NACUFS (2026)
Waste Reduction

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NPqjndbL

Entry details

Entry Name:	A Greener Way To-Go: Harvard's Reusable Dining Container Program
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Essay:

Harvard College (the undergraduate degree-granting program of Harvard University) has a unique residential system. Virtually all 7,000 undergraduates live on campus for all four years and participate in an undergraduate dining program supported through 13 dining halls spread across the College's 209-acre main Cambridge campus. Harvard University Dining Services (HUDS) supports the health and well-being of these busy undergraduates by allowing them to take food to go from the dining hall. Maximizing their mandatory, unlimited meal plan (with daily meals served from 7:30-10:30am, 11:30am-2pm and 4:30-7:30pm), students may come to their dining hall, swipe, request a to-go container, and pack it with a personalized meal.

This practice debuted at Harvard during COVID (previously, the stated standard was that all food must be dine-in), when students were empowered to take food from the dining hall to support health and safety. HUDS provided compostable containers to mitigate the overall impact of this new waste stream.

As we exited the COVID era, to-go containers had become an expectation for students. To reduce waste and improve campus sustainability, beginning in 2022 HUDS attempted several approaches to offering reusables, including an honor system, a token exchange and an app-based program. None succeeded.

Hoping to facilitate a more sustainable solution to taking food to go, HUDS imagined a system that was as easy as checking out a book at the Harvard Library. This led HUDS to leverage the existing Harvard University Library technology that allows students to check out books with their University IDs.

Beginning in the Fall of 2024, HUDS piloted library technology for reusable container checkout at one location. The pilot led to full deployment of the technology across all 13 undergraduate dining locations in the fall of 2025.

Background

Harvard University Dining Services (HUDS) undergraduates have a mandatory, unlimited meal plan. Prior to the COVID pandemic, it was not permissible to take food-to-go, apart from a piece of fruit or cookie or such. Post-COVID, the need for food-to-go from the dining hall has increased exponentially, as fixed mealtimes compete with highly scheduled students. On a 2025 survey, 85% of students reported conflicts between mealtimes and academic schedules that caused them to miss a meal.

HUDS introduced compostable containers to our service in 2020. To reduce waste and improve campus sustainability, HUDS introduced reusable to-go containers in the Fall of 2022. The containers were available on an honor system – students were encouraged to take them only if they could return them. As an alternative, compostable containers remained available. Unfortunately, almost all 15,000 of the provided reusable containers were taken out and not returned.

To continue providing reusable containers, while more sustainably managing the resource, HUDS introduced the Fill It Forward app in the Spring of 2023. The app cost HUDS approximately $10,000 to set up and offer access for one year. To use it, students had to download it on a mobile device and create an account before getting a code for a free first container. They had to show validation to the dining hall checker before taking a container and could not have another until they had returned the used container.

Approximately 300 students signed up for the app, and 20 became regular users. When polled about the app, students reported it to be too time-consuming to download and use when they were in a hurry. As such, reusable container use declined and became incredibly limited. Staff also found the technology onerous. It could not support the University's desire to provide free access for use without a complicated voucher system, and the return check-in process often impeded a student's desire to take out a new container.

By the 2023-24 school year, HUDS was using an all-time high of more than 600,000 compostable clamshells containers. What's more, food preparation was rising precipitously, out of proportion to the number of students being served. Managers witnessed abuses of the to-go program, with students and staff alike boldly "grocery shopping" from the serving lines. Correspondingly, facilities staff were reporting huge trash problems, with significant food waste and escalating pest concerns.

Project Implementation

Hoping to facilitate a more sustainable solution to taking food to go, HUDS imagined a system that was as easy as checking out a book at the Harvard Library. This led HUDS to engage the Harvard University Library in a discussion about the lending technology that allows students to check out books with their Harvard ID.

Indeed, Harvard's Libraries were willing to use their lending system to create a library of reusable containers that would be available in the dining halls. HUDS would establish a unique set of barcodes for the containers and install a MeeScan kiosk in the dining hall and the existing checker's station. The technology connects via Wi-Fi, eliminating the need for new data jacks.

Students could then check out and return containers by simply scanning their Harvard ID barcode and the container's barcode. The lending system would track who had which containers, send reminder messages, and term bill students for unreturned containers.

For students, this would provide streamlined access to a reusable resource without the burden of downloading apps, creating extra accounts, or otherwise incurring costs for the responsible use of a common resource (especially important because 55% of Harvard's undergraduates receive financial aid). For HUDS, and the broader campus community, this would leverage existing, readily accepted technology and systems or protocols to advance sustainability, reduce waste, and model similar possibilities for other reusable resources on campus.

In the Spring of 2024, HUDS applied for a President's Administrative Innovation Fund (PAIF) grant from Harvard. The grant funded an initial outlay of $7,500 for technology equipment, marketing and containers.

HUDS selected Preserve as the supplier for our reusable containers. Preserve is based locally in Massachusetts and follows best practices, including using 100% recycled plastic to make its BPA-free containers, maintaining Certified B Corp status, and being a signatory of the Ellen MacArthur New Plastics Economy Global Commitment.

Bar codes are adhered to containers using an anodized aluminum tag with barcode serial numbers sealed into the aluminum to prevent wearing off. The tags feature a 3M adhesive rated for high temperatures and plastic application.

In the 2024-25 school year, HUDS piloted the technology at a single location, Mather House, which has sustainability innovation as a core community value. HUDS worked with community leaders, including dining hall management and staff, undergraduates, House staff and academic leaders to develop the program pilot rules, instructions, messaging, and roll-out.

The technology was rolled out in October 2024. Over the subsequent months, those stakeholders were repeatedly engaged to help us evaluate and refine continuously until May 2025.

Communications during the pilot included multiple preview and launch emails to the pilot community making them aware of the program. Over the initial week, the check-out station was manned to support students learning how to check out and return containers. Additionally, posters and a web page with FAQs were launched.

During the pilot, compostable containers continued to be available. Over the course of eight months, 350 reusable containers were circulated more than 5,000 times. The average container circulated 14 times, though one container circulated more than 53 times.

At the conclusion of the pilot year, the pilot stakeholders were engaged one more time to review the program and recommend revisions. Adjustments included reducing the "lending" timeframe from three weeks to one week; increasing the fine for lost containers from $5 to $10; and eliminating the ability to checkout containers when staff were not present (the "honor system" for checking containers out). Additionally, the process was modified to put both the check-out and return together to expedite an exchange of containers given the limit of two containers out at any given time. Finally, while no other infrastructure was needed, HUDS added drying racks for the containers to better air-dry after washing.

The pilot was deemed successful enough that Harvard College funded its full deployment with a sustainability grant. At the start of the fall 2025 term, containers and check-out kiosks were launched at every undergraduate dining location; meanwhile, compostable containers were removed, so that the only way to take food to go was with a reusable.

Financing

The initial project pilot was funded by a grant from Harvard that encourages administrative innovation. Project judging criteria celebrated innovation, measurable impact, cross-department collaboration, and achievable scope.

The pilot costs were as follows:

- The purchase of barcode stickers for containers - $958
- A MeeScan license and equipment for 1 location - $2,835
- Small business cards with QR code leading to web FAQs - $84.68

HUDS had a small quantity of reusable containers on hand and was able to deploy those without additional cost.

Based on the pilot, HUDS' Harvard College partners felt so positively about the program's success that they funded a full deployment of the program across all 13 undergraduate dining halls using a grant designated for sustainability projects.

The deployment cost for 13 locations was as follows:

Single Set-Up Cost

$ 4,738

· MeeScan Equipment and License (Checkout Station, Check-in Scanner, Annual Location License

$ 2,858

· Containers (stock of 528)

$ 1,100

· Bar Code Stickers

$450

· iPad

$330

Total Cost

$61,593

Project Results

As of December 15, 2025, 3,075 containers have circulated 53,585 times – an average of 17 uses per container. The HUDS program has achieved meaningful greenhouse gas emissions reductions based on University of Michigan research, which found that "reusable alternatives—which initially use more energy and generate more climate-altering greenhouse gases—can break even with single-use containers after four to 13 uses." (Hitt et al.)

Food production, food cost and food waste has returned to pre-2024 levels. Staff praise the simplicity of the program to execute, appreciating the use of existing ID accounts and bar codes in the speedy lending and return of containers.

HUDS has fully eliminated compostable containers, which cost more than $145,000 in a full fiscal year. When evaluated against ongoing annual costs to maintain the program, HUDS can reasonably expect to save roughly $130,000 in paper costs.

In an October 2025 survey, 55% of respondents had used the container program and noted, “It's great! Quick and easy to use and return :)” “I like it! I really felt guilty about constantly throwing things away, so I'm glad there's an eco-conscious choice available now.”

The project has also driven more students to dine in, rather than taking food to go. This, too, is a meaningful result. HUDS’ dining halls are positioned to be a center point for community connection on campus. We know that there are vital health reasons to prioritize mealtimes and the nutritional, mental health and social benefits of sharing a meal with others. The annual World Happiness Report in 2025 found that “Those who share more meals with others report significantly higher levels of life satisfaction and positive affect, and lower levels of negative affect. This is true across ages, genders, countries, cultures, and regions.”

If the responsibility of being accountable for a reusable container when weighed against taking food to go leads more students to dine in, we view this as a positive outcome.

Finally, we believe this project serves as a model at the University for collaboration and creative problem-solving. In 2025, Harvard launched “Accelerating a Zero Waste Future: A Framework for Waste Stewardship.” The framework prioritizes waste prevention, reduction, reuse, and responsible recovery, and aligns with Harvard’s Sustainability Action Plan. During the framework planning, waste from dining to-go containers was a front-and-center theme because it is such a universal experience. HUDS’ rapid response to present a model solution has been held up as a model in reporting on roll-out of the framework, showcasing tangible success at an early stage.

Annual Recurring Costs (est)

MeeScan Annual Licenses for 13 stations:

$8,600.00

Container Replenishment (1,056)

$2,200

Bar Code Replenishment

$900

Equipment repair or replacement

$2,000

Total Recurring Costs

$13,700

Compostable Containers

Annual use of 600,000+ at $48.70 per case of 200 = approx. $146,100

In program set-up year alone, this is a savings of $84k

In ongoing operation, this is a savings of $132k

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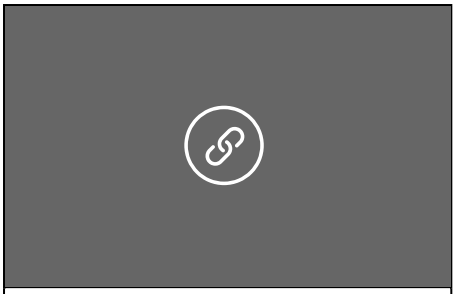

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