



2022 Campus Race to Zero Waste Case Study

University of Nebraska – Lincoln

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Focus of Case study:

The University of Nebraska-Lincoln designed and implemented a pilot project focused on standardizing recycling efforts on campus to reduce waste and improve recycling.

Detailed description of campaign or effort:

The University of Nebraska Lincoln (UNL) has not previously established a comprehensive recycling plan for the campus community to follow. Over time, this led to randomly placed, mismatched waste containers located throughout campus buildings and locally coordinated recycling programs that were often confusing, inconvenient, and inefficient.

Based on the need for a campus recycling standard, UNL designed and implemented its Recycling Pilot Project, intended to bring consistency to recycling across campus through two primary objectives of standardizing containers and aligning collection processes.

- **Container Standardization:** Create consistency in physical containers used on campus with streamlined graphics aligned with Recycle Across America color standards and shape-restrictive openings that clarify accepted materials. Containers placed “All in the Hall” in centralized, high traffic areas such as in hallways near restrooms and buildings entrances.
- **Process Alignment:** Eliminate locally coordinated recycling collection processes and replace with service of all centralized waste containers (landfill and recycling) by UNL Custodial Services daily. As part of the project, once weekly landfill collection in private offices and cubicles was discontinued and building occupants collectively take ownership of their waste by transporting both landfill and recycling materials to the centralized waste stations.



Through the pilot project, it was anticipated that UNL would observe a decrease in landfill waste and an increase in clean, correctly recycled materials, due to providing clear and concise visually focused graphics on the standardized waste stations and increasing mindfulness of the campus community related to their personal waste generation on campus.

Planning steps & timeline to implement:

- April 2019: Results of the Office of Sustainability's (OS) Sustainable Culture, Commuting, and Literacy survey (approximately 9,000 faculty, staff, and students) show over 93% of respondents identified recycling as a priority and want more recycling opportunities and education.
- August 2019 - July 2020: UNL engaged sustainability consulting firm, the Verdis Group, to develop a comprehensive plan for renovating recycling on campus. Primary recommendations included standardizing containers and processes for recycling collection campus-wide.
- June 2020: UNL was awarded grants from the Nebraska Department of Environment and Energy (NDEE) and the Nebraska Environmental Trust (NET) for the 'Development of a Comprehensive and Efficient Recycling Operation' to support the purchase of standardized containers.
- November 2020: Pre-pilot waste audits conducted to establish a baseline understanding of the waste stream composition in each pilot building.
- November-December 2020: Recycling Coordinator held virtual information sessions via zoom to provide opportunity for UNL community members to learn more and ask questions about the pilot project. A survey was also distributed to pilot building occupants prior to implementation of the pilot as a formal opportunity to provide feedback.
- December 2020: To evaluate the effectiveness and feasibility of key recommendations from the Verdis Group, UNL implemented the Recycling Pilot Project in eight campus buildings.
 - Buildings included in the pilot project were chosen to represent the differences found in buildings across campus (i.e. public-facing, classrooms, offices, labs, mixture) and provide an opportunity to evaluate potential challenges associated with each.
 - Since initial implementation, the pilot project has expanded to three additional buildings (11 total).
- March 2021, November 2021: Waste audits were conducted in each pilot building to reassess the waste stream composition, including contamination levels found in each stream at different intervals during the pilot project.
- May 2022: UNL Chancellor and his Executive Leadership Team approved the development of a phased implementation plan to establish the tenets of the pilot project as the campus-wide recycling standard.
 - The OS is currently developing the phased implementation plan, with a primary focus on high-traffic academic buildings. All waste stations in pilot project buildings will be retrofitted to the updated station design.



- The OS is also working with the University of Nebraska's Facilities Planning and Construction team to establish the use of standardized containers as the campus standard for new construction and major renovation projects as part of University Design Guidelines.

Resources and stakeholders involved

Budget

- Funding identified to purchase standardized containers:
 - NDEE grant award: ~\$175,000
 - NET grant award: ~\$200,000
 - UNL match: ~\$350,000

Stakeholders

- Waste Management and Recycling Project Coordinator and Refuse/Recycling Material Collectors: Partnered with the OS for the implementation and coordination of the project.
- Custodial Services leadership and staff: Provided feedback throughout the pilot project and assisted with the implementation of waste stations in pilot buildings.
- Association of Students of the University of Nebraska (ASUN) (student government): Passed resolutions of support for the program during the 2020 and 2021 senate terms.
- Building Maintenance Reporters (BMRs) from pilot buildings: Assisted with communication efforts to pilot building occupants both in preparation for and throughout the project; served as points of contact in individual pilot buildings and helped coordinate initial installation of containers and waste audits.

Describe the Results of this campaign component

General Results

- Widespread support for the pilot project from the campus community, specifically Custodial Services leadership and staff, pilot building occupants, and campus leadership, contributed to the overall success of the project.
- The pilot project implementation team collaborated with University Communications to publicize the project through articles in Nebraska Today:
 - <https://news.unl.edu/newsrooms/today/article/pilot-program-aims-at-realigning-recycling-university-wide/>
 - <https://news.unl.edu/newsrooms/today/article/recycling-processes-updated-across-eight-campus-buildings/>
- The OS created a series of short, engaging videos related to common recycling questions, specifically related to the Recycling Pilot Project, which were shared on the OS social media



channels. These videos were also shared on ASUN social media channels, increasing reach to the campus community. These videos received a total of 4,795 views.

- The OS partnered with two undergraduate courses in the Environmental Studies and Natural Resources departments to provide experiential, sustainability-focused learning experiences through conducting waste audits of the pilot buildings. This offered students the opportunity to learn more about the pilot project and become more aware of how to properly dispose of their waste items on campus.

Specific Measurable Impacts

- 111 total waste stations were placed throughout the 11 pilot buildings.
- Through the course of the pilot project, data collected through waste audit and truck scale data revealed trends of decreasing overall landfill waste being generated on campus and fewer recyclables being incorrectly placed into the landfill stream.
 - November 2020 (pre-pilot): 18% of landfill stream contained recyclable materials
 - March 2021 (during pilot): 12% of landfill stream contained recyclable materials
 - November 2021 (during pilot): 8% of landfill stream contained recyclable materials
- During the course of the pilot project, waste audit data continued to reveal notable levels of contamination within the plastic and aluminum stream. This data prompted separation of this stream into two separate collections streams (1- plastic bottles and containers, 2- aluminum cans) and required waste station design modification and collaboration with key stakeholders (Custodial Services and Waste Management and Recycling) to adapt their operations (August 2021). After separating the two streams, significantly less contamination in the aluminum stream was observed.
 - March 2021 plastic and aluminum stream: 14% liquid and 16% landfill content
 - November 2021 aluminum stream: 6% liquid and 7% landfill content

What would you do differently in the future?

In the initial design of the pilot project, research laboratories continued to receive regular landfill waste service, but classroom laboratories were classified as classrooms and trash cans were initially removed from these areas. Feedback from building leadership in a laboratory focused pilot building (both research and classroom laboratory spaces) revealed that the project team needed to reevaluate this classification due to concerns of 1) accumulation of landfill in the classroom laboratories if receptacles are not available; 2) potential safety concerns caused by transferring landfill waste (containing paper towels used for hand hygiene, protective gloves, and other similar refuse) that may have chemical contaminants from the laboratory to a central location, and; 3) added burden of waste management on teaching assistants and others responsible for overseeing classroom laboratories. Building



representatives argued that classroom laboratories are similar to research laboratories and therefore should be managed the same with respect to waste management.

The project implementation team collaborated with UNL's Environmental Health and Safety team to design a set of criteria for classroom laboratories to meet in order to continue receiving landfill service from Custodial staff. It was determined that landfill receptacles should be provided in all laboratory spaces (research and classroom laboratories) where chemicals, biological agents, and/or radioactive materials are used. This is identified through the presence of hazardous materials or infrastructure to handle such (e.g., fume hood, safety shower, etc.). In classroom laboratories that meet this identification, they continue to receive landfill waste service from Custodial Services.

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

Building strong partnerships with key stakeholders on campus was essential to our success. A crucial partnership that contributed to the success of this program was working closely with UNL's Custodial Services team. Throughout the process, multiple feedback sessions were conducted with the Custodial staff working in the pilot buildings, which provided them the opportunity to provide feedback on the pilot project including both successes and challenges. Having the support of both Custodial leadership and staff that were working in the buildings was essential to the success of the pilot project.

Photos and Graphics

Mismatched waste containers in campus buildings (pre-pilot)



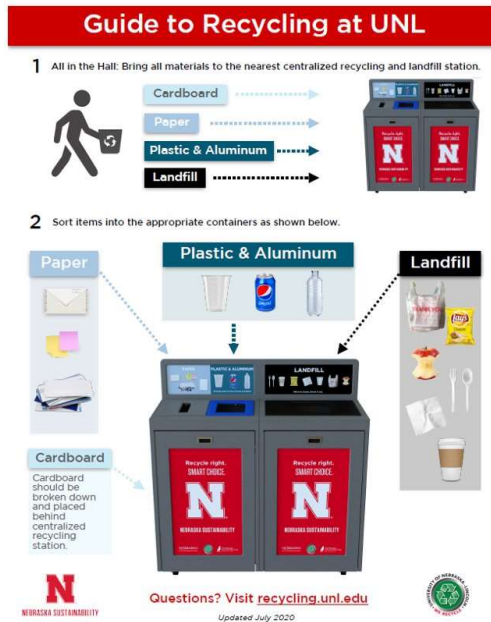
Pilot Project containers and educational materials



Original waste station design used in Recycling Pilot Project



Updated waste stations design (will be implemented as campus standard)



Process visualization created to aid in educating pilot building occupants about process changes and materials accepted for recycling through email communication



Undergraduate students in Environmental Studies 101 class conducting waste audit

**Have you heard about UNL's
Recycling Pilot Project?**

Please be sure to take all waste items to the
nearest waste and recycling station!

Learn more at: <https://go.unl.edu/recycling-pilot>

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NEBRASKA SUSTAINABILITY

Pilot project information was included on digital signage displayed within each pilot buildings to further educate building occupants and users