

NET ZERO WASTE



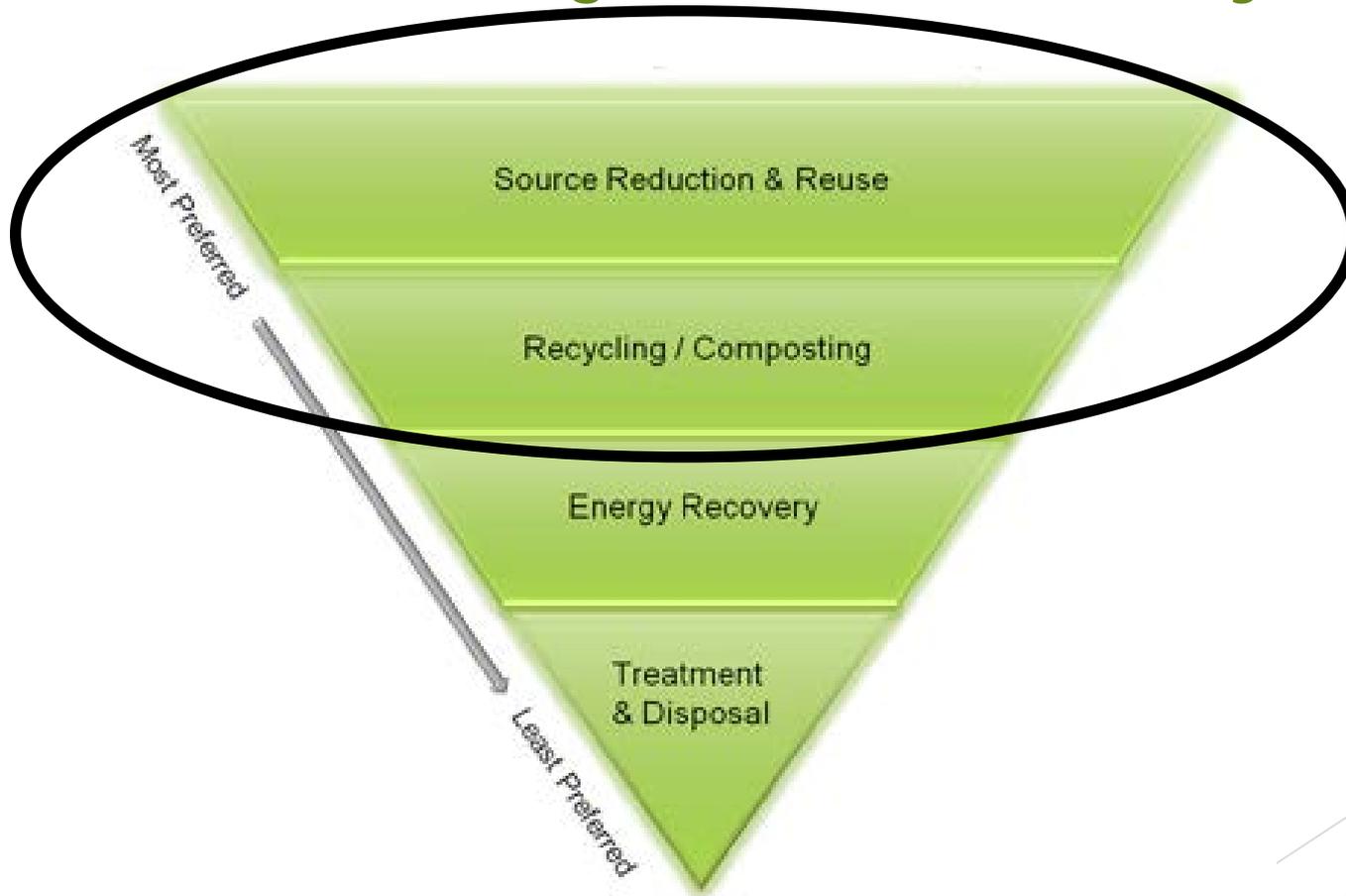
Interagency Sustainability Working Group Meeting

July 21, 2016

Timonie X. Hood, *LEED AP*

U.S. Environmental Protection Agency, Region 9

U.S. EPA Non-Hazardous Materials and Waste Management Hierarchy





Use Reusables:
<http://useresables.org>

National Zero Waste Progress

**Disposal:
Landfill
54%**



**Recycling &
Composting
34%**



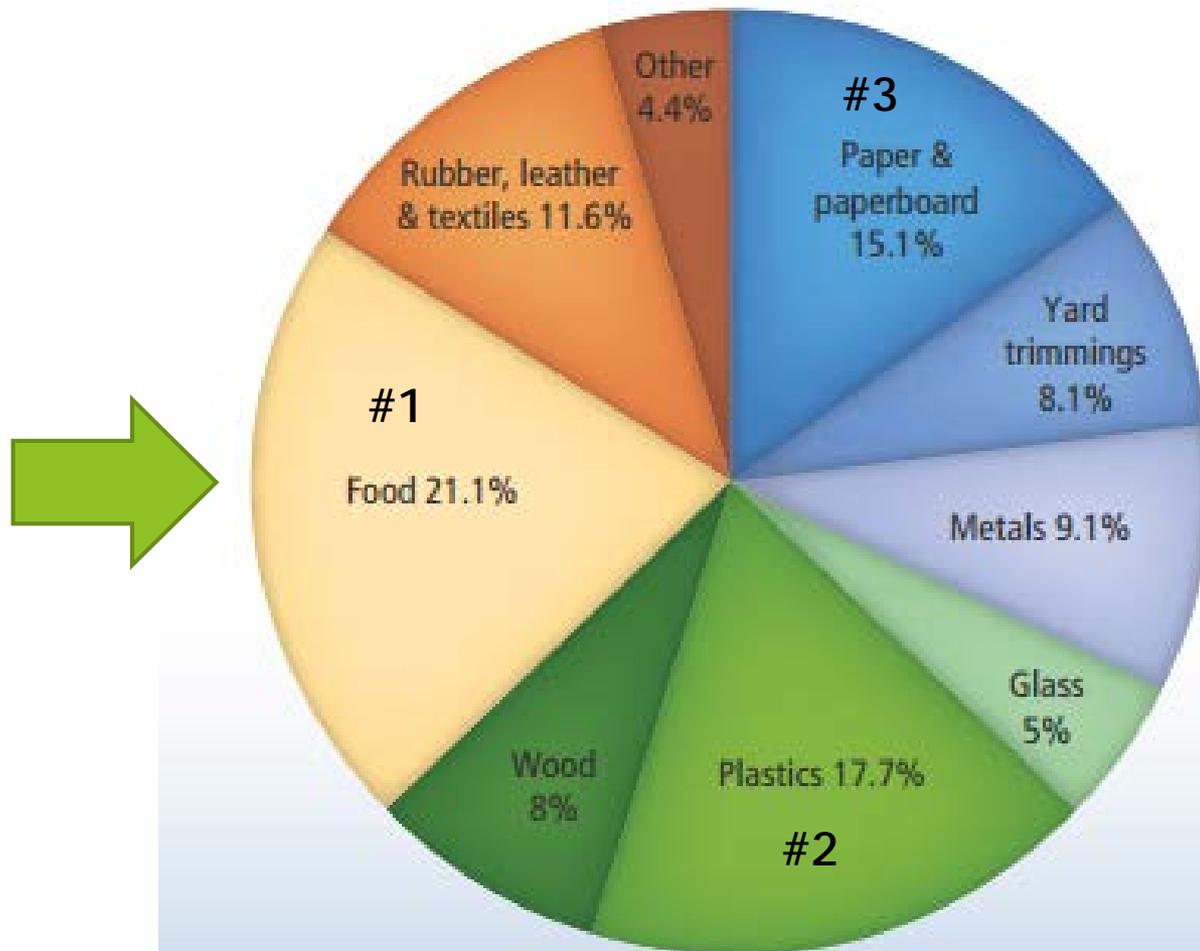
**Disposal:
Energy
Recovery
12%**

Recycling and Composting Trends

Material	1970	1980	1990	2000	2013
Food (for composting)					5%
Plastics	--	<1%	2%	6%	9%
Glass	1%	5%	20%	23%	27%
Metals	4%	8%	24%	35%	34%
Tires	13%	6%	12%	26%	41%
Yard Trimmings	--	--	12%	52%	60%
Paper & Paperboard	15%	21%	28%	43%	63%
Lead-Acid Batteries	76%	70%	97%	93%	99%

What's Wasted?

67 Million Tons/Year

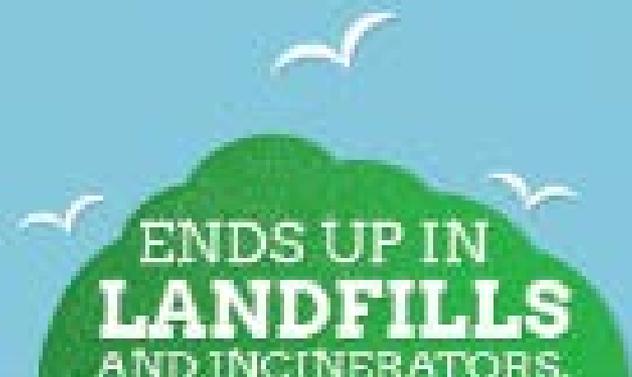


Where to Focus? Wasted Food



- ▶ Food is the largest portion of the waste stream
 - ▶ 35 million tons/year -- worth \$161 billion/year
 - ▶ National Goal: Reduce Food Loss & Waste 50% by 2030
- ▶ **TAKE ACTION:**
 - ▶ Join EPA's Food Recovery Challenge
<https://www.epa.gov/sustainable-management-food>
 - ▶ Join EPA's Federal Green Challenge
<http://www.epa.gov/fgc>

DID YOU KNOW?





THE IMPACT



RECYCLING HELPS TO CREATE **CLEANER LAND, AIR, AND WATER, AND BETTER HEALTH.**



ANNUALLY, THIS ELIMINATED MORE THAN **186 MILLION METRIC TONS** OF CO₂ EQUIVALENT EMISSIONS REDUCED WHICH IS,

COMPARABLE TO REMOVING THE **ANNUAL EMISSIONS**

FROM OVER **39 MILLION** PASSENGER VEHICLES.

U.S. Greenhouse Gas Benefits of Recycling & Composting Annually

<http://www.epa.gov/WARM>

	Material	Weight Recovered (millions of tons)	GHG Benefits MMTCO ₂ E	Numbers of Cars Taken Off the Road per Year
#1	Paper and paperboard	44.4	130.5	27 million
	Glass	3.20	1	210 thousand
	Metals			
	Steel	5.55	9	1.9 million
	Aluminum	0.71	6.3	1.3 million
	Other nonferrous metals†	1.36	5.3	1.1 million
#2	Total metals	7.62	20.6	4.3 million
	Plastics	2.80	3.2	670 thousand
	Rubber and leather‡	1.35	0.7	145 thousand
	Textiles	2.25	5.7	1.2 million
	Wood	2.41	4.2	900 thousand
	Other wastes			
	Food, other^	1.74	1.4	290 thousand
	Yard trimmings	19.6	0.8	170 thousand

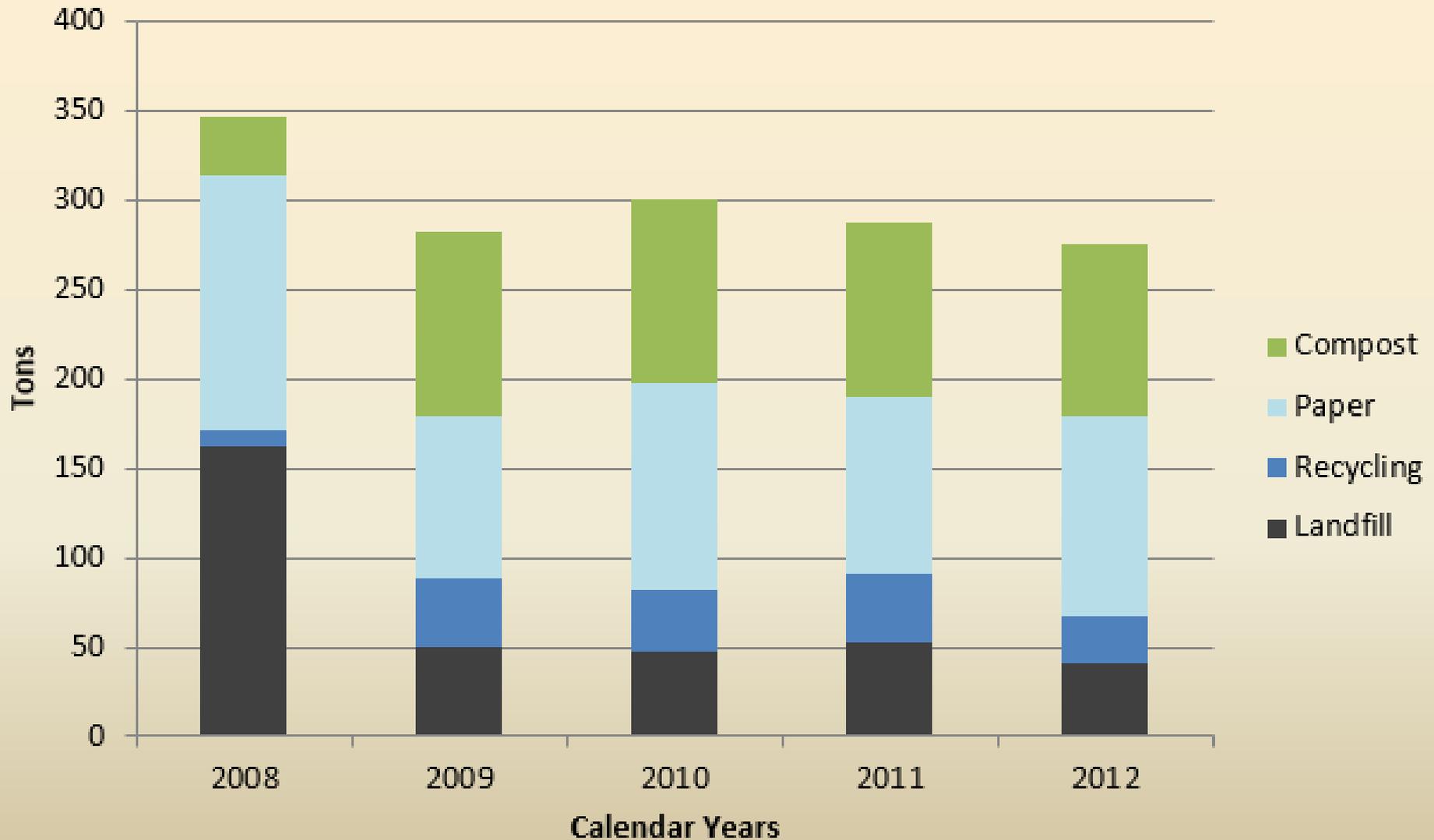
Federal Zero Waste Case Study

U.S. EPA Region 9 - San Francisco

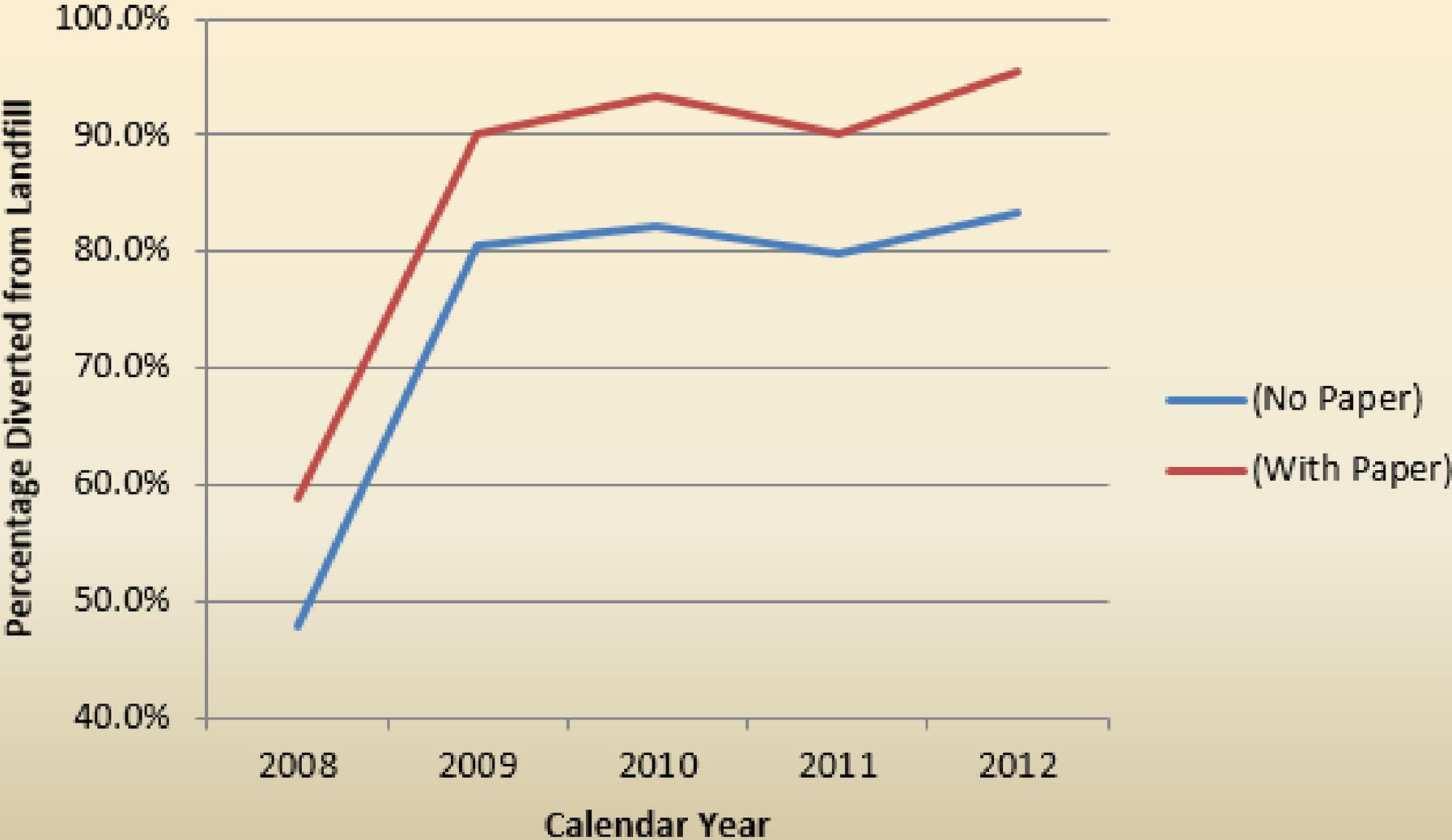
- ▶ GSA Leased Building - 19 Floors / 760 employees
- ▶ Major Green Building Renovation (2013 - 2017)
 - ▶ Targeting: LEED Platinum
 - ▶ Water Bottle Filling Stations
 - ▶ Built-In Recycling & Composting Bins
 - ▶ Green Wall & Recycled Wallpaper
- ▶ Regional Administrator Sustainability Policy (2010)
 - ▶ Leadership via ISO 14001 Environmental Management System
 - ▶ Zero Waste to Landfill / Incinerator



EPA R9 Annual Waste Disposition



EPA R9 Diversion Over Time



Zero Waste Success!

Achieved 95.4% Diversion

- ▶ Floor-level Waste Audits (Bathroom Scales)
- ▶ “Kicked the Can” - Removed Deskside Waste Containers
- ▶ EMS Zero Waste Training
- ▶ Paper Use Reduction Audits & Software
- ▶ **Food Waste & Paper Towel Composting**



Zero Waste Leaders

U.S. Conference of Mayors 2015 Resolution:

In Support of Municipal Zero Waste Principles and a Hierarchy of Materials Management

Communities

- ▶ San Francisco
- ▶ Oakland
- ▶ San Jose
- ▶ San Diego
- ▶ Los Angeles
- ▶ Boulder, CO
- ▶ Seattle
- ▶ Austin
- ▶ Dallas
- ▶ New York City
- ▶ Washington D.C.
- ▶ Minneapolis
- ▶ Guam



- ▶ CBRE
- ▶ Sierra Nevada Brewery
- ▶ Fetzer Vineyards
- ▶ Earth Friendly Products
- ▶ Raytheon
- ▶ Northrop Grumman
- ▶ Disneyland
- ▶ Whole Foods Markets - SoCal
- ▶ & Many More ...

San Francisco Zero Waste Policies and Mandatory Recycling & Composting

80% DIVERSION

- Zero Waste by 2020
- Training in 17 different languages
- Smaller bins - pay less



San Francisco Zero Waste

“No Ban without a Plan”

- ▶ Plastic Bag Ban
- ▶ Polystyrene Bans
- ▶ Cigarette Litter Abatement Fee



Plastic Bag Ban: <http://sfenvironment.org/article/checkout-bag-ordinance>
Polystyrene Bans: <http://sfenvironment.org/article/food-service-waste-reduction-ordinance> & <https://sfgov.legistar.com/View.ashx?M=F&ID=4535715&GUID=3B9C2638-FDA3-4A0F-9A69-CED0F2D97849>
Cigarette Letter Abatement Fee:
http://sfenvironment.org/sites/default/files/editor-uploads/zero_waste/pdf/sfe_zw_cigarette_litter_abatement_ordinance_with_amendments.pdf



San Francisco Zero Waste Events

PAPER TOWELS ONLY

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We are composting to reduce waste



SF Environment
Our home. Our city. Our planet.
A Department of the City and County of San Francisco



Recology
Sunset Scavenger
Golden Gate
WASTE ZERO

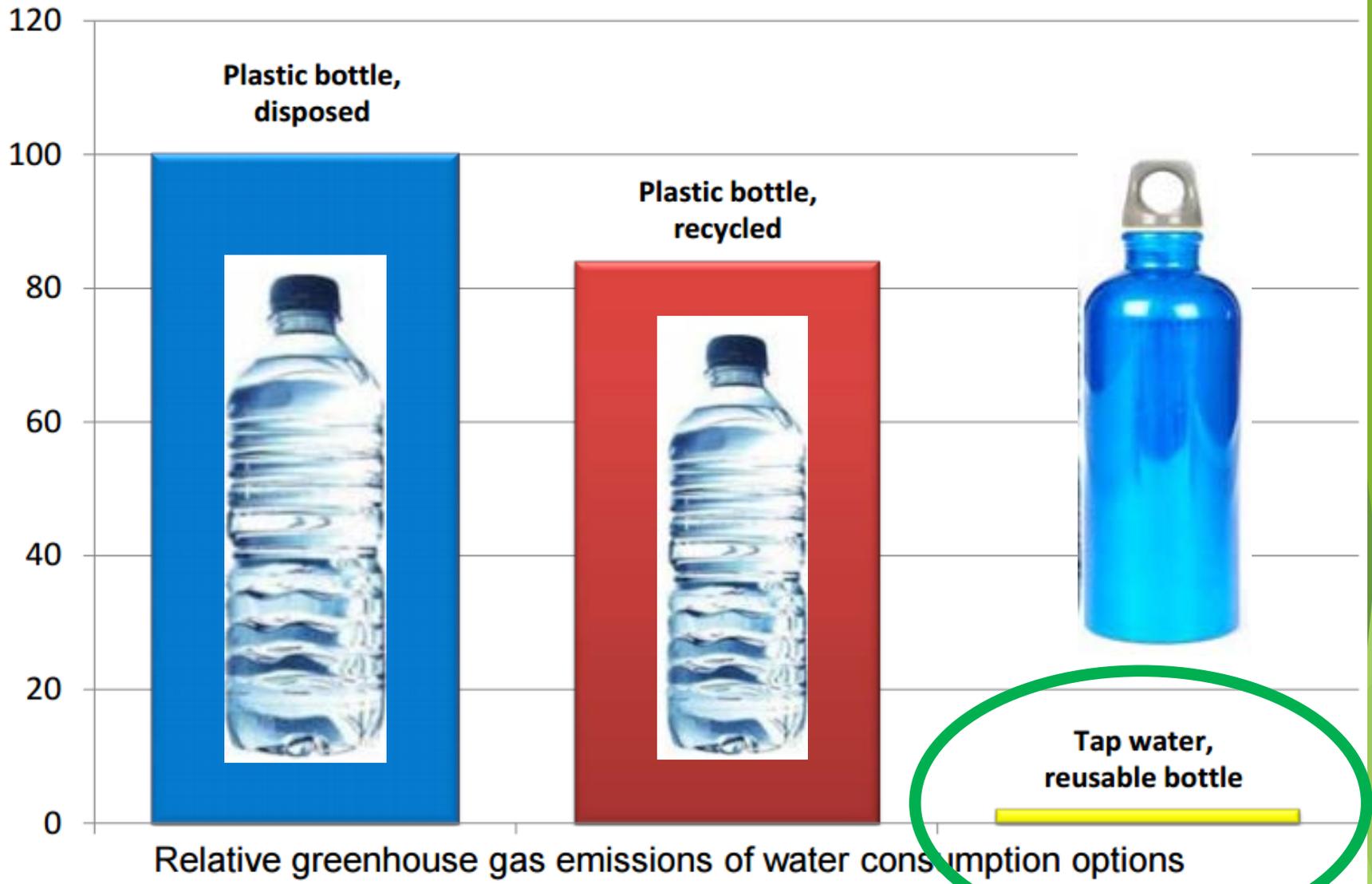


- Banned the sale of plastic water bottles on city property



- Customizable Signs
<http://sfenvironment.org/signmaker>

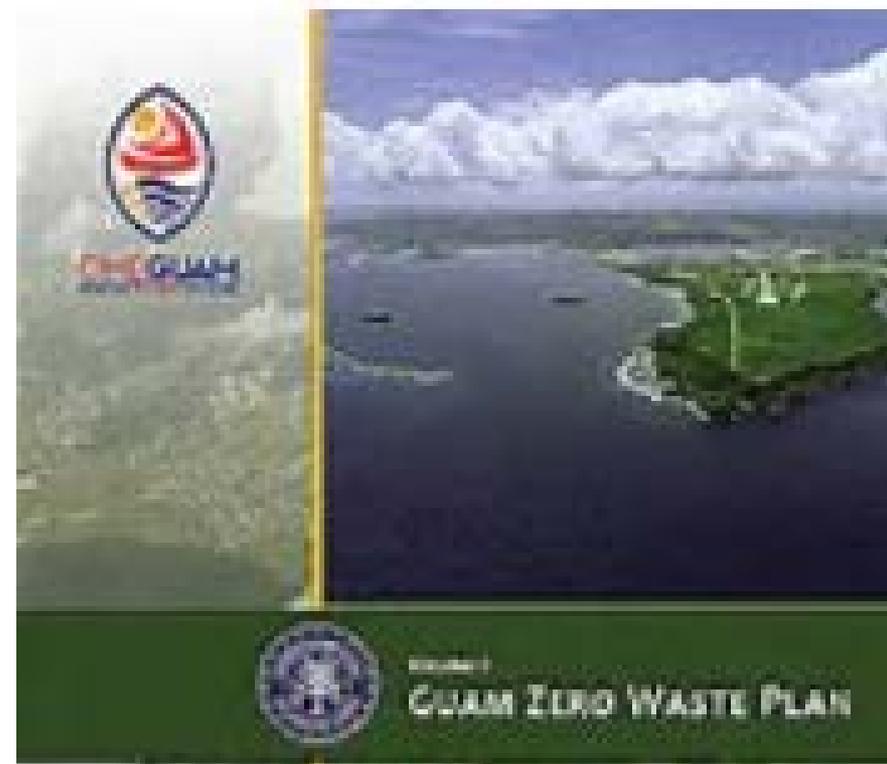




Oregon Department of Environmental Quality, Drinking Water
A Comparison of Bottled and Tap Water Using Life Cycle Analysis
<http://www.deq.state.or.us/lq/sw/wasteprevention/drinkingwater.htm>

Community Engagement: Guam Zero Waste Plan

- ▶ **DoD-funded Process**
 - ▶ Military Buildup
 - ▶ DoD / Governor's Office /
Guam EPA / EPA
- ▶ **Island Stakeholders:
Zero Waste Visioning**
 - ▶ On-island
 - ▶ Set Priorities
- ▶ **Guam Zero Waste Plan (+500 pages)**



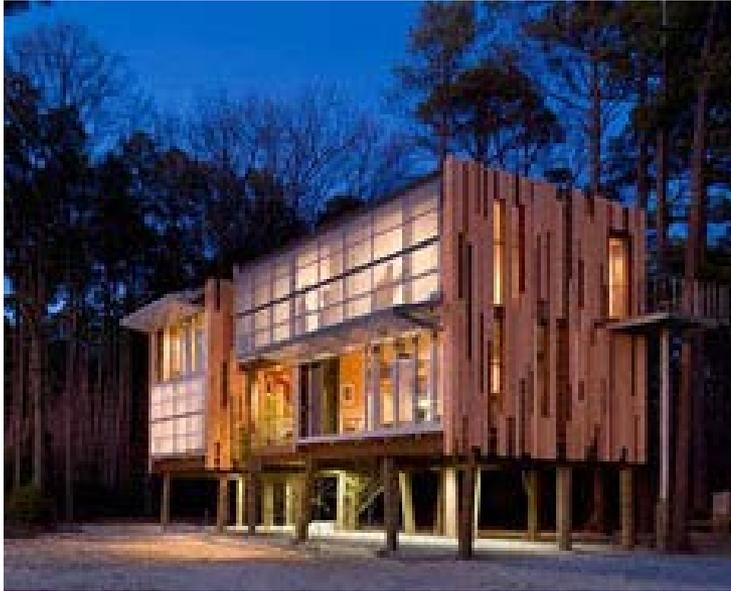
Zero Waste Plan: <http://go.usa.gov/xceZP>
Video: <https://youtu.be/JfKOFiwr2w>

Guam Zero Waste Results

- ▶ Established Measurement Program
 - ▶ Recycling Rate Rose from 18% (2011) to 33% (2014)
- ▶ Island-wide curbside recycling & first permanent Household Hazardous Waste Facility in the Pacific Islands
- ▶ Composting
 - ▶ Permitted 5 facilities
 - ▶ +10,000 tons/year
- ▶ Zero Waste Pacific Training (2014)
 - ▶ Hosted by Guam EPA
 - ▶ Zero Waste Youth Convergence



Zero Waste Building Design Opportunities

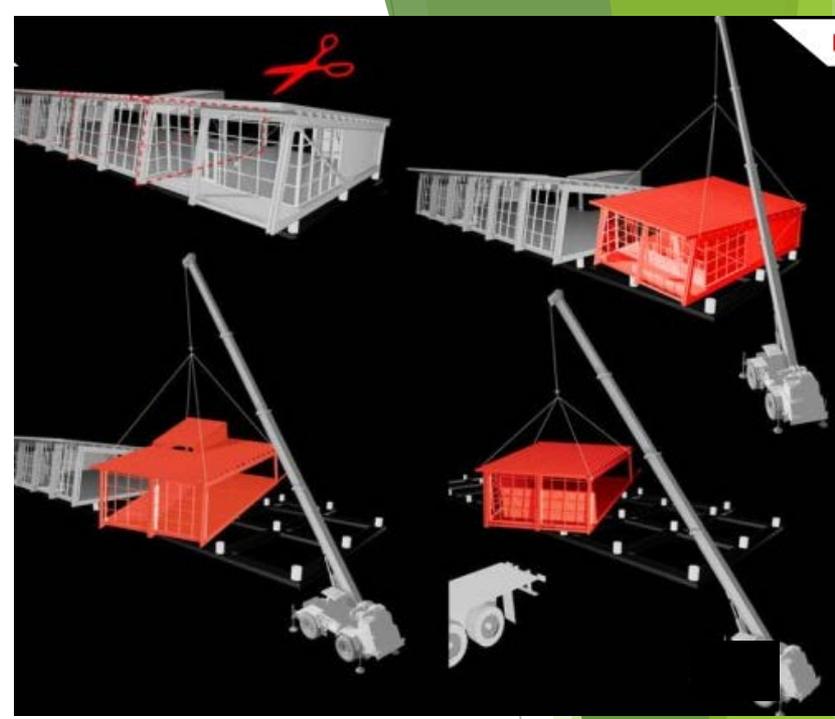


Loblolly House, Taylors Island, MD

- Design for reuse and adaptation
- Reusable, recyclable materials

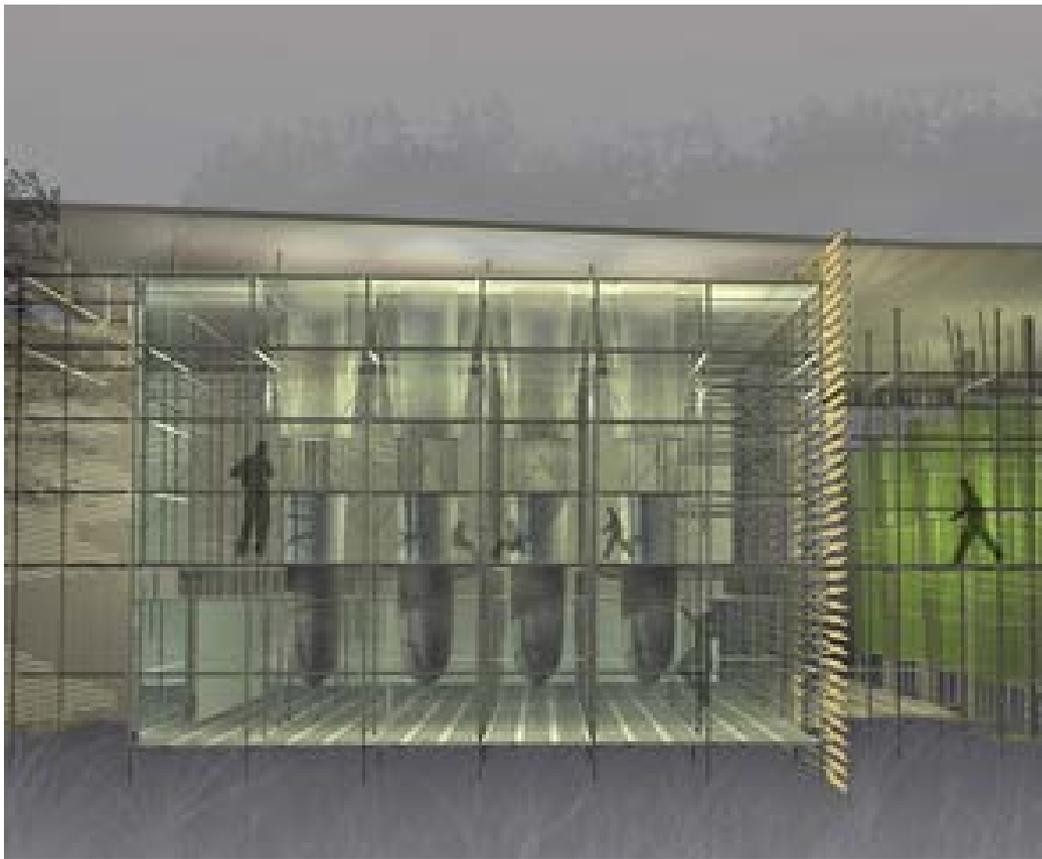
- Adequate space interior & exterior for collection bins
- Durable structures and materials





*Pavillion in the Park,
Seattle, WA*

- Modular building designed to be moved
- Pin Foundations
- Nail-free Paneling
- Exposed Connections
- Central Utility Raceways



- Student design winner: National University of Singapore
- Structure made of reusable scaffolding
- Salad bar produced by on-site vermicomposting to encourage Net Zero Waste dialogue!



Thank you!

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105

OFFICE OF THE
REGIONAL ADMINISTRATOR

Sustainable Region 9 Policy

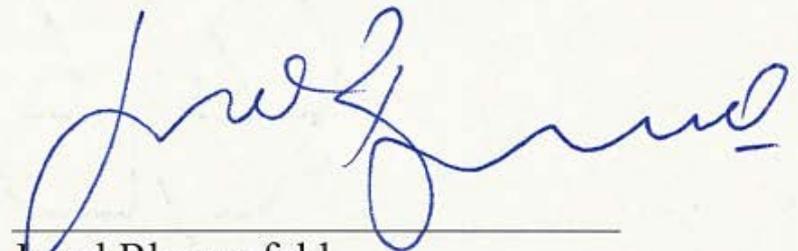
EPA Region 9 is committed to demonstrating the environmental, economic and social equity principles of sustainability in our internal operations and regulatory programs. In doing so, we will not only comply with all applicable environmental laws, regulations, policies and requirements; we will go beyond, by leading visionary initiatives that minimize the environmental impacts of our operations and programs, maximize the environmental benefits, and model the highest standards of sustainability. To guide us in this effort, we will implement an Environmental Management System (EMS), consistent with the ISO 14001 standard to ensure that we:

- Work collaboratively to establish robust and achievable goals to advance sustainable practices, including zero waste to landfill/incinerator and net carbon neutrality for Region 9's office, travel and commute;

- Set the highest possible standards for greenhouse gas reduction, sustainable resources management, and pollution prevention by developing national models for EPA travel, meetings, commute, energy use, waste diversion, and procurement practices;
- Remove unintentional obstacles in order to foster the most advanced and effective sustainability practices;
- Empower and ensure the well-being of our diverse workforce, which is our primary strength, and enable every employee to contribute to sustainability goals;
- Hold ourselves accountable by quantifying progress toward our goals and proactively sharing this information both internally and externally; and
- Continually improve our environmental performance and our EMS.

May 27, 2010

Date



Jared Blumenfeld
Regional Administrator

U.S. EPA Region 9 Policy

Zero Waste-to-Landfill /Incinerator by January 1, 2012

“We can achieve Zero Waste by minimizing waste through reduced consumption and reuse; sorting and diverting waste to composting and recycling; and purchasing environmentally preferable products. The benefits of achieving our Zero Waste goal include: reducing upstream resource extraction; minimizing energy from production and transportation; and helping us achieve our greenhouse gas reduction goals. It is now time to transform R9 into a truly paperless environment.”

Jared Blumenfeld, R9 Administrator

EPA Region EMS Zero Waste Action Plan

Actions to Achieve Objective and Target:

1) Conduct Zero Waste pilot in Waste Division

1a) Develop and send outreach message

1b) Waste audit

1c) Launch use of modified waste centers

1d) Zero Waste All Hands presentation with videos

1e) Remove all personal waste cans

1f) Submit formal request to GSA to modify janitor responsibilities
(no collection of waste in cubes) for the waste division

2) Create Zero Waste Toolkit for other Divisions

Contents:

1) Steps of Implementation (PPT document)

2) Draft E-mail Messages for Announcing Initiative and Results

3) Draft All-Hands Presentation (PPT document)

4) Waste Audit Spreadsheet & Instructions

5) Signage for All Bins

6) Short (30-60 sec) videos on the 3 R's

7) Sorting Guide for Composting & Recycling