



**2022 Campus Race to Zero Waste Case Study Competition:
Waste Reduction Efforts Category**



***Dallas College enhances Campus Zero Waste Infrastructure
for Cardboard, Light Bulbs, Scrap Metals,
and hosts Community E-Waste Events***



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Focus of Case study

Dallas College focused on three areas for the Campus Race to Zero Waste Competition: Student and Public Education, Zero Waste Infrastructure, and E-Waste Events.

Detailed description of campaign or effort

Dallas College has a proud RecycleMania Legacy led by the North Lake and Richland Campus and all Campuses participating since 2008. In 2022, Dallas College focused on three areas for the Campus Race to Zero Waste Competition: Student and Public Education, Zero Waste Infrastructure, and E-Waste Events.

Student and Public Education

The [Dallas College Race to Zero Waste Education Hub](#) was made public this year. The College received the Education and Awareness Case Study Award in 2021 for this education resource and recycling practices in arts, construction, and sciences. The number of Zero Waste Education Hub users increased from 1,700 in 2021 to 6,655 in 2022.

Zero Waste Infrastructure

Dallas College Facilities Management and Planning Department expanded materials recovery of cardboard, scrap metal, and lightbulbs at several locations. Scrap metal recovery bins were installed at six locations, providing collection for lighting ballasts and other metal construction waste. Cardboard balers were installed at two new locations, making a total of three campuses with balers, two additional balers have been purchased and are set to be installed by August 2022. Bulb Eaters for safely disposing of mercury-containing fluorescent light bulbs were used at several campuses in support of major LED lighting retrofit projects.

E-Waste Events

Dallas College hosted a series of free electronic waste recycling events at seven campuses. Students, employees, and community members were able to recycle computers, network and communications devices, CRTs and LCDs, point of sale equipment, wires and cables, office equipment, batteries, appliances, audio and video equipment, and consumer goods. Most of the items were free to recycle; however, there was a charge by the vendor for certain items to cover the cost of environmentally friendly disposal.

Planning steps & timeline to implement.

- **August 2021:** We partnered with United Electronics Recycling (UER) for co-hosting a series of electronic waste events open to students, employees, and community members.



- **January 2022:** Costs of zero waste and recycling infrastructure for cardboard, lightbulbs, and scrap metals were calculated. Updated the Zero Waste Education Hub to be publicly accessible and added new content.
- **February 2022:** Secured funding by collecting contributions from related departments and stakeholders. Strategic campus locations were chosen based on predicted impacts to our waste streams.
- **March/April 2022:** Determined internal and external support needs. Conducted visual-based waste audits to assess the infrastructure and logistics needs for upcoming waste contract renewals.
- **May/June 2022: Installed** new electric power for cardboard balers and updated infrastructure to support scrap metal collection. Facilities and Sustainability departments worked together to craft Technical Approach questions for waste disposal service RFP.

Resources and stakeholders involved

Team members:

- Ted Spradley, Sustainability Project Coordinator, Environmental Services, Facilities Management and Planning Department
- Steve Chambers, Senior Manager, Environmental Services, Facilities Management and Planning Department
- Lori Delacruz Lewis, Assistant Director of Sustainability Education, Sustainability Office, Social Responsibility, and Inclusion
- Sonia Ford, Assistant Director of Sustainability, Sustainability Office, Social Responsibility, and Inclusion
- Faye Davis, Assistant Director of Sustainability Outreach and Engagement, Sustainability Office, Social Responsibility, and Inclusion
- Brandon Morton, Assistant Director of Sustainability Operations, Sustainability Office, Social Responsibility, and Inclusion
- Georgeann Moss, Senior Director of Sustainability, Sustainability Office, Social Responsibility, and Inclusion

Budget and In-Kind Resources:

- Dallas College purchased four balers at \$13,642 each including installation, for a total of \$54,568 not including power infrastructure. The estimated installation cost for electricity to power each baler was approximately \$5,000 per location.
- Dallas College contracted services with Green Planet for environmentally responsible disposal of hazardous wastes such as mercury-containing fluorescent lightbulbs.
- Dallas College contracted services with United Electronics Recycling (UER) for environmentally responsible recycling and disposal of materials from community collection events.



Describe the Results of this campaign component

The Zero Waste Education Hub was promoted in the employee newsletter and the student newsletter.

The E-Waste Events were promoted in the [college event calendar](#), [college web site](#), City of Dallas Zero Waste <https://twitter.com/dallaszerowaste?lang=en>, <https://www.facebook.com/DallasZeroWaste/>, and social media. The e-waste events were also promoted in local media such as the [Natural Awakenings DFW online and print magazine](#), and the [Green Source DFW environmental news and community resource](#).

The zero waste infrastructure collection areas are for college use only and have been promoted internally to operations division areas.

Student and Community E-Waste Event Results

Seven events were held at seven campuses collecting 2,779 pounds of electronics waste from 22 people. College campuses where the events were hosted included Brookhaven Campus, Cedar Valley Campus, Pleasant Grove Center, Mountain View Campus, North Lake Campus, Richland Campus, and West Dallas Center. Table 1 shows the participants and pounds collected per campus.

Table 1. Summary of participants and materials collected at seven e-waste events.

Campus Location	Date of Event	# Of Community Participants	# Of Student and Employee Participants	Total E-Waste Collected for Recycling
Brookhaven Campus	9/16/2021	1	0	180
Cedar Valley Campus	6/16/2022	2	1	1,023
Pleasant Grove Center	7/21/2022	0	0	0
Mountain View Campus	4/20/2022	3	2	484
North Lake Campus	3/24/2022	0	0	0
Richland Campus	5/5/2022	9	4	1,072
West Dallas Center	2/17/2022	0	0	20
Total		15	7	2,279

Zero Waste Infrastructure Enhancement Results

Dallas College installed balers at four new locations, scrap metal recycling collection areas at six new locations, and lightbulb crushing station that can be relocated to support lighting retrofit projects at any campus location. Table 2 summarizes the results.



Table 2. Summary of upgrades to college infrastructure for zero waste strategies.

Campus Location	# Of Baler(s) Installed	# Of Scrap Metal Bins Installed	# Of Bulb Eaters Installed
Brookhaven Campus	1	1	1
Cedar Valley Campus	1	1	
Coppell Center		1	
Bill J. Priest Center		1	
Richland Campus / LeCroy Center	1	1	
North Lake Campus	1	1	1
Eastfield Campus	1		1
Total	5	6	3

Zero Waste Education Hub Results

Dallas College provides this online publication education resource for people to learn about zero waste strategies for home, school, business, and government. Topic areas include circular economy, composting and vermicomposting, electronics, fast fashion, plastic pollution crisis, and overall recycling solutions. Table 3 summarizes the number of users per each topic area.

Table 3. Summary of content analytics of Zero Waste Education Hub.

Content Area of Zero Waste Education Hub	# of Users
Dallas College Race to Zero Waste Hub home page	6,655
Participate	330
Backyard Composting	268
Circular Economy	332
Electronics	26
Fast Fashion	146
Plastic Pollution Crisis	267
Recycling	234
Vermicomposting	154
Videos	275

What would you do differently in the future?

People – include more stakeholders from various departments at the beginning of the strategic planning and communications. This would have been a smoother and quicker roll-out for enhancing recycling infrastructure throughout the 22 locations of Dallas College. However, without having individual



conversations with each stakeholder to help build consensus we may not have had the successful implementation achieved during the spring 2022 semester.

Planet – Improve documentation and data collection rather than relying on visual-based waste audits by utilizing technologies such as sensors and cameras to generate regular reports to track areas for improvement. Going forward, we will try to integrate Courier routes using our fleet vehicles to also collect things for their return trip, improving logistics and reducing dedicated routes for Recyclables moving between locations. Another future improvement will be to approach vendors about reducing overpackaged products (especially plastic-based) for the foodstuffs they provide to students, faculty, and staff at all locations.

Prosperity – Encore Recycling, our scrap metal hauler, is also in the process of innovating sustainable solutions, and growing pains sometimes require us to be flexible. However, by partnering with a growing company, we also find ourselves in a position without the normal overhead costs associated with this kind of service. Our goal is to ensure our new programs yield a net benefit to the college, earning revenue from recyclables, and minimizing hauling fees or other costs to ensure the program will continue.

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

People - Sustain communications and planning with contracted services employees such as the custodial staff team. Find out early if you can achieve recycling infrastructure improvements with internal resources long before discovering the solution requires contracted external service provides to provide the sustainable solution.

Planet – Assessment of logistics efficiency to minimize use of trucks, consumption of fuel, and production of emissions. This not only streamlines pick-up schedules, reducing costs, but also reduces air pollution from the hauler trucks.

Prosperity – Collect data at the beginning with waste audits to better understand the waste stream to arrive at a better cost agreement with the recycling and waste provider. Because of the time spent by custodians collecting, sorting, and relocating the recyclables to their appropriate locations, this is especially important for those with in-house custodial staff.

Discuss options with your haulers to minimize their costs (Labor Time & Fuel Consumption). We were able to negate most of our Trip Costs by agreeing to only request service when we have large loads.



Photos and Graphics

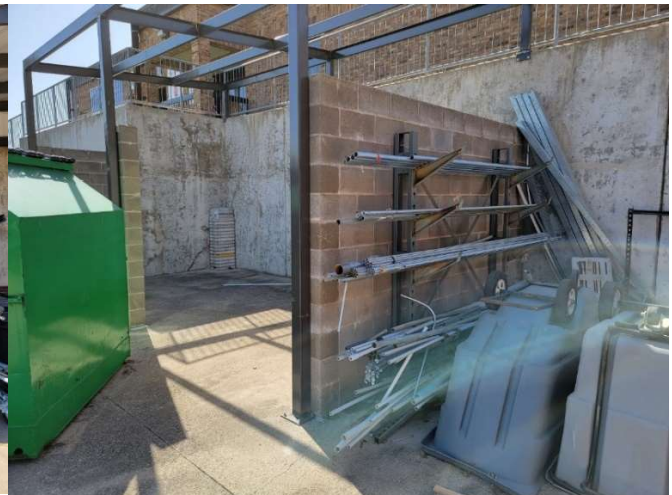
Picture 1. Our pilot cardboard baler at Richland Campus revealed how much cost-saving is possible by baling our cardboard rather than filling the dumpsters.



Pictures 2 & 3. Before & After: Baler area prep for installation at North Lake Campus.



Pictures 3 & 4. Before & After: Baler area prep for installation at Brookhaven Campus, which also doubles as the bulb crushing site.



Picture 5. Day of baler installation on flatbed truck with forklift at Brookhaven Campus and North Lake Campus.

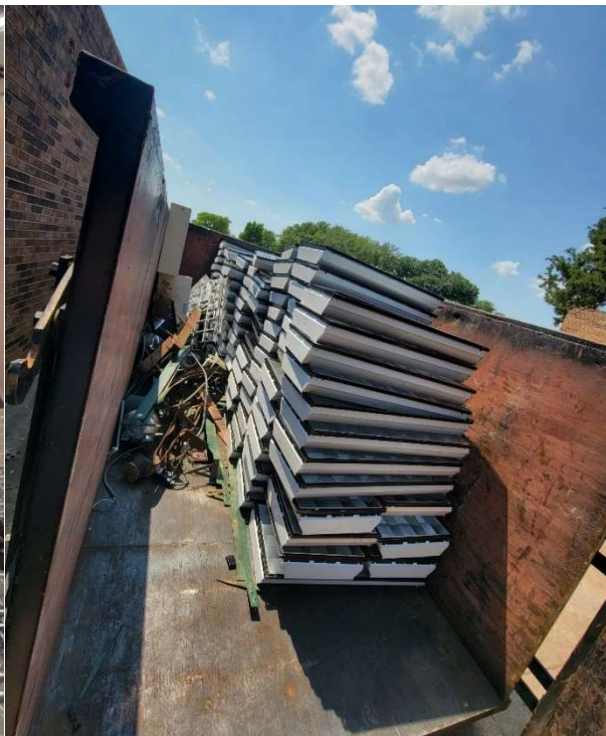


Pictures 6 & 7. Nine Cardboard Bales Picked up by International Paper at El Centro Downtown Campus.





Pictures 8 & 9. Lighting conversion from T-5 / T-8 to LED lighting, Metal Scrap Picture shows previous ballasts were recycled. LED fixture shown for comparison.



Pictures 10 & 11. Mercury-containing fluorescents are gathered for responsible disposal using a Bulb Eater. Crushed bulbs are deposited in the metal drum the Bulb Eater is mounted to. Each drum holds approximately 1500 crushed bulbs. The Bulb Eater has a HEPA filter and produces a vacuum seal to prevent mercury dust inhalation. After each drum becomes full, the Bulb Eater is removed and re-mounted on an empty drum; the filled drum is sealed pending HazMat hauler Pick-up.

