

# CAMPUS SUSTAINABILITY PROGRESS REPORT

**BUILDING A CLEANER FUTURE**

Fiscal Year 2016



# CAMPUS SUSTAINABILITY PROGRESS REPORT

## FISCAL YEAR 2016

Tufts plays a crucial role in helping the world adapt to a changing planet while tackling such challenging issues as climate change and resource depletion. As active citizens, we have a responsibility to examine our impact on the environment and our surrounding communities. Sustainability at Tufts is a collective effort spanning departments, offices, and our campuses in Chinatown, Fenway/Mission Hill, Grafton, and Medford/Somerville.

The Campus Sustainability Progress Report contains information about Tufts' sustainability programs, initiatives, and accomplishments from Fiscal Year 2016 (July 2015-June 2016).



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# EDUCATION & ACCOLADES

Students, faculty, and staff worked on projects that earned Tufts multiple environmental awards and rankings, highlighting our university-wide commitment to sustainability.

# FY16 HIGHLIGHTS



Tufts Dining is the first food provider in Medford and Somerville to receive **certification** from the **Green Restaurant Association** and **the first university to certify all of its dining locations** at three stars or above.



The Princeton Review included Tufts in its **2016 Guide to 353 Green Colleges**, celebrating institutions with an overall commitment to sustainability.



The Princeton Review added Tufts to its **2016 list of Top-25 Impact Schools**, highlighting colleges and universities with excellent community service opportunities, student government, sustainability efforts, and on-campus student engagement.



The Sierra Club highlighted Tufts on its **2016 Cool Schools List**, featuring higher-education institutions making progress in the areas of campus energy use and transportation.

**As part of the Tufts Meatless Monday campaign, students pledged to eat no meat in the dining centers.**

Fall 2016 - Spring 2017



**609**

Just Tonight



**377**

Every Monday



**834**

Vegan/Vegetarian

Students and faculty worked on **sustainability research projects**, including:

- Graduate students in **UEP 0255, Field Projects: Planning & Practice** partnered with community organizations to complete field projects focused on critical environmental issues, such as community-shared solar, food access, parks and open space, and active commuting.
- Students in **EM-51, Engineering Management** researched potential projects on the Tufts Medford/Somerville campus, including the potential use of reusable to-go containers in Hodgdon and Mugar cafés, creating a vertical urban farm to grow food on campus for Tufts Dining, and studying the costs and benefits of replacing paper towels with electric hand dryers in the bathrooms in Anderson Hall.

## EDUCATION & ACCOLADES

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Tufts Dining is working to **reduce the amount of animal protein served in the dining centers**, focusing on creating plant-forward meals. For example, they invited the Humane Society to campus to provide **plant-based culinary education and training** to staff.



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690 students learned about sustainability issues through **Eco-Rep events** in the residence halls.

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The Environmental Studies program added a **Food Systems & Nutrition minor** encompassing a wide array of topics addressing sustainable food production, policy, access, and nutrition.

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Nine offices and departments earned **Green Office Certifications**. There are 26 certified green offices across the university.

About **30 employees completed the online sustainability training programs**, which included information about sustainability programming and how to minimize energy use and waste in the workplace.

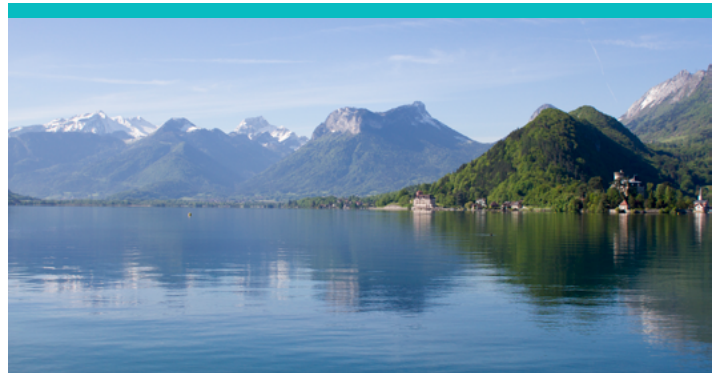
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The **Tufts Institute of the Environment welcomed eight new fellows** who focused their research on interdisciplinary environmental topics, including: food-related travel, fluid milk waste, fracking wastewater treatment, conservation agriculture, water scarcity, conservation grazing, land-use alternatives for American lawns, and marine animals ingesting plastic.

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The **seventh annual Water: Systems, Science, and Society program**, “Aqueous Solutions: Wastewater and the Energy Food Nexus” explored the interconnectedness of the three systems we depend on for well-being: water, energy, and food.

Tufts hosted the **For a Sustainable Future event series** to celebrate the 25th anniversary of the Talloires Declaration, a 10-point action plan for incorporating sustainability and environmental literacy into university processes. As part of this series, the Tufts Institute of the Environment, Office of Sustainability, Office of the Provost, and Tufts Climate Action were the hosts for a **two-day climate-change symposium** featuring a keynote by Jeffrey Sachs, Senior United Nations Advisor and Professor of Economics. The event included panel discussions about climate research and divestment, and a conversation about next steps for Tufts.



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44 students received **Green Dorm Room Certifications** for following sustainable practices while living on campus.



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Eight employees became **Eco-Ambassadors** after they completed a yearlong certification program featuring environmental behavior change and communications strategies.

Approximately 250 students attended the **11th annual Tufts Energy Conference at the Fletcher School**, which brought together professionals, students, and experts from the private, public, and nonprofit sectors to discuss critical global energy issues.

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More than 90 undergraduate orientation leaders completed an **online sustainability training**, which helped them educate incoming students in the fall.



# WASTE

In FY16, Tufts continued to expand its waste reduction efforts.

## FY16 HIGHLIGHTS

## WASTE

Tufts Dining collaborated with Students for Environmental Awareness (SEA) and Eco-Reps to host the **Dewick-MacPhie Waste Less Dinner**. The event featured the weighing of student plate waste to increase student awareness of how their choices create post-consumer food waste in the dining centers. The dinner also provided the opportunity to educate students on the various stages of the supply chain where food waste occurs and the initiatives Tufts Dining has embraced to reduce waste, including donating food to Food for Free.



Donations collected during the **Eco-Reps Earth Day Clothing Swap** were sent to Schoola, a foundation that sells secondhand clothing to raise money for the Malala Project.

Students living in the residence halls composted approximately **1,600 gallons of organic waste**.



**Human Resources reduced their total paper use** by an equivalent of eight trees by digitizing handouts created for the Foundations of Administrative Services Training, New Hire Orientation, and Open Enrollment programs.

The Grafton Green Team and Grafton Farm worked together to start a **classroom composting program**. The compost will be used to fertilize the fields and grow crops for the farm animals on the Grafton campus.



Tufts Technology Services, who received a Bronze-level Green Office Certification, **continued sustainable office practices by connecting a coffee machine directly to the tap-water line in their kitchen**, eliminating the need to use bottled water to make coffee. The office also moved reusable dishware to a location that was easy to access, ultimately reducing waste from disposable dishware and utensils.

Environmental Health and Safety (EH&S) & Facilities Services collaborated to install a **recycling tote** in the flammable waste-storage area that EH&S uses on the Boston campus to recycle previously non-recycled specialty bottles and provide a more environmentally friendly method for glass bottles.

The Tufts Bookstore worked with the Commencement Office and Facilities Services to collect and **recycle 122 gowns** after graduation.



Through an **Eco-Ambassador grant**, the Center for Engineering Education and Outreach purchased reusable cups printed with information about waste and deforestation to distribute during their summer workshops. This initiative ultimately reduced waste from approximately 5,000 disposable cups and provided sustainability education to elementary school students.





# ENERGY AND EMISSIONS

In FY16, Tufts adopted innovative solutions to create state-of-the-art facilities, reducing our environmental impact and creating new opportunities for research and collaboration.

## EMISSIONS-REDUCTION GOALS



7 percent below 1990 levels by 2012 (Kyoto Protocol): **Achieved**



10 percent below 1990 levels by 2020 (New England Governors and Eastern Canadian Premiers Climate Change Action Plan): **On Track**



75 to 85 percent below 2001 levels by 2050 (New England Governors and Eastern Canadian Premiers Climate Change Action Plan): **Superseded by Second Nature Climate Commitment**

In the spring of 2017, President Monaco reconvened the Campus Sustainability Council with a renewed focus—carbon neutrality (see page 9).



10 to 25 percent below 1990 levels by 2020, in line with Massachusetts state goals (Global Warming Solutions Act of 2008): **On Track**

### BUILDING A CLEANER FUTURE

Acknowledging deep concerns about the potential impact of climate change on our institution and community, President Monaco signed the Second Nature Climate Commitment in April 2016, making Tufts one of 93 charter signatories. The commitment requires higher-education institutions to set targets, report on progress publicly, and collaborate with their surrounding community — all while integrating sustainability across the curriculum.

To meet the ambitious demands of the commitment, President Monaco convened a new Council for the Sustainability of Campus Operations in February 2017. The council will provide leadership and oversight for developing and executing a plan for Tufts to reach carbon neutrality. The council will prescribe strategies to engage the full Tufts community in actions to conserve energy use, and recommend development of capital projects and operational approaches that minimize the use of fossil fuels. Such strategies will include metering individual buildings, power generation, energy procurement and expanding a revolving green fund to support these efforts.

[go.tufts.edu/cleanerfuture](http://go.tufts.edu/cleanerfuture)



### THE SECOND NATURE CLIMATE COMMITMENT

We, the undersigned presidents and chancellors of colleges and universities, believe firmly in the power, potential, and imperative of higher education's key role in shaping a sustainable society. Not only are we deeply concerned about the increasing pace and intensity of global climate change and the potential for unprecedented detrimental impacts, but we also understand that technology, infrastructure, global interconnectedness, and our greatest asset – engaged, committed, smart students – allow us to explore bold and innovative solutions and to lead in climate action and sustainable solutions.

We have begun to experience the effects of climate change in our communities, and we understand that these effects are projected to become more severe and damaging. We recognize that mitigation and adaptation are complementary strategies for reducing the likelihood of unmanageable change, managing the risks, and taking advantage of new opportunities created by our changing climate.

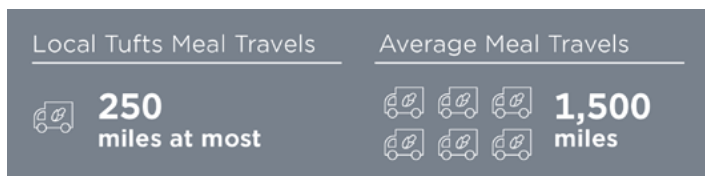
We believe colleges and universities must exercise leadership in their communities and throughout society by providing the knowledge, research, practice, and informed graduates to create a positive and sustainable future. Along with other aspects of sustainability, campuses that address the climate challenge by reducing greenhouse gas emissions and by integrating resilience into their curriculum, research, and campus operations will better serve their students and meet their social mandate to help create a vital, ethical, and prosperous civil society.

We further believe that exerting leadership in addressing climate change will reduce our long-term energy costs and the costs of climate disturbance, increase our quality of life, attract excellent students and faculty, and build the support of alumni and local communities.

We have resolved to take action in one of the following Climate Leadership Commitments. We believe carbon neutrality and resilience are extremely high-priority areas of action for all institutions, and we aim to lead the nation in these efforts. We urge others to join us in transforming society toward a sustainable, healthy, and more prosperous future.



Tufts, in cooperation with PowerOptions and Endicott College, was selected as the winner of the inaugural **Green Ribbon Commission Renewable Energy Leadership Prize**, awarded to nonprofits for their strategies for large-scale renewable-energy generation. Through the prize, the commission aims to inspire local large-scale energy consumers to implement renewable-energy strategies.



As part of an effort to maximize the use of local produce and reduce greenhouse gas emissions from transporting food products, **Tufts Dining became a partner with FATBOY Foods**, in Medford. Dining centers now have applesauce and marinara sauce from FATBOY. Tufts Dining defines local food as anything purchased within a 250-mile radius.

Following the May 2016 Conference on Resilient Building Codes, the Tufts University Department of Urban and Environmental Policy and Planning endorsed the **White House Educators Commitment on Resilient Design** as a member of the Association of Collegiate Schools of Architecture. The statement defines resilience as “the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events.”



In December 2015, the Tufts School of Medicine and Public Health joined 47 other schools in signing the **Health Educators Climate Commitment**, in recognition of the health impacts of climate change and in dedication to educating students to address those impacts.

# BUILDINGS & INFRASTRUCTURE

Although Tufts continued to grow in FY16, Capital Programs and Facilities Services adopted innovative solutions to reduce the university's environmental impact.



## BUILDINGS & INFRASTRUCTURE



### GRAFTON

Facilities Services made a number of upgrades to the **Cummings School of Veterinary Medicine**, including:

- Replacing all lighting in Swine unit No. 1 with **LED light fixtures**
- Adding a new **energy-efficient chiller** to the Hospital for Large Animals
- Adding a two-port **electric vehicle charging station** next to the wildlife clinic



### BOSTON

**Stephen Moss Lab:** Replaced an obsolete fume hood with a reconditioned, more energy-efficient model. The lab casework in the lab was rehabilitated, decreasing waste sent to the landfill.

**Lab Spaces:** Consolidated laboratory spaces in order to reduce the need to occupy, heat, and air-condition excess space.

## LEGEND

- Energy-efficiency upgrade
- Stormwater runoff mitigation
- Reused existing infrastructure
- Increased transportation access
- LEED-certified building or space
- Long-lasting materials



White roof on Lewis Hall



Bicycle repair station at the Mayer Campus Center



The Collaborative Learning and Innovation Complex is LEED Silver

# MEDFORD/SOMERVILLE CAMPUS

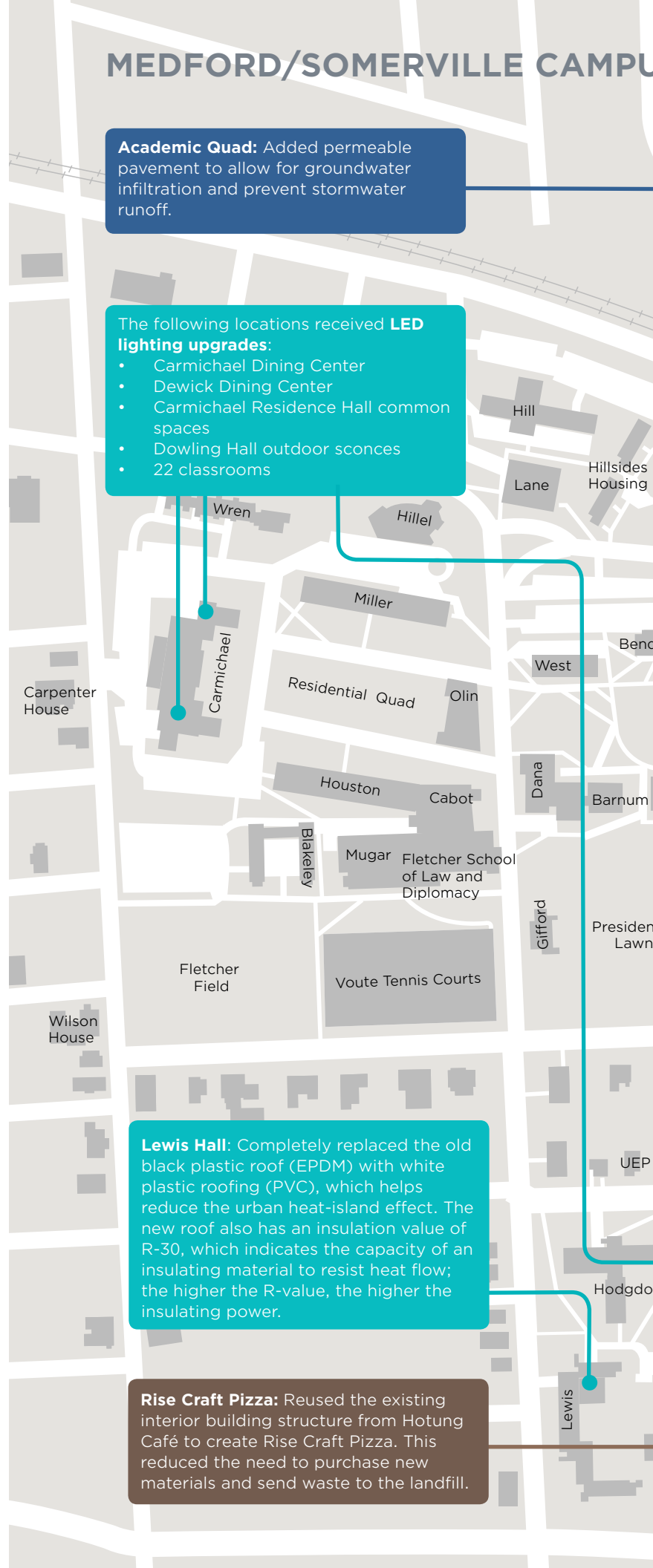
**Academic Quad:** Added permeable pavement to allow for groundwater infiltration and prevent stormwater runoff.

The following locations received **LED lighting upgrades:**

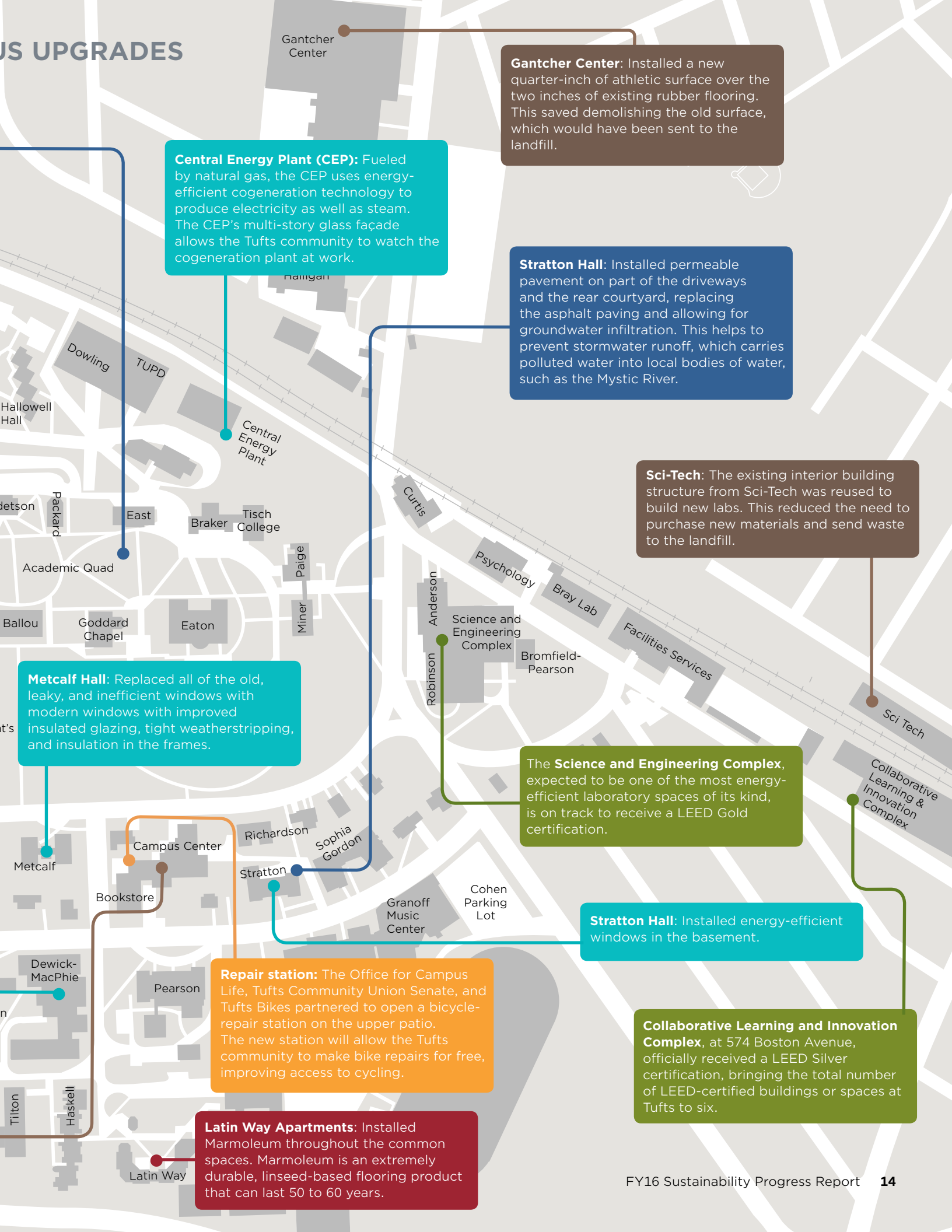
- Carmichael Dining Center
- Dewick Dining Center
- Carmichael Residence Hall common spaces
- Dowling Hall outdoor sconces
- 22 classrooms

**Lewis Hall:** Completely replaced the old black plastic roof (EPDM) with white plastic roofing (PVC), which helps reduce the urban heat-island effect. The new roof also has an insulation value of R-30, which indicates the capacity of an insulating material to resist heat flow; the higher the R-value, the higher the insulating power.

**Rise Craft Pizza:** Reused the existing interior building structure from Hotung Café to create Rise Craft Pizza. This reduced the need to purchase new materials and send waste to the landfill.



# SUSTAINABILITY UPGRADES



**Central Energy Plant (CEP):** Fueled by natural gas, the CEP uses energy-efficient cogeneration technology to produce electricity as well as steam. The CEP's multi-story glass façade allows the Tufts community to watch the cogeneration plant at work.

**Gantcher Center:** Installed a new quarter-inch of athletic surface over the two inches of existing rubber flooring. This saved demolishing the old surface, which would have been sent to the landfill.

**Stratton Hall:** Installed permeable pavement on part of the driveways and the rear courtyard, replacing the asphalt paving and allowing for groundwater infiltration. This helps to prevent stormwater runoff, which carries polluted water into local bodies of water, such as the Mystic River.

**Sci-Tech:** The existing interior building structure from Sci-Tech was reused to build new labs. This reduced the need to purchase new materials and send waste to the landfill.

**Metcalf Hall:** Replaced all of the old, leaky, and inefficient windows with modern windows with improved insulated glazing, tight weatherstripping, and insulation in the frames.

The **Science and Engineering Complex**, expected to be one of the most energy-efficient laboratory spaces of its kind, is on track to receive a LEED Gold certification.

**Stratton Hall:** Installed energy-efficient windows in the basement.

**Repair station:** The Office for Campus Life, Tufts Community Union Senate, and Tufts Bikes partnered to open a bicycle-repair station on the upper patio. The new station will allow the Tufts community to make bike repairs for free, improving access to cycling.

**Collaborative Learning and Innovation Complex**, at 574 Boston Avenue, officially received a LEED Silver certification, bringing the total number of LEED-certified buildings or spaces at Tufts to six.

**Latin Way Apartments:** Installed Marmoleum throughout the common spaces. Marmoleum is an extremely durable, linseed-based flooring product that can last 50 to 60 years.

# UNIVERSITY REPORT CARDS

This year's report includes a greenhouse gas emissions breakdown for the entire university as well as a summary of waste, water use, and energy use by campus.





# Tufts University: All Campuses

## FY16 University Greenhouse Gas Emissions by Scope

### Emissions by Scope

- Scope 1
- Scope 2
- Scope 3

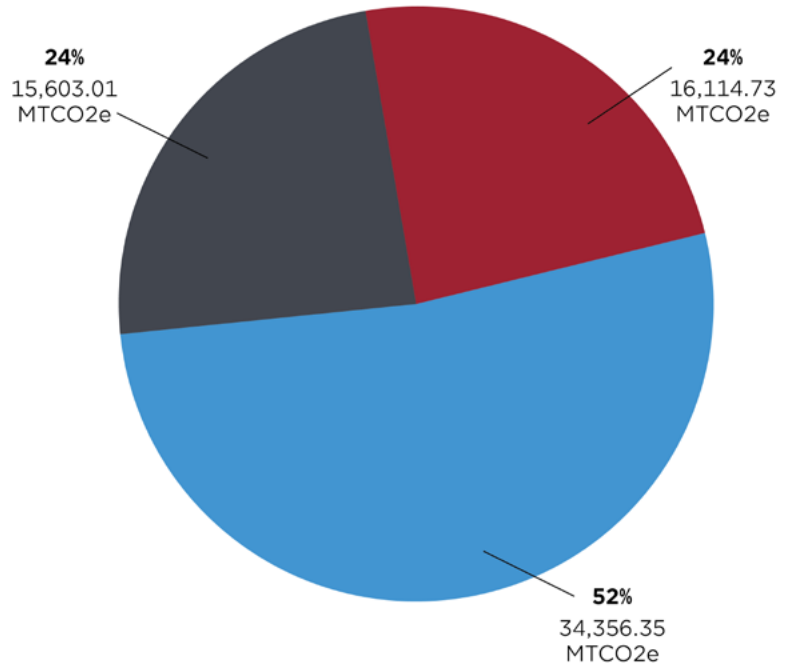


MTCO<sub>2</sub>e is the metric tons CO<sub>2</sub> equivalent emissions.

**Scope 1 includes:** fuels we burn on campus, our campus fleet, refrigerant leaks, fertilizer, and animal husbandry.

**Scope 2 includes:** electricity and steam we purchase.

**Scope 3 includes:** commuting, university-funded travel, study abroad, solid waste disposal, waste water treatment, and office paper.



## FY16 University Greenhouse Gas Emissions by Source

### Emissions by Scope

#### Scope 1

- Mobile Combustion
- Stationary Combustion

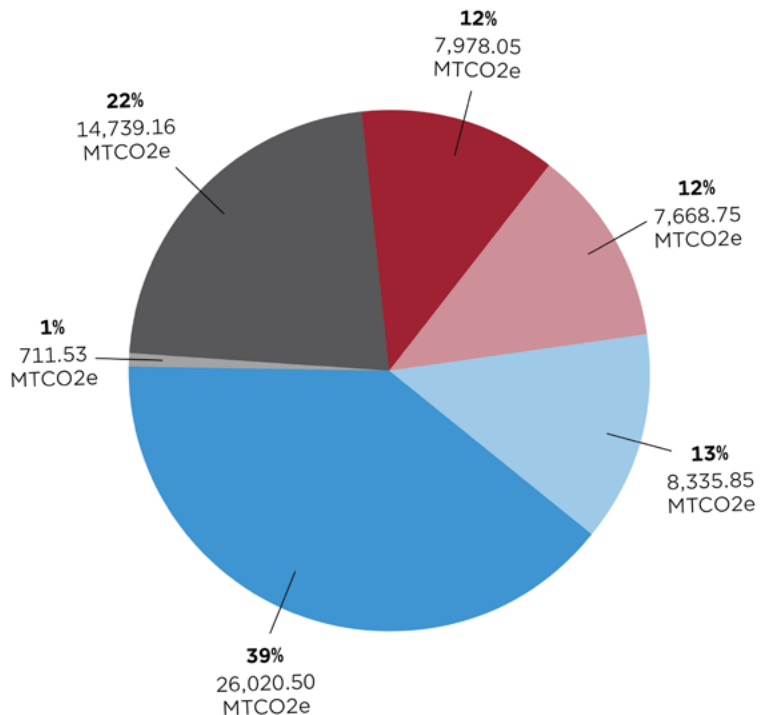
#### Scope 2

- Purchased Electricity
- Purchased Steam

#### Scope 3

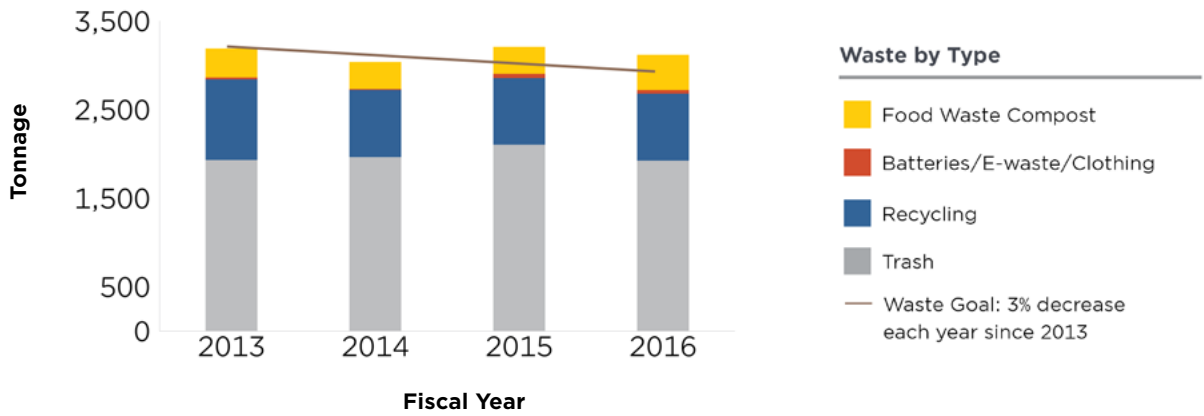
- Air Travel
- Commuting

**The following had a negligible amount of emissions that round down to 0%:** waste water treatment, office paper purchases, solid waste disposal, and other directly financed travel (buses and personal vehicles).

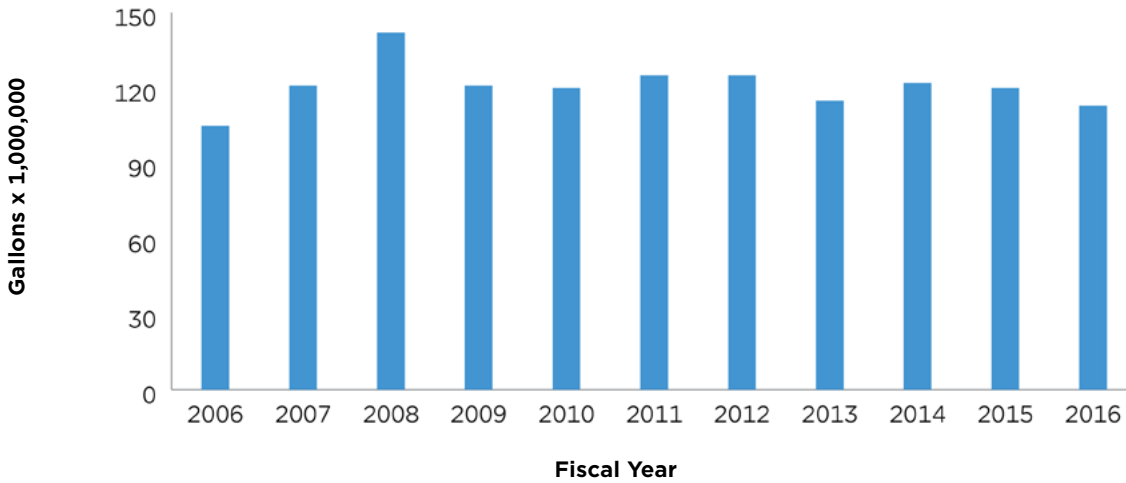


# All Campuses

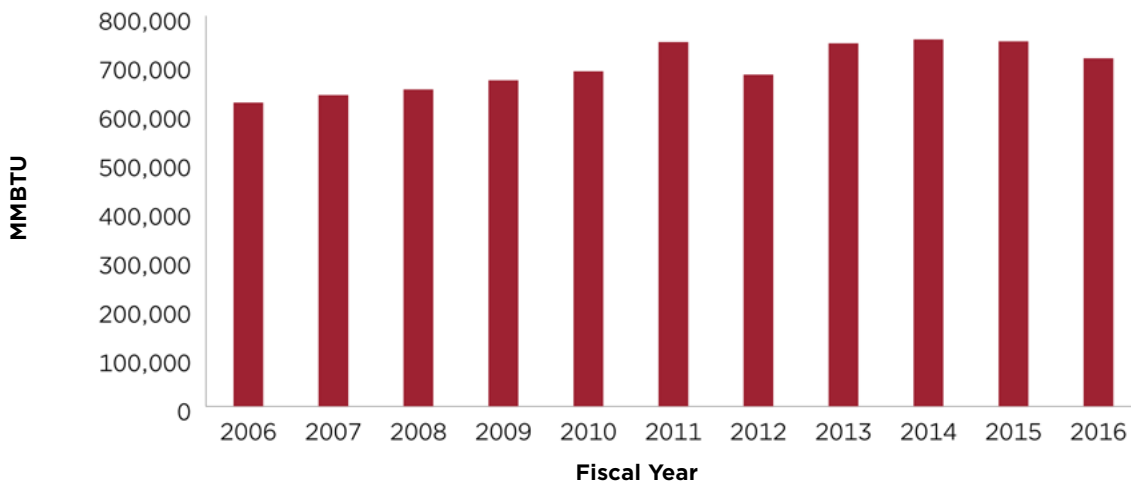
## Total Waste (FY 2013-2016)



## Total Water Use (FY 2006-2016)



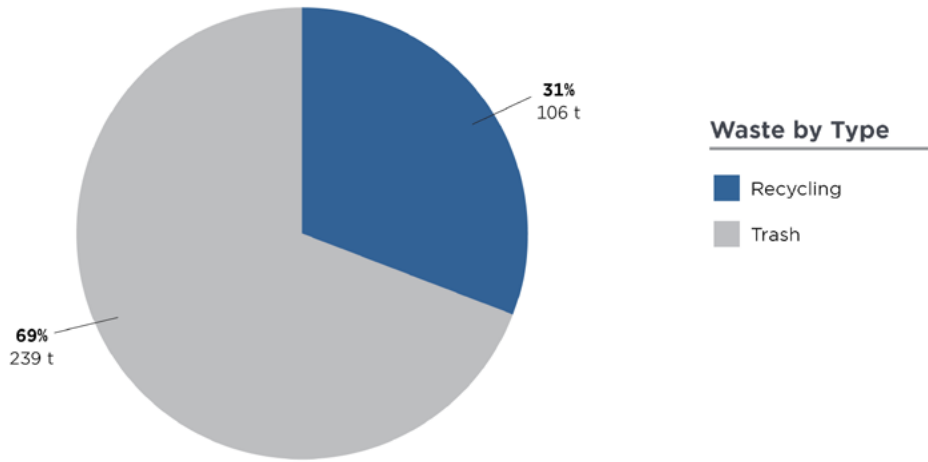
## Total Energy Use (FY 2006-2016)



# Boston Campus

## FY16 Boston Waste in Tons

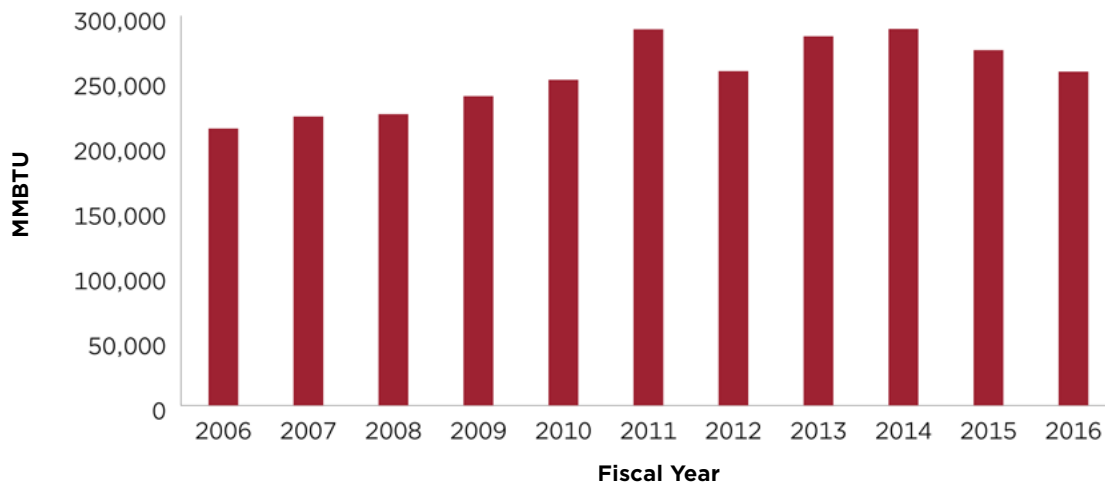
Recycling in FY16 was a mix of dual stream, cardboard, and single stream.



## Boston Water Use (FY 2006-2016)



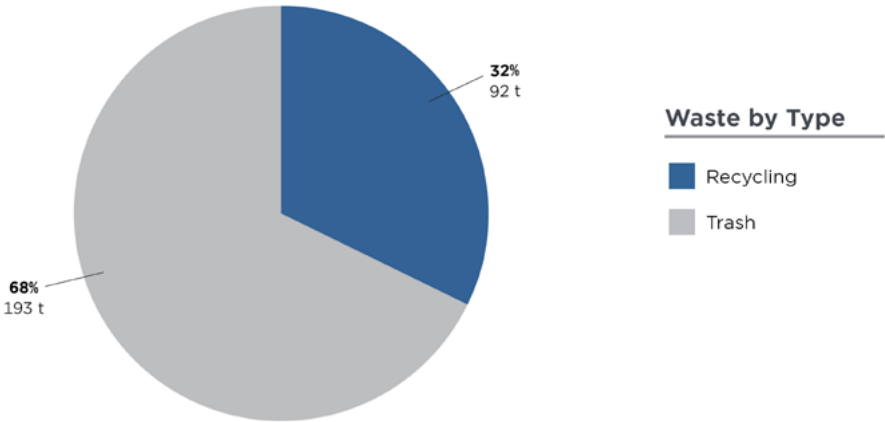
## Boston Energy Use (FY 2006-2016)



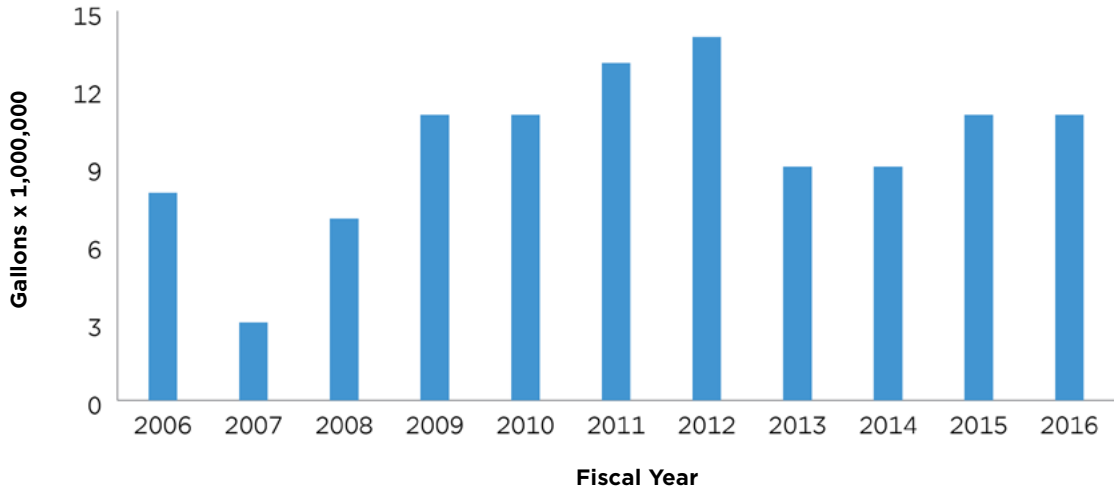
# Grafton Campus

**FY16 Grafton Waste in Tons**

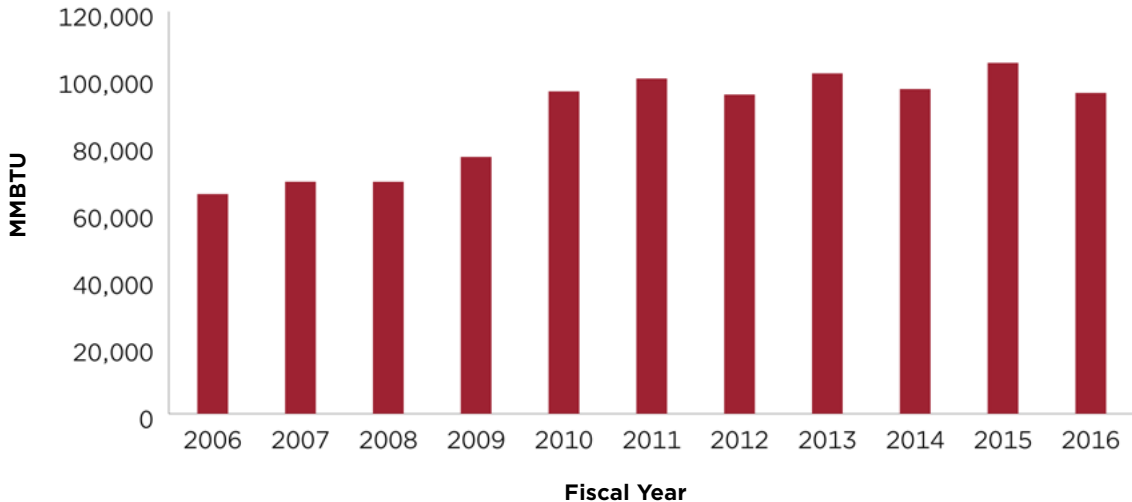
Recycling in FY16 was a mix of cardboard recycling and single stream.



**Grafton Water Use (FY 2006-2016)**



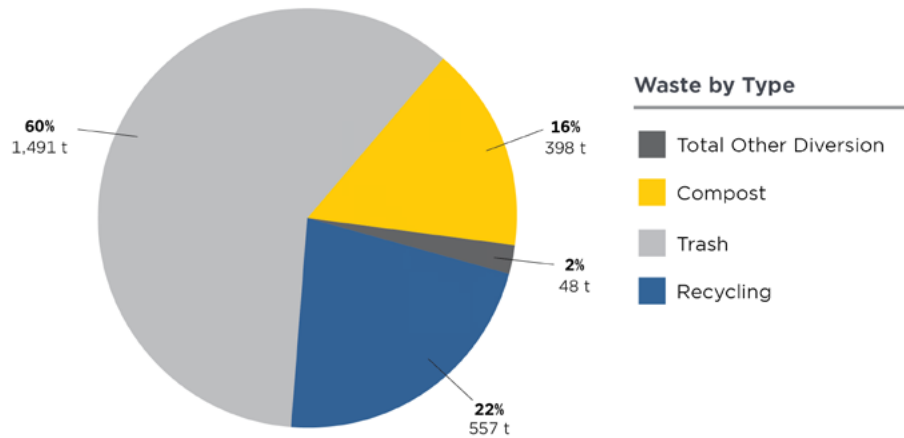
**Grafton Energy Use (FY 2006-2016)**



# Medford/Somerville Campus

## FY16 Medford/Somerville Waste in Tons

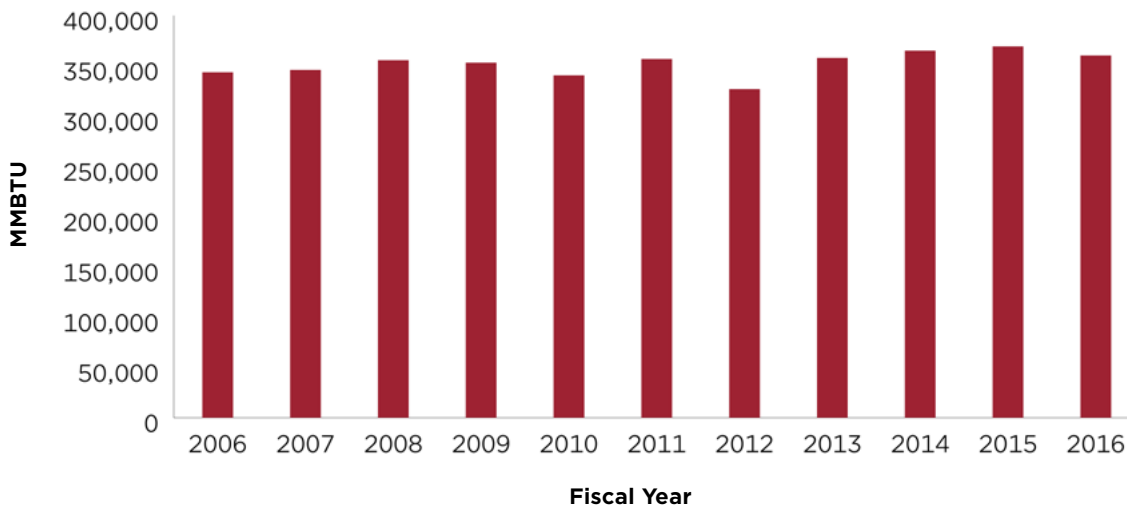
Recycling in FY16 was a mix of dual stream, cardboard, and single stream. Compost was only recorded in Medford and includes all food waste compost, excludes yard waste. Other diversion was only recorded in Medford and includes: batteries, e-waste, printer cartridges, lamps, ballasts, clothing donations, furniture, mattresses, CDs, and bicycles.



## Medford/Somerville Water Use (FY 2006-2016)



## Medford/Somerville Energy Use (FY 2006-2016)



# ACKNOWLEDGMENTS

## PROGRESS REPORT

The initiatives and projects in this report are based on the information available to the Office of Sustainability at the time of printing. It is by no means comprehensive or inclusive of all sustainability initiatives that took place at Tufts in Fiscal Year 2016 (June 2015-July 2016). The participation and contribution of all members of the Tufts community is incredibly valuable and greatly appreciated.

**For inclusion in next year's report, email: [sustainabilityoffice@tufts.edu](mailto:sustainabilityoffice@tufts.edu).**

## DEPARTMENTS & PROGRAMS

The following departments and programs were responsible for the initiatives and projects included in this report:

- Administrative Services
- Campus Services
- Capital Programs
- Dining Services
- Environmental Studies
- Environmental Health and Safety
- Facilities Services
- Human Resources
- Office of the President
- Office of Vice President Operations - Administration
- Tufts Eco-Reps
- Tufts Food Rescue
- Tufts GreEco Reps
- Tufts Institute of the Environment
- Tufts Photography
- Water Diplomacy Program

## DATA & FEEDBACK

The following individuals contributed to this report:

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# PHOTOGRAPHY

## PHOTOGRAPHY

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Science and Engineering Complex (Paul Rutherford for Tufts University)

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Tufts Century Ride (Alonso Nichols/Tufts University)

### Page 3

Emma Schneider (Zara Tzanev/Tufts University)

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Green Restaurant Certification (Tufts Dining)  
Green Roof Research (Alonso Nichols for Tufts University)  
Tufts Food Rescue Collaborative (Anna Miller/Tufts University)  
Lab at the Collaborative Learning and Innovation Complex (Alonso Nichols/Tufts University)

### Page 5

Dining Hall Preparation (Joanie Tobin/Tufts University Photo)  
Talloires, France (Scott Tingley for Tufts University)  
Eco-Ambassador Mugs (Tufts Photography)

### Page 6

Zero Waste Station at the President's Picnic (Juleen Wong, A17)

### Page 7

Waste Less Dinner (Tufts Dining)  
Lewis Hall Compost (Sarah Morton, A20)  
Green Office Certificate (Alonso Nichols/Tufts University)  
CEEEO Cups (Lynne Ramsey)

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SEC Under Construction (Alonso Nichols/Tufts University)

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Green Ribbon Commission

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Tufts Health Science Campus (Alonso Nichols/Tufts University)

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Lewis Hall White Roof (Gretchen Von Grossman)

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Large Animal Hospital (Kelvin Ma/Tufts University)  
Wildlife Clinic (Tina Woolston)  
Stephen Moss Lab (Kelvin Ma/Tufts University)

### Page 13

Lewis Hall White Roof (Gretchen Von Grossman)  
Bicycle Repair Station (Tufts Bikes)  
CLIC LEED Silver Sign (Lauren Diamond)

### Page 14


Memorial Steps (Alonso Nichols/Tufts University)

### Page 20

Purple Flowers (Alonso Nichols/Tufts University)

### Back

Science and Engineering Complex (Paul Rutherford for Tufts University)



# sustainability

Supporting a university-wide commitment

## **Tufts Prints Green**

Printed on 100% recycled paper.  
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