



Carleton University

2026 Campus Race to Zero Waste Case Study

Contact Info

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Focus of Case Study

AI-powered food waste tracking to inform menu decisions and drive student engagement through real-time data visibility, sustainability metrics, and incentive-based participation.

Detailed Description of Campaign or Effort

Carleton University Dining Services, operated by Aramark, implemented AI-powered food waste scanners at the Teraanga Commons Residence Dining Hall to better understand post-consumer waste and engage guests in sustainability efforts.

While the technology was introduced in September 2024, the primary focus of this case study is the 2025/2026 academic year, when the platform reached operational maturity with the launch of the operator dashboard (November 27, 2025). This phase enabled detailed food-level waste analysis and introduced gamification capabilities, allowing for incentive-driven sustainability campaigns.

The system uses AI and computer vision to analyze food waste from returned plates on a voluntary basis. A public-facing dashboard displays high-level metrics such as total waste versus zero-waste plates and sustainability equivalents (for example, emissions avoided or trees saved), while a separate operator dashboard provides detailed analytics on food waste trends.

Two key drivers shaped this initiative:

1. Using food waste data to inform menu design – Understanding which items are consistently wasted allows Dining Services to optimize menus, portion sizes, and production planning.
2. Promoting sustainability through guest engagement – Real-time visibility of waste data, combined with targeted campaigns and milestone-based incentives, encourages students to make more mindful dining decisions.

During the reporting period, over 75,000 plates were scanned, with an average participation rate of approximately 13 - 14% of daily diners. This provided a meaningful dataset to identify waste and behavior trends in a high-volume environment serving approximately 5,000 - 6,000 guests daily.

This initiative represents a shift from measuring waste for reporting purposes to using data as a practical operational tool, supporting both sustainability goals and improved dining outcomes.

Planning Steps & Timeline to Implement

- Early Summer 2024
 - Evaluated Nuvilab technology with vendor
 - Secured client approval (Carleton University)
 - Integrated technology into planned dining hall renovations
 - Started privacy and information security review
- Mid Summer 2024
 - Finalized ecology station design, including number and placement of scanners
 - Completed privacy and information security review
- Late Summer 2024
 - Equipment shipped and received on site
 - Power and network infrastructure completed by Carleton University
 - On-site installation and setup by Nuvilab
- September 2024
 - Project launch, including activation of scanners and public-facing dashboard
- November 27, 2025
 - Launch of operator dashboard

- Transition from baseline tracking to advanced analysis and early testing of gamified engagement features
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Resources and Stakeholders Involved

- Carleton University Dining Services (Aramark Canada)
 - Project lead, operational implementation, and funding of software platform
 - Campus Services, Carleton University
 - Project approval and infrastructure support (power, network integration)
 - University Legal Services, Carleton University
 - Privacy impact review to ensure compliance with institutional standards
 - Information Technology Services, Carleton University
 - IT security validation and system integration support
 - Nuvilab
 - Technology provider and implementation partner
 - Provided hardware as an in-kind investment supporting expansion into Canadian higher education
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Results of This Campaign Component

General Results

- Increased visibility and awareness of food waste among students
- Engagement driven by public dashboard
- Enabled data-driven discussions around sustainability with stakeholders

Measurable Impact

- 75,654 plates scanned over 110 days
- 16,528 zero-waste plates recorded
- 21.8% average zero-waste rate
- ~13 - 14% participation rate of total daily diners (~5,000/day)

Operational outcomes:

- Established reliable dataset for identifying waste trends
 - Enabled transition toward data-informed menu and production decisions
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What Would You Do Differently in the Future?

While initial onboarding was successful, ongoing communication with guests was not sustained at the same level.

This resulted in:

- Ongoing concerns around privacy
- Misconceptions about monitoring eating habits
- Misunderstandings regarding how data is collected and used

Future implementations will include:

- A continuous, high visibility communication strategy, not just launch-phase messaging
 - Clear and repeated messaging on:
 - Purpose of data collection and use
 - Privacy protections
 - Program goals
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What Advice Would You Give to Another College?

- Begin privacy and IT security reviews early to avoid delays
- Develop a sustained and structured communication plan, including:
 - Clear explanation of program goals
 - Transparent messaging around data use and privacy
- Be intentional with language and tone:
 - Encourage participation
 - Avoid language that may imply judgment or surveillance
- Ensure hardware is tamper-resistant:
 - Secure ports, enclosed systems
 - Account for curiosity in student environments

- Design the program to deliver both:
 - Operational value (data to drive decisions)
 - Guest engagement (awareness and incentives)