# 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.stoptrashingtheclimate.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

 $\succ$  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**



### 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...



 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**



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Questions? Call 415-330-1300 or visit 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

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COMPOSTABLES

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### What's Left Over?





# 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**

![](_page_20_Picture_1.jpeg)

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

![](_page_21_Picture_1.jpeg)

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

![](_page_22_Picture_1.jpeg)

### **Processing Up To 800 tons per day**

![](_page_23_Picture_1.jpeg)

### **Initial Hand Sorting of Larger Material**

![](_page_24_Picture_1.jpeg)

### Angled Rotating Bar Screens Separate Fiber and Containers

![](_page_25_Picture_1.jpeg)

## **Screened Mixed Paper Fibers**

![](_page_26_Picture_1.jpeg)

![](_page_26_Picture_2.jpeg)

### Materials Prepared for Market End Use Regional and Asian Markets

![](_page_27_Picture_1.jpeg)

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

![](_page_28_Picture_1.jpeg)

![](_page_28_Picture_2.jpeg)

![](_page_28_Picture_3.jpeg)

# **Strategies to Tackle Apartment Building Composting**

![](_page_29_Picture_1.jpeg)

Your building now has a green cart for food scraps & soiled paper.

![](_page_29_Picture_3.jpeg)

#### Neighborhood Door to Door Outreach Campaign

![](_page_30_Picture_1.jpeg)

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

![](_page_31_Picture_7.jpeg)

![](_page_31_Picture_8.jpeg)

## **3 Stream Color-coded Sorting**

![](_page_32_Picture_1.jpeg)

## Combining, Lining, Tipping & Cleaning Sorting Containers

![](_page_33_Picture_1.jpeg)

### **Office Building Kitchen Collection**

![](_page_34_Picture_1.jpeg)

**Office Building Restroom Paper** Towel Composting Collection (99% is paper waste, while separate nappies and sanitary products put in separate toilette stall bins)

![](_page_35_Picture_1.jpeg)

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

![](_page_36_Picture_1.jpeg)

#### **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.

![](_page_37_Picture_6.jpeg)

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

![](_page_38_Picture_1.jpeg)

![](_page_38_Picture_2.jpeg)

### **Public Event Collection Station But Without Adequate Signage**

![](_page_39_Picture_1.jpeg)

# Food Service/Event Signage

![](_page_40_Picture_1.jpeg)

# Useful Sign Container Tops

![](_page_41_Picture_1.jpeg)

#### **Public Indoor Sorting Station at Ferry Building**

![](_page_42_Picture_1.jpeg)

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

![](_page_43_Picture_1.jpeg)

#### **Working Creativity with Space Constraints**

![](_page_44_Picture_1.jpeg)

## School Source Separate for Composting & Recycling

![](_page_45_Picture_1.jpeg)

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

![](_page_46_Picture_1.jpeg)

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

#### Engineered Compost Systems (ECS)

![](_page_47_Picture_2.jpeg)

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

![](_page_48_Picture_1.jpeg)

### **Plastic Bags Primary Contaminant**

![](_page_49_Picture_1.jpeg)

# "CompDog" & Pile Building

![](_page_50_Picture_1.jpeg)

# **AC Cover**

![](_page_51_Picture_1.jpeg)

### **Perforated Cover to Pull Air Through Pile into Duck Work**

![](_page_52_Picture_1.jpeg)

![](_page_52_Picture_2.jpeg)

# **Aeration System**

![](_page_53_Picture_1.jpeg)

### Custom Blending For Specific Markets and Organic Certified

![](_page_54_Picture_1.jpeg)

### Compost Used For Landscaping & Golf Courses

![](_page_55_Picture_1.jpeg)

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

![](_page_56_Picture_1.jpeg)

# Organic Produce Being Marketed Back to San Francisco

![](_page_57_Picture_1.jpeg)

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

![](_page_58_Picture_1.jpeg)

![](_page_58_Picture_2.jpeg)

![](_page_58_Picture_3.jpeg)

![](_page_58_Picture_4.jpeg)

![](_page_58_Picture_5.jpeg)

# 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 CO2 & Energy compliment to composting for food rich organics
- Expanding role of digestion for biogas

![](_page_59_Picture_6.jpeg)

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

![](_page_60_Picture_1.jpeg)

# Bulky, Electronic and Toxic Waste Collection Programs

![](_page_61_Picture_1.jpeg)

# Disposal Decreased by 1/2 Since 2000

![](_page_62_Figure_1.jpeg)

# **Future Zero Waste Facility** (MBT no burning)

![](_page_63_Picture_1.jpeg)

### San Francisco Zero Waste for Everyone

![](_page_64_Picture_1.jpeg)

![](_page_64_Picture_2.jpeg)

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.

![](_page_64_Picture_5.jpeg)

SFEnvironment.org

### Where you toss paper makes a world of difference.

Put it in the blue cart.

![](_page_64_Picture_10.jpeg)

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A great recycling moment

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![](_page_64_Picture_12.jpeg)

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### Thank You!

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