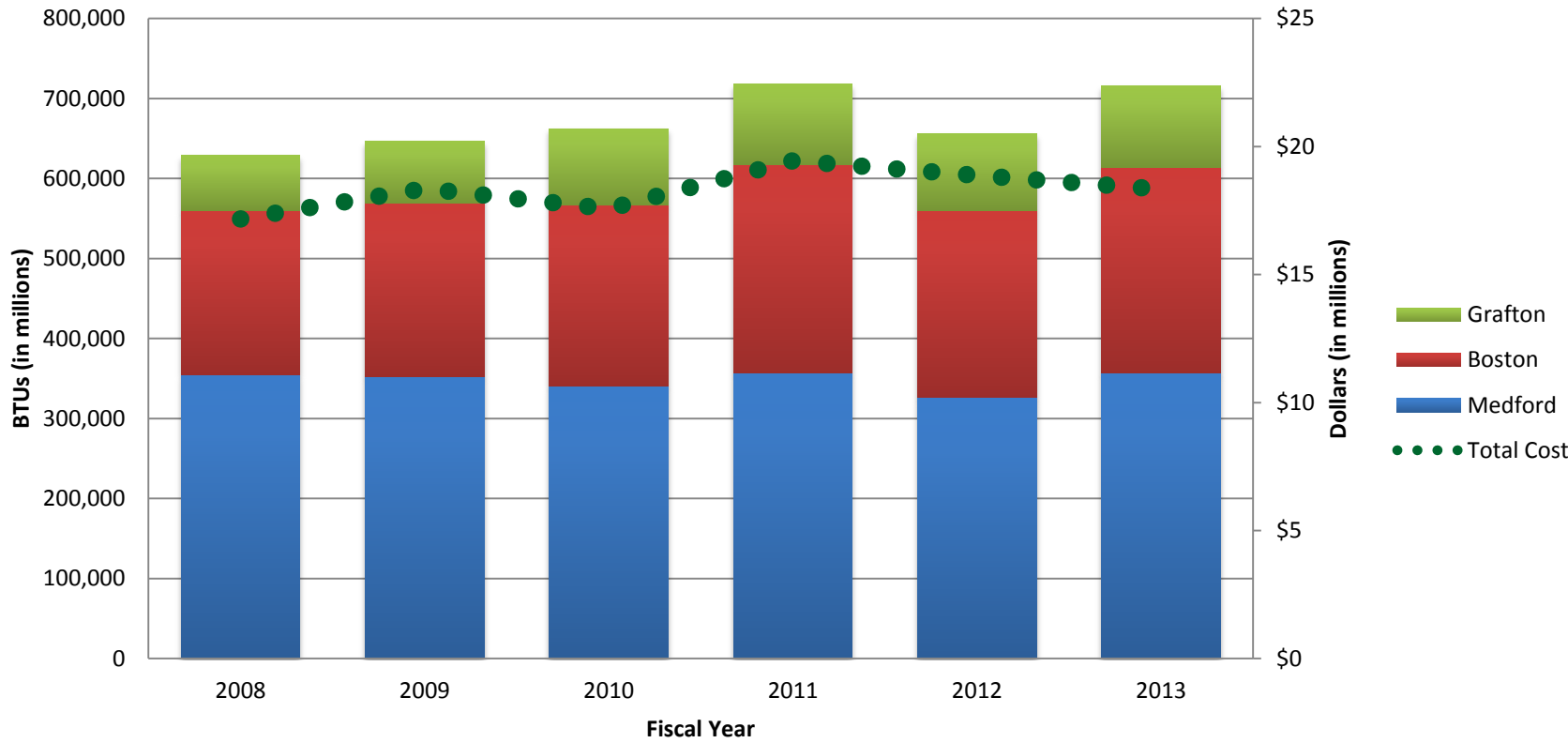
2012 Emissions “All University”



Consumption and Costs “All University”

Energy Consumption by Campus with Cost

Excludes Transportation



Heating and Cooling Controls

- Manual control valves
(heating only)



- Thermostats



- Energy Management System



Electricity Reduction

Occupancy sensors are common (except BRPH)

- Classrooms, conf. rooms, offices, washrooms, library stacks, some corridors, some labs

Energy Management System

- Site lighting
- HVAC controls tied to occupancy sensor
- Lab ventilation controls

Daylight sensing/dimming, lighting & controls

Ongoing technology updates include LED lighting

- 1,500 LED lamps provided at no cost by MA utility programs for all three campuses
- A19 LEDs provided to all Incoming students



GREEN
SUSTAINABILITY IN ACTION
**HIGH EFFICIENCY
LIGHTING**

Light-emitting diodes (LEDs) installed in this garage reduce energy use and greenhouse gas emissions by 50% over standard lights.

This installation, the first in Massachusetts, is part of Tufts' ongoing commitment to environmental stewardship.



Corner mounted



Wall mounted



Ceiling mounted



Lighting Controls

- Light switch



- Occupancy sensors



- Energy Management System



Green Buildings

LEED Certification

- Sophia Gordon Hall, Gold
- School of Dental Medicine, Vertical Expansion, Silver
- School of Dental Medicine, Level 2 Renovation, Gold
- School of Medicine, Sackler Building Renovation, Certified
- Biology Labs at 200 Boston Avenue, Gold



Dental Vertical Expansion



On-going Building Envelope Improvements

Before



After



New windows:

Biomedical Research and Public Health
building (formerly M&V Complex)
Dental Building



A day in the life...



Expectations

- Turn off computer at night
- Enable power management
- Buy a flat screen or laptop
- Turn off your lights
- Shut your fume hood sash
- Turn up/down thermostat (if available)
- Space heaters only if provided by Facilities because building heat is not available



Frequently Asked Questions

- Can I use a space heater?
- Why is it so hot on those nice spring/fall days?
- Why is it too hot/too cold?
- What should I do about that?
- Who do we call to report a problem?
- Should I open the window?

Common Misconceptions

- Heating/cooling systems go on with the “flip of a switch”.
- Chilly in the summertime means the most wasted energy.
- The campus energy management system controls everything – my thermostat does nothing.
- It doesn't matter if I open the window.
- It doesn't matter if I use a space heater.
- It is better to call someone in Facilities and skip the Work Control system

How to Help

Report to Facilities Work Control:

- Leaks, stuck windows etc.
- Occupancy sensors that need adjustment
- Extreme indoor temperatures
- Be patient, but persistent

Reporting is particularly important in areas where there is no
“owner”

<http://operations.tufts.edu/facilities>

The screenshot shows a Windows Internet Explorer browser window displaying the Tufts University Facilities Services Department website. The browser's address bar shows the URL <http://operations.tufts.edu/facilities/>. The website header features the Tufts University logo on the left and the text "Facilities Services Department" in the center. A search bar is located on the right side of the header. Below the header is a large banner image of orange tulips. A left-hand navigation menu lists various services such as Home, Contact Info by Campus, Service Requests, Event Planning, Project Administration, Custodial Services, Shipping and Receiving Packages, Residential Facilities, Recycling, Mail Services, Keys and Locks, Expand All, and Collapse All. The main content area is titled "Home" and "Department Overview:", followed by a paragraph describing the department's support for the Boston, Grafton, and Medford/Somerville campuses. A bulleted list details the department's responsibilities: Operations and Maintenance, Project Administration, and Renovation. On the right side, a "Quick Links" section contains four links: Paperless IDR, Request a Recycling Bin, and Submit a Service Request (which is circled in red), and a partially visible link for Submit a Service Request.

Facilities Services Department

Search GO >
this site tufts.edu

Home

Contact Info by Campus

Service Requests

Event Planning

Project Administration

Custodial Services

Shipping and Receiving Packages

Residential Facilities

Recycling

Mail Services

Keys and Locks

Expand All

Collapse All

Home

Department Overview:

The Facilities Services department supports the Boston, Grafton and Medford/Somerville campuses with:

- Operations and Maintenance – managing 5 million square feet of buildings and properties
- Project Administration – programming, design and project management of new buildings and grounds
- Renovation – overseeing major renovations of facilities and

Quick Links

- [Paperless IDR](#)
- [Request a Recycling Bin](#)
- [Submit a Service Request](#)
- [Submit a Service Request](#)

Tufts
Facilities Services gets green

<https://fsrequest.tufts.edu>

Online Work Request

Tufts UNIVERSITY **Facilities Services - Online Service Request System**

You are here to report routine repair, non-urgent maintenance service requests.
Service requests will be processed during normal business hours.

If this request is an **emergency during business hours**, please contact your Facilities Services Department:

Boston: (617) 636-3535 - 8:00 am to 5:00 pm
Grafton: (508) 839-7921 - 7:00 am to 5:00 pm
Medford: (617) 627-3496 - 7:30 am to 5:00 pm

If this request is an **emergency during off business hours**, please call your University Police:

Boston: (617) 636-6610
Grafton: (508) 887-4900
Medford: (617) 627-3030

Please enter your Tufts UTLN and password.

UTLN Password

Submit

Call if it is an emergency!

Questions?

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