



Let's Recycle Better, Together.

OPTIMIZING COLLECTION SYSTEMS

Retooling programs to improve efficiency and material recovery

THURSDAY MAY 18TH 1:00PM ET.



Today's Panelists



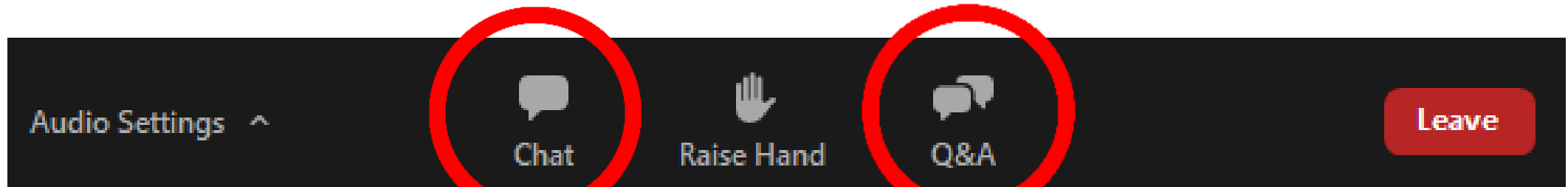
Kelley Nelson
Product Manager
Zabble



Jamie Kaminski
President
HSR Zero Waste

Join the Discussion

From your toolbar:



Share your experience & opinions

Look for links to resources

Type direct questions for panelists



Optimizing Collection Systems



Kelley Nelson
Product Manager
Zabble Inc.

Presented by



GREENTHINKING
Webinar Series

AI-Powered Solutions For Next Gen Zero Waste Programs

Patents: 1 Issued, 1 Pending

Nik Balachandran
CEO

nik.balachandran@zabbleinc.com

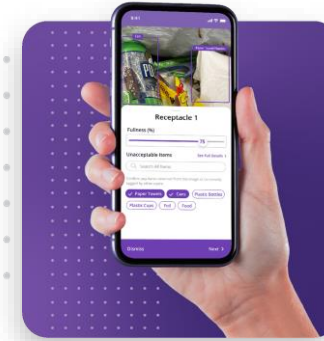


ZABBLE ZERO™ SINCE 2019...



Invoice Analytics™

2,500 pages
\$9.4M in hauling costs
18,500 tons
~10% yearly savings



Mobile Tagging™

4.7k distinct bins
150k tags
113k contamination items
340 tons diverted from landfills

Some Clients...

UNIVERSITY OF
NORTH CAROLINA,
CHARLOTTE

STANFORD
UNIVERSITY

THE RECYCLING
PARTNERSHIP

UNIVERSITY OF
CALIFORNIA,
SAN
FRANCISCO

UNIVERSITY OF
CALIFORNIA,
SAN FRANCISCO HEALTH

News...



How it works

MOBILE TAGGING

“

Contamination has always been a **challenge** for us. The app allows for an **easy way to tag contamination** so we can **capture more bins in less time**. With increasing the number of bins we can tag, this helps us create **better educational campaigns** to **each building** on campus.



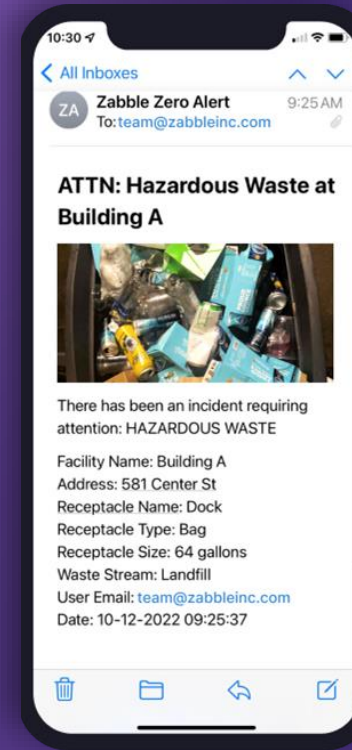
UCSF

Daniel Chau
Recycling & Waste
Reduction Manager



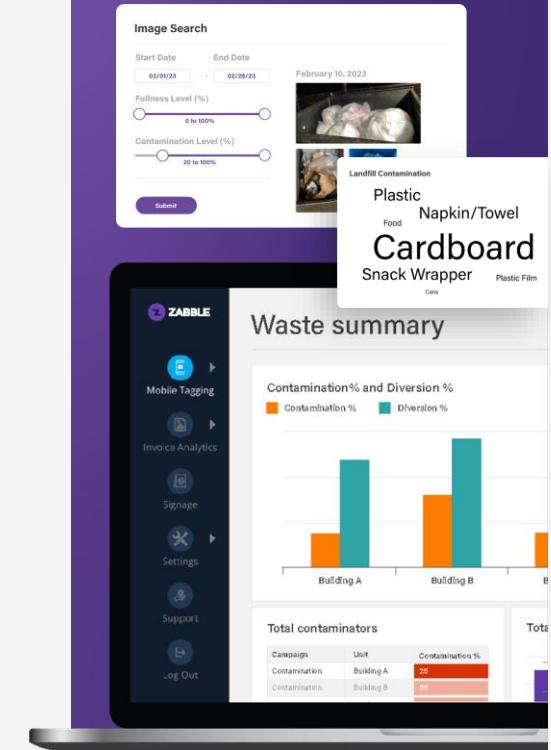
Tag Bins with AI

Tag Bin Fullness and Contamination using Zabble Zero AI™



Notify Key Stakeholders

Engage Stakeholders with Real-time Alerts and Notifications.



Measure Your Campaigns

Run targeted zero waste campaigns that you can objectively measure.

CASE STUDIES

- Right-sizing bin infrastructure
- Improving signage to reduce contamination
- Piloting a new source-separated stream



CASE STUDY: RIGHT-SIZING BIN INFRASTRUCTURE

- **Location**
500+ Bed University Hospital
1M+ sq. ft.
- **Stream**
Landfill, Recycle, Compost
- **Data Collection**
Environmental Services/ Medical Fellows
- **Outreach**
Environmental Services/ Frontline Staff
- **Duration**
6 Months

GOAL

- Identify areas to streamline workflows and reduce waste collection times
- Improve recycling rate by reducing contamination and increasing awareness
- At least 50% staff engagement and empowerment

WHAT DID THEY DO?

- **Digitizing Bin Inventory**
- **Identifying Opportunities to Right-Size**
- **Contamination-based Targeted Outreach**
- **Encouraging Staff to Communicate and Resolve Issues**

Digitizing Bin Inventory

670

Receptacle Count
Excluding Dock

34.8%

Diverted Streams
Receptacles % of
Total Count

102

Total Receptacle
Volume (cubic yds)
Excluding Dock

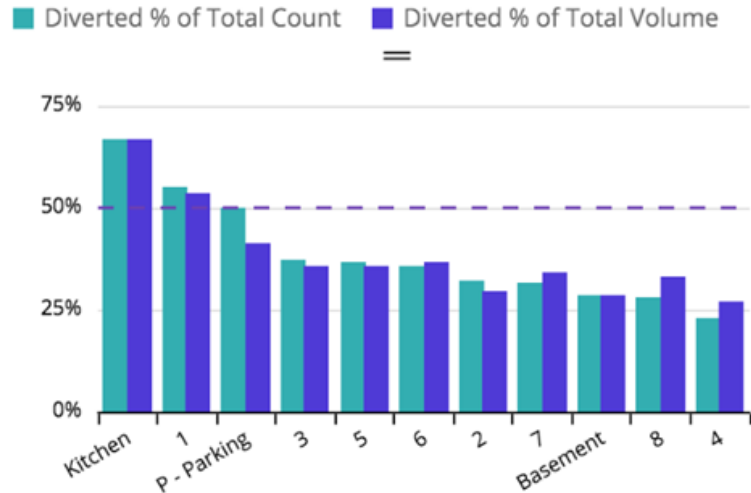
35.5%

Diverted Streams
Receptacles % of
Total Volume

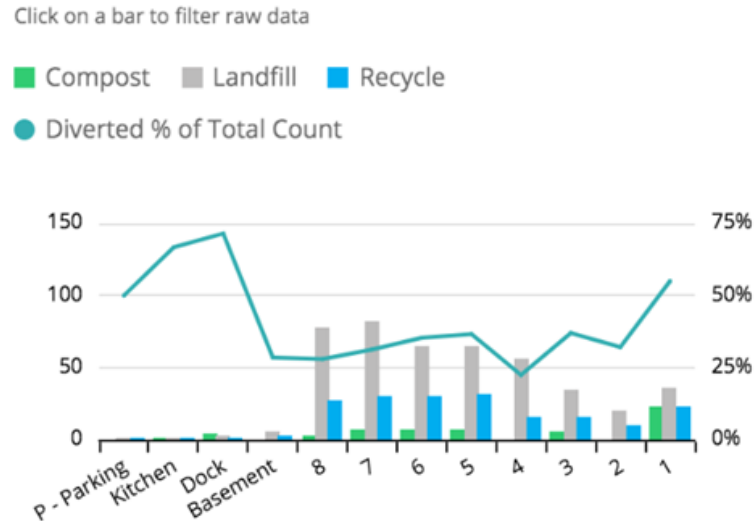
Actual: 35% Diversion Rate

Identifying Opportunities to Right-Size

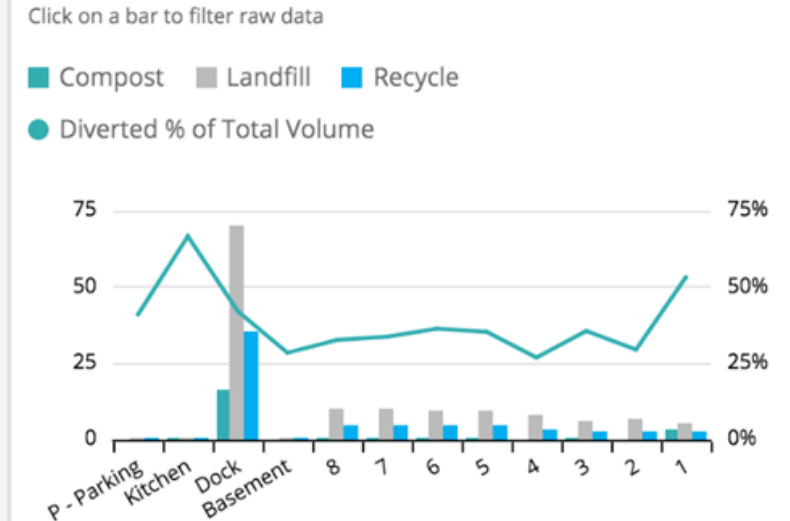
Diverted % of Receptacles, by Floor (Click To Filter By Fl...



Count of Receptacles by Waste Stream (Click To Filter B...

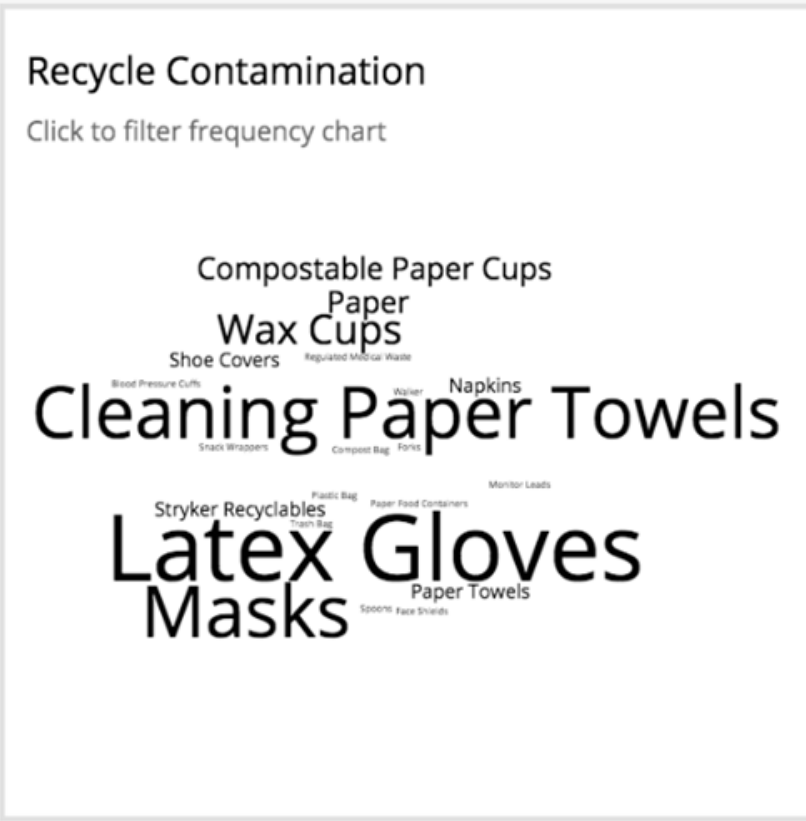


Total Receptacle Volume (cubic yds) by Waste Stream (...)



Goal: 50% Diversion Rate

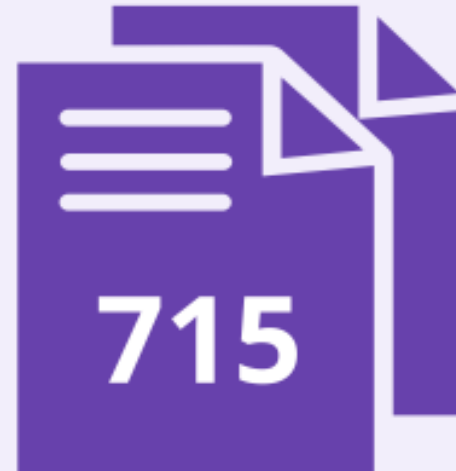
Contamination-based Targeted Outreach



Floor 8 Bins: 77 Landfill, 27 Recycle, 3 Compost → 50 Landfill, 40 Recycle, 10 Compost

Encouraging Staff to Communicate and Resolve Issues

- Significantly contaminated bins
- Incorrect or missing signage
- Suggestions for bin placements



**Observations with
detailed notes**

OUTCOME

ENGAGEMENT STATISTICS



Users
Engaged

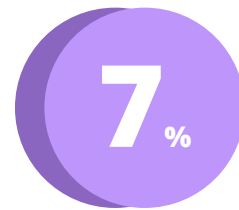


Cubic Yards of
Waste Sampled



Bins Tagged
per Month on
Average

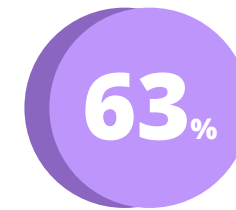
RESULTS



Reduction
in Bin
Inventory



Tons
diverted
from landfills



Staff
engagement

CASE STUDY: IMPROVING SIGNAGE TO REDUCE CONTAMINATION

- **Location**
 - Healthcare Clinic
 - 1 Building
 - 1 Unit
- **Stream**
 - Landfill, Recycle, Compost
- **Data Collection**
 - Sustainability Staff
- **Outreach**
 - Frontline Staff
- **Duration**
 - 2 Months

GOAL

- **Test Pilot to Scale**
- **Reduce Contamination**
- **Improve Awareness**

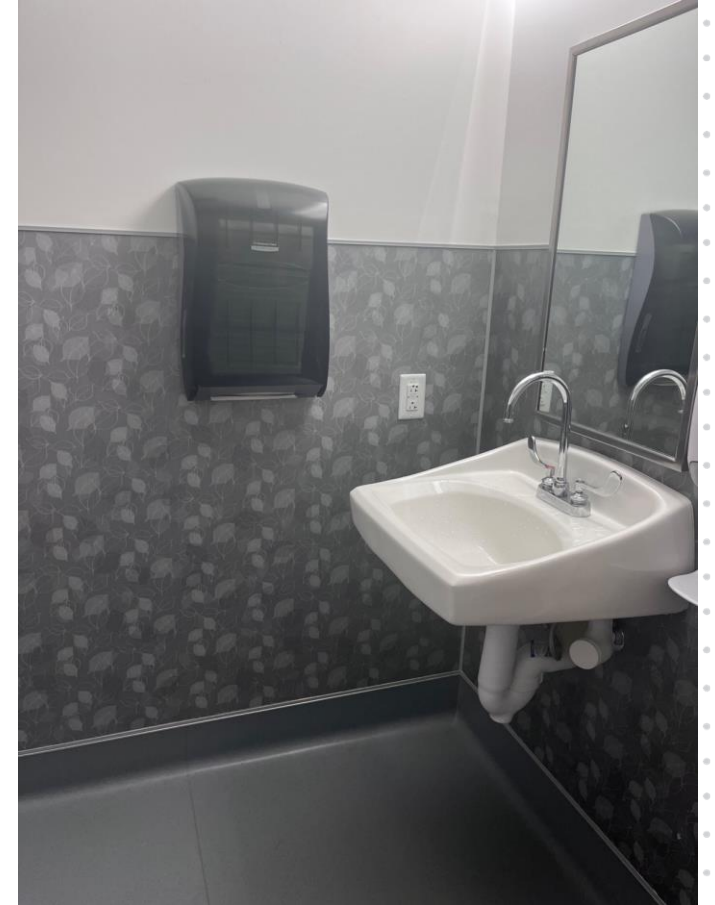


WHAT DID THEY DO?

- **Co-locating Trash, Compost and Recycling Bins**
- **Updating Signage on Each Bin**
- **Staff Training on What goes Where**
- **Waste Audits Before and After Changes**
- **Scale to All Departments**

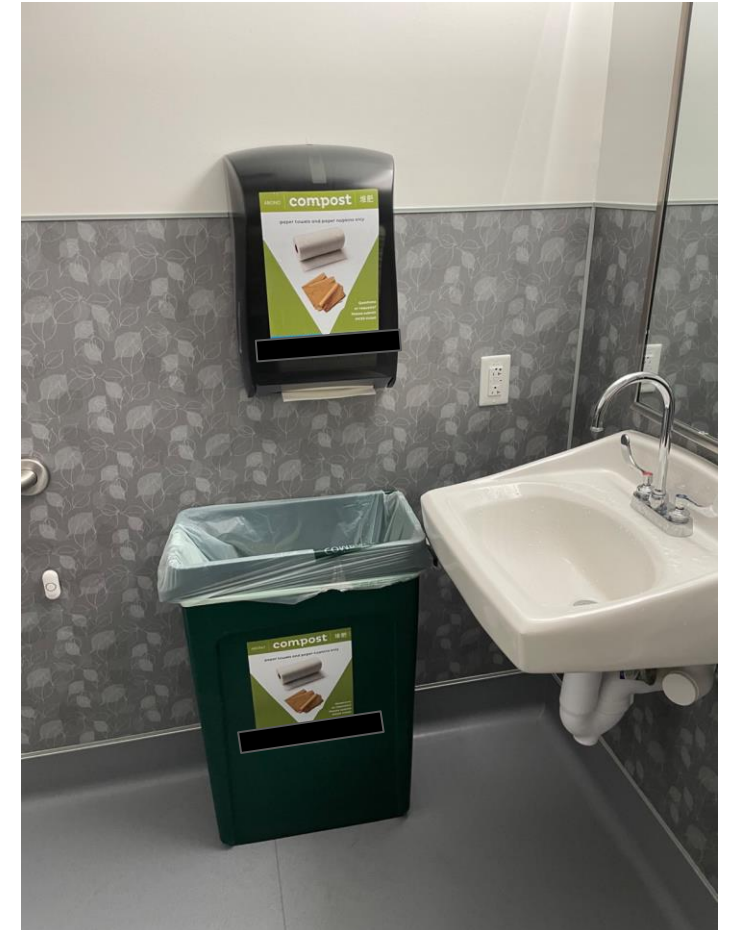
Co-locating Trash, Compost and Recycling Bins

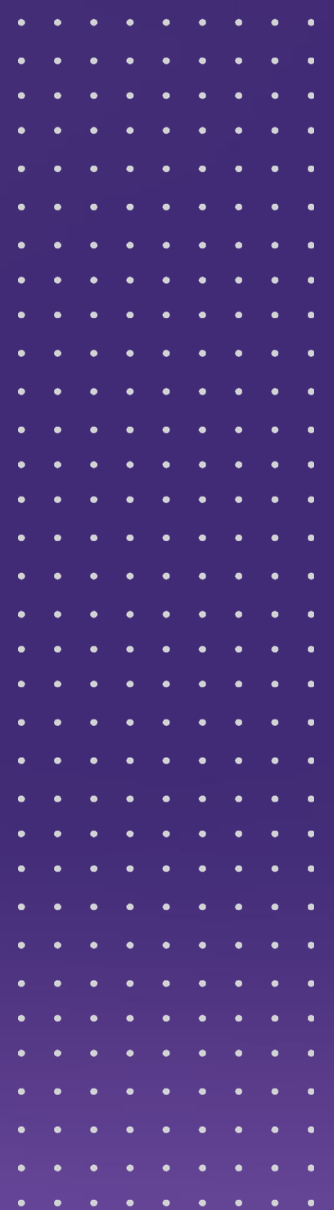
- High Contamination



Updating Signage on Each Bin

- Inadequate or missing signage



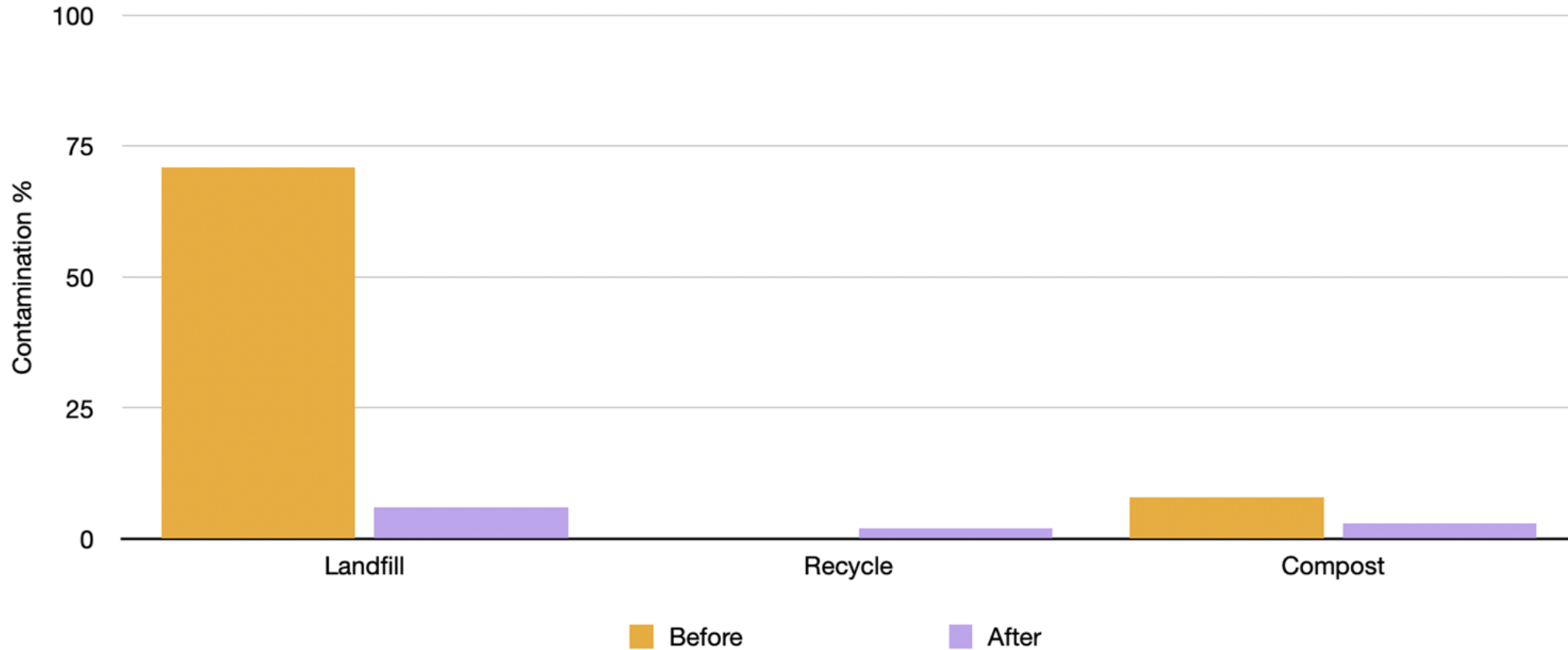


Staff Training on What Goes Where

- Engaging champions

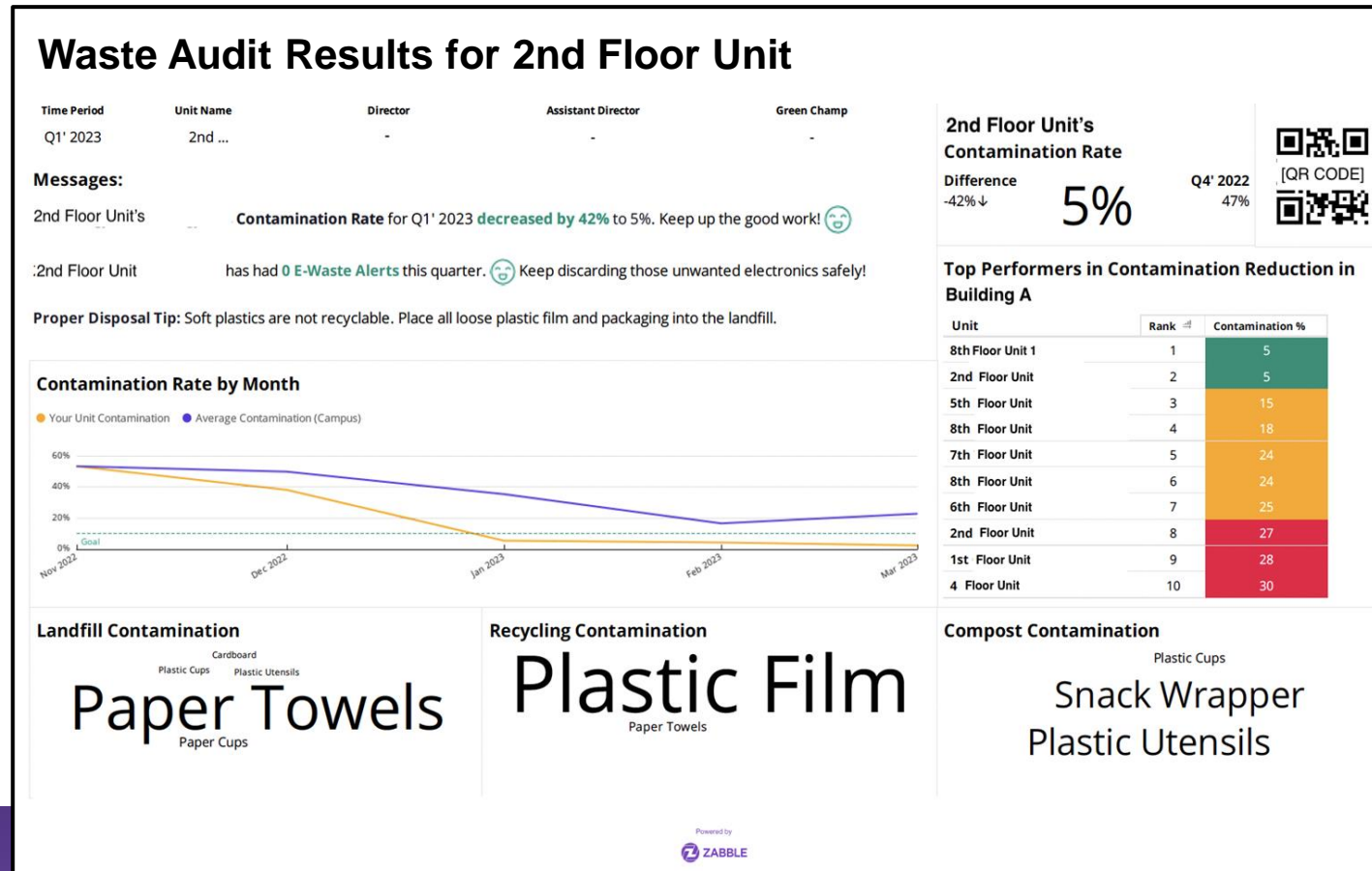


Waste Audits Before and After



Scale to All Departments

- Departmental Report Cards Each Month



OUTCOME

ENGAGEMENT STATISTICS



Cubic Yards of
Waste Sampled



Audits
Conducted per
unit

RESULTS



Reduction in
overall
contamination %



CASE STUDY: PILOTING A NEW SOURCE-SEPARATED STREAM

- **Location**
 - University Lab
 - 1 Building
 - 18 Labs
- **Stream**
 - Colored/ Clear Lab Plastics
- **Data Collection**
 - Facility Staff
- **Outreach**
 - Lab Managers
- **Duration**
 - Ongoing

GOAL

- **Optimize Collection Schedules**
- **Reduce Contamination**

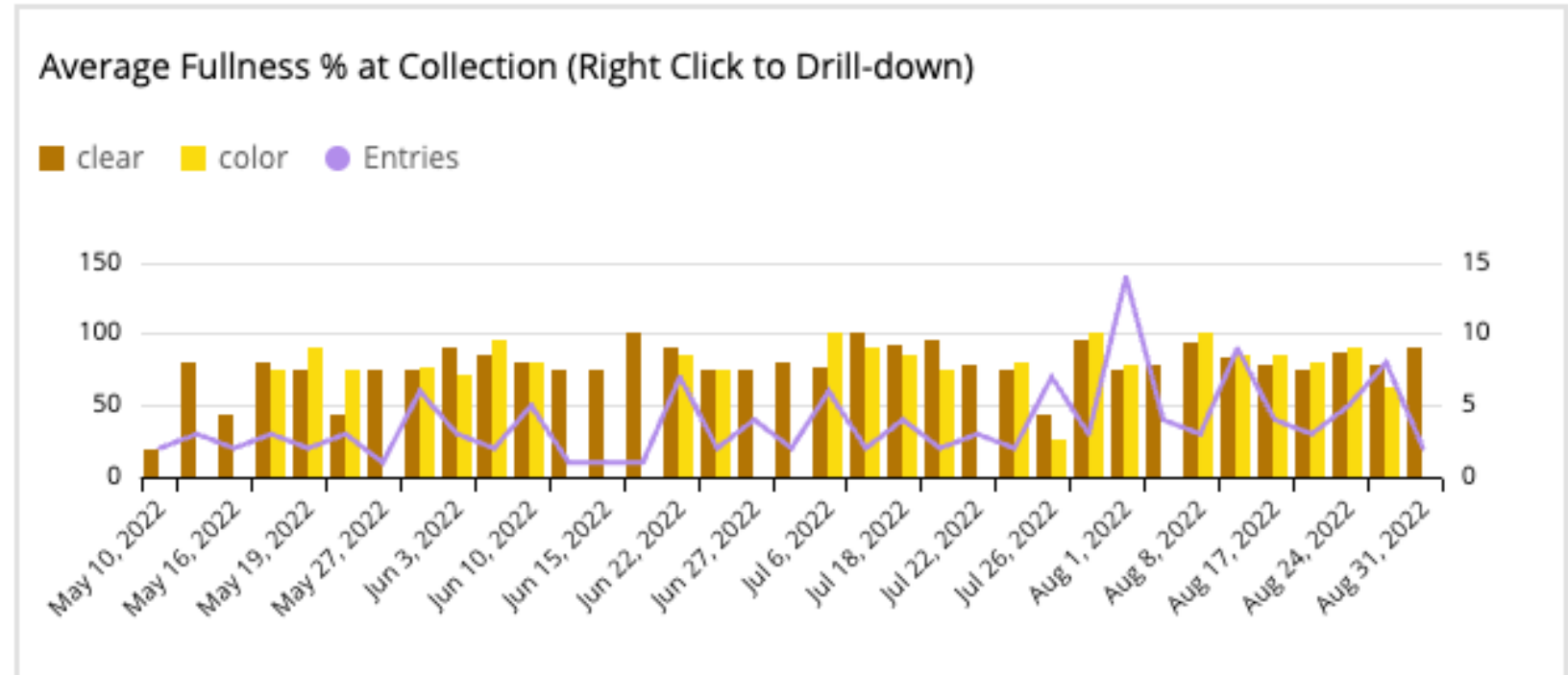
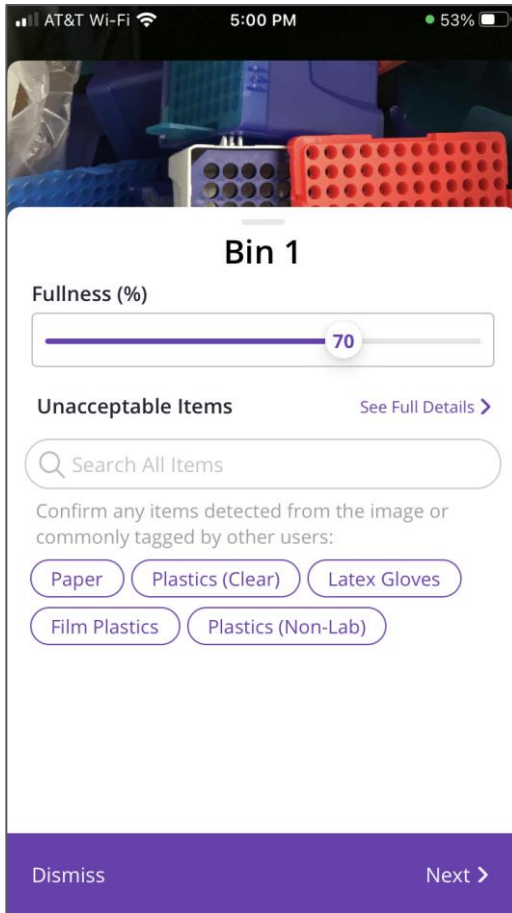


WHAT DID THEY DO?

- **Tracking Collection Times and Fullness Level**
- **Monitoring Contamination & Conducting Targeted Outreach**



Tracking Collection Times and Fullness Level





Monitoring Contamination & Conducting Targeted Outreach

AT&T Wi-Fi 5:01 PM 52%

< Create Tag Add Field

User	Location
Kelley N	Floor 2
Campaign / Type	Total
Lab Plastics Pilot / Interior	0.00 gal
Facility	Diverted
Lab A	0.00 gal
Bin	Type
Bin 1	Color / Bin

Contamination (%)

0

Collected

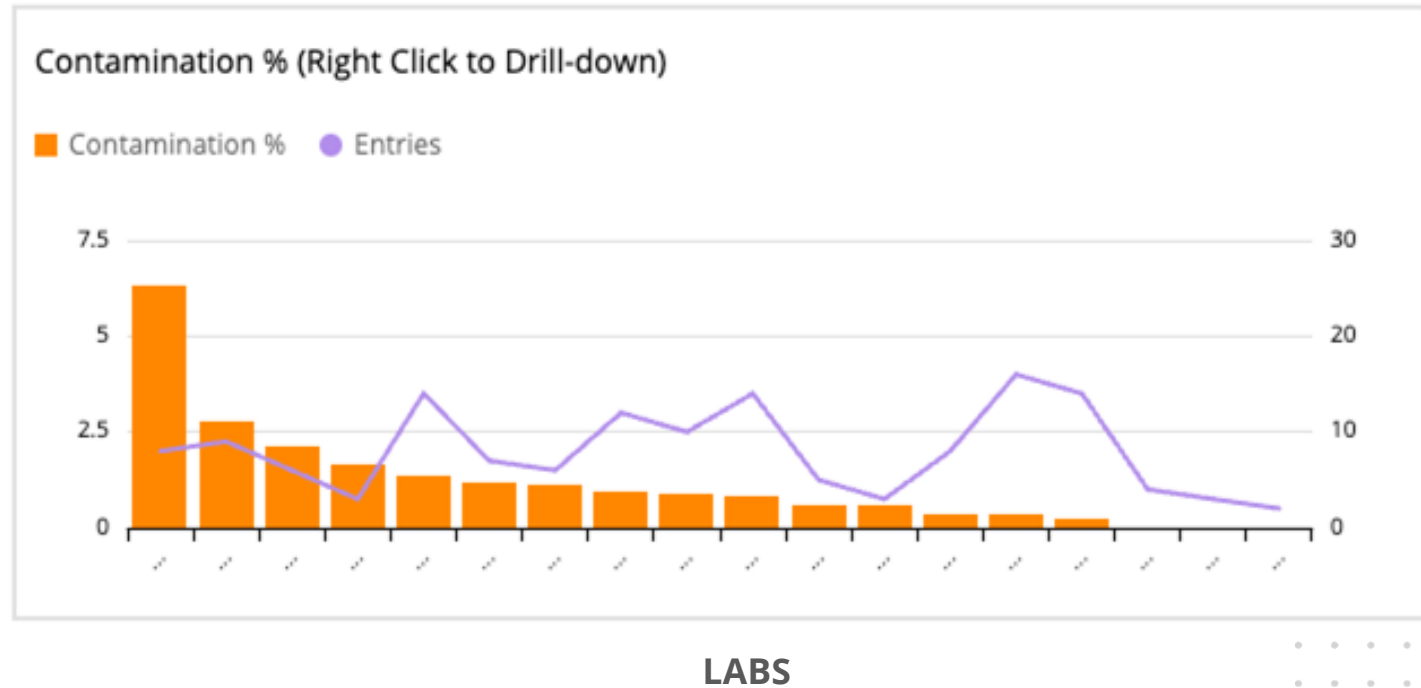
Wrong Bag

Missing Bin

Special Case

Enter Notes

SAVE



OUTCOME

ENGAGEMENT STATISTICS

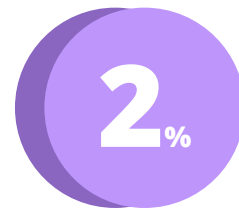


Cubic Yards of Waste Sampled

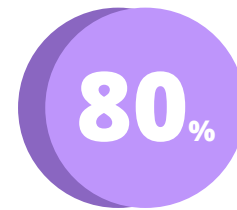


Bins Tagged per Month on Average

RESULTS



Average contamination



Avg Monthly Participation





Stay in Touch

Kelley Nelson Product Manager



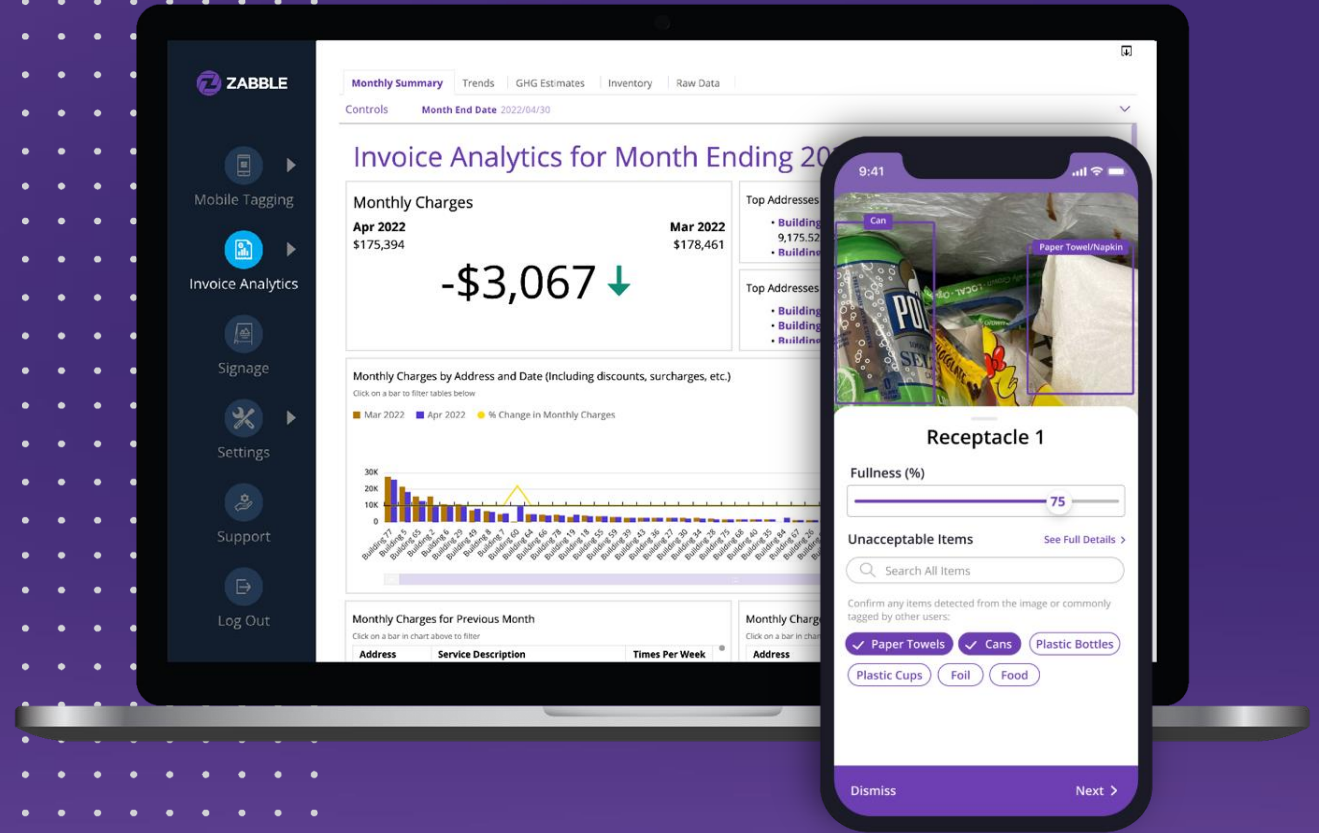
510-501-4333



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Getting to 80% and Beyond



<https://www.colorado.edu/ecenter/2020/11/09/food-waste-america>

WHO





Board Member of Zero Waste International Alliance (ZWIA)

- Jamie works with fellow policy advisors to create strong, practical and enforceable policies and programs that drive change towards Zero Waste.

Chair of the Zero Waste Definition Working Group

- Jamie's area of expertise lies within internationally accepted Zero Waste policies and programs including Zero Waste training, education, and Certification development.

Chair of the Zero Waste Hierarchy Working Group

Director of Zero Waste Canada

- As the lead policy advisor for Zero Waste Canada, Jamie represents the primary reference point for Zero Waste policies nationwide.

President of HSR Zero Waste

- Jamie's experience is in solid waste management from both a ground level as well as from a policymaking perspective. With 30+ years of active engagement in the industry, Jamie has developed extensive experience in understanding how regional policies and bylaws affect the existing waste management system.



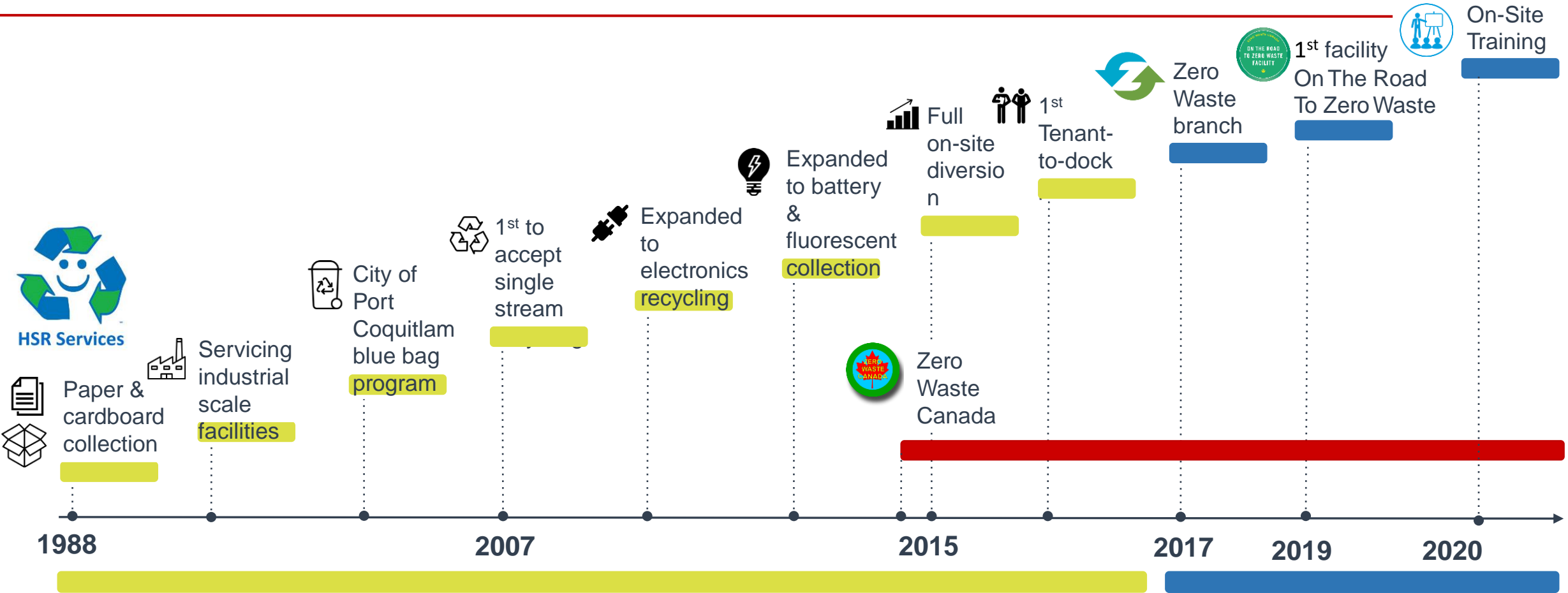
ZERO WASTE IS ABOUT THE JOURNEY...MORE THAN THE DESTINATION

HOW





Jamie's Story



HSR Services - Resource Management

HSR Zero Waste - Consulting



THE ZERO WASTE INTERNATIONAL ALLIANCE

WHO

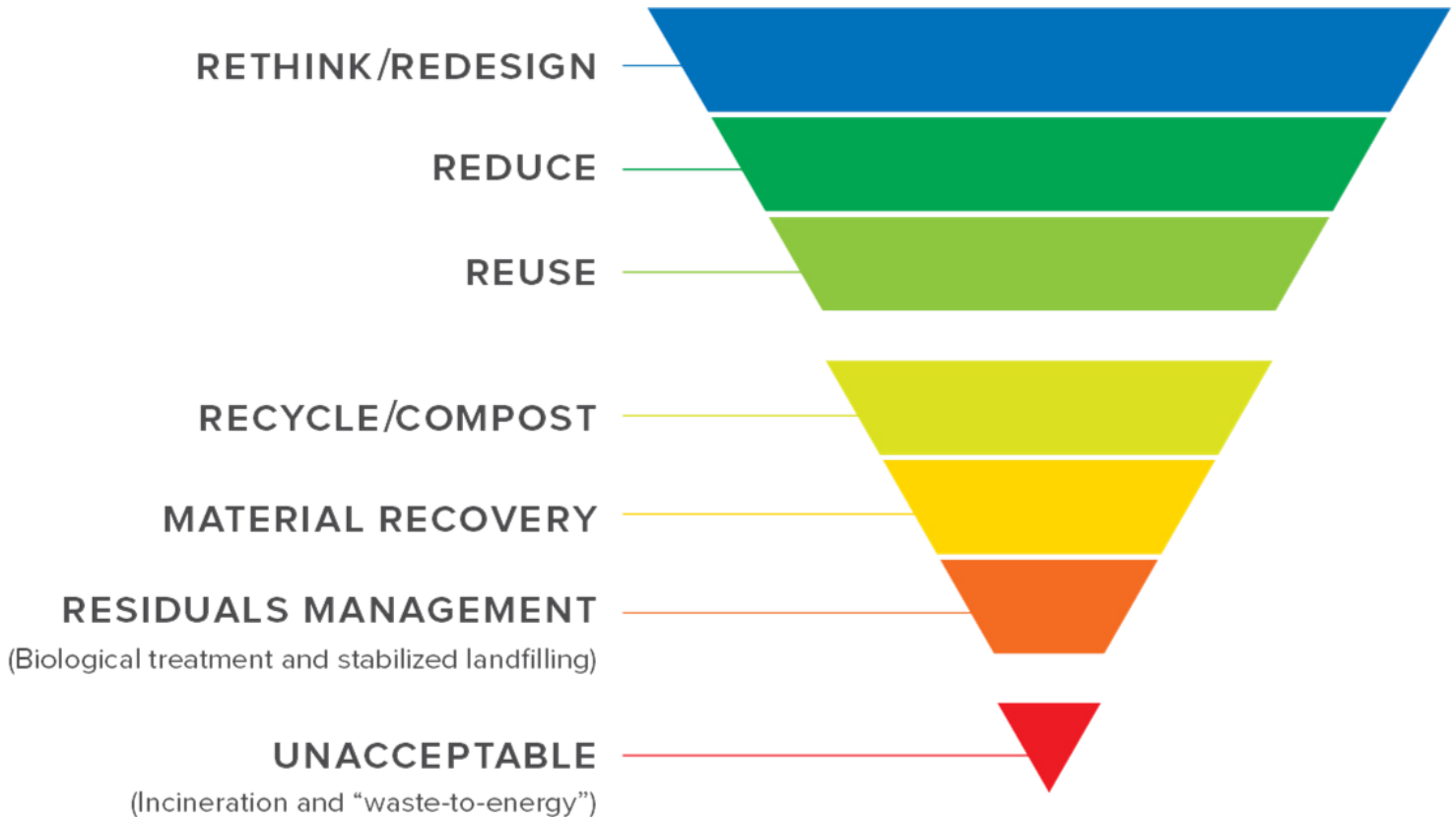




HSR METHOD



Zero Waste Hierarchy 8.0



Zero Waste Definition

Zero Waste:

“The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning, and with no discharges to land, water, or air that threaten the environment or human health”

Zero Waste
International Alliance (ZWIA), 2018



WHY ZERO WASTE?

WHY

THERE IS NO SUCH THING AS “AWAY”



INCINERATION

WHAT

INTENT

Zero Waste To Landfill

IMPACT



burning
resources



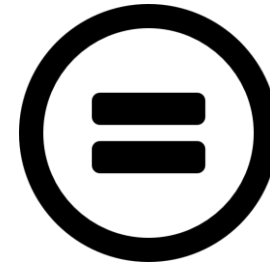
ash
generation



energy loss



emissions



environmental
justice



competes
for materials
with
recycling



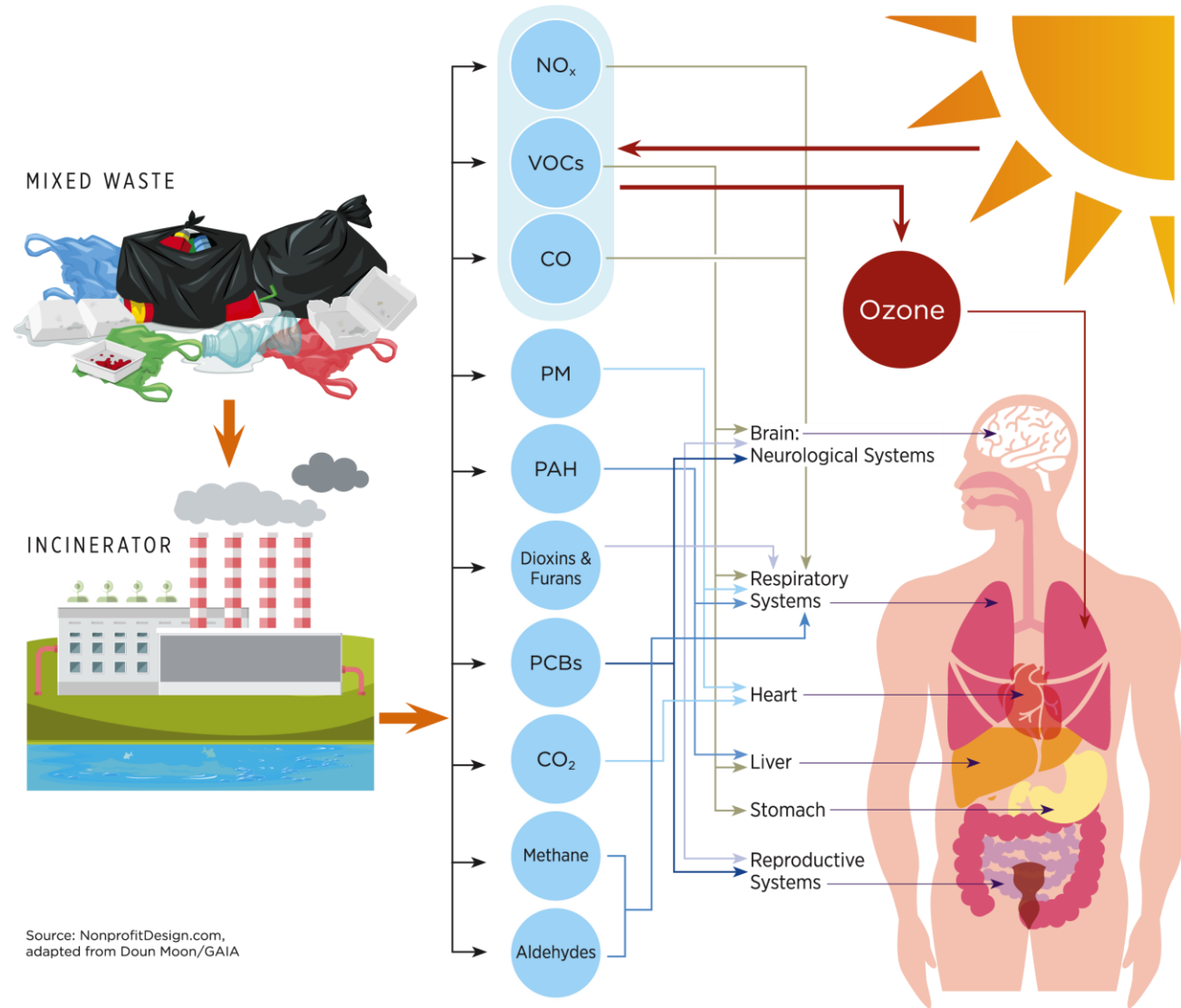
creates a
demand for
waste

INCINERATION



emissions

FIGURE 7
Toxic Exposure from Incineration



Source:
<https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>

Source: NonprofitDesign.com,
adapted from Doun Moon/GAIA

ZERO WASTE

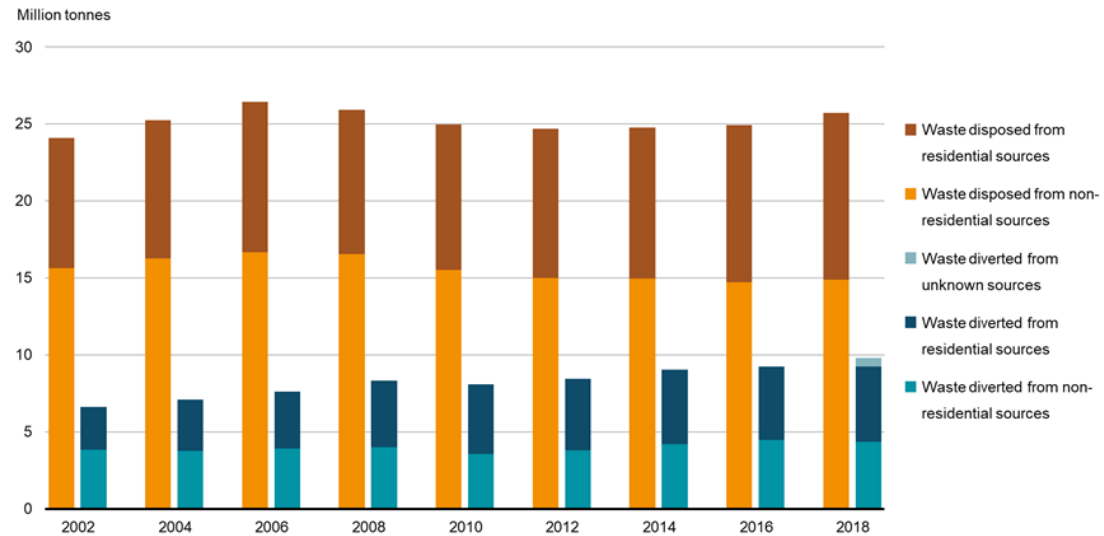
SINGLE-USE

RE-USE

REDUCE by REUSING



Post Audits Assessment and Planning







On-Site Sorting



RESULTS

Waste Diversion



Disposal Costs



HSR METHOD



THANK YOU



Info@hsrzerowaste.com



[linkedin.com/company/hsr-services/](https://www.linkedin.com/company/hsr-services/)

Join the Discussion!

From your toolbar:



Share your experience & opinions

Look for links to resources

Type direct questions for panelists

Next Up...

MAKING AN ACTIONABLE PLAN

Strategic planning to guide recycling & waste reduction

TUESDAY JUNE 13TH 1:00PM ET.

Presenter:

- Amity Lumper, Cascadia Consulting
- Michael Acode, Cascadia Consulting
- Deena Keeler, Emory University

Busch Systems Resources

Resources

- Download presentation slides
- View today's recording
- Archived webinar recordings:
 - *Food organics collections*
 - *Reuse to replace Single use*
 - *Special Event waste reduction*

Webinars on the Horizon

- Understanding Plastics
- Making Reuse & Waste Prevention happen in your community
- Centralized collections arrangements
- Healthcare waste reduction

Visit: buschsystems.com/blog

Thank You to Our Panelists



Kelley Nelson

Product Manager

Zabble

kelley.nelson@zabbleinc.com



Jamie Kaminski

President

HSR Zero Waste

info@hsrzerowaste.com

Need Credit for CEU's?

Email Marissa Caldwell
to request a
Certificate of Attendance

marissac@buschsystems.com

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Post-Webinar Survey:

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

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