

Dartmouth College Waste Report

FISCAL YEAR 2018



DARTMOUTH
Sustainability Office

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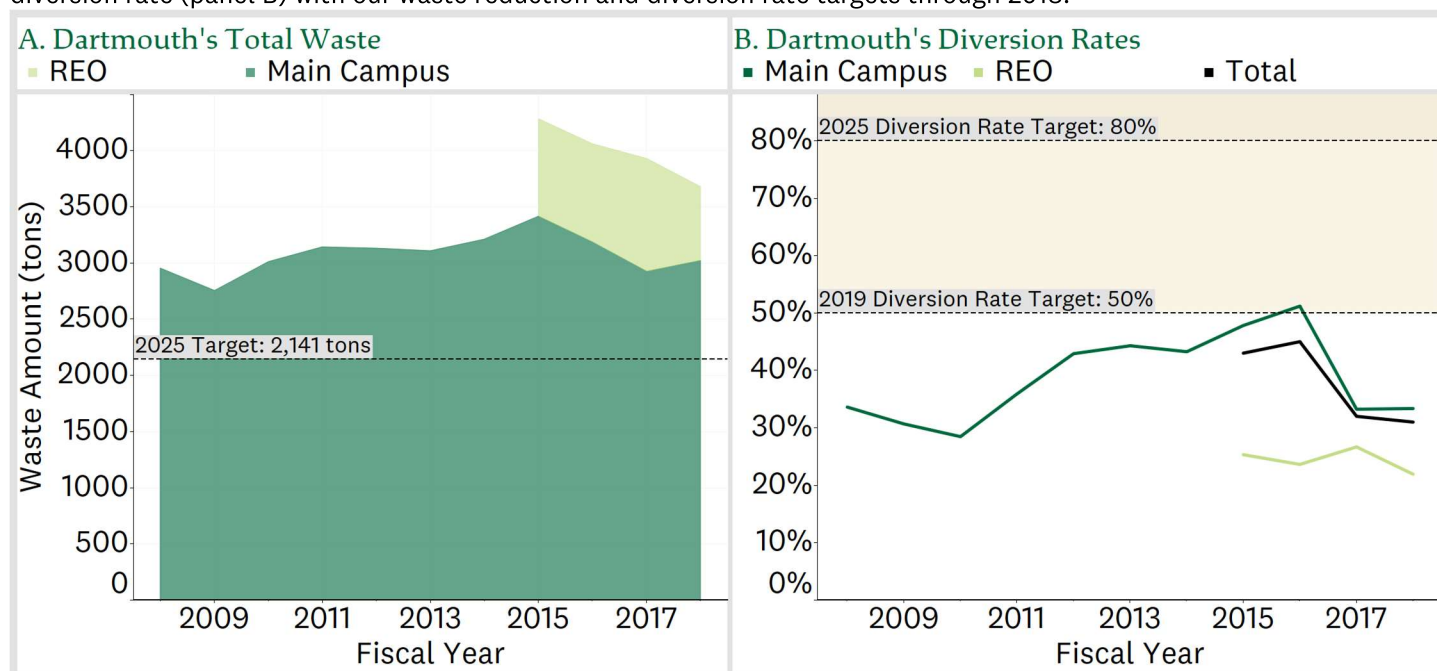
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Waste Report

Summary

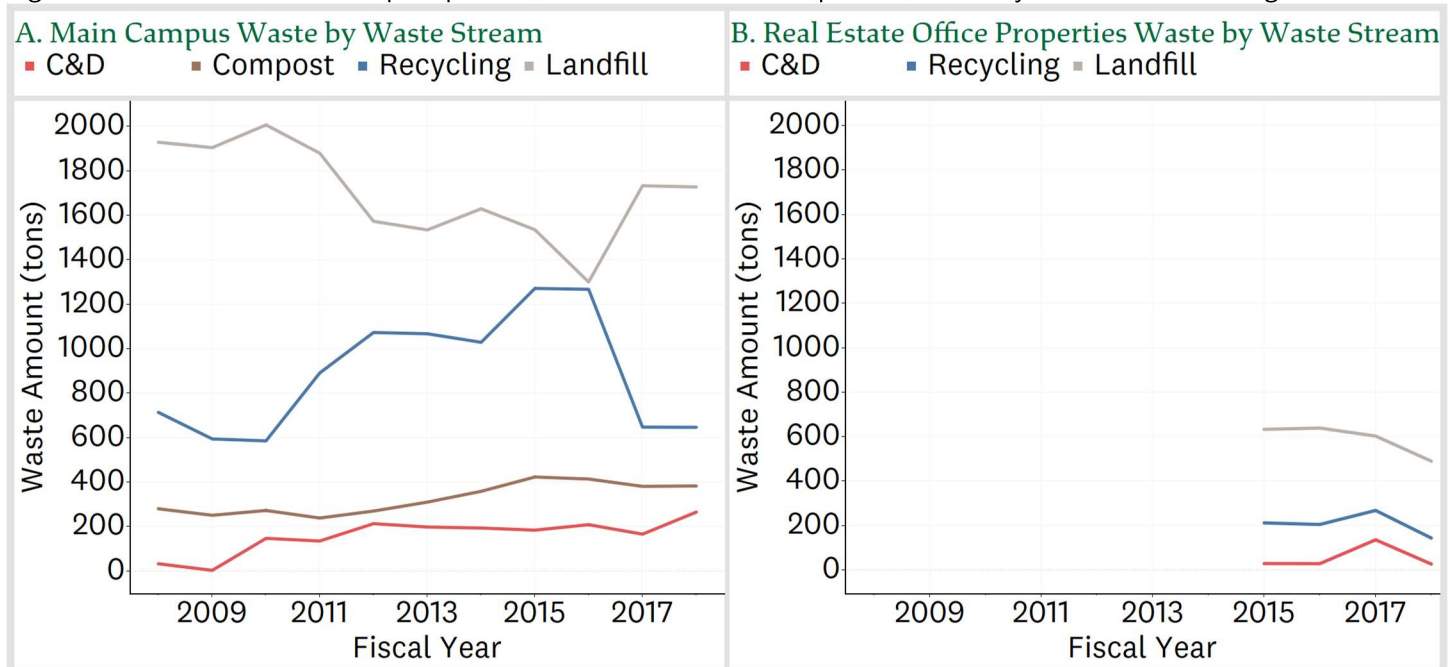
- Dartmouth's total waste production has declined 14% since 2015; Dartmouth produced 4,282 tons in 2015 and 3,677 tons in 2018 (Figure 1A).
 - Dartmouth's total waste production includes municipal solid waste (MSW), construction and demolition (C&D) waste, all types of recycling, and composting from both the main campus and Real Estate Office (REO) properties.
 - In addition to data from Dartmouth's main campus for fiscal years 2008 to 2018, we have data for REO properties for fiscal years 2015-2018. The College uses a July 1-June 30 fiscal year; for example, 2018 was July 1, 2017-June 30, 2018. We report all data in fiscal years unless specifically stated otherwise.
 - Dartmouth's main campus total waste increased from a minimum of 2,750 tons in 2009 to a maximum of 3,410 tons in 2015 and has since declined 11% to 3,019 tons in 2018 (Figure 1A).
 - Dartmouth's REO properties total waste declined from its maximum of 1,004 tons in 2017 to its minimum of 658 tons in 2018, a 34% decrease (Figure 1A).
- Dartmouth's total diversion rate has declined from its maximum of 45% in 2016 to its minimum of 31% in 2018, a 14% decrease (Figure 1B).
 - Dartmouth's total diversion rate is the percentage of materials, including all MSW and C&D waste, diverted from the landfill to other waste streams such as recycling or composting for both the main campus and REO properties.
 - Dartmouth's main campus diversion rate increased from its minimum of 28% in 2010, peaked at 51% in 2016, and has since declined to 33% in 2017 and 2018 (Figure 1B). See the Discussion of Diversion Rate Change section on page four for more context regarding the large decline in the diversion rate.
 - Dartmouth's REO properties have had stable diversion rates, averaging 25% since independent records became available in 2015 (Figure 1B).

Figure 1. Dartmouth's main campus and real estate office properties total waste production (panel A) and waste diversion rate (panel B) with our waste reduction and diversion rate targets through 2018.



- Dartmouth's 14% decline in total waste production and concurrent 14% decline in the diversion rate are associated with (1) changes in our recycling practices on the main campus leading to steeply declining recycling production (see the Discussion of Diversion Rate Change section on page four) and relatively stable landfill and compost production and (2) increasing C&D waste sent to the landfill.
 - Dartmouth main campus' landfilling of MSW has declined from a maximum of 2,006 tons in 2010 to a minimum of 1,300 tons in 2016 and risen to 1,727 tons in 2018 (Figure 2).
 - Dartmouth's REO properties landfilling of MSW has declined from a maximum of 638 tons in 2016 to a minimum of 489 tons in 2018 (Figure 2).
 - Dartmouth's main campus recycling increased from a minimum of 585 tons in 2010, the last year before the Zero-Sort system was adopted, to a maximum of 1,267 tons in 2016 and is now 646 tons in 2018 (Figure 2).
 - Dartmouth's REO properties recycling declined from its maximum of 267 tons in 2017 to its minimum of 143 tons in 2018.
 - Dartmouth's main campus composting of organics has increased from a minimum of 238 tons in 2011 to a maximum of 422 tons in 2015 and has slightly declined to 382 tons in 2018 (Figure 2).
 - Dartmouth's REO properties do not compost.
 - Dartmouth's main campus C&D waste production has increased steadily from 2 tons in 2009 to a maximum 264 tons in 2018.
 - Dartmouth's REO properties C&D waste production declined from its maximum of 135 tons in 2017 to its minimum of 26 tons in 2018
- All the data in this report are subject to change. We are actively working to improve the quality of our data and capture as complete a picture as possible of our total waste footprint on campus.

Figure 2. Dartmouth's main campus (panel A) and real estate office (panel B) waste by waste stream through 2018.



Discussion of Diversion Rate Changes

Dartmouth implemented a new practice in summer 2016 to ensure it is complying with Casella, our primary recycler's, acceptable recycling contamination levels. Facilities, Operations, and Management (FO&M) custodians and groundskeepers are now responsible for diverting contaminated bags of recycling to the landfill. We added this additional quality control step on campus due to Casella reducing the acceptable level of contamination in our recycling due to shifts in the global recycling markets and significant declines in the price they can received for sorted recyclables. Exceeding these new contamination thresholds results in additional fees from Casella thereby increasing Dartmouth's recycling costs.

Prior to the change in practice, Dartmouth was putting contaminated bags of recycling into recycling dumpsters around campus. Casella was picking up these materials and bringing them to their Materials Recovery Facility (MRF) in Rutland, VT. Casella was diverting many of these contaminated recyclables to the landfill either before or during the MRF-sorting process. Regardless of the outcome of the contaminated-recycling materials, Dartmouth was accounting for these materials as if they were being recycled. Therefore, our diversion rate declined precipitously once we introduced the additional quality-control check by FO&M staff on campus and began sending bags of contaminated recycling to the landfill directly. This added level of quality control increases the transparency of Dartmouth's waste system and enables us to more accurately account for which materials end up being recycled into new materials.

As of June 2019, FO&M is continuing to quality-control recycling on campus. The need for this practice was reinforced by continuing declines in global recycling markets following China's ban on certain waste imports in December 2017.

FY18 Waste Activities List

Dartmouth offices and programs are working hard to reduce the amount of waste produced and increase the diversion rate across campus. Listed below are efforts from FY18. Note, Dartmouth academic terms use the following nomenclature, 17X is summer term 2017 (Jun-Aug), 17F is fall 2017 (Sept-Nov), 18W is winter 2018 (Jan-Mar), 18S is spring 2018 (Apr-Jun), etc.

Dartmouth Dining – Events or Programs

- The Sustainable Action Workshop (SAW) addressed plastic bag usage in dining facilities in 18S. They collected 500 student responses to a survey on plastic bag use, evaluated alternatives, and presented their findings to Dartmouth Dining.
 - Dining eliminated t-shirt-style plastic bags and began selling reusable bags in 18F.
- Dartmouth Dining eliminated plastic straws and switching to paper straws in 18S.
- Dartmouth Dining implemented a closed-loop program to manage the delivery, filtration, and disposal of cooking oil.
 - Used cooking oil is turned into biodiesel.

Human Resources - Update

- Human Resources introduced waste-related information into their orientation.

Facilities, Operations & Management (FO&M) Related Events, Programs, and Updates

- The Sustainability Office and FO&M updated and simplified waste signage across campus including updating 3D signage in Collis during 17X-17F.
- Custodial staff received updated policies in FY18 regarding trash and zero sort bin liners to reduce double bagging, which contaminates zero sort, and reduce usage of trash bags that were less than ½ full.
- Campus Services staff educated on waste with a game at the staff meetup in FY18.
 - Waste-related information was sent out in the Campus Services newsletter.
- Regular waste audits by waste and recycling crew across campus were implemented in FY17, including counts of contaminated zero sort.

- Implemented recycling and shredding of old Campus Services uniforms FY18.
- Partnered with Upper Valley Compost to handle recycling at Moosilauke Ravine Lodge FY2018.

Sustainability Office - Education Events

- Student Assembly (SA) surveyed student opinions and views on Dartmouth's waste system and developed communications to dispel the rumor that Dartmouth was not recycling in 18S-18X.
- Sustainability Office interns trained Undergraduate Advisors about Dartmouth's waste system in 18X.
- Sustainability Interns and Dartmouth Outdoor Programs integrated waste-sorting training into First-Year trips during trip leader training and at the Lodge in 18F.

Sustainability Office - New and Re-Vamped Programs

- Green2Go program implemented in '53 Commons (17F) and Courtyard Café (18S)
- A listserv was created to enable the Planning, Design, and Construction Office to redistribute used Dartmouth furniture to local nonprofits during renovations and office moves
- DartList, an online marketplace for the Dartmouth community was redesigned by Peiyao Xu '21.
- Listen Center Donation bins were installed in House Center B to reduce clothing waste in 18S.
 - The Listen Center also had several drop-off events to accept donations during 18S move out.
- Changed composting systems in Collis, Courtyard Café and Novack to a "food waste only" system with capped containers, resulting in significant reduction in contamination and made composting easier with regard to "compostable" containers.

Sustainability Office - Eco-Rep hosted events or programs

- Hosted a waste reduction campaign where they challenged people to produce no more waste than a mason jar in three days in 18S, 56 students participated.
- Eco-Reps tabled regarding waste at two events during 18S Earth Week
- Garbage, an art exhibit about waste, was showcased in the Hop Garage during 18S Earth Week.
- Created a waste sorting [video guide](#) for Dartmouth that played in Baker Lobby through 18S-18X.
- Facilitated a food waste audit in '53 commons during dinner 18S.
- Created a series of flyers about waste at Dartmouth which were hung up in public places in 18S.

Tuck Projects and Programs

- Contracted with Upper Valley Compost to collect compost from:
 - Tuck Dorms – Academic year 2018
 - Byrne Dining Hall – September 2017-October 2018
- Developing Green2Go program for Byrn Dining Hall to be rolled out 19W or 19S
- Reduced water bottle usage through:
 - Eliminating water bottles at events beginning 18S
 - Installed Bevi, a still and sparkling flavored-water dispenser, 18F
 - Increasing the accessibility of free reusable water bottles
 - Increasing the availability of water-bottle refilling stations
- Improved waste-bin signage
- Incentivizing using reusable mugs at Joe's coffee stand

Other Projects or Programs

- Tour of the Casella MRF Facility in Rutland with FO&M custodians, Waste crew and Eco Reps - FY17