



*Let's Recycle Better, Together.*

# BIN LABELS & SIGNAGE

WEDNESDAY, MAY 14TH  
1:00 TO 2:00 PM ET



# Today's Panelists



**Evelyn Amara Ferreira**

*Zero Waste & Compliance Lead*

**San Francisco International Airport**



**Molly Longton**

*Program Manager*

**University Sustainability Practices**

**Arizona State University**

# Stick Around at The End...

## Product Demo with Rae Ann Dos Reis



# Next Up:



- Labels 101 Primer
- Live consultation.
- Participate in discussion or just listen in.

Look for registration link in the chat and with email tomorrow

# Join the Discussion

From your toolbar:



Share your experience  
& opinions

Look for links  
to resources

Type direct questions  
for panelists



# SFO Waste Sorting Infrastructure

Compliance, Research, and Programming

May 14, 2025



Evelyn Amara Ferreira, Zero Waste Lead

---

1

SFO Commitment to Sustainability

2

2016 Signage Studies

3

Bin Design and Labeling Requirements

4

Design Lessons and Recommendations

5

What's Next: Aiming for Zero Waste

6

Contact Information

# SFO's Commitment to Sustainability





# SFO Strategic Goals and Objectives



**Delivering an airport experience  
where people and our planet  
come first.**

## Take Bold Climate Action

- 4.2 Inspire the public and industry partners to **take bold climate actions.**
- 4.3 Achieve **net zero carbon by 2030** for airport-controlled emissions
- 4.4 Achieve **net zero energy by 2030**
- 4.5 Become a **zero-waste campus** for airport-controlled municipal solid waste (MSW) and construction waste.
  - 4.5.1 From 2022 levels, **reduce landfill-bound MSW generated per passenger by 70%** by 2028.
  - 4.5.2 Achieve a **90% waste diversion** rate by 2028.
  - 4.5.3 Achieve a consistent **contamination rate less than 5%** across all waste streams by 2028.

# CA + SF Materials Management Regulations

**California has set the target to reduce GHG emissions 40 percent below 1990 levels by 2030.**

(CA Senate Bill 32, Pavley, Chapter 249, Statutes of 2016)

- [CA SB1383 \(2012-2022\)](#)  
**Short-Lived Climate Pollutants:  
Organics Waste Reductions**

Sets California's organic waste disposal reduction target of 75% from 2014 levels by 2025

- **Provides Mandatory Organics Collection Services to All Residents and Businesses**
- **Requires Education and Outreach to the Community**
- **Promotes Procurement of Recycled Organics Products**
- **Establishes Food Recovery Programs**
- **Secures Access to Recycling and Food Recovery Capacity**
- **Monitors Compliance and Conducting Enforcement**

Jurisdictions, organic waste and edible food generators, facilities, and haulers are all subject to penalties for non-compliance.

- [City of San Francisco \(2009\)](#)  
**Mandatory Recycling and Composting Ordinance**

Applies city-wide for both residential and commercial spaces. Achieved 99% service compliance.

- [CA 827 \(2019\)](#)  
**Requires recycling and composting services state-wide (including Airports)** Commercial establishments must have clearly visible and labeled customer-facing recycling and compost collection bins wherever a landfill bin is located except in restrooms. Full-service restaurants are exempt.

- [CA AB341 \(2012\) + AB1826 \(2020\)](#)  
**Mandatory Commercial Recycling** Requires businesses and multi-family residential dwellings of five units or more that generate four or more cubic yards of commercial solid waste per week to implement recycling and composting programs, on or after July 1, 2012. On or before July 1, 2020, businesses must provide organics and recycling containers at front-of-house to collect waste generated from products purchased and consumed on the premises (AB827, McCarty). These containers must be placed adjacent to trash and be visible, easily accessible, and clearly marked.

- [CA AB2176 \(2004\)](#)  
**Recycling at Large Events** Requires operators and organizers of large events and venues to develop and implement waste reduction plans that include recycling strategies, and to report on the results of their efforts to the designated local agency/city.

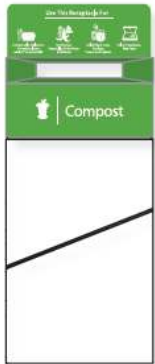
# 2016 Signage Studies



# 2016 Signage Studies



INSTRUCTIONAL  
GRAPHICS  
SHOULD BE AT  
EYE LEVEL ON A  
VERTICAL PLANE



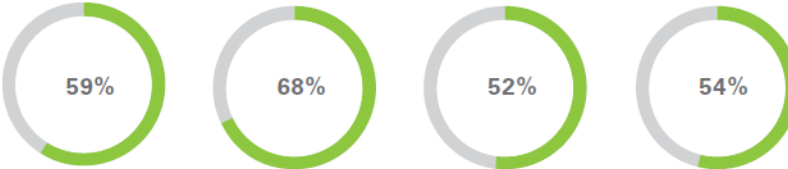
SHOULD BE LARGE ENOUGH  
FOR PASSENGERS TO SEE  
FROM A DISTANCE



REFINEMENT OF  
ICONOGRAPHY TO BE  
LESS ABSTRACT

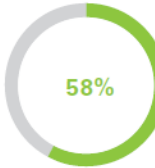
## PERCENT OF WASTE ACCURATELY TOSSED

T2 FOOD COURT    T2 PRE-SECURITY    T3 HOLD ROOM    T3 CONCOURSE

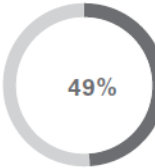


## TOTAL PERCENT OF WASTE ACCURATELY TOSSED

SECOND STUDY

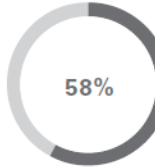


FIRST STUDY

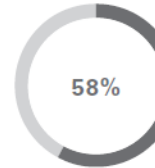


## TOTAL PERCENT OF WASTE DIVERTED

FIRST STUDY



SECOND STUDY



ICONS ARE PREFERRED TO  
TEXT, ALTHOUGH SOME TEXT  
IS STILL NEEDED

EMPHASIS ON CONTEXTUAL  
RELEVANCE OF DEPICTED  
OBJECTS AND THEIR  
MATERIALITY

# 2016 Messaging Study

1

SYMBOLS



2

SYMBOLS  
TEXT



compost waste recycle

3

SYMBOLS  
TEXT  
SORTING ICONS



compost waste recycle



4

SYMBOLS  
TEXT  
SORTING ICONS  
EDUCATIONAL MESSAGE



compost waste recycle



5

SYMBOLS  
TEXT  
DESCRIPTIVE TEXT



compost

food scraps  
paper cups  
soiled paper  
cardboard and paper  
containers  
compostable plastic  
utensils and containers



recycle

metal cans  
glass bottles  
paper  
plastic containers  
and bottles



waste

plastic bags and  
wrappers  
milk and juice boxes  
ceramic dishware

## IMPLICATIONS

A mixture of text and icons is ideal for users, but the messaging needs to be clear and concise.

Least Sorting

Least Diversion

Less Accurate

Most Sorting

Most Diversion

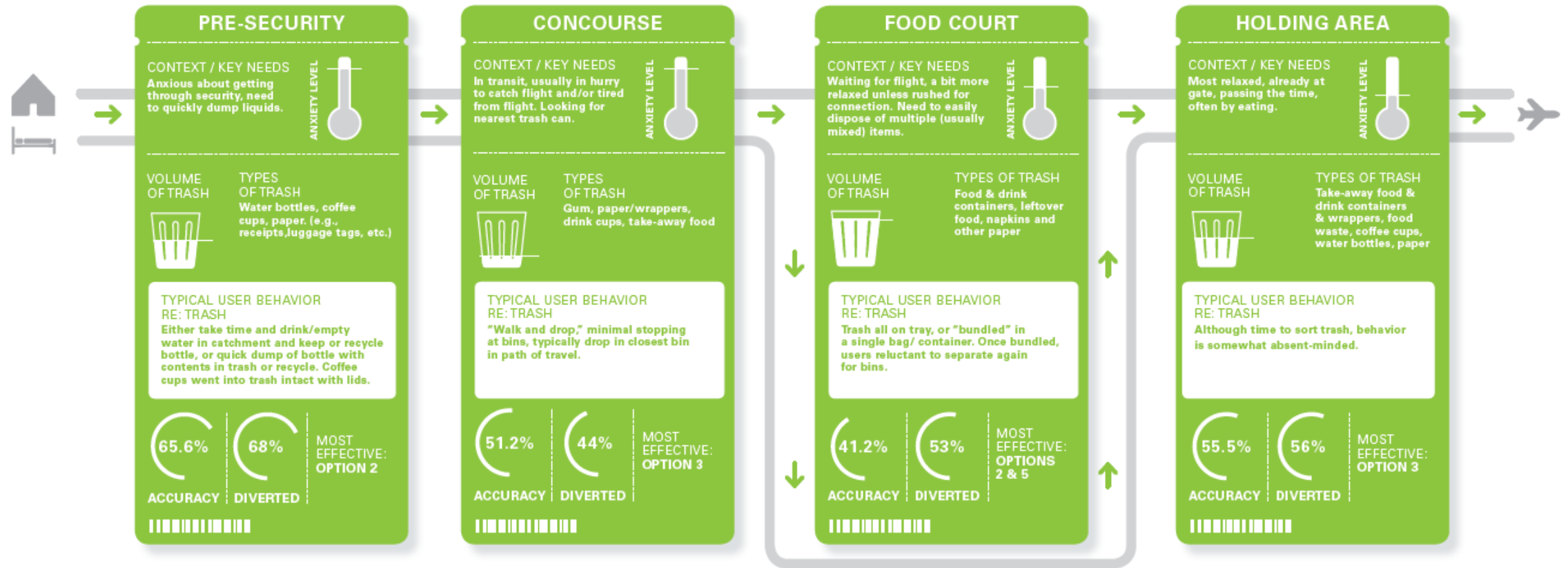
Most Accurate

Least Sorting

Least Accurate

# Context + The User Journey

The majority of discarded trash came from departing passengers with varying waste disposal needs and behaviors as they traveled through the airport:



## IMPLICATIONS

Most users are in a rush and anxious to quickly dispose of items. Limited trash types simplify design of options.

## IMPLICATIONS

Needs high visibility and simplicity as users are in transit with limited focus or time to spend on bins.

## IMPLICATIONS

The added complexity of co-mingled materials and quantity of items require greater guidance for sorting.

## IMPLICATIONS

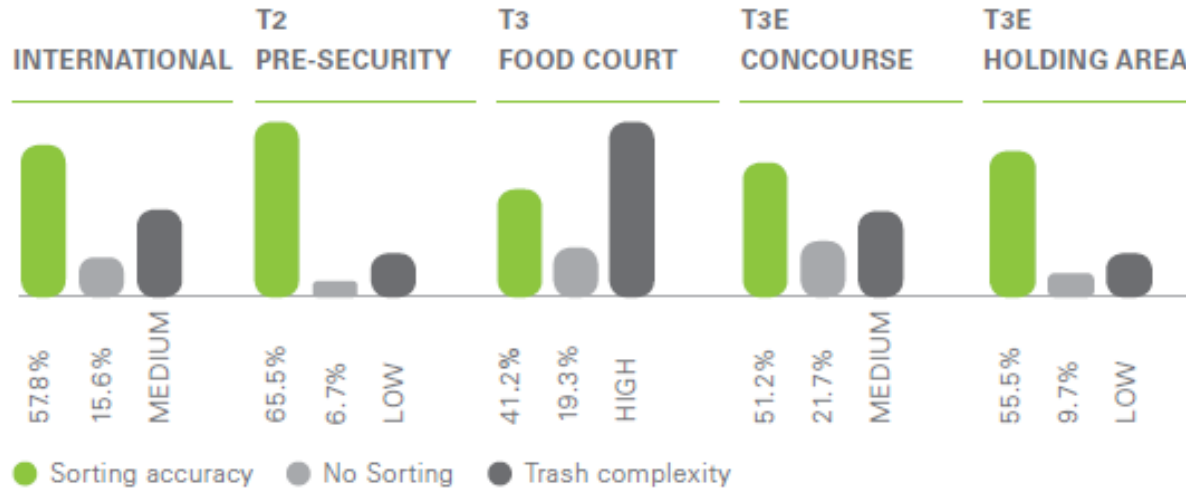
Waiting passengers may have the capacity for more information at holding areas.



# Behavior at the Bin

## 7 THE THRESHOLD FOR SORTING IS LOW

The more complex the trash, the less likely users are to sort. Levels of complexity and accuracy vary by location:



## THE PSYCHOLOGY OF SUSTAINABLE BEHAVIOR



## IMPLICATIONS

Increased sorting options add complexity and decrease accuracy. Bins and messaging need to be clear and simple enough to grab someone's attention in just a few seconds.

## RECOMMENDATIONS

MESSAGING NEEDS TO BE CONCISE, OBVIOUS & VISIBLE

THE MORE INSTRUCTION, THE BETTER

ONE SIZE DOES NOT FIT ALL

REDUCE ROOM FOR ERROR

BE CONSISTENT THROUGHOUT TERMINALS

EXPLORE ADDITIONAL SUSTAINABLE MESSAGING

# Waste Bin Design and Labeling Requirements



# CA SB1383 Waste Bin Design Requirements

[SB1383](#), Short-Lived Climate Pollutants Regulations, Section 18984.9 (b) (1)

- **BIN PLACEMENT:** Commercial businesses (Airport and tenants) must provide collection **containers for organic waste and recyclables in all areas where disposal (trash) containers are provided** for customers, except in restrooms.
  - However, if the business (Airport and/or tenants) does not generate any of the materials that would be collected in a specific container, then it does not have to provide that particular container.
- The business shall provide or arrange for **organic waste collection services** for employees, contractors, tenants, and customers, including supplying and allowing access to an **adequate number, size, and location of containers with sufficient labels or container color.**
- **BIN COLOR:** The lid or body of the container is the correct designated color provided through the organic waste collection service provided by the jurisdiction. (CCR Section 18984.7)
  - Note: A commercial business is not required to replace functional containers that do not comply with the color requirements prior to the end of the useful life of those containers, including containers purchased prior to January 1, 2022, or prior to January 1, 2036, whichever comes first.
- Learn more: <https://calrecycle.ca.gov/organics/slcp/collection/systems/>



# CA Waste Bin Labeling Requirements

**SB1383**, Short-Lived Climate Pollutants Regulations, Section 18984.8

**AB 827**, Solid waste: commercial and organic waste: recycling bins; [AB827 policy summary](#)

## BIN LABELS

**AB 827** | Requires customer-facing collection containers to have “**educational signage**” that is **visible, easily accessible, and clearly marked** in accordance with state law and local ordinances.

- This law targets businesses that sell products meant for immediate consumption (Food & Beverage)
- Full-service restaurants are exempt from providing properly labeled containers for patrons but must provide properly labeled **recycling and organics collection containers next to trash containers for employees** to separate post-consumer recyclables and organics.

**SB1383 Section 18984.8** | Container Labeling Requirements

- Must **include text and/or images / graphics**
- Indicate primary **materials accepted and prohibited** in that container
- Containers can be imprinted with label requirements





# Training and Education Requirements

**SB1383**, Short-Lived Climate Pollutants Regulations

## Requirements

- Commercial businesses are required to educate employees on proper recycling (AB827)
- Commercial businesses shall annually provide information to employees, contractors, tenants, and customers about organic waste recovery requirements and about proper sorting of organic waste. (SB1383)
- Commercial businesses shall provide information to new tenants before or within 14 days of occupation of the premise (SB1383)
- SFO Rules and Regulations now also require waste training

## SFO Next Steps

- In-Person Trainings
- New Employee Trainings
- Video Trainings (NEW)
- Website Content
- Behavior Change Campaigns
- Identify informational touch points:
  - Tenant Lease Agreements
  - Tenant Work Letters
  - Green Business Program
  - At badging + onboarding
  - At MRAs



# Design Lessons & Recommendations





# Bin Trio Design

## Starbucks' CA SB1383-compliant bins

### Pros:

- Complies with both SB1383 and AB1276
- Color-coded bins

### Cons:

- Icons and labels are too small
- Signage is closer to waist level than eye level
- Identical bin openings



## ↑ SFO's 2021 waste bin trios

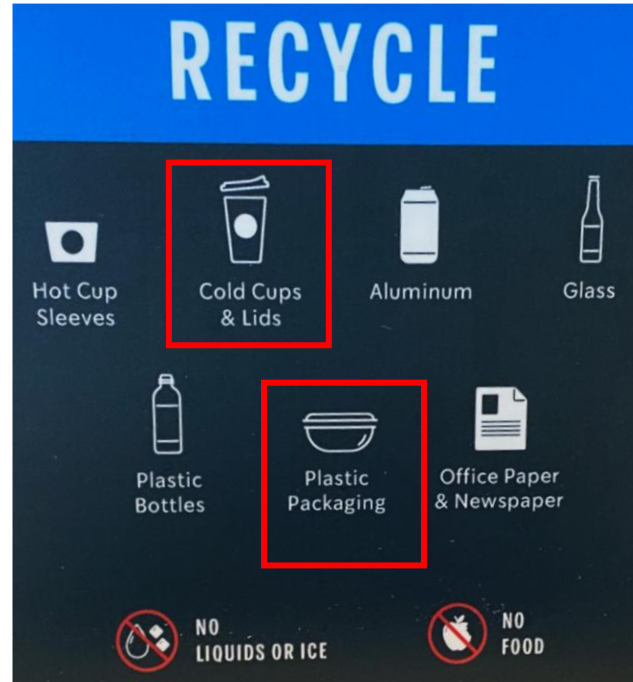
### Pros:

- Bright color coding
- Distinct waste bin openings

### Cons:

- Icons are small and unlabeled
- Signage is at or below waist-level
  - Labels are not compliant with SB1383

# Bin Labels



## Pros:

- Signage complies with SB1383
- Includes labels, not just icons
- Simple instructions on prohibited items

## Cons:

- Icons and labels are too small
- Monochromatic icons require interpretation
- Prohibited items are not comprehensive
- Signage may not be customized to local waste hauler sorting guidelines
- No liquid collection



# Airport Signage

## Airport-specific Challenges

- International travelers
- Language and literacy barriers
- CA's complex sorting requirements
- Pre-security / Post-security / Food Courts
- Time sensitivity
- Minimalist design aesthetic

## Signage + Bin Goals

- Test efficacy of photo-based signage
- Simplify waste streams
- Test (simple) words
- Know audience / users
- Design signage to Airport-provided materials



- Food and napkins only
- Bottles and cans only
- Everything else



# Recommendations Summary

## Signage, Labels

- Know your users
  - Public
  - Office employees
  - Janitorial staff
  - Contractors
- Customize signage to use-case
- When in doubt, test it out
- Opt for photo-based signage
- Use words sparingly and intentionally
- Consider simplified waste streams and instructions

## Waste Bins

- 3-streams
- Color-coded bins
- Strategic placement
- Provide liquid collection
- Identify waste bin trios with frequent overflow to ensure sufficient # of bins
- Audit tenants for proper front-of-house and back-of-house bin placement and labeling
- Audit waste bin setup in employee buildings and areas

## MRAs

- Audit MRA waste bin compliance, signage sizes, styles, etc.
- Standardize signage across facility
- Standardize compactor and dumpster colors
- Consider translated instructional signage
- QR-code accessible sorting guidelines
- Post signage in breakrooms

## Education

- Develop an employee training strategy
- Develop simple educational materials
  - Training videos
  - Flyers / 1-pager
  - janitorial guide,
  - Website
  - kitchen and breakroom posters
- Identify and update informational and educational touch points
- Issue tenant reminders or require tenants inspect their own bins
- Conduct regular waste audits
- Provide feedback, follow-ups
- Enforcement measures OK

# What's Next?

## Aiming for Zero Waste





# Zero Waste Initiatives

## Regulating Food Ware Accessory Handouts (2022)



# Food Donation Program (2017, 2022, 2025)



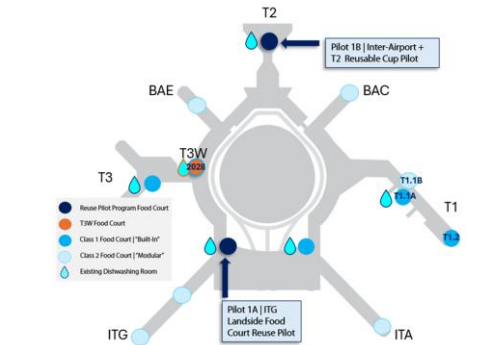
## Plastic-free Food Ware and Beverages



# Zero Waste Infrastructure Pilots (2026)



## Expanded Zero Waste Infrastructure (2027- 2030)





# Priority: Address Contamination

## Maximize diversion. Prevent contamination.

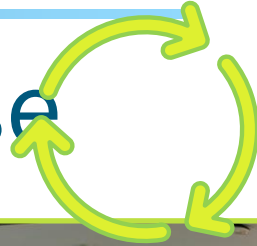
- Airport's waste streams are contaminated **58%** of the time
- At Airport food courts, waste is missorted **45%** of the time.
- Disposable food ware is missorted 63% of the time.
- Disposable food ware is **5%** of Airport's waste stream.
- SB1383 requires minimal contamination. SFO goal of **<5%** contamination for its waste streams.

## Reduce landfill-bound waste

- SFO generated **1099 tons** (2.12M lbs.) of disposable food ware in 2023 = \$217K in waste hauling costs.
- SB54 classifies PLA-lined fiber food ware as landfill
- Consequently, as of 1/1/2025, most food ware provided at SFO is ultimately landfill-bound.



# SFO's Vision for Reuse



## Demonstrate leadership

**SFO's vision** is to “inspire the extraordinary” and inspire bold climate actions.

**SFO's mission** is to deliver an airport experience where people and planet come first.

Committed to achieving **zero waste by 2030**

## Offer convenience and an elevated user experience

**Reusables are inclusive and intuitive.**

They are a globally recognized and accepted practice. Waste sorting, recycling, and composting are not.

They **eliminate confusion, frustration, and consequent apathy of waste sorting.**



# Thank you

**Evelyn Amara Ferreira**, Zero Waste and Compliance Lead

SFO Sustainability + Environmental Operations

[Evelyn.Ferreira@flysfo.com](mailto:Evelyn.Ferreira@flysfo.com) | [sustainability@flysfo.com](mailto:sustainability@flysfo.com)



<https://sustainability.flysfo.com>

# Zero Waste

at the most innovative university



**Molly Longton** (*she/her*)  
Program Manager  
University Sustainability Practices



A large, white, three-dimensional ASU sign is mounted on a tall, white, rectangular pedestal. The sign features the letters 'ASU' in a bold, sans-serif font, with a stylized sunburst or fan-like graphic integrated into the letter 'S'. The pedestal has a large, rectangular, perforated metal panel near its base. The background consists of a clear blue sky and the tops of trees with bright yellow leaves.

# Arizona State University

4 main campuses: Tempe,  
Downtown Phoenix,  
Polytechnic, West

Global locations and online  
learning network

183,000 + students

# University Sustainability Practices

Ensuring ASU meets its sustainability goals and initiatives



**Strategize and  
Measure**

**Engage**

**Practice**



Copyright © 2020 Arizona Board of Regents



# Sustainability pillars

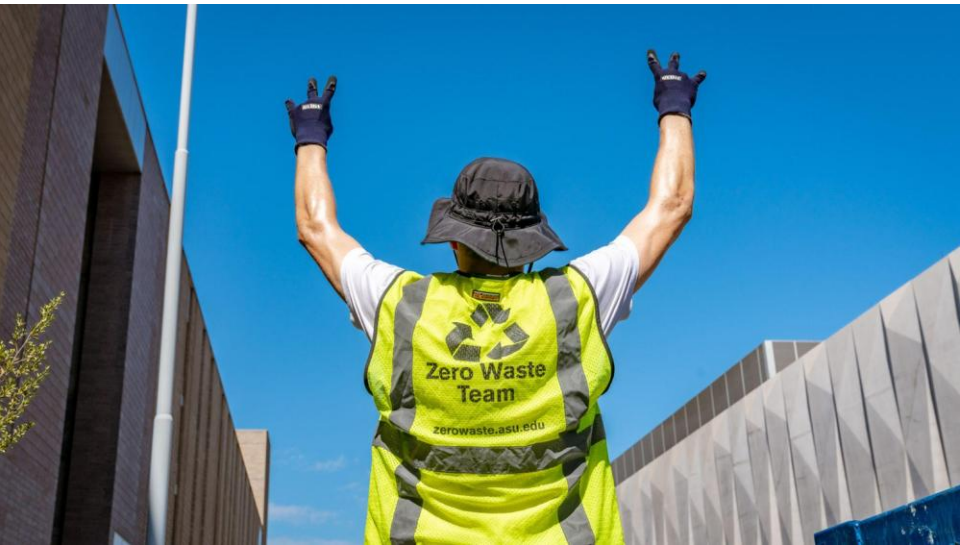
**Climate  
Action**

**02.  
Materials  
and  
services**

**03.  
Stewardship  
of place**

**04.  
Campus  
culture**

**05.  
Leadership,  
education  
and  
innovation**



**What we do:** Zero Waste champions on-campus waste reduction and recirculation with Facilities Management, OUA/CPMG, Business Operations & USP.

- **Unify and standardize** campus collections, bins and messaging.
- **Collect** specialty recycling material.
- **Analyze** the wastestream.
- **Work with partners** to address opportunities in the stream.
- **Manage** the waste service contract for ASU **and inform** other policies that affect the waste stream.

A low-angle, upward-looking photograph of several palm trees against a clear blue sky. The trunks of the palm trees are visible on the left and right sides, with their fronds reaching towards the top of the frame. A yellow rectangular box is overlaid on the right side of the image, containing the title and a list of initiatives.

## Zero Waste Initiatives

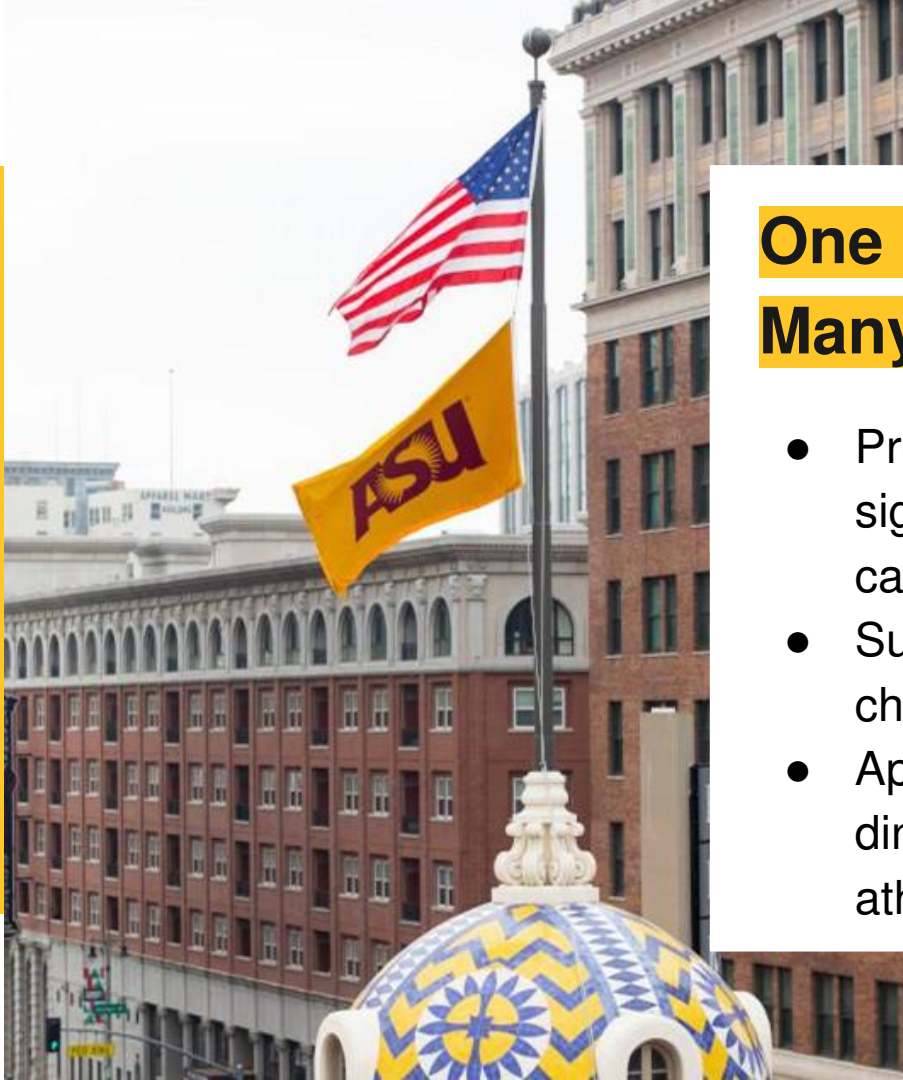
- Specialty recycling
- Waste sorting events
- Residential compost program
- Office compost program
- Ditch the Dumpster: move in and move out
- Green Games

# Previous Signage

- Labels used to be inconsistent or unclear
- Hard to identify items by text alone
- Limited accessibility across ASU locations







## One University, Many Places

- Provide consistent branding and signage across all ASU campuses
- Support Zero Waste and behavior change through clear visuals
- Applicable to diverse settings: dining, offices, events and athletics

# Label Development Process

- Developed internal bin standards.
- Label templates and signage guidelines developed with Comms team.
- Bin label guide maintained and updated as needed.
- Adaptable layout options for indoor, outdoor, wall-mounted, stadium, etc.





# Photo Library

- Photoshoot of commonly disposed items by stream.
- Images used to support clarity and match real-world materials.
- Ongoing process: items added or removed as materials change.



## Material Outline

 Recents  Starred



Name 	Who can access	Modified
 Aquafina-plastic-bottle-med.png	 29 members	11/10/2015 6:34 pm
 Aquafina-plastic-bottle-sm.png	 29 members	11/10/2015 6:34 pm
 AthleticShoes-lrg.png	 29 members	2/15/2016 2:44 pm
 AthleticShoes-med.png	 29 members	2/15/2016 2:45 pm
 AthleticShoes-sm.png	 29 members	2/15/2016 2:45 pm
 AthleticShoes-xlrg.png	 29 members	2/15/2016 2:42 pm
 bagel-cream-cheese-lrg.png	 29 members	11/18/2015 4:51 pm
 bagel-cream-cheese-med.png	 29 members	11/18/2015 4:51 pm
 bagel-cream-cheese-sm.png	 29 members	11/18/2015 4:52 pm
 bagel-cream-cheese-xlrg.png	 29 members	11/18/2015 4:51 pm
 Balast-side-lrg.png	 29 members	11/6/2017 12:53 pm
 Balast-side-xlrg.png	 29 members	11/6/2017 1:11 pm
 Balast-top-xlrg.png	 29 members	11/6/2017 1:07 pm
 BananaPeel-lrg.png	 29 members	11/10/2015 6:34 pm



# Visual Consistency Across Labels

- Standard color coding:
  - Green** = Compost
  - Blue** = Recycle
  - Maroon** = Donations
- Same image used across label versions to build recognition



# Adaptable to Different Settings

- Labels tailored for the environment.
- Outdoor vs indoor bins.



# Tailored for Specific Locations

- Stadiums only have **recycle and compost**.
- Athletic bins feature photos of typical game-day items (nacho trays, cups).
- Prevents confusion with real-world examples.



# Bonus Messaging

- Athletic bins have extra space for side signage.
- Promote ASU sustainability ranking (#1 from AASHE).
- Share transit tips, refill stations, etc.





Enjoy game day  
without the  
parking hassle



Take a Valley Metro bus  
or light rail

Park free at any park-and-ride location, then  
ride the light rail to Mountain America Stadium,  
Home of the ASU Sun Devils.

#### Bus stops:

- Destinations throughout the Greater Phoenix  
area.

#### Light rail stops:

- Downtown Phoenix campus.
- Mountain America Stadium at  
Veterans Way and College Avenue.
- Phoenix Sky Harbor International Airport.
- Sports and cultural venues.

Commute with your discounted student  
U-Pass or employee Platinum Pass.

**ASU** [parking.asu.edu/transit](http://parking.asu.edu/transit)

Repeatedly  
ranked

#1

innovation

ASU ahead of MIT and Stanford  
— U.S. News & World Report

sustainability

ASU ahead of Stanford and UC Berkeley  
— Sustainability Tracking, Assessment & Rating System

global impact

ASU ahead of MIT and Penn State  
— Times Higher Education

**ASU**

Think before  
you throw.



**Zero Waste**  
Reduce | Reuse | Recycle  
[zerowaste.asu.edu](http://zerowaste.asu.edu)

ZeroWasteASU  
 @ZeroWasteASU  
 zerowasteasu

**ASU**

Reuse

Refill

Recycle



**Zero Waste**  
Reduce | Reuse | Recycle  
[zerowaste.asu.edu](http://zerowaste.asu.edu)

ZeroWasteASU  
 @ZeroWasteASU  
 zerowasteasu

**ASU**



# Internal Printing

- Signs printed by ASU Print & Imaging Lab.
- Fast turnaround for damaged or outdated signs.

# Case Study

## Student Union Compost Update

- Catering switched to compostable utensils.
- Photos of new utensils taken and added to **compost** label.
- Removed plastic utensils from **landfill** label.
- Update applied only in the Student Union where product change occurred.



## Compostable paper



## Food



[ZeroWaste.asu.edu](https://zerowaste.asu.edu)



ZeroWasteASU



@ZeroWasteASU



zerowasteasu

## Compostable paper



## Wooden cutlery



## Food



[ZeroWaste.asu.edu](https://zerowaste.asu.edu)



ZeroWasteASU



@ZeroWasteASU



zerowasteasu





# ASU Bins and Labels



**Zero Waste**  
**Reduce | Reuse | Recycle**

Email [recycle-q@asu.edu](mailto:recycle-q@asu.edu) if you find an unlabeled or mislabeled bin.



# Community



**Use case:** For daily centralized commingled recycling in offices, classrooms, hallways, kitchenettes and public spaces.

**Variations:** (1) Recycle  
(2) Landfill

**Artwork:** 1 vertical placements

**Specs:** 11" x 17"

**Serviced:** ASU Custodial Services

**Procurement:** (1) Recycle  
(2) Landfill

**Suggested marketing:** Recycle big list



## Additional Resources

- [ASU Bin and Label Guide](#)
- [Zero Waste Website](#)
- Email [recycle-q@asu.edu](mailto:recycle-q@asu.edu) if you have any questions.



# Questions?







## *Do you have resources to share?*

- Examples of effective custom signage
- Pilot study results
- Case study reports
- Other relevant resources?

**Share links in the Chat**

*Chatlog will be provided to attendees, first name only*

## Today's Program Online



- Recording
- Presentation slides
- Resources
- Chatlog

*Link will be emailed in coming days*

## Archive of Past Programs



- Centralized office collections
- Developing Bin Standards
- Rebuilding confidence in recycling
- Reuse programs

**+ More**



# Database of Academic Studies

Waste Signage & Bin Design Studies

File Edit View Insert Format Data Tools Extensions Help

100% 123 Calibri 11

N29:P29 Study did not distinguish whether the improved sorting behavior was caused by the simple prompt value of having the signs vs the how-to informational details listed on the signs.

	B	C	E	F	G	I	J	K	L	M	N	O
1	Academic Studies About Impact of Bin Designs, Placement & Signage on Recycling Behavior											
2	Focus #1	Focus #2	Title	Authors	Year	Abstract	Access Online	Synopsis	Key takeaway #1	Key takeaways #2	Key takeaways #3	
3	Note: This database is intended to catalog studies, surveys and other research projects related to recycling / waste signage and bin design. We invite anyone familiar with relevant studies not listed here, or working on new research to reach out to network or add to this catalog. Alec Cooley at alec											
4	Signage		Comparative Analysis of Visual Triggers in Waste Management	Ahmed, Khanani & Koshy	2016	University of Toronto Miss	<a href="https://cleanriver.com/re">https://cleanriver.com/re</a>	Tested different sign	Found higher rate o	Simpler signage took less time for people		
5	Words v images	Non-recycling	Distance-dependent processing of pictures and words.	Amit, Algom & Trope	2009	A series of 8 experiments i	<a href="https://psycnet.apa.org/c">https://psycnet.apa.org/c</a>		(oversimplification) Picture are more effective for items that pe			
6	Convenience		Recycling in Multifamily Dwellings: Does Convenience Matter?	Ando, A.W., and A.Y. Gosselin	2005	Factors that decrease the t	Economic Inquiry 43 (2): 4		Distance to recycling stations had a negative effect on containe			
7	Bin Design	Signage	Comparison of recycling outcomes in three types of recycling collection units	Andrews, Gregoire, Rasmussen, & Witon	2013	Commercial institutions ha	<a href="https://core.ac.uk/downl">https://core.ac.uk/downl</a>	Compares impact of	Having trash next to	No difference in sorting accuracy between		
8	Placement		Public Space Recycling Benchmarking Study and Toolkit	Skumatz, L.	2018	Information to guide publi	<a href="https://www.kab.org/site">https://www.kab.org/site</a>	Bin performance in	Significant reduction in contamination (15% less) and increase			
9	Signage		The Effect Of Pictorial Signs On Recycling Rates	Sukstorf, C.	2020	Recycling is a core way tha	<a href="https://digitalcommons.u">https://digitalcommons.u</a>		Undergrad project. Found that adding signs above bins increas			
10	Bin Design	Signage	Citizen Centred Services: New Forms in Public Space Recycling	Eiken, A.	2015	A two year design research	<a href="http://www.andreaseiken">http://www.andreaseiken</a>	Masters thesis about	Pilot use in multiple streetscape locations showed 83% accur			
11	Placement		The Effect of Bin Order on Waste Sorting Behaviour	Hsuan, Chang, Quemado, Tang	2015	To test how the order of bi	<a href="https://open.library.ubc.c">https://open.library.ubc.c</a>	Undergrad project.	No significant difference in how bins are ordered.			
12	Convenience		Attitudes and conditions for cooperation in a paper recycling program	Humphrey, Bord, Hammond, & Mann	1977	Examined receptivity towa	<a href="https://journals.sagepub.v">https://journals.sagepub.v</a>					
13	Bin design		Design of Eco-feedback Technology to Promote On-the-go Recycling	Jambeck & Johnsen	2012	Recycling rates have plate	<a href="https://www.researchgate">https://www.researchgate</a>					
14	Color distinction	Engagement s	Promoting Recycling Behavior in Office Environments	Kalsher, Rodocker, Racicot & Wogalter	1993	Rapid declines in available	<a href="https://d1wqtxts1xzle7.cl">https://d1wqtxts1xzle7.cl</a>					
15	Signage	Placement	Trash or Recycle? How Product Distortion Leads to Categorization Error Duri	Trudel, Argo, and Meng	2015	Much of what ends up in c	<a href="https://docs.wixstatic.com">https://docs.wixstatic.com</a>	Studied: 1) impact c	1# People less likely	Signs can be effective	Compared results to	
16	Signage	Motivational r	Effects of Behavioral Signage on Dormitory Recycling Rates	Trudell + others	2014		AASHE HUB - Member log	Tested to 2 signage	5% improvement in	Conservation message led to decrease in		
17	Bin design	Signage	Public Space: Recycling, Composting and Trash Bin Design and Signage	Turner, Dennings, Phelps	2014	While recycling is consider	<a href="https://www.resource-rec">https://www.resource-rec</a>	Survey to identify th	Recycling is most associated with the colo			
18	Signage		Using emoticons to encourage students to recycle	Meng & Trudel	2017	Uncovering inexpensive, si	<a href="https://docs.wixstatic.com">https://docs.wixstatic.com</a>					
19	Signage	Modeling	Be the Change YouWant to See: Modeling Food Composting inPublic Places	Sussman & Gifford	2011	Composting biodegradable	<a href="https://web.uvic.ca/~espl">https://web.uvic.ca/~espl</a>					
20	Bin design		Bin monsters for promoting waste separation behavior	Supakata, N.	2018	The aim of this study was t	<a href="https://naaee.org/eeepro/">https://naaee.org/eeepro/</a>					
21	3D Signage		Effectiveness of 3-D Compared to 2-D Signage on Recycling Behaviour	Anuales & Hamilton	2021	Using 3-D objects as exam	<a href="https://journals.kpu.ca/ir">https://journals.kpu.ca/ir</a>	Undergrad project. Not yet reviewed				
22	Placement		Relative Location of Bins and Its Effects on Recycling in Campus	Aras & Anarat	2016	The amount of non-recycle	<a href="https://www.walshmedic">https://www.walshmedic</a>					
23	Convenience	Office / desks	Office Paper Recycling: A Function of Container Proximity	Brothers, Krantz, and McClannahan	1994	In their 1994 study, the au	<a href="https://www.ncbi.nlm.nih">https://www.ncbi.nlm.nih</a>	Proto-R@W study showed impact of convenience, creating par				
24	Placement		The Effects of Information and Container Proximity on Paper Recycling	Carlisle, Todd	1997	Contrary to popular belief,	<a href="https://digitalcommons.iv">https://digitalcommons.iv</a>					
25	Signage	Design, Placer	Maximizing Recycling on a University Campus	Carrico, Fried, Wang, Casper & O'Neill	2017	This research proceeded in	Unpublished	Research suggests t	Sites that contain onl	Study 4 suggested t		
26	Bin design	Restrictive op	The relationship between receptacle design, normative conduct, environmer	Arnold, M.	2015	Conservation psychology is	<a href="https://pdfs.semanticsch">https://pdfs.semanticsch</a>					
27			Waste Separation in Cafeterias: A Study among University Students in the Ni	Arnadottir, Kok, van Gils & Ten Hoor	2019	Recycling waste is importa	<a href="https://www.ncbi.nlm.nih">https://www.ncbi.nlm.nih</a>	Not reviewed				
28	Signage	Placement	An evaluation of environmental arrangement on recycling and contaminatio	Atkinson, Simonds, Parry-Cruwys, Wilso	2022	Improper disposal of recyc	<a href="https://psycnet.apa.org/r">https://psycnet.apa.org/r</a>	Not reviewed				



# Blog Reviews of Studies on Signage

## ADVANCING RECYCLING | BLOGS SIGNAGE PLACED ABOVE BINS IMPROVES RECYCLING



JUNE 7, 2022 | BY ALEC COOLEY

By my count, there are no fewer than 130 published academic papers that have studied some aspect of how to influence recycling behavior. This is a lot of effort to understand what seems like a simple, routine action: what causes a person to drop an empty bottle or sheet of paper through the opening of one bin versus another? We've learned a number of things over time. Recycling behavior is driven by layers of factors, including the situation a person experiences as they discard an...

[CONTINUE READING](#)

READING TIME: 9 MIN

SHARE: [f](#) [x](#) [p](#) [in](#)



## ADVANCING RECYCLING | BLOGS | SIGNAGE CONVERSATIONS WITH BRENDA PULLEY THE USE OF IMAGES VS. WORDS ON RECYCLING SIGNAGE, PT 1



OCTOBER 15, 2021 | BY ALEC COOLEY

This blog is part of a series of conversations between Busch System's Senior Advisor, Alec Cooley and Brenda Pulley exploring the science of recycling behavior in relation to bin and signage design. This is the first part of a three-part series – you can find PART TWO of the series here, and PART THREE of the series here. Alec: Welcome to the second post in our ongoing blog series exploring the intersection of recycling behavior and bin and signage design. Our goal with these is to...

[CONTINUE READING](#)

READING TIME: 12 MIN

SHARE: [f](#) [x](#) [p](#) [in](#)





# Next Up:



- 101 Primer
- Live consultation
- Participate in discussion or just listen in.

Look for registration link in the chat and with email tomorrow

# Coming Up in July

## SAVE *the* DATE!

### HARMONIZATION: BRINGING CONSISTENCY TO RECYCLING PROGRAMS

JULY 2025



# Thank You to Our Panelists!



**Evelyn Amara Ferreira**

*Zero Waste & Compliance Lead*

**San Francisco International Airport**



**Molly Longton**

*Program Manager*

**University Sustainability Practices**

**Arizona State University**

# Share Feedback with Presenters



## Post-Webinar Survey:

- Prompt at end of program, or
- Look for Email tomorrow