2024 Campus Race to Zero Waste Case Study
University of Maryland Baltimore

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Focus of Case study:
The University of Maryland, Baltimore (UMB) implemented a Self-Service Waste Program where individual deskside bins were removed, and central waste bin systems were utilized.

Detailed description of campaign or effort:

Self Service Program Background

The intent of the program is to meet the needs for UMB building occupants and the staff designated to remove building waste in an efficient and responsible manner. Accurate and intentional waste disposal allows UMB to meet its waste minimization efforts and lessen its negative environmental impacts.

The campus-wide project was initially proposed by the Office of Sustainability in 2022, modeled off an initiative that the University of Maryland School of Nursing implemented in 2018. The rollout of the project began in January 2023, and completion of conversion occurred in February 2024, though continued education and outreach is occurring post-rollout.

Operations

Custodial technicians from Environmental Services (EVS) collect trash, cardboard and paper recycling, and mixed metals, glass, and plastic recycling regularly at all designated locations, with the exception of individual office spaces. Trash is emptied every day (excluding weekends), while cardboard and paper recycling as well as mixed metals, glass, and plastic recycling are emptied as needed.
Individual offices operate under a “self-service waste removal model.” Faculty and staff will be responsible for placing their waste in larger, conveniently located common receptacles.

Why Self-Service?

It has been estimated that custodial staff spends over a quarter of their time removing waste from individual offices. In order to increase the amount of time EVS staff can dedicate to cleaning and sanitizing common spaces, and also to eliminate potential waste sorting errors, all staff are asked to manage their own desk-side waste. This program also helped to standardize waste bins and signage, which were different in each building across UMB's campus, creating confusion for building occupants to properly dispose of their waste. A 2021 survey of UMB students, faculty, and staff found that the most common reasons why members of the campus community don't recycle were:

- Lack of bins/bins being inconveniently located
- Bins being poorly labeled
- Lack of knowledge about what can be recycled

Additional Benefits

Because UMB is a state agency, it must abide by the Maryland Recycling Act (MRA) which mandates that State government achieve a waste reduction goal of at least 30%. Before this initiative, UMB has not met this goal, and did not have an accurate method of collecting its mixed-stream recycling data from its waste hauler. Since the approval of Self-Service, justification for a 30-yard dumpster that could be weighed was made and the purchase of the dumpster was approved.

Planning steps & timeline to implement:

Self-Service Project, 2021-2022													
Phase/Milestone	**Dec-21**	**Jan-22**	**Feb-22**	**Mar-22**	**Apr-22**	**May-22**	**Jun-22**	**Jul-22**	**Aug-22**	**Sep-22**	**Oct-22**	**Nov-22**	**Dec-22**
Phase 1a-Preliminary Research	SON case study, research bins, create proposal												
Phase 1b-Begin Regular Meetings with EVS Leadership		Meetings held every 2 weeks to stay on track with project tasks, updates, etc. (continues into 2023/2024)											
Phase 1b-Formal Proposal				Present to AVP of Facilities and UMB President									
Phase 1c-Communications Plan			Work with Communications and Public Affairs for education and outreach strategies, waste sign re-vamp, create a Self-Service website, gather feedback from Reduction Working Group and other campus stakeholders										
Phase 1d-Meetings with Stakeholders								Preliminary EVS huddles, present to Deans and VPs					
Phase 1e-Procurement								Purchasing and storage logistics for ErgoCan bins (continues into 2023)					
Phase 1f-Binventories						Individual building walk-throughs with floor plans to inventory and map existing waste infrastructure. Creation of "Current Conditions" and "Proposed" plans (continues into 2023)							

Self-Service Project, 2023-2024													
Phase/Milestone	**Jan-23**	**Feb-23**	**Mar-23**	**Apr-23**	**May-23**	**Jun-23**	**Jul-23**	**Aug-23**	**Sep-23**	**Oct-23**	**Nov-23**	**Dec-23**	**Jan-24**
Phase 1b-Begin Regular Meetings with EVS Leadership	(continueation of 2022) Meetings held every 2 weeks to stay on track with project tasks, updates, etc												
Phase 1e-Procurement	(continuation of 2022) Purchasing and storage logistics for ErgoCan bins												
Phase 1f-Binventories	(continuation of 2022) Individual building walk-throughs with floor plans to inventory and map existing waste infrastructure. Creation of "Current Conditions" and "Proposed" plans												
Phase 2b-EVS Staff Meetings	In-depth meetings with EVS staff in individual buildings on procedural changes, project resources for occupants, and Q&A												
Phase 2c-Building Manager Coordination	Coordination and cmmunication with individual Building Managers and emails to building occupants on rollouts coming to individual buildings												
Phase 2d-Building Rollouts	Rollout of new program in individual buildings by Office of Sustainability and Environmental Services staff												

Resources and stakeholders involved:

Stakeholders

Role	Supporters
Leadership Support (Individuals	-Dr. Bruce Jarrell, University President -Dr. Dawn Rhodes, VP of Administration and Finance -Anna Borgerding, AVP of Facilities and Operations
Stakeholders for Signage Updat	-Communications and Public Affairs -Environmental Services -Facilities and Building Managers -Faculty and Student Groups -Reduction Working Group Members -School of Nursing's Green Team (GreenSON)
Stakeholders for Rollout	-Environmental Services -Facilities and Building Managers -Strategic Sourcing and Acquisition Services (Procurement) -Supply Services (Procurement)
General Stakeholders	-Building Occupants
Implementers during Rollout	-Office of Sustainability -Environmental Services -Building Managers

Estimated Budget:

Calculated from Binventories.

Note: In-kind resources included utilizing existing Slim Jims when appropriate. Two buildings, SMC Campus Center and School of Nursing, kept their existing bins as they aligned with the triple-bin station set up and were consistent throughout the building. Signage was added to the bins to maintain consistency.

School/Division	Binventory Count	ErgoCan Sets Est.	Slim Jim Sets Est.	Sign Sets Est.	Est. Total Bin Cost	Est. Total Sign Cost	Est. Total Cost
A&F	677	26	58	95	$ 26,134	$ 2,185	$ 28,319
HSHSL	138	32	0	12	$ 17,888	$ 276	$ 18,164
SOD	585	21	65	97	$ 24,739	$ 2,231	$ 26,970
SOL	201	45	10	25	$ 27,155	$ 575	$ 27,730
SOM	3485	394	155	440	$ 251,246	$ 10,120	$ 261,366
SON							
SOP	339	33	23	76	$ 23,047	$ 1,748	$ 24,795
SSW	164	15	14	36	$ 11,185	$ 828	$ 12,013
STUDENT AFFAIRS	98	0	19	43	$ 3,800	$ 989	$ 4,789
Grand Total	**5687**	**566**	**344**	**824**	**$ 385,194**	**$ 18,952**	**$ 404,146**

Actual Budget

Calculated post-implementation

School/Division	Actual Bins Removed	ErgoCan Triple Sets Placed	ErgoCan Double Sets Placed	Triple sign Sets Placed	Double Sign Sets Placed	Actual Bin Cost	Actual Sign Cost	Actual Total Cost
A&F	687	34	0	96	2	$ 18,811	$ 2,238	$ 21,049
HSHSL	225	35	0	12	0	$ 19,364	$ 276	$ 19,640
SOD	342	48	7	62	0	$ 29,138	$ 1,426	$ 30,564
SOL	224	68	0	33	0	$ 37,621	$ 759	$ 38,380
SOM	1849	218	170	183	269	$ 183,495	$ 8,325	$ 191,820
SON		0		45	14.5	$ -	$ 1,257	$ 1,257
SOP	335	23	1	42	24	$ 13,094	$ 1,334	$ 14,428
SSW	211	18	0	27	2	$ 9,959	$ 652	$ 10,610
STUDENT AFFAIRS	39	4	10	25	0	$ 5,901	$ 575	$ 6,476
Grand Total	**3912**	**448**	**188**	**525**	**311**	**$ 317,381**	**$ 16,842**	**$ 334,224**

Describe the Results of this campaign component:

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

This initiative was approved by UMB's president, Dr. Bruce Jarrell, and was presented to the Deans and VPs. Five stories in *The Elm,* a UMB publication, featured the UMB Self-Service Waste initiative, and the University was awarded a Maryland Green Registry Sustainability Leadership Award by the Maryland Department of the Environment (the Self-Service Waste Project was one of the highlighted projects that won UMB the award).

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

All thirty-six (36) campus-owned buildings that are serviced by the UMB Environmental Services custodial staff were converted to the Self-Service Waste model between January 2023 and February 2024. At least 3,900 individual, desk-side trash cans were collected, with an estimated 1M individual can liners avoiding the incinerator. This also equates to approximately 25,500 hours of EVS labor saved from removing individual bins and $17,000 saved in purchasing individual liners annually (see following tables for calculations).

STAFF/LABOR SAVINGS		NOTES
A- Total cans removed	3,912	
B- Time saved per can (min)	1.5	
C- Total time saved per day (A*B) min	5,868	
D- Total time saved per day (hours)	97.8	
H- Hourly wage of EVS	$15.00	based on 15.00/hour
I- Total Cost savings for each day (H*D)	$1,467.00	
J- Total Cost Savings per week	$7,335.00	
K- Total Cost Savings per year	**$382,887.00**	261 work days
L- Total time saved per week (hours)	489	
M- Total time saved per year (hours)	**25,525.80**	

MATERIAL SAVINGS		NOTES
E- Liner cost	0.017	assumed cheapest liner cost
A- Total cans removed	3,912	
F- Total liner cost saved (A*E) per day	$66.50	
G- Cost saved per week (F*5)	$332.52	
L- Total Cost Savings per year on liners**	$17,357.54	261 work days
N- Total liners not sent to incinerator per week	19,560	
O- Total liners not sent to incinerator per year	**1,021,032**	

Assumptions: It takes approximately 1.5 minutes to empty and re-line an individual bin. This includes placing the trash/recycling into the appropriate larger container for EVS to later take to the loading dock and does not include removing dirt/debris from waste receptacles. Each trash can was emptied once per day (5 days a week) with a yearly working day count of 261 and the cheapest liner was also the smallest liner used in lining individual bins.

What would you do differently in the future?

If we had the capacity, engaging more building occupants in person would have been ideal. However, having a team of two full-time equivalent staff and two fellows for most of the project duration proved difficult for engaging all building occupants. Aside from electronic methods of education and outreach, the UMB Office of Sustainability relied on its Environmental Services Staff, building managers, working group members, and other sustainability champions to help spread the word.

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

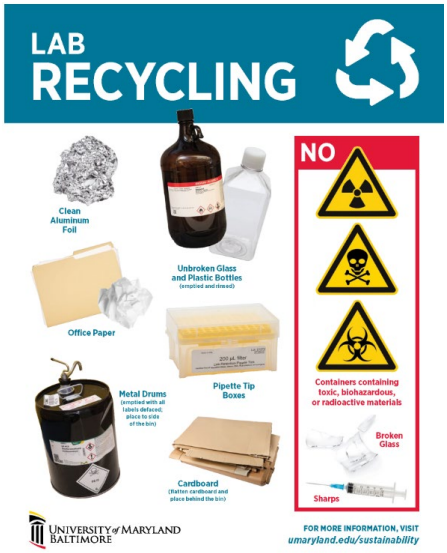
Garner buy-in from the top and have them reiterate the importance of the project. The UMB Office of Sustainability tied this initiative to the University's Core Values and the cost of implementing the new bins came from each schools' budget. This made it bigger than an Office of Sustainability initative and turned it into a university-wide initiative.

For data collection, ensure an accurate count of bins collected after a building rollout with proper coordination and communication. There were times where estimates had to occur due to removed small bins being relocated from the loading dock mid-rollout instead of after completion. Additionally, there were instances where bins were removed after a building rollout was complete but not included in the final counts. We would also recommend

removing individual bins the same day of rollout as it's harder to track and remove after-the-fact due to reluctance.

Photos and Graphics:

Redesigned Waste Signage



Self-Service is Coming Two-Pager for EVS Staff

Self-Service Waste Model at UMB

WHAT ARE THE CHANGES?

- Mixed recycling liners are now blue
- Staff and faculty will place waste in common receptacles instead of personal desk-side bins
- Common receptacles will be conveniently located throughout each floor and will consist of clearly labeled triple stations (mixed recycling, paper/cardboard, and trash)

WHY?

- To help UMB reach the State of Maryland's recycling requirement of at least 30% as a state institution
- To support the goals in Administration & Finance's Strategic Plan
- To align with UMB's core values

THE PROCESS

- Will be placing new bin sets strategically, removing old bins that do not comply with the new standards, and removing all small individual office bins

What to Expect

DAY OF THE CONVERSION

- Place slim jims in correct locations and hang vinyl signs above
- Set up new ErgoCan bins
- Remove old bins, including desk-side bins
- Hand out cards to occupants

QUESTIONS YOU MAY GET

- "Can I keep my bin?"
  - Yes, but it won't be serviced by EVS
- "Why is this happening?"
  - Research shows that centralized waste stations decrease contamination; this model will help us reach our 30% recycling rate for the State of Maryland, which we are currently not meeting

Sef-Service One Pagers for Occupants

Self-Service Waste Model at UMB

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To watch a short, informational video about the project, scan the QR code:

Thank you for your participation as we work to improve waste collection and diversion at UMB in support of our core values.

Questions? Email us at: sustainability@umaryland.edu

Self-Service Messaging placed on all campus digital boards

Self-Service Waste Model at UMB

WHAT ARE THE CHANGES OVER THE NEXT YEAR?

- Staff and faculty will place waste in common receptacles instead of personal desk-side bins
- Common receptacles will be located throughout each floor and will consist of clearly labeled triple stations (mixed recycling, paper/cardboard recycling, and trash)

WHY?

- To help UMB reach the State of Maryland's recycling requirement of at least 30% as a state institution
- To support the goals in Administration & Finance's Strategic Plan and UMB's core values

Thank you for your participation as we work to improve waste collection and diversion at UMB in support of our core values.

Learn more about the initiative and when your building will be converted at: *umaryland.edu/evs/self-service-waste*

Where Did My Waste Go? Quarter Sheets for Occupants

WHERE'D MY BIN GO?

Environmental Services and the Office of Sustainability are rolling out a self-service waste model.

Flip over

WHAT?

Building occupants will place waste in common receptacles instead of personal desk-side bins. Common receptacles will be conveniently located throughout each floor and will consist of clearly labeled triple stations (mixed recycling, paper/cardboard, and trash).

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To watch a short, informational video about the project, scan the QR code:

Don't forget to break down your cardboard boxes before recycling!

For more information, visit umaryland.edu/evs/self-service-waste

Questions? Email: sustainability@umaryland.edu

3/31/23 Social Media Post linked to Elm Article

Caption: Our self-service waste initiative is underway with 14 buildings completed to date! This new system for waste collection removes individual desk-side bins, and faculty and staff are responsible for bringing their waste to centrally located receptacles that have clear signage to educate occupants about where materials should go. Read more about how this program aligns with UMB's core values in The Elm article linked in our bio.

3/5/24 Recycling Common Mistakes Post for continued educations

Caption: Here is a reminder of common recycling mistakes around campus. Swipe to see an explanation as to why these can't be recycled!