

A high-angle, wide shot of the Golden Gate Bridge in San Francisco. The bridge's iconic red-orange towers and suspension cables are prominent, stretching across the frame from the left towards the right. Below the bridge, the deep blue waters of the San Francisco Bay are visible, with a few small boats scattered across the surface. In the background, the city of San Francisco is nestled on the hills, with a clear blue sky above. The overall scene is bright and clear, suggesting a sunny day.

# **San Francisco Zero Waste Policies & Programs**

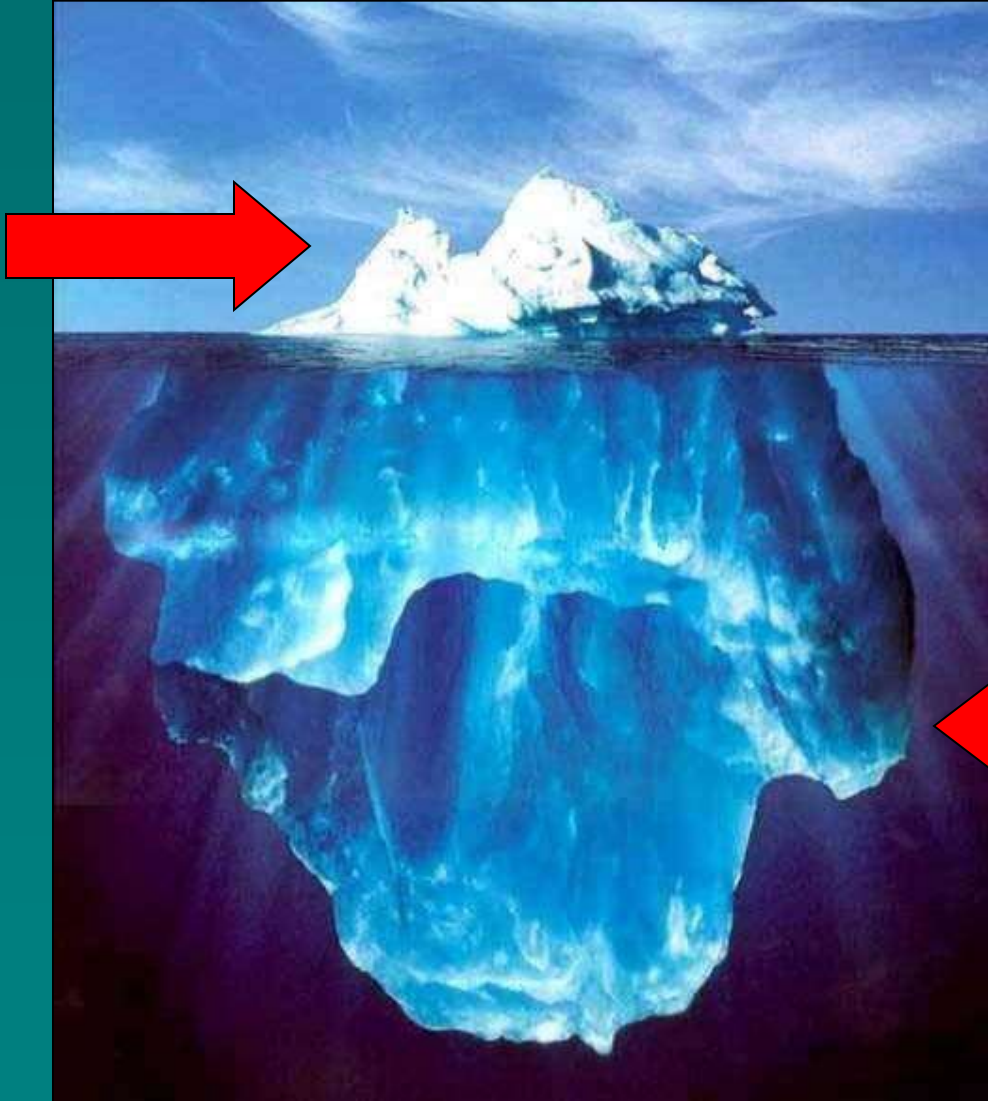
**Jack Macy**  
**Department of the Environment**  
**City and County of San Francisco**

# Zero Waste for Sustainability

- **Conserve Resources**
  - Need **FOUR planets** if every one consumed as much as the average American.
  - Need **TWO planets** if every one consumed as much as the average European.
  - Reaching peak of key resources – oil, minerals...
- **Protect Environment and Civilization**
  - Reduce Climate Change
  - Reduce Deforestation, Desertification, Soil loss...
  - Reduce landfill and incinerator pollution
- **Create Jobs**

# Tip of the “Wasteberg” Impact

**Municipal  
Waste  
tip of the  
“wasteberg”**



**Upstream waste  
produced is 70  
times greater  
than at  
municipal level**



# Upstream Resource Waste



# Waste Diversion Protects Climate

- ❖ Recycling reduces energy use & emissions upstream
- ❖ Composting/Digestion reduces methane emissions from landfills
- ❖ Compost use increases storage of carbon in soil & biomass
- ❖ Compost decreases use of petro-based fertilizers and pesticides, and reduces irrigation saving energy use

[www.stoptrashingthecclimate.org](http://www.stoptrashingthecclimate.org)



# San Francisco Zero Waste Policies

- **75% Landfill Diversion by 2010**  
(Achieved >77% diversion for 2009 for ~2 millions total generation)
- **Zero Waste to landfill or incineration by 2020**
  - Promote Highest and Best Use of Materials (Reduce, Reuse, Recycle, Compost/AD)
  - Require Consumer & Producer Responsibility (EPR)
- **Meet UN Urban Environmental Accords**  
(>100 Mayors have signed Accords that include agreeing to set ZW Goal and to reduce use of disposable products by 50%)
- **Mandatory C&D Recovery (7/06)**
- **Styrofoam Ban (6/07) & Plastic Bag Ban (11/07)**
- **Mandatory Recycling & Composting (10/09)**

# Highest & Best Use for Food Diversion

- **Edible Food Donation**

- Delivered to meal programs via Food Banks

- **Animal Feed**

- Picked-up by farmers or via processor for feed production

- **Rendering**

- Grease & meat products processed into tallow & animal feed

- **On-site Composting**

- By residents, schools, colleges and universities for on-site soils

- **Large Scale Composting**

- Curbside collection to large scale processing into compost

- **Digestion into Gas or Converting to BioDiesel**

- Collection and centralized digestion into biogas energy
- FOG (fats, oil & grease) processed into Biodiesel



# San Francisco Food Bank

## Edible Food Redistribution





# Produce, Brewery & Tofu Residuals For Dairy Feed



# FOG (Fat, Oil & Grease), Meat & Bones Rendered Into Animal Meal & Tallow



# Home Composting Education & Bins





# Source Separation for Maximum Recovery



**Recyclable  
Paper  
21%**



**Food Scraps  
20%**



**Plant Trimmings  
5%**



**Compostable Paper  
& Fiber 10%**



**Other  
10%**

**All % numbers by  
weight or tons**



# Three Stream Collection Program for Residents and Businesses



# City Partnership with Recology Companies

## That Collect and Process

### Public Incentive: “Pay As You Throw”

#### Customers:

- Pay for Collection Service... like a Utility... electricity, water or gas...
- Residents pay only for trash to landfill
- Commercial rates use the business' diversion % as the discount on the volume-based waste bill, i.e. one bla one blue, one green = 66% discount





# Easy to Use Program

## 1 Recycle

Place all bottles, cans, foil, paper and cardboard in the blue cart - **MAKING RECYCLING EASIER!**



### not accepted

in the blue cart:  
plastic bags  
Styrofoam  
mirrors, window glass or light bulbs  
ceramic dishes or cups  
plastics other than bottles  
juice boxes

## 2 Compost

Place all of your food scraps, food-soiled paper and yard trimmings in the green cart.



Use your kitchen pail to hold food scraps.

You can line kitchen pail with paper bag or newspaper.



Fill with food scraps — even meat and bones.

Paper bag and contents go in the green cart.



### not accepted

in the green cart:  
plastic bags  
Styrofoam  
plastic flower pots or trays  
diapers  
kitty litter or animal feces  
rocks, stones or dirt

### Your New Program Reduces Garbage!

As you can see, more things are recyclable than ever before. With your help we will:

- Protect our environment! Recycling more means less garbage being sent to the landfill.
- Reduce litter through the use of lidded carts.
- Make San Francisco the first large U.S. city to collect food scraps for composting city-wide.

## 3 Garbage

Place what is left over - non-recyclables - into the black cart.

No hazardous materials. For household hazardous waste information, call 415-554-4333.



Paper milk cartons can also be used to hold food scraps and are compostable!

## Questions?

Call 415-330-1300 or visit  
[www.sunsetscavenger.com](http://www.sunsetscavenger.com)

# Recyclable Paper, Glass Bottles, Metal Cans, & All Rigid Plastics

可回收	RECYCLABLES	RECICLABLES	
			
			
			



# Food Scraps, Yard Trimmings and Compostable Paper/Fiber

可自然化解    **COMPOSTABLES**    RESIDUOS DE COMIDA Y DEL JARDIN



**SF Environment**  
San Francisco  
Department of the City and County of San Francisco

**Public Works Department**  
SUNNYVALE RECYCLING COMPANY  
SUNNYVALE WASTE RECYCLING & REPAIRS COMPANY





# What's Left Over?

廢物	WASTE	BASURA			
					
					
					
 SF Environment Get Green. Get City. Get Green. Department of the City and County of San Francisco			 BUREAU OF SANITATION SOLID WASTE DIVISION & RECYCLING DIVISION		



# Mandatory Recycling and Composting Ordinance (October 2009)

- Stakeholder buy-in
- Applies to all sectors
- Must have refuse service
- Must provide composting and recycling
- Right size/color/location of containers
- Education for tenants and employees
- Work with janitorial staff
- Front of house for food vendors
- Everyone must source separate correctly
- DPW fines or DPH liens



# Recyclables & Trash Collected Using Dual Compactors Weekly For Residents





# Separate Truck for Compostables



# Commercial Recycling & Composting Collection With Many Bin Options and Frequency of Collection Up to Daily





# Material Recovery Facility (MRF) Sorts Mixed Recyclables For Shipping to Markets





# Processing Up To 800 tons per day





# Initial Hand Sorting of Larger Material



# Angled Rotating Bar Screens Separate Fiber and Containers





# Screened Mixed Paper Fibers





# Materials Prepared for Market End Use

## Regional and Asian Markets



# Kitchen Pails Provided – Can Use BPI Certified & Labeled Compostable Bags or Can Use Paper, Cartons or No Liner





# Strategies to Tackle Apartment Building Composting



# Neighborhood Door to Door Outreach Campaign



SF Environment Staff  
and Volunteers offer  
kitchen pail type and bag  
options and education



# Commercial & City Department Assistance

- On-site waste assessments and consulting
- Multi-Lingual staff and management training (inc. tenants, janitors)
- Sorting containers (deskside to 23 gal), signs and stickers
- Compliance tool kit of web & printed info
- Collection up to daily with wide range of collection containers (32 gal to 30 yard)
- Performance audits and diversion reporting





# 3 Stream Color-coded Sorting



Copyright Brad Wenner

# Combining, Lining, Tipping & Cleaning Sorting Containers



# Office Building Kitchen Collection





# Office Building Restroom Paper Towel Composting Collection

(99% is paper waste,  
while separate  
nappies and  
sanitary products  
put in separate  
toilette stall bins)



# Front of the House: At Starbucks and at Burger King



# Food Ware Accepted as Compostable

- Paper or Plant Pulp/Fiber
  - Recycled Paper
  - Bagasse/Sugarcane
  - Poly coated paper allowed for now (PLA coated better)
- Compostable Plastics must meet ASTM D6400 and be labeled compostable, preferably with green print or green band or green sticker.





# Using Compostable Food Service Can Divert Up to 90+% at Public Events



# Public Event Collection Station But Without Adequate Signage





# Food Service/Event Signage

## COMPOSTING ONLY

including food scraps, napkins, paper plates,  
compostable cups & compostable utensils



## RECYCLING ONLY

including bottles, cans, clean paper,  
foil, and cardboard



## WASTE ONLY





# Useful Sign Container Tops



# Public Indoor Sorting Station at Ferry Building



# Hospital Cafeteria Sorting Station Signage – Easier If Containers Are All Compostable or All Recyclable





# Working Creativity with Space Constraints



# School Source Separate for Composting & Recycling





# Monitoring Contamination, Give Feedback And Assistance To Ensure Quality Control





# **Recology Company Composting Facility allows 600 tpd on 15 acre site**

Engineered Compost Systems (ECS)



# Receive, Shred, Screen and Manually Sort Out Contaminants from Feedstock





# Plastic Bags Primary Contaminant



Copyright Brad Wenner



# “CompDog” & Pile Building

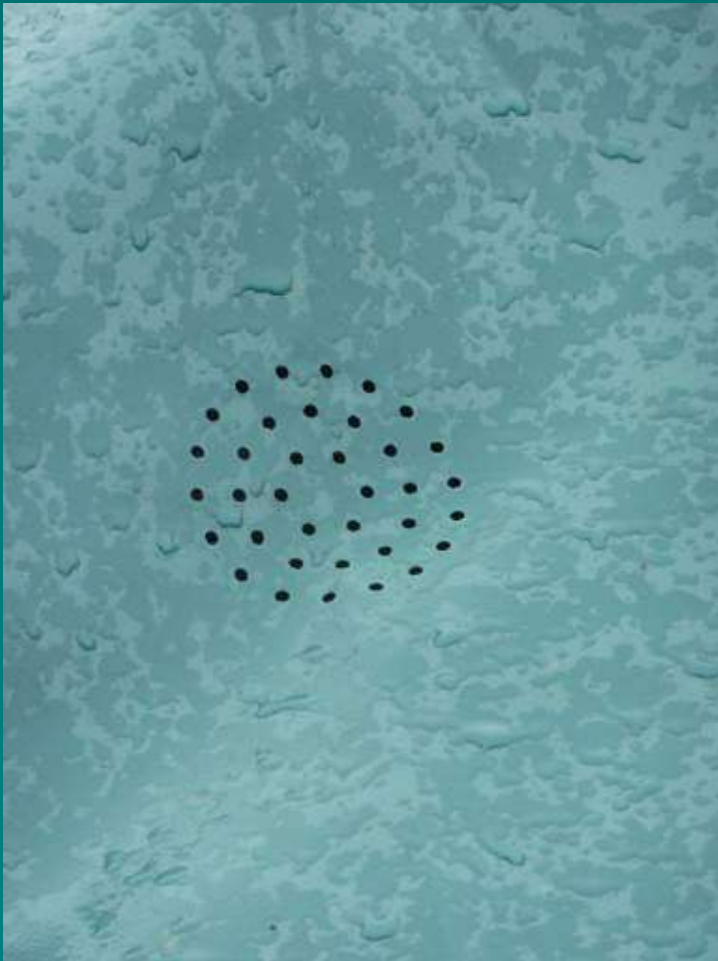


# AC Cover





# Perforated Cover to Pull Air Through Pile into Duck Work





# Aeration System



# Custom Blending For Specific Markets and Organic Certified





# Compost Used For Landscaping & Golf Courses





# Compost Used On Organic Farms And Vineyards To Build Healthy Soils





# Organic Produce Being Marketed Back to San Francisco



# Diverting Food and Other Compostables From Landfill Sustains Soils and Closes Carbon & Nutrient Loop





# Regional WWTP Food AD Pilot

- Food from restaurants shredded and screened for anaerobic digestion
- Food digested produces 3.5x energy than sludge
- The biogas used to produce electricity to power the WWTP plant
- Provides a CO<sub>2</sub> & Energy compliment to composting for food rich organics
- Expanding role of digestion for biogas



# Mandatory C&D Diversion with Metal, Sheetrock, Wood, Concrete & Inerts Recovered From C&D at Registered MRFs

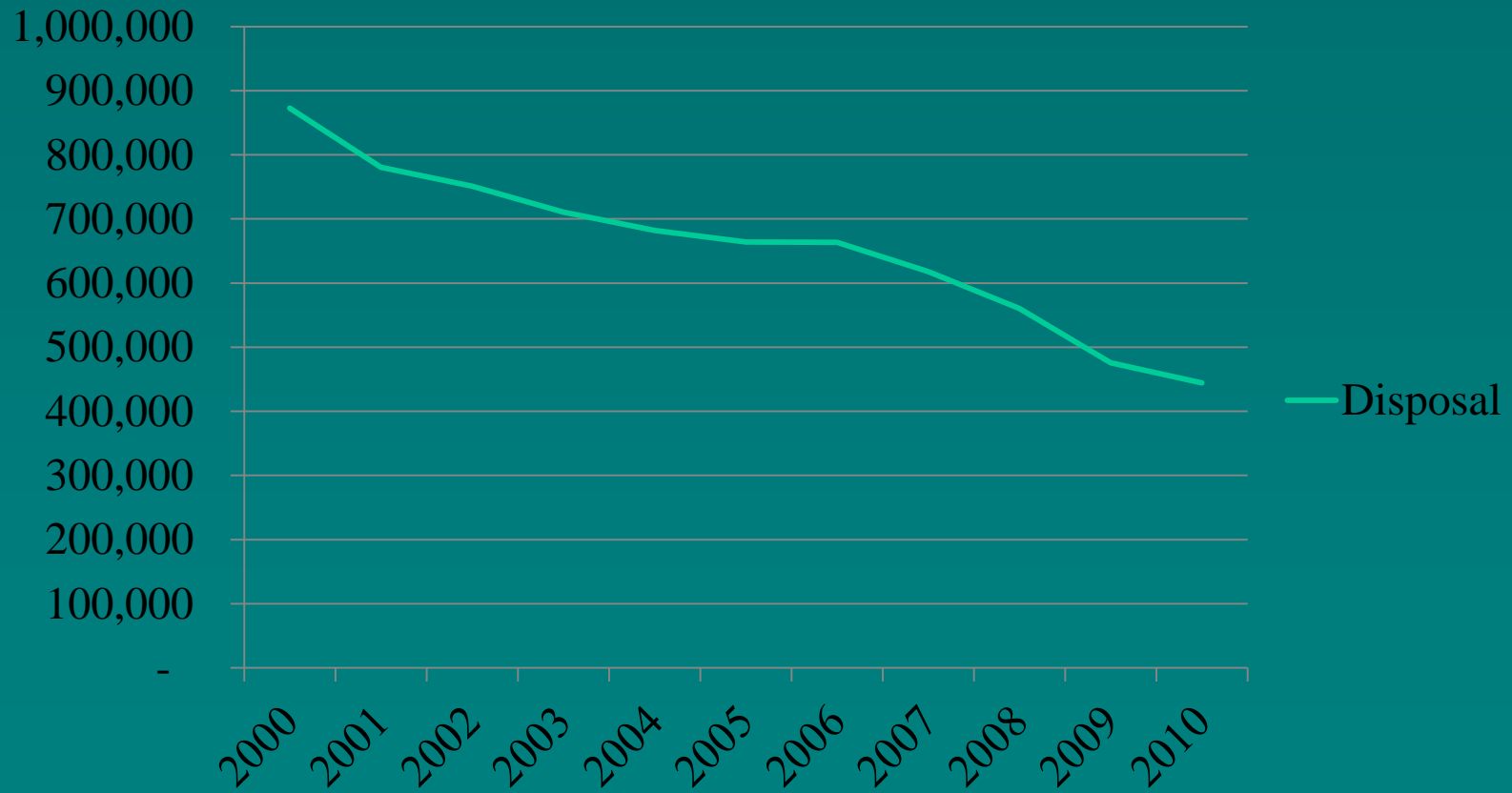




# Bulky, Electronic and Toxic Waste Collection Programs



# Disposal Decreased by 1/2 Since 2000





# Future Zero Waste Facility (MBT no burning)



# San Francisco Zero Waste for Everyone

After  
chowing  
Kung Pao.

► A great recycling moment



Chicago and Boston in the Boston area is available without cost.  
# Chicago taking everything, come, include, local, available,  
meeting, and, business, and, 1-800-242-2424, to get your free  
takeout, call 212-212-2124 or 212-212-2124.

Recycling means everything

Use the bottom part and green cart for:

- Paper, plastic, cardboard
- Glass bottles
- Metal, aluminum

© 2008 The Recycling Council of America



When you're  
through with  
that apple,  
we'd love  
the core.

By putting food scraps in your green cart, you help San Francisco reach its goal of zero waste and fight global warming.



**SFEnvironment**  
*the power the way the place*  
 Department of the City and County of San Francisco

**RED**  
 High Quality Recycled  
 Street Foodservice Containers  
 100% Recycled Plastic  
 100% Recycled Paper

Where you toss food scraps makes a world of difference.

**SFEnvironment.org**

# Facing the aftermath

► A great recycling moment

Hostess momma knows how to throw a party. She's discovered that nearly everything, from paper plates to plastic containers, can go in her green or blue curbside recycling bin. Find out exactly what goes where at [recyclingmatters.org](http://recyclingmatters.org)

Recycling changes everything.

Recycling  
Matters  
1-800-800-RECYCLE

Recycling  
Matters  
1-800-800-RECYCLE

Use the blue container:

- Plastic cups & containers
- Cans
- Paper plates & leftovers

Recycling symbol is a registered trademark of the National Recycling Coalition.



A photograph of the Golden Gate Bridge in San Francisco, California. The bridge's iconic red-orange towers and suspension cables are prominent against a clear blue sky. The bridge spans the San Francisco Bay, with the city skyline visible in the distance. The water is a deep blue-green color.

**Thank You!**

**Jack Macy  
San Francisco**

**Department of the Environment**

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