



Let's Recycle Better, Together.

ZERO WASTE AUDITS

TAKING THE FULL MEASURE OF WASTE REDUCTION PROGRAMS

WEDNESDAY, FEBRUARY 11TH | 1:00 PM ET



Today's Panelists



Stephanie Barger

*Director, Market Transformation & Development
TRUE Certification*

US Green Building Council



Keith Wojciechowski

*Senior Manager,
Global EHS Environmental Compliance*

Colgate-Palmolive

Join the Discussion

From your toolbar:



Share your experience
& opinions

Look for links
to resources

Type direct questions
for panelists

Live Poll #1

What is your level of experience with Zero Waste practices? *(Check only one)*

- Just focused on recycling & diversion
- Indirect knowledge of broader zero waste practices
- Work with some zero waste practices (beyond diversion)
- Actively work on full range of zero waste practices

Stephanie Barger

- 2016 – Present Director, Market Transformation & Development, TRUE Certification
US Green Building Council
- 2011 – 2016 Founder & Executive Director,
US Zero Waste Business Council
- 2000 – 2016 Founder & Executive Director,
Earth Resource Foundation



2



Total Resource Use and Efficiency



ENERGY



WASTE



SUSTAINABLE
SITES

THE Sustainable
SITES
Initiative®



ESG



HEALTH &
WELLNESS

THE Sustainable
SITES
Initiative®



RESILIENCE

www.usgbc.org and www.gbc.org



WHAT IS ZERO WASTE?



Zero waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where **all discarded materials are designed to become resources for others** to use.



Zero means designing and managing products and processes to systematically avoid & eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and **not burn or bury them**.



Implementing Zero Waste will **eliminate all discharges to land, water or air** that are a threat to planetary, human, animal or plant health.

The Zero Waste Economy:

Designing a full-cycle stream—Upstream AND Downstream



Design for the environment, not the dump



Shifting subsidies



Changing the rules



Jobs, Jobs, Jobs



Clean production



Retail stores



Consumer buying power



Producer responsibility



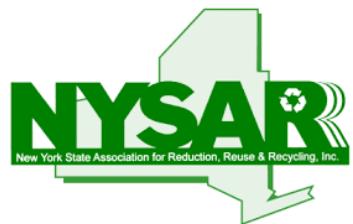
Resource recovery parks

Zero waste & climate change

- Landfills are one of the **largest sources** of greenhouse gases (GHG)
- Methane is **72 times** more potent than CO2
- Recycling & composting all remaining discards in California, for example, would eliminate the equivalent to **all the auto exhaust** in the state
- Meet zero waste goals for local & state municipalities



Partnerships



METROPOLIS HKS



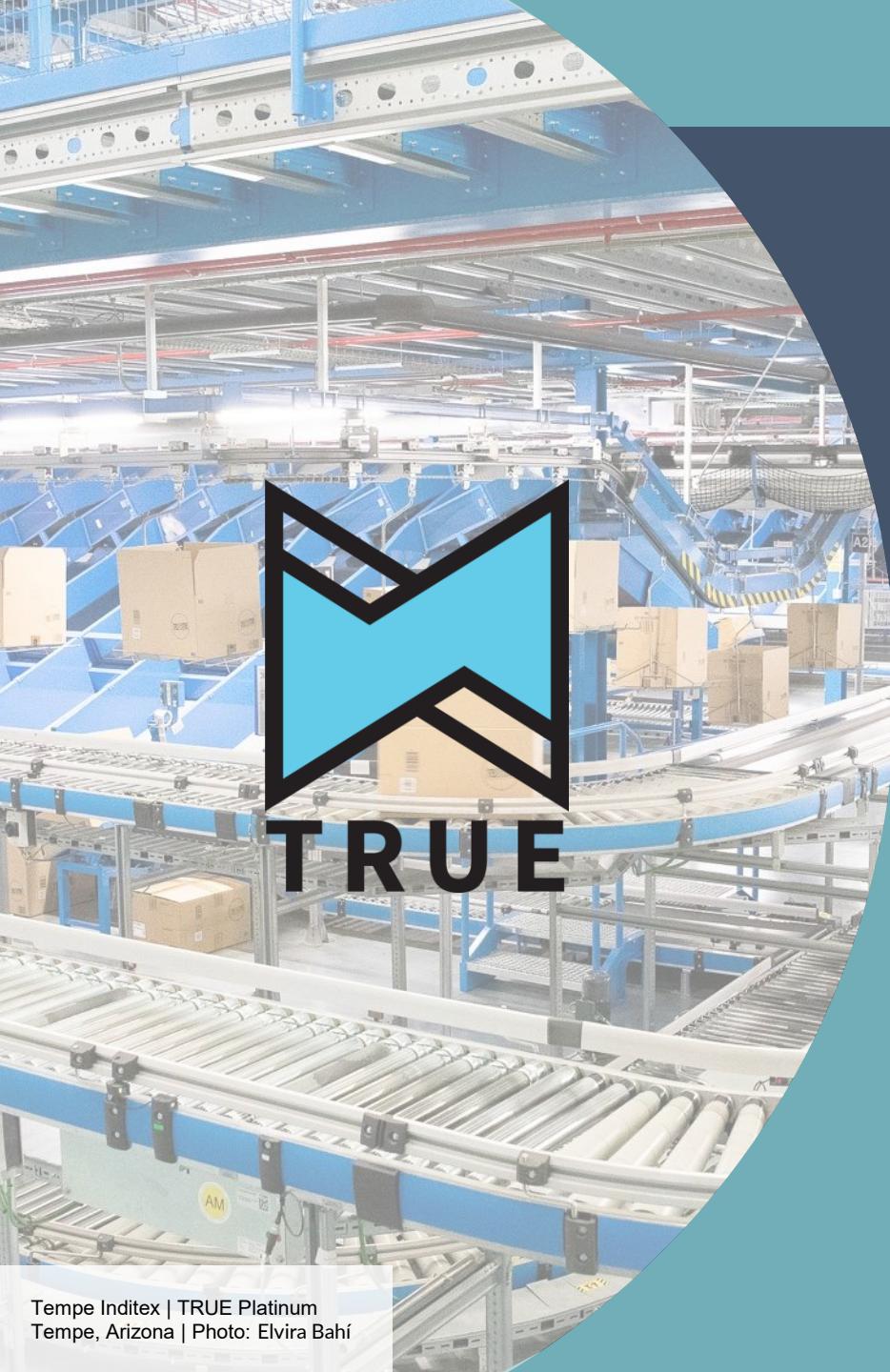
TRUE



TRUE CERTIFICATION

What is TRUE?

- TRUE is NOT waste management.
- TRUE is material, resource, and commodity management.
- TRUE is zero waste, circularity, and a closed loop.
- TRUE is supply chains and purchasing.
- TRUE is total participation from employees and leadership.
- TRUE is saving money, making money, and efficiency.



TRUE Zero Waste Rating System Overview of Categories & Points

Redesign	4 points	Leadership	6 points
Reduce	7 points	Training	8 points
Reuse	7 points	ZW Analysis	5 points
Compost (Re-earth)	7 points	Upstream Management	4 points
Recycle	3 points	Hazardous Waste Prevention	5 points
ZW Reporting	4 points	Closed Loop System	4 points
Diversion (Minimum 90%)	5 points	Innovation	3 points
ZW Purchasing	9 points	Total Points	81 points

TRUE Facilities:

600+ facilities in 41+ countries - Cutting Costs & Improving Their Bottom Lines

TESLA

TOYOTA

Microsoft

hp

Etsy

Disneyland®
RESORT

WHOLE
FOODS
MARKET



NATURE'S
PATH
ORGANIC

Kellogg's™

SMUCKER'S
Natural

LUNDBERG
FAMILY FARMS SINCE 1937

SIERRA NEVADA

BRONCO WINE
COMPANY

Maple Grove Farms of Vermont

FETZER
VINEYARDS

Cottonwood
Canyon
VINEYARD & WINERY

NEW BELGIUM
BREWING

cintas®

CTDI

CALSTRS

COXMEDIA
GROUP

DAL SIN
INDUSTRIES

STIRLING
ULTRACOLD

follett
HIGHER EDUCATION GROUP®

Delaware
North

NORTHROP
GRUMMAN

*Project is a facility inside a larger campus



The **TRUE Advisor** is a professional certificate program offered by GBCI. TRUE Advisors support the implementation of TRUE programs, prepare businesses for TRUE Zero Waste certification, and assist organizations through the certification process.

3000+ and 47 countries – companies, service providers, students, consultants

Zero Waste Stakeholders

- UPSTREAM
 - Vendors
 - Suppliers
 - Designers
 - Marketing
- Operations
 - Food Service Providers
 - Janitorial
 - Property Management
- Downstream
 - Waste Hauler
 - Recycler
 - Broker/Processor
 - Composter/Farmer
- Community
 - Food Banks
 - Government
 - Nonprofits
 - Customer
 - Schools

Zero Waste is a team sport and everyone is on the team!

Office Spaces

Challenges

- Tenant participation varies
- Waste collection infrastructure often designed for convenience

Solutions

- Landlord incorporates zero waste procurement policies and sustainability initiatives
- Implement clear waste reduction policies and consider green leasing language to include these policies
- Engage tenants, vendors, and janitorial teams in zero-waste practices





ZERO WASTE STRATEGIES



IF YOU'RE NOT
FOR ZERO WASTE,
HOW MUCH WASTE
ARE YOU FOR?

Why Audit?

- First step, knowledge of everything in the dumpsters: (Compost, Recycle, Trash)
- Businesses pay for collection each time the bin is serviced - majority of businesses over subscribe for waste service
- Collecting empty or partially full bins is how waste hauling companies thrive
- Un-flattened cardboard boxes and bags of air wastes bin space
- It costs to dispose of recyclables in the trash
- It's a necessary part of moving toward Zero Waste

**Recycle Some, Recycle More,
Recycle Less**



Waste audit vs. zero waste audit

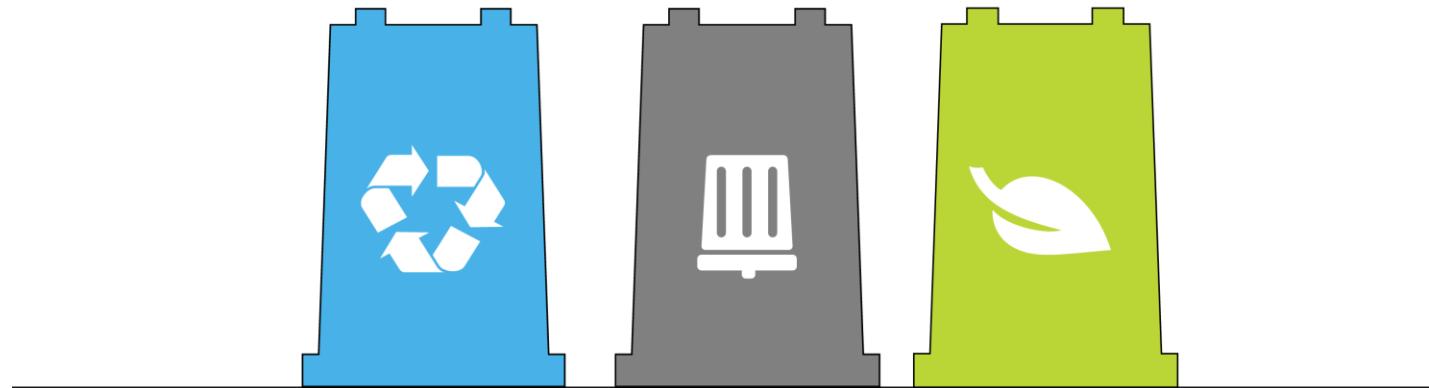


Waste audit vs. zero waste audit



Waste audit vs. zero waste audit

ZERO WASTE AUDIT



Yellowstone General Stores Warehouse

- TRUE Platinum certified
- Diverted **94.8%** of waste
- 1st national park to receive certification
- Removed 25+ trash bins from warehouse, conducted waste audit, redesigned waste receptacles, implemented composting program, reused packaging materials & worked with vendors & suppliers to assist in upstream efforts
- In the year leading up to facility's audit, warehouse reduced, reused or recycled **271,000+** pounds of material
- Estimated savings over 3-year period leading up to certification were approximately **\$263,000**





Goal: Eliminate your trash, recycling & waste bins

- Conduct a zero waste audit & analysis
- Zero waste profiling — know your trash
- Reduce size/amount of product packaging
- Reduce risk/increase efficiency
- Have tracking program for material flows
- Leadership & employee engagement

Zero Waste Audits vs Waste Audits

Zero Waste Audit

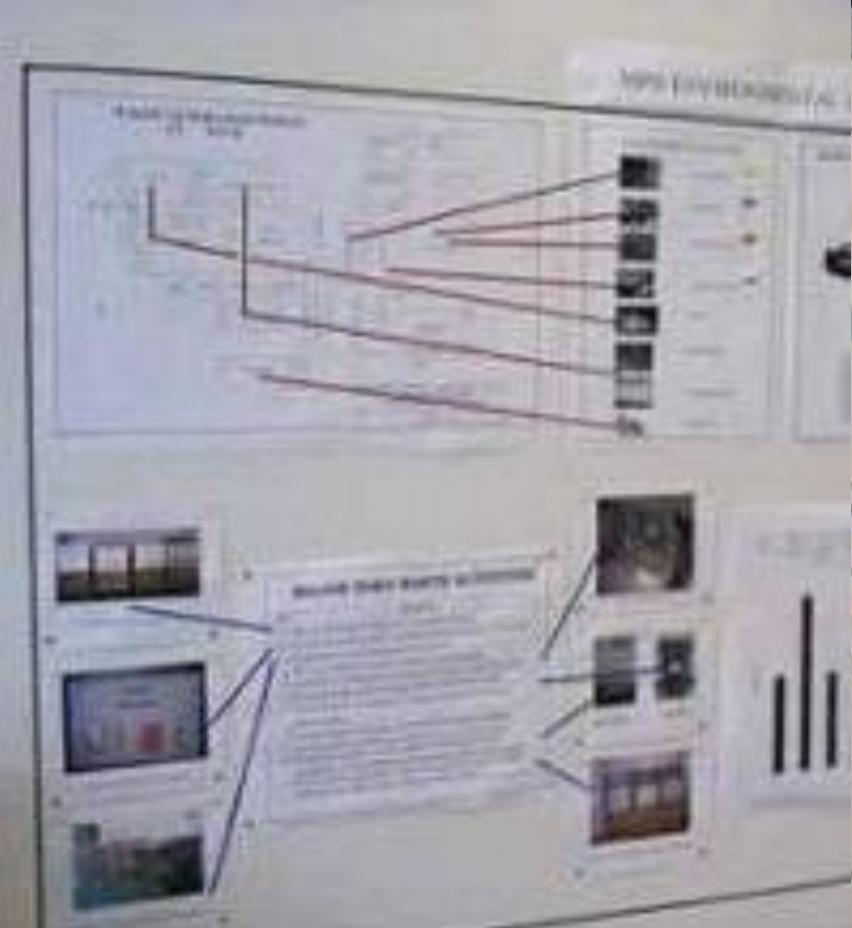
- Site plan (inside and out)
- Areas of Generation
- Identify each item
- Flow of Operations
- Start at receiving and purchasing
- Employee Engagement Interviews and Observations
- Water, Energy, & Trash

Waste Audit

- Usually end of pipe
- Identify by type of material
- Focus on moving to recycling bin

Know where materials come from





Zero Waste Profiling – Flow of materials



Zero Waste Audit - Pro Tips

When to Audit:

- Time of day – right before pickup
- Seasonal Trends
- Special Events (construction, parties)
- File purges, moves, remodeling
- Walk through during busiest times
- Multiple audits/samples

Supplies

- Gloves, bags, tarps, tables
- Scales, cameras, clipboard, pens
- Floor plans, department descriptions
- Safety equipment
- Appropriate clothing

Know your company:

- How and what they do
- Net Zero Goals
- Existing Policies
- Current material hauling (source separated materials, mixed recycling, bills, etc.)

Measure, Measure, Measure

- Data Collection tools (spreadsheets, apps, monitors)
- Weight and Volume (i.e., film plastic, label backing)
- Reduction and Reuse metrics

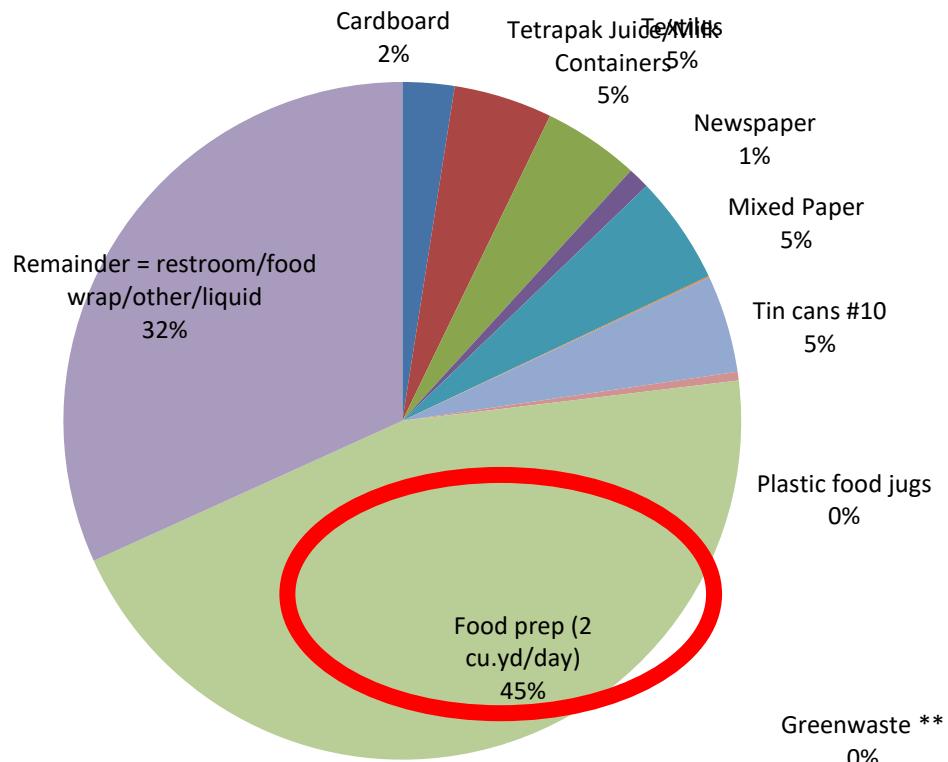


Review the Rate Matrix

Container Type/Size	Number of Collections per Week					
	1	2	3	4	5	6
Refuse Cart - 96 gallons	\$ 14.84					
Refuse Bin - 1 Cubic Yard	\$ 26.50	\$ 43.45	\$ 62.53	\$ 78.43	\$ 92.73	\$ 114.46
Refuse Bin - 1.5 Cubic Yard	\$ 30.73	\$ 53.52	\$ 73.66	\$ 99.62	\$ 130.36	\$ 153.67
Refuse Bin - 2 Cubic Yard	\$ 36.56	\$ 64.12	\$ 92.20	\$ 117.64	\$ 165.33	\$ 193.94
Refuse Bin - 2 Cubic Yard w/ Compactor	\$ 65.18	\$ 115.52	\$ 165.86	\$ 211.96	\$ 297.80	\$ 349.20
Refuse Bin - 3 Cubic Yard	\$ 52.92	\$ 95.38	\$ 136.18	\$ 175.40	\$ 217.26	\$ 257.53
Refuse Bin - 3 Cubic Yard w/ Compactor	\$ 95.38	\$ 171.16	\$ 244.81	\$ 315.29	\$ 391.60	\$ 464.19
Refuse Bin - 4 Cubic Yard	\$ 68.36	\$ 125.06	\$ 178.05	\$ 231.04	\$ 286.15	\$ 339.14
Refuse Bin - 4 Cubic Yard w/ Compactor	\$ 125.42	\$ 224.68	\$ 321.12	\$ 415.97	\$ 515.59	\$ 610.44
Refuse Bin - 6 Cubic Yard	\$ 78.43	\$ 140.95	\$ 201.89	\$ 259.65	\$ 322.18	\$ 382.06
Recycling Cart - 65 gallons	\$ 5.63					
Recycling Bin - 3 Cubic Yard	\$ 21.20	\$ 38.15	\$ 54.58	\$ 69.95	\$ 86.90	\$ 103.33
Manure Bin - 2 Cubic Yard	\$ 43.45	\$ 84.25	\$ 125.06	\$ 166.39	\$ 207.19	\$ 247.99
Scout Service	\$ 13.78	\$ 27.55	\$ 41.33	\$ 55.11	\$ 68.89	\$ 82.13
Locking Bin Service	\$ 7.42	\$ 11.66	\$ 15.90	\$ 20.14	\$ 24.38	\$ 28.61

A 3-yard picked up 2 x week is \$95.38, which equates to \$3.67/cubic yard, however a 6-yard 1 x week (same volume) is only \$3.01/cubic yard.

Weight – vs - Volume



Composition by Weight

Composition by Volume

The charts above indicate the food scraps are 45% by weight, but only 23% by volume. Since they are paying hauling plus weight charges on the compactor, it doesn't make sense for them to have the heavy food in the compactor.

Sierra Nevada Brewing Co:

- Received **first** ever TRUE certification
- Have two TRUE Zero Waste certifications
- Sierra Nevada Brewing Co. (Mills River) is also LEED Platinum certified
- Through their reduction & reuse commodity program, they save **a half million dollars** every year
- They have **12** different commodities that they sell on a monthly basis



Effective Survey Techniques

Logistics:

- Sent by Leadership
- Managers trained
- Virtual and hard copy
- 2 or 3 day completion (*make sure you have given employees time to complete*)

Effective Zero Waste Communication

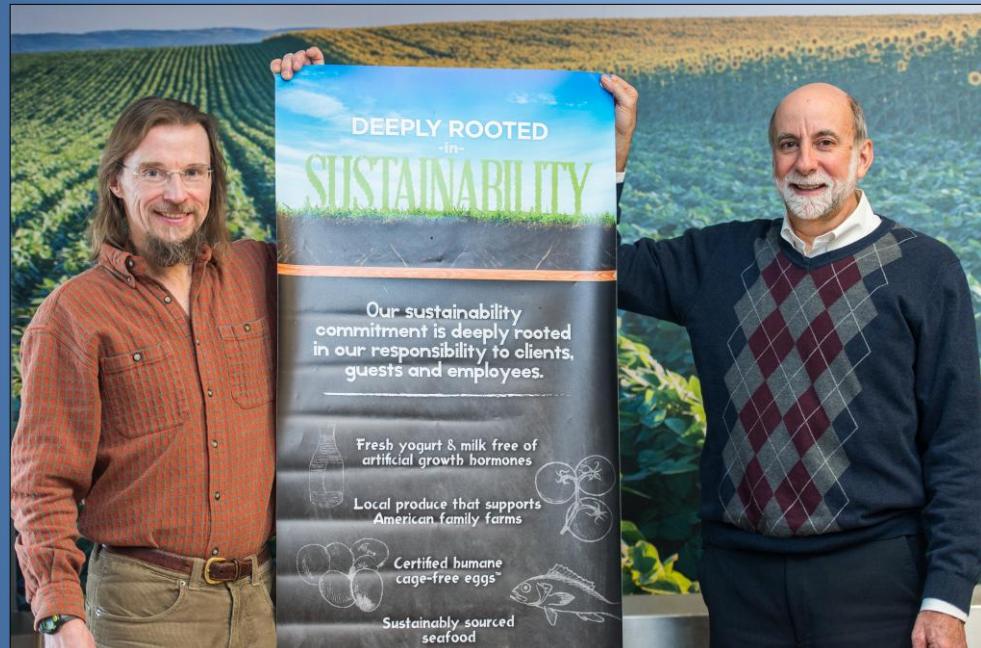
- What is the employee preference
- At every meeting (5 minutes)
- Videos, emails, visuals, etc. – just like Safety!

Survey Content:

- Who they are:
How old, length of employment, department, etc.
- What they do (home and work):
Water, energy, transportation, recycling, etc.
- What they know:
Environmental Literacy!



Employee Engagement



- Interview
 - Diversity of staff
 - 15 minutes
- Observe
 - Policy vs practice
 - Where are road blocks
- Training
 - Keep it simple
 - In every meeting
 - Get everyone in the dumpster
 - Every department; every meeting



BE THE CHANGE

- Leader in Zero Waste Community Plans
- Educate Industry/Business Sector
- Create new markets (composting sites)
- Zero Waste Community Events

Environmentally Preferred Purchasing Guidelines

- Policy of choosing reusables, repairable, recyclable, compostable
- Notify all stakeholders NOW!
- Checklist for vendors – let them do the work
- Does it close the loop (pulling back the curtain)
- Speaking with your vendors sustainability vs sales team
- Progress versus perfection
- Helping vendors achieve zero waste!

I would rather look through purchasing invoices vs dumpsters

Distribution Centers



Ann, Inc. REI Best Buy
Grainger Bronco Wines
Cintas HyVee DC
Cox Communications Fulfillment

- Reuse of plastic bubble pillows/sheets for repacking to reduce shipping costs
- backhaul programs from stores
- Innovative programs to divert unsellable inventory to employees
- Source separated materials
- reusable RFID (radio-frequency identification) tags

<https://true.gbci.org/projects>

Spotlight: Toyota

Moving upstream from recycling to reuse

- Since 2002, Toyota's parts & accessories returnable container program has saved over **220 million** pounds of wood & **145 million** pounds of cardboard
- That's the equivalent of **2.7 billion** trees & **\$1 billion** in packaging costs savings
- Currently, about **11 million parts** & more than **60,000** reusable shipping containers travel through the parts & accessories network
- All of these savings equal more resources for the future & lower costs for Toyota's parts & accessories



In Summary



Document current site plan and containers



Review purchasing policies and invoices



Engage employees and leadership



Calculate financial savings of diversion



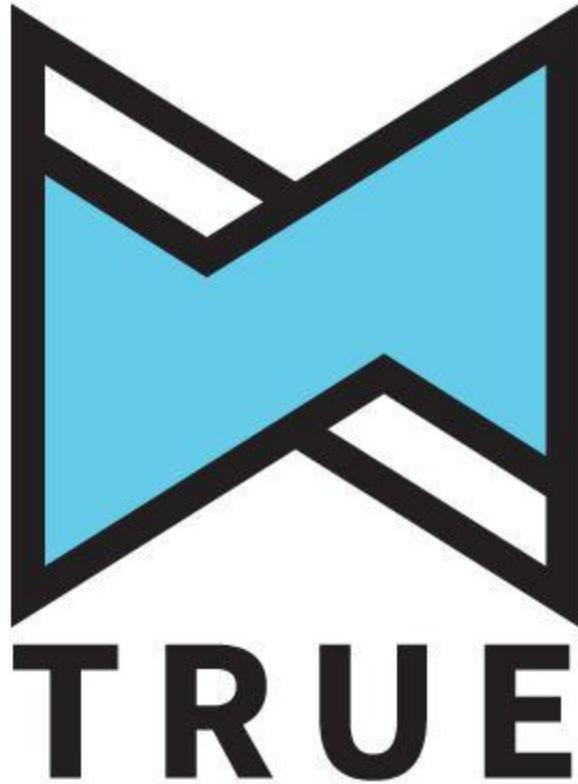
Focus on departments and processes (areas of generation)



Focus on individual items and the zero waste hierarchy



Put it all together!



TRUE v2 is coming
SHARE YOUR FEEDBACK



Contact TRUE

Stephanie Barger:
sbarger@usgbc.org

true@gbc.org
www.true.gbc.org

Live Poll #2

What types audits/ assessments has your facility / organization done? *(Click all that apply)*

- Traditional waste audit
- Audit purchasing records
- Audit collection infrastructure (bins, dumpsters, etc.)
- Audit hauling, other service contracts
- Other *(Share details in the chat)*

Keith Wojciechowski

- 2022 – Present Senior Manager, Global EHS
Environmental Compliance
Colgate Palmolive
- 2019 - 2022 EHS & Sustainability Lead
Ortho Clinical Diagnostics
- 1999 – 2007 EHS Staff- Environmental
Compliance Lead,
Johnson & Johnson





TRUE Certification

A Snapshot of Our Journey

Keith Wojciechowski
Global EHS





We are Colgate-Palmolive,
a caring, innovative growth
company that is
reimagining a healthier
future for all people, their
pets and our planet.



Content

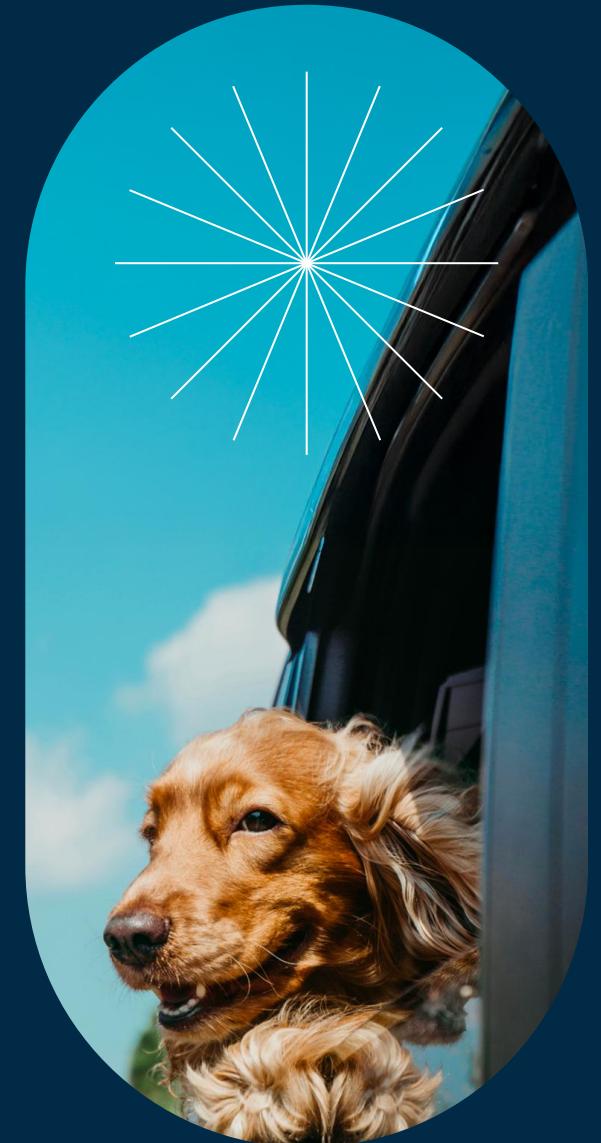
Leadership Bottom up and Top Down

Beyond
Diversion Packaging Opportunities

Innovation Pathway for the Recyclable Tube

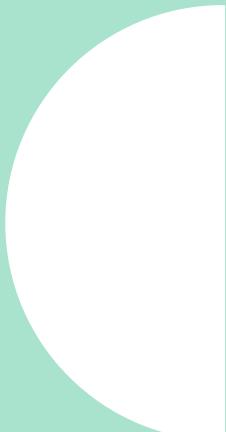
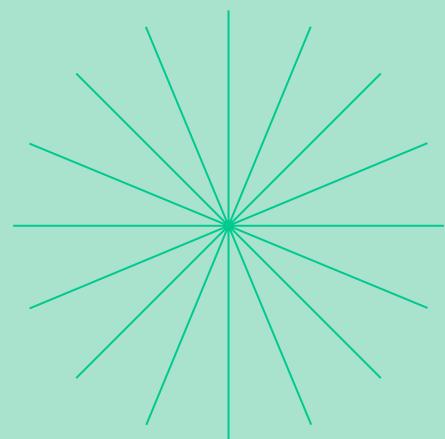
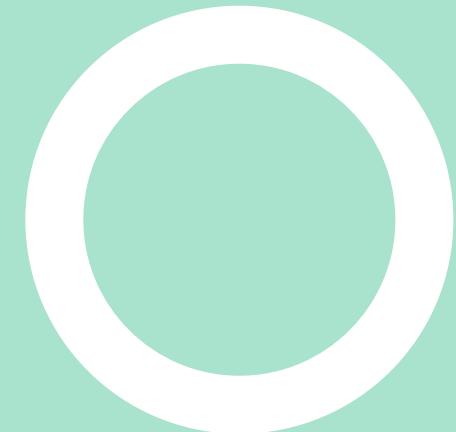
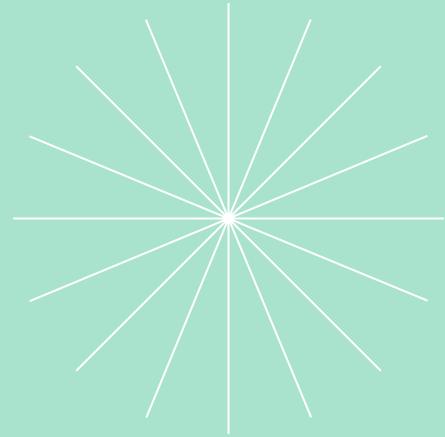
Purchasing
Policies Environmental Partners

Offices A Challenge, But Fun



01

Leadership



Timeline



2010-2013

"Zero Waste to Landfill" Program & Award

1st Landfill waste reduction target; began collecting detailed waste data & providing, global tools and resources

2017

1st TRUE Zero Waste Certified Factory

Hill's Pet Nutrition
Richmond, Indiana

2020

2025 CP Sustainability & Social Impact Strategy

Operate high-efficiency, low-impact, zero waste facilities.

TODAY

52 TRUE Zero Waste Certifications

- 35 plants
- 8 Warehouses
- 8 Offices
- 1 GTC

26 Countries
6 continents

"What you have or what you're given is what you're responsible for. And to what degree or what level you want to take, that's a personal choice....

If you have the knowledge and the passion and the capabilities, why not?"

Hill's Pet Nutrition Interviewed Employee



02

Beyond Diversion



Beyond Diversion

Looks at the Entire Supply Chain



Waste Eliminated
for Customers

Waste Eliminated in Our Factories

Reuse Credit 1: Develop systems that emphasize reuse

1



2



3



Plant receives its materials in carton boxes.

After the cartons are emptied, they are dismantled.

The packaging pieces are collected and sent back to the supplier to be used again. The packaging can be reused at least 3-4 times.

Upstream Management Credit 4: Core Redesign Initiative

BEFORE:
Paper Cores
(Non-Reusable)



Rolls had paper cores; not reusable and sent to landfill.

AFTER:
Plastic Cores
(Reusable & Closed-Loop)

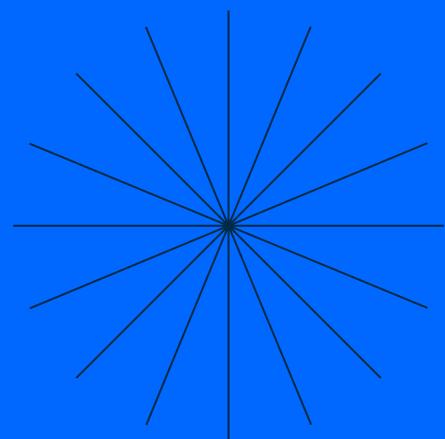
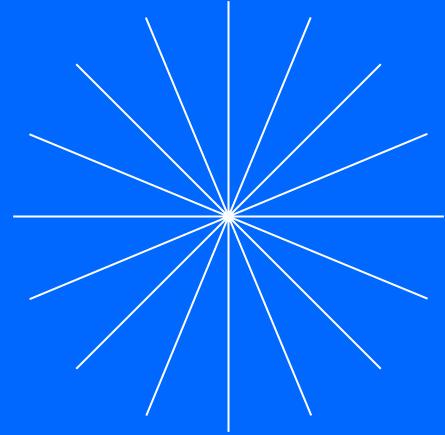


Narrative: Collaborated with vendor to redesign rolls, replacing non-reusable paper cores with durable plastic ones. The new cores are now shipped back to the vendor for reuse, creating a closed-loop system.

New plastic cores are durable, shipped back to vendor, and reused, eliminating waste.

03

Innovation



Innovation

Master Roll



Printed Web



Forming Tubes



Production Waste Source

Material Processing & Shredding

Recycled Product Integration



Waste is shredded



Plastic elements for cleaning products made with web and empty tube waste

Waste from web printing & tube forming processes

Innovation Credit 3: Implement innovative waste reduction activity

1. What happened?



Scrap toothpaste tubes requiring disposal were sent to Landfill.

2. What we did....



Cut and deposited into a water bath for cream to dissolve.

3. What was achieved\!



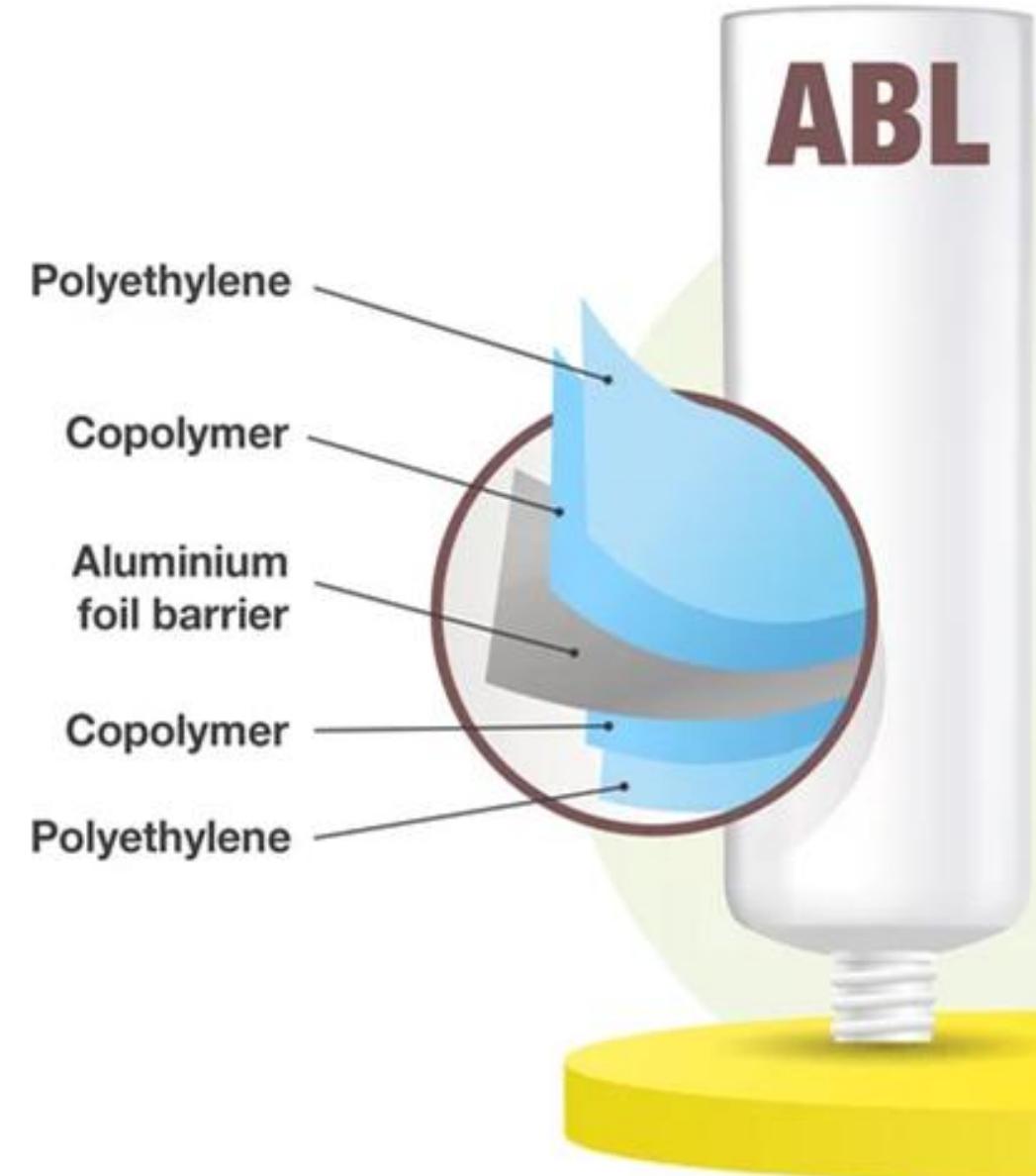
2.0 Ton/Month

Diverted of filled toothpaste tubes from Landfill.

Squeeze tubes are one of the most widely used forms of packaging.



And most toothpaste tubes were traditionally made with a mix of materials, making them not recyclable.



We want ALL TUBES Recyclable in Practice & Scale

Redesigned tubes for existing #2 HDPE Bottle
Recycling Stream.

Presented at over 70 packaging forums and 1-on-1 meetings to promote the transition to recyclable tubes to build critical mass



Composting other personal care products



1. Receipt and staging.



2. Mixing with other organics.



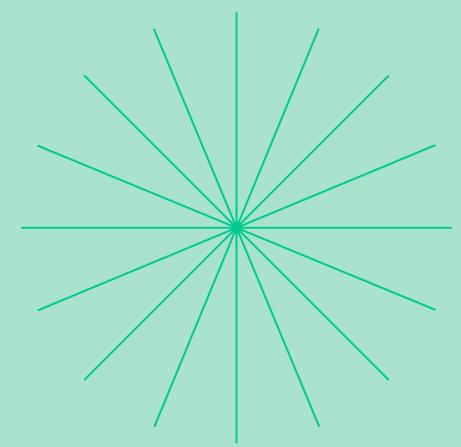
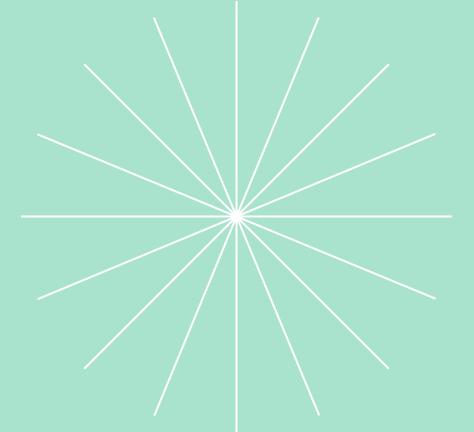
3. Shredded and dewatered.



4. Composted.

04

Environmental Purchasing Policies



Env. Purchasing Policies

Definition & Purpose



What is EPP? A strategy that melds procurement with environmental sustainability. It focuses on purchasing products that have a lesser impact on human health and the environment compared to competing products.



The Goal: To minimize environmental impacts and support Zero Waste goals by prioritizing recycled and environmentally friendly products.

Key Decision Factors



Total Cost vs. Initial Price: Decisions should be based on "Cost" (total expense including initial price, lifecycle costs, and disposal) rather than just "Price" (initial expense to acquire).



Practicability: Products are recommended when they are "practicable," meaning they offer sufficient performance and are available at a reasonable cost.

Core Purchasing Requirements & Standards



Paper & Wood Standards

Core Purchasing Requirements & Standards

Paper & Wood Standards

- **Office/Copy Paper:** Must contain at least 30% post-consumer recycled content.
- **Janitorial Paper:** Must contain at least **20%** recycled content.
- **Certification:** Wood and paper supplies should be certified as sustainably produced.

Product Preferences

- **Durability over Disposability:** Employees must specify durable, compostable, or reusable items over disposable ones whenever possible.
- **Refurbished Goods:** First preference should be given to used, refurbished, or remanufactured goods to avoid purchasing new items.
- **Zero Waste Alignment:** Purchasing choices should actively reduce waste streams, such as avoiding single-use plastics or non-recyclable packaging



Product Preferences



Durability over Disposability:

Employees must specify durable, compostable, or reusable items over disposable ones whenever possible.



Refurbished Goods:

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Waste Prevention & Implementation

Operational Best Practices



Durability Checks: Assess the repairability and durability of products *prior* to purchase.



Packaging Reduction: Work with vendors to eliminate extra packaging or utilize reusable shipping containers to remove waste streams.



Maintenance: Conduct routine maintenance on equipment to extend useful life and delay replacement.



Printing: Specify duplex (double-sided) printing on all jobs to reduce paper consumption.

Roles & Responsibilities

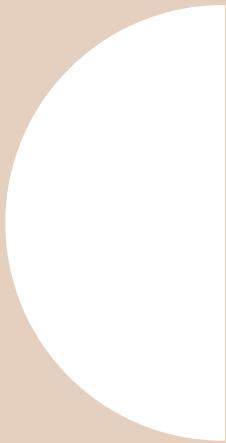
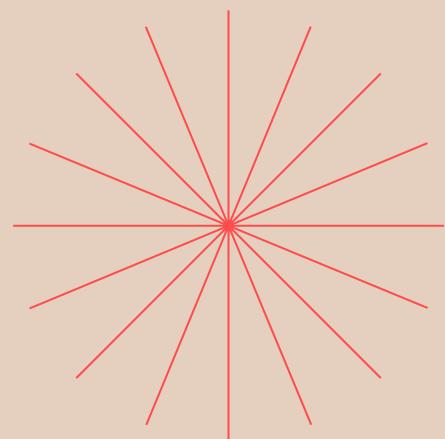
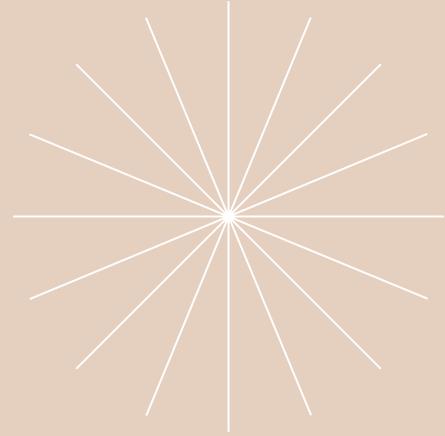


Green Team: Employees should bring ideas for sustainable improvements to the site Green Team for implementation support.



Suppliers: Suppliers are expected to reduce packaging and assume responsibility for products that are difficult to recycle or compost.

05 Offices



Have fun with promoting CHANGES

BEFORE making Changes

1. Economic and Operational Efficiency

- **Reduced Custodial Costs:** Save roughly \$50 per employee per year in labor costs.
- **Lower Supply Expenses:** Centralization reduces the number of plastic liners needed. 1,000 employees means 1,000 liners
- **Operational Streamlining:** Janitorial staff can focus on higher-priority deep cleaning tasks

2. Environmental Impact

- **Higher Recycling Rates:** Case studies of 50% increase in recycling after removing individual bins.
- **Reduced Contamination:** Prevents stains to office furniture and finishes.

3. Employee Health and Productivity

- **Promotes Microbreaks**
- **Improved Workspace Hygiene:**



4. Space and Accountability

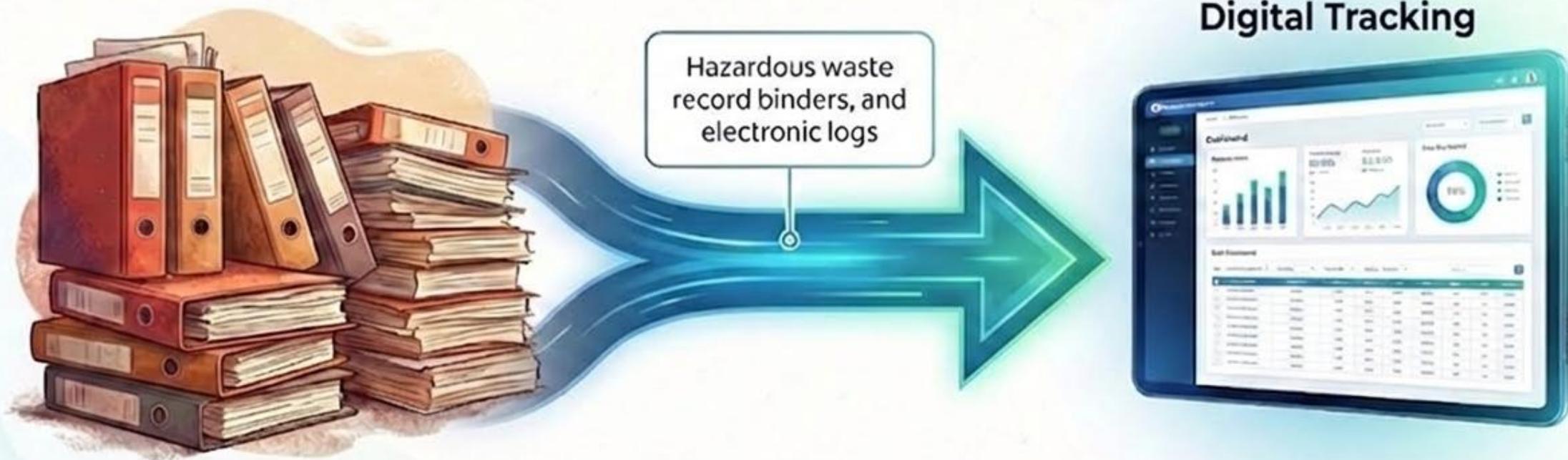
- **Clutter Reduction:** frees up floor space and creates a cleaner, more organized office aesthetic.
- **Increased Responsibility:** When disposal happens in a shared space, individuals are psychologically more likely to make thoughtful, accurate decisions about where to place their waste.

Reusable Pantry Program



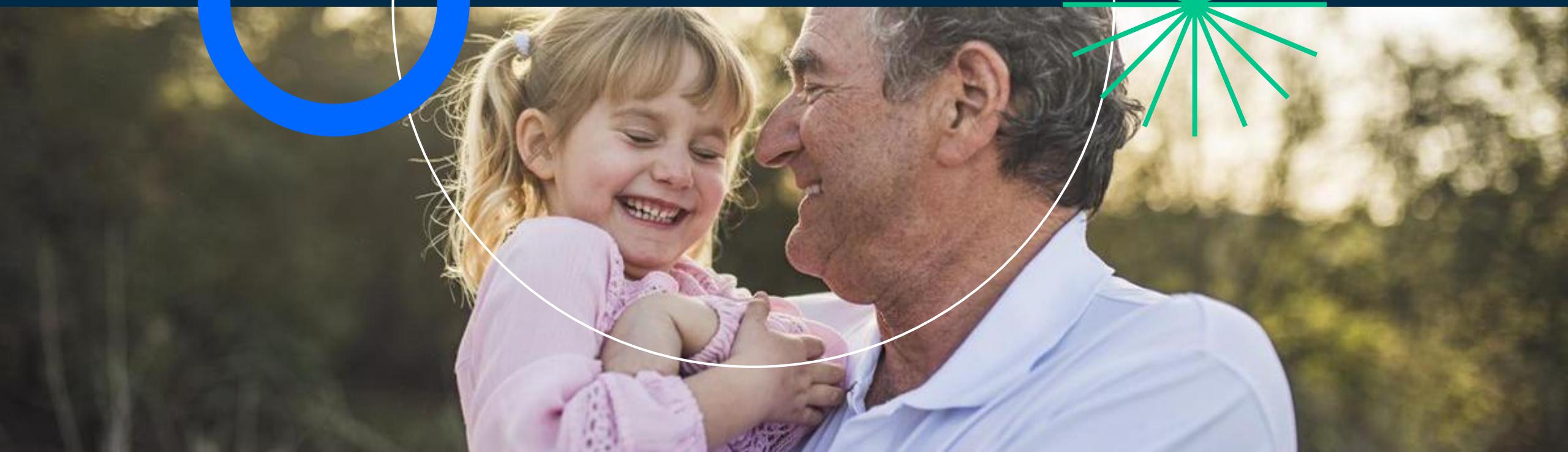
China coffee cups and dishwashers provided in pantries across sites to promote and prevent the use of single-use containers.

Capturing data, performing inspections and retaining documents is a significant paper burden.





Thank You



Q & A



Stephanie Barger
US Green Building Council



Keith Wojciechowski
Colgate-Palmolive

Today's Program Online



- Recording
- Presentation slides
- Resources

Link will be emailed in coming days

Archive of Past Programs



- Labels & Signage
- Rebuilding Confidence in Recycling
- Developing Bin Standards
- Reuse programs

+ More



Upcoming Programs



Maggie Bain
Circular Innovation Council



Lesly Baesens
City and County of Denver



Amber Barbella
Diversion Designers



Upcoming Conferences



February 18
San Diego, CA



March 24
Boxborough, MA

Thank You to Our Panelists!

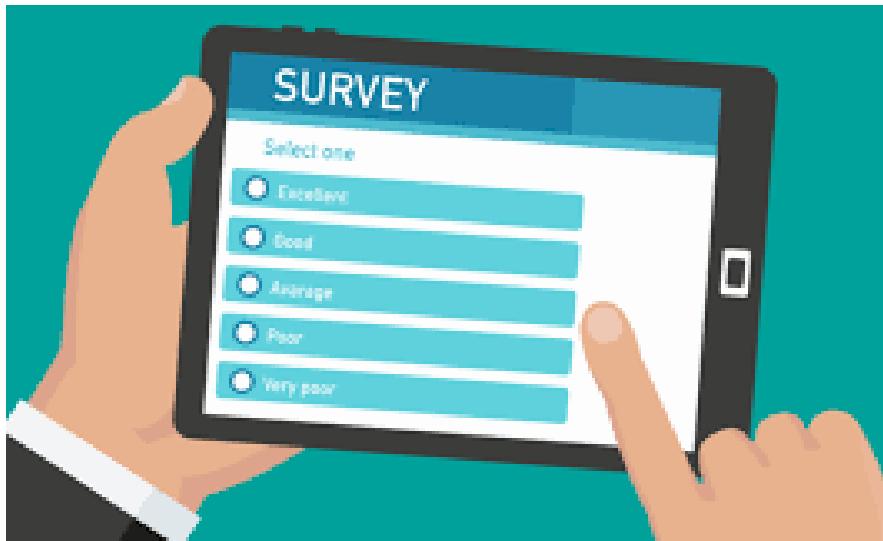


Stephanie Barger
US Green Building Council



Keith Wojciechowski
Colgate-Palmolive

Share Feedback with Presenters



Post-Webinar Survey:

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

Stick Around For....



Product demo with:

Sarah Hawthorne
Business Development Manager