



2024 Campus Race to Zero Waste Case Study Macalester College

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Focus of Case study: Macalester piloted three initiatives in freshman residence halls aimed at promoting correct waste-sorting. Weekly audits were conducted to evaluate which solutions increase correct waste-sorting behaviors.

Detailed description of campaign or effort:

While Macalester College offers recycling and composting in all residence halls, students often do not sort their waste correctly. This means that the recycling and compost bins in these spaces are often so contaminated that their contents must be sent to a landfill or incinerator rather than being recycled or composted. This project implemented by the Macalester Sustainability Office aimed to address this waste diversion challenge by using experimental design to identify which behavioral initiatives most effectively improve waste-sorting behaviors.

During the spring 2024 semester, we piloted three interventions in two different residence halls. In each residence hall, a different intervention was tried on each floor. The three interventions were: increased signs about waste-sorting, the distribution of personal compost and recycling bins to students, and a green dorm certification program. We chose these interventions because they were relatively easy to implement and each took a different approach to behavior change. In addition to these three interventions, we held a semester-long waste-sorting competition between the six floors. We put up posters on each floor where residents could see how they were doing compared to other floors. We also organized multiple zero waste events in the residence halls to provide further education and evaluate what types of events, time of day, and location engaged the most people. These events included zero waste trivia, a track-your-trash challenge, a zero waste question of the day, and a DIY planter workshop. We collaborated with Macalester's Department of Residential Life to communicate with residents and implement these initiatives.

It was very important to us to evaluate the effectiveness of our programming to inform future planning, so we used multiple forms of data collection to assess our progress. Our primary form of data collection was weekly visual waste audits, where we looked at the recycling, compost, and trash bins on each floor and recorded the

rough percentage of correctly sorted items. We also noted commonly missorted items. This data helped us with adaptive planning and we adjusted our programming according to what was/not working. We also conducted two waste sorts, during which we weighed the amount of correctly vs. incorrectly sorted waste in trash, compost and recycling bins. We invited hall residents to participate in the waste sorts. Finally, we sent anonymous surveys and spoke to residents about their perceptions of the programming.

Planning steps & timeline to implement:

List out in bullet format each of the steps involved in planning.

- August 2023
 - We began to research other college's green dorm programming
 - We held a "steps to green your dorm" workshop at first-year Orientation, where we evaluated students' response to the information and a preliminary dorm habits survey
- September 2023
 - We began to develop a Qualtrics survey with our own list of sustainable zero waste habits and knowledge for the green dorm certification program. We developed a points system for green dorm certification
 - We added a goal-setting component to the green dorm certification survey to promote further behavior change (students were provided with a visual of their goals to post in their room)
- October 2023
 - We continued developing the Qualtrics survey
 - We decided that we wanted to develop a way to measure the impact of programming, selected waste-sorting accuracy as the main measurement
 - We reached out to Residential Life to inform them about the programming and gauge their interest in collaborating with us
- November 2023
 - We selected the three main interventions: increased signage, personal compost/recycling bins, and the green dorm certification program
 - We selected the six participating dorm floors based on custodial reports about waste-sorting in residence halls
 - We met with the director of programming in Residential Life to discuss specific areas of collaboration and solidify the plan for communicating with RAs/residents. She connected us with the directors of the two residence halls we were targeting, who served as our main points of contact for the remainder of the program.
 - We piloted the green dorm certification survey with an environmental studies class to receive feedback about length, clarity, and content.
 - We conducted a community waste sort pizza party of the six dorm floors to establish baseline data about waste-sorting accuracy. We invited volunteers to help to raise awareness about waste issues in the residence halls
 - We reached out to the Athletics Department and Environmental Studies Department to promote the event
 - We also promoted the event via flyers, the Mac Daily newsletter, and social media
- December 2023
 - We assigned different interventions to different dorm floors

- We finalized the Qualtrics green dorm certification survey
- We developed a material list and estimated budget and began to acquire materials we did not already have
- We developed a protocol for conducting visual waste audits
- January 2024
 - We designed new signage on Canva: general “sort your waste correctly!” and targeted signage for commonly missorted items
 - We reached out to Residential Life with messaging to send out to RAs and residents and finalized information about the plan for the semester. Several RAs indicated interest in helping with the program and actively promoted the programs throughout the semester.
 - We finalized the plan for the distribution of the compost/recycling bins.
 - We created a Google Sheet request form
 - We drafted an email to send to residents (with the request form) and asked Residential Life to send it out
 - We created flyers with QR codes to post on the two floors
 - We created a plan to door knock and recruited other student employees to help
 - We created a Google Sheet to track who received bins. A student employee delivered bins and a personal waste-sorting sign to residents’ rooms.
- February 2024
 - We began conducting weekly visual waste audits on the six floors. We also launched the pizza party competition, which required making a poster for each floor that we updated every other week with the results of the visual waste audits.
 - Based on student feedback, we purchased biodegradable bags for the compost bins (to help with cleaning)
 - We only distributed these to some students in order to experiment with how the bags would impact bin use
 - We modified our bin distribution plan to include two pizza and compost parties (residents came to grab a slice of pizza, play board games, and pick up a bin) in dorm lounges, which we promoted via email and flyers.
 - We continued multiple door-knocking efforts to distribute more bins
 - We officially launched the green dorm certification program on the two target floors
- March 2024
 - We distributed our first round of green dorm certification certificates
 - We rotated our signage and created a targeted sign about napkins/tissues, which our audits revealed as a common misconception.
 - We held a zero waste cookies and trivia event in a dorm lounge to help with education and promote green dorm certification
 - Due to success and interest, we expanded the personal recycling/compost program to all residence halls via the Mac Daily student newsletter
 - We hosted another community waste sort pizza party to get more detailed data and continue waste education efforts
 - We began planning for our Earth Week
- April 2024

- We renewed our push for green dorm certification and expanded it campus wide via the Mac Daily newsletter and flyers
- We developed and distributed anonymous Qualtrics feedback surveys about the programming (mostly focused on compost/recycling bins)
- We compiled visual waste audit data and examined trends
- We planned and hosted Earth Week in collaboration with Residential Life
 - We did a track your trash challenge where residents tracked what they put in the trash, recycling, and compost for a week. Everyone received zero waste stickers and was entered into a raffle for a reusable water bottle.
 - We collaborated with the Macalester's maker space to host an upcycle your planter event. People brought a waste item and upcycled it into a planter. We gave away spider plants to people.
 - We did an Earth Week question of the day via social media, Residential Life, and the Mac Daily newsletter and posted people's responses on social media. We asked for feedback about what would help people to be more sustainable.
- We planned and hosted a pizza party for the winners of the pizza party contest and other people who participated significantly in our programming

Resources and stakeholders involved:

Explain what budget or in-kind resources were needed, what if any campus dept's or groups supported the effort, what staff or volunteers were involved.

The project required collaboration with two staff members in Residential Life to communicate with residents, reserve lounge spaces, etc. For one event, we collaborated with Macalester College's maker space. We also reached out to Athletics, the Environmental Studies department, and other groups on campus to recruit volunteers for events and strengthen cross-campus partnerships. All departments were generally enthusiastic and responsive to our efforts.

One student employee led this project and was paid \$15/hour. The main student spent the entire 2023/2024 school year planning and implementing this project. Five other student employees assisted with at least one event and were also paid at a rate of \$15/hour. We also purchased recycling bins and compost bins to distribute in two residence hall floors (\$3-7 each). Based on student feedback, we later purchased a roll of 150 biodegradable bags for the compost bins (\$17). We also purchased pizza for the pizza parties and waste sort events (which cost between \$70 and \$250 per event).

Describe the Results of this campaign component:

- General results (*ex: attracted attention of campus president, campus paper did a news story on the event, etc.*)

Through this project, we strengthened our relationship with Residential Life and increased our presence in the residence halls. Our project attracted the attention of the Vice President of Student Affairs. She invited us to give a presentation to the entire Student Affairs team of more than 50 people from several departments, which helped us to raise more awareness about zero waste education efforts and ask for more interdepartmental collaboration. Students also showed a heightened awareness of sustainability

resources and our programming. They got involved and competitive in the floor-by-floor waste sorting competition. Students also commented that our events and programming made them think more about their behaviors and that they learned more about waste-sorting. People began to ask us more questions about how to sort their waste properly.

We also gained a greater understanding of how to implement these solutions that will inform our programming next year. For example, both general and targeted signage had a minimal effect on waste-sorting behaviors whereas the compost/recycling bins caused significant increases in waste-sorting accuracy and generated positive student responses. We learned about the best times and places to hold events, as well as what events generate higher participation.

- Specific measurable impact figures, if applicable (*Ex: Reduced contamination rate 13%, Gathered 316 pledges to recycle more, etc., 250 people engaged, etc.*)

Through this programming, we engaged ~207 students living on the six target dorm floors. We engaged over 50 additional people through our Earth Week programming and other events. We distributed approximately 70 personal recycling and compost bins to residents, green dorm certified ~15 people, and collected 10 weeks of data about waste-sorting accuracy on six floors. The two floors that received bins doubled their trash-sorting accuracy rates (from approximately 40% to 80% on one floor and 30 to 65% on another floor), which means that more waste was diverted from the landfill. Their waste-sorting accuracy rates were much more consistent compared to other floors. 100% of survey respondents agreed or strongly agreed that the recycling bins helped them to sort their waste more effectively and 76% of survey respondents agreed or strongly agreed that the compost bins helped them to more effectively sort their waste (the remaining students said the compost bins would have helped if they had received biodegradable bags to help with cleanliness). The compost/recycling bin solution was the most effective in increasing waste-sorting accuracy.

What would you do differently in the future?

This project was successful in helping us to establish a presence in the residence halls and developing a greater understanding of challenges and solutions related to zero waste education. One challenge we faced was that we started this programming during the spring semester, when first-year students had already established many of their waste habits and were busy with extracurricular activities and school work. In the future, we will incorporate the green residence activities into our orientation programming and begin it as soon as students reach campus so that we help students to develop better waste habits as opposed to trying to break poor ones. Because of the success of our programming, we are also planning to implement it on a larger scale (in all first-year residence halls) next year. For example, we plan to distribute personal recycling/compost bins and waste-sorting guides to all first-year students during our sustainability training.

The green residence program helped to increase our presence in residence halls, but we think it would be even more effective if we could utilize social capital on individual floors to encourage more positive waste-sorting behaviors and further integrate zero waste into campus culture. In the future, we are hoping to develop an Eco Rep program and/or more actively engage RAs to promote green residence activities on dorm floors and build community around sustainability.

In the future, we also plan to expand and more actively promote our green dorm certification program. It was the last of the three initiatives that we piloted and required more buy-in from participants. We received very positive

feedback from everyone who participated in this program. Next year, we will promote it further through Eco Reps, more zero waste education events (people can come participate in the event and also get certified), and further collaboration with Residential Life (we would like to incorporate this activity into at least one residence hall meeting each semester).

What advice would you give to another college that wanted to do a similar effort?

We would recommend that other colleges develop a solid and consistent protocol for data collection that incorporates multiple methods of data collection. One of the most valuable aspects of the program was the information it gave us about what engages people and changes their behavior. Our method of weekly data collection helped us with adaptive planning, which enabled us to make our programming more effective. Student feedback also helped to inform our approaches. We were sometimes surprised by what the most effective events were and student comments were key in understanding the “why” behind that. Using multiple forms of data collection gives a more complete picture of what is happening with waste management in residence halls and helps to deliver more data-driven waste education.

We would recommend close and early collaboration with other departments—we could not have effectively implemented this program without the support of Residential Life. They not only helped us to communicate with residents, but also offered valuable insights with regard to what type of programming works in the residence halls and other logistical suggestions. By communicating with Residential Life several months prior to starting programming, we ensured their support and modified our plans based on their questions and feedback. With regard to our compost/recycling bin program, we learned from our survey that many students strongly prefer to have biodegradable bags for their compost bins in order to keep them clean and we would recommend purchasing them to help students more actively utilize their bins.

Photos and Graphics:

Intervention 1: Increased signage



Caption: Examples of new signage. We experimented with general signage (please sort your waste correctly!) and targeted signage for specific items. We placed this signage above all trash/recycling/compost bins on each floor. We also placed the general signage on high traffic areas on the floors to promote a zero waste culture. We rotated the signage periodically and adjusted it based on findings from our waste audits about commonly missorted items.

Photo credit: Abby Lane

Intervention 2: Compost and Recycling Bins



Caption: Image of personal recycling and compost bins that we distributed to students (left). We also gave all students a personal waste-sorting sign along with the bins.

Photo credit: Abby Lane



Caption: A student employee preparing the recycling and compost bins for a pizza & compost party. We door-knocked and held multiple events in the dorm lounges to bring the bins directly to students.

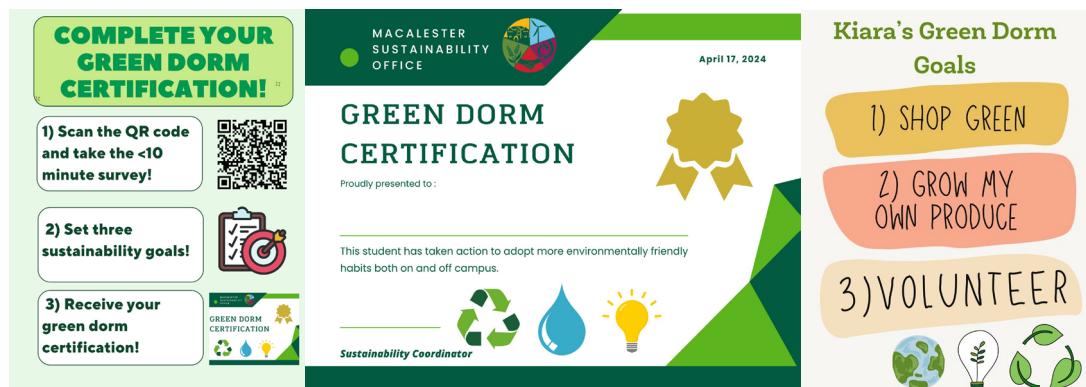
Photo credit: Megan Butler



Caption: Promotional materials for compost/recycling bin distribution.

Photo credit: Abby Lane

Intervention 3: Green dorm certification program



Caption: Promotional material for the green dorm certification program (left) and materials given to green dorm certified students (middle, right). We put up flyers to raise awareness. After students filled out the survey and became certified, we gave them a certificate and a visual representation of their goals.

Photo credit: Abby Lane

Pizza Party Competition



Caption: We posted the results of each weekly waste audit on each of the six dorm floors to provide student regular feedback about how they were doing (left). Students on a losing floor were upset that their floor was losing and retaped all of the trophies to make it look like they were winning, which we then used for a social media post to raise awareness of the competition (right). Many students at our events showed a general awareness of and interest in the competition.

Photo credit: Abby Lane

Events



Caption: Promotional materials for our waste sorts. We collected recycling, trash, and compost from different residence hall floors and invited students to weigh the amount of correctly sorted vs incorrectly sorted waste. Students commented that these events helped them learn more about how to sort waste and that they felt like they had made a difference.

Photo credit: Abby Lane



Caption: Students at our zero waste trivia event. We held this event in the main lounge of a first-year residence hall. We included a variety of questions about waste-sorting, reuse, and zero waste resources. We also gave away more compost/recycling bins.

Photo credit: Cade Klein



Caption: Students participating in our DIY planter Earth Week event. Students brought a waste item to upcycle into a planter and received a free spider plant to put in it. We also promoted our green dorm certification program and certified several new people.

Photo credit: Abby Lane



Caption: Images of the Earth Week question of the day activity that we promoted through Residential Life, the Mac Daily newsletter, and Instagram. Both students and staff/faculty participated. The responses gave us helpful feedback about our sustainability education initiatives.

Photo credit: Abby Lane



Caption: Example responses to our Earth Day question of the week (collected through a Google Form). We received ~33 thoughtful responses from both students and faculty/staff that we posted on our social media. The posts got about 50+ views. Several responses mentioned our green residence programming, including the compost/recycling bin program.

Photo credit: Abby Lane



Caption: Promotional materials for the “track-your-trash challenge” we implemented during Earth Week. 16 students and 3 staff tracked the amount of recycling, compost, and trash that they produced over the course of the week. This gave us useful information about waste diversion in the residence halls and what items are most commonly disposed of. Multiple participants told us about how informative and engaging the activity was.

Photo credit: Abby Lane



Caption: Our project attracted the attention of the Vice President of Student Affairs and we were invited to present to the entire Student Affairs team, which includes people from the Laurie Hamre Center for Health and Wellness, Athletics, Residential Life, the Center for Disability Resources, Career Exploration, and International Student Resources. We shared our data, explained our zero waste goals for the 24-25 school year, and spoke about opportunities for interdepartmental collaboration.

Photo credit: Kathryn Kay Coquemont

Other supplemental materials:

Macalester green dorm certification survey:

https://macalesterassessment.co1.qualtrics.com/jfe/form/SV_51IkTq4q2gOUtx4

Compost/recycling bin program evaluation survey:

https://macalesterassessment.co1.qualtrics.com/jfe/form/SV_d0hCWgB2OWjzlli

Zero waste trivia questions:

https://docs.google.com/presentation/d/1eORSIUd2_luagHz6RonYXoAlvUXZvsHySCpM-oR6h5Y/edit?usp=sharing