

Zero Waste: To Cool the Planet

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Reduce
Reuse
Recycle
= Zero Waste

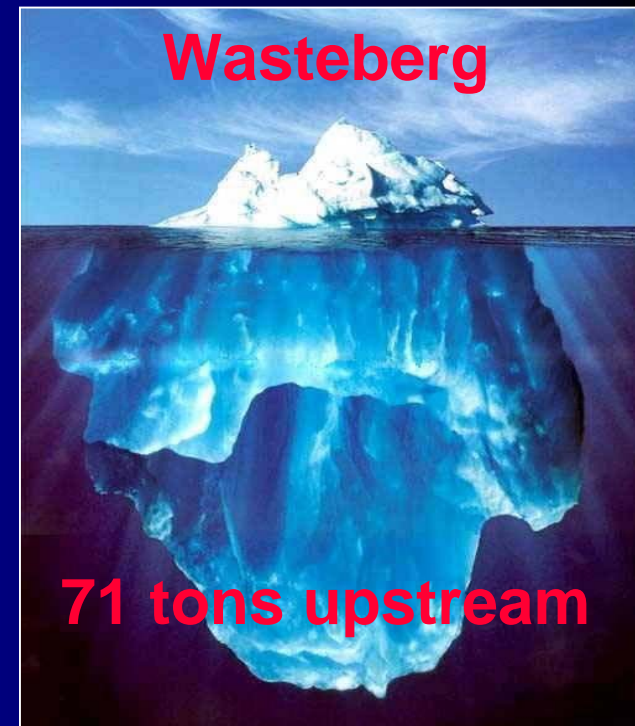
Definition of Zero Waste*

- Zero Waste is a goal that is both pragmatic and visionary, to guide people to emulate sustainable natural cycles, where **all discarded materials are resources** for others to use.
- Zero Waste means designing and managing products and processes to reduce 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 may be a threat to planetary, human, animal or plant health.

* www.zwia.org/standards.html

Zero Waste & Global Warming

- Landfills are one of the largest sources of Greenhouse Gases (GHG)
- Methane is 21 x more potent than CO₂
- Recycling & composting all discards in CA = eliminating all auto exhaust in CA
- Urban Environmental Accords includes Zero Waste by 2040



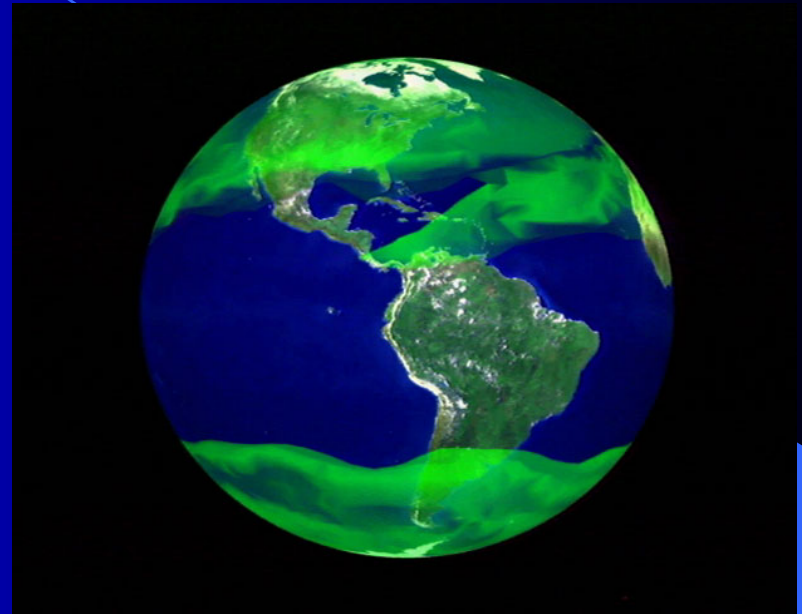
Zero Waste Communities

(www.ZWIA.org)

- Canberra, Australia
- NZ – Entire Country
- Over 66% of NZ Cities
- Buenos Aires, Argentina
- Seattle, WA
- Boulder, CO
- Central Vermont Waste Mgt. District
- San Luis Obispo, CA
- Fresno, CA
- Del Norte County, CA
- Logan County, OH
- San Francisco, CA
- Oakland, CA
- Santa Cruz County, CA
- Berkeley, CA
- Palo Alto, CA
- Marin County
- Los Angeles (in progress)
- Telluride, CO
- Chicago, IL (in progress)
- Halifax, Nova Scotia
- Toronto, Ontario
- Nelson, British Columbia (BC)
- Regional Districts in BC

Is Zero Waste Attainable ?

- Nature Is The Model
- Zero Waste, Or Darn Close
- Businesses Have Achieved Over 90% Waste Reduction



Picture: Methane Earth; Credit: [GISS](#), [NASA](#)

Zero Waste Businesses are Leading the Way (>90% Waste Diversion)

- **Anheuser-Busch, Fairfield, CA ***
- **Apple Computer, Elk Grove, CA ***
- **Epson, OR ***
- **Fetzer Vineyards ***
- **Frankie's Bohemian Café, SF ***
- **Greens Restaurant, SF ***
- **Hewlett-Packard, Roseville, CA ***
- **Mad River Brewery, CA ***
- **New Belgium Brewery, Fort Collins, CO ***
- **NUMMI, Fremont, CA ***
- **Pillsbury ***
- **Playa Vista, LA, CA, ***
- **San Diego Wild Animal Park ***
- **Scoma's Restaurant, SF ***
- **Vons-Safeway ***
- **Xerox Corp ***
- **Ricoh Electronics**
- **Toyota**
- **2800 Businesses in Japan**

***From: <http://www.grrn.org/zerowaste/business/profiles.php>**

Why would a business DO this?*

•Reducing Waste Saves Money \$\$\$

- Trash service is expensive!
- Trash takes up valuable 'real estate'
- Wasted resources can be a commodity

•Reducing Waste is “Right Thing To Do”

- EMS Corporate Policies may require this
- Businesses gain political capital with investment and community groups by being “good” citizens

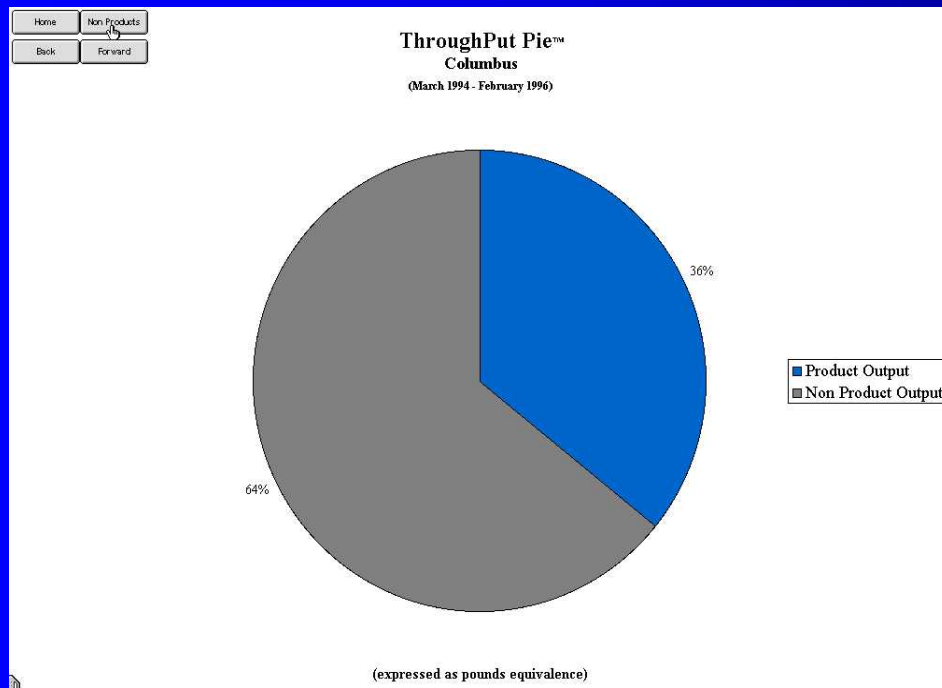
* Margaret Bruce, Silicon Valley Manufacturing Group, Presentation to CRRA Annual Conference, Oakland, CA, July 16, 2002

Beyond Compliance

- **Manage Risks and Decrease Liabilities**
- **Avoid Penalties and Benefit from Incentives**
- **Marketing Edge (“Green” Business)**
- **Pressure from Shareholders and Consumers**

Typical Business Throughput Pie™

- Blue = Output related to Product
- Grey = Non-product Output
- This shows the inescapable logic of “zero emissions” for efficiency



Source: Gil Friend, Natural Logic

Pillars of Zero Waste

Upstream

Downstream

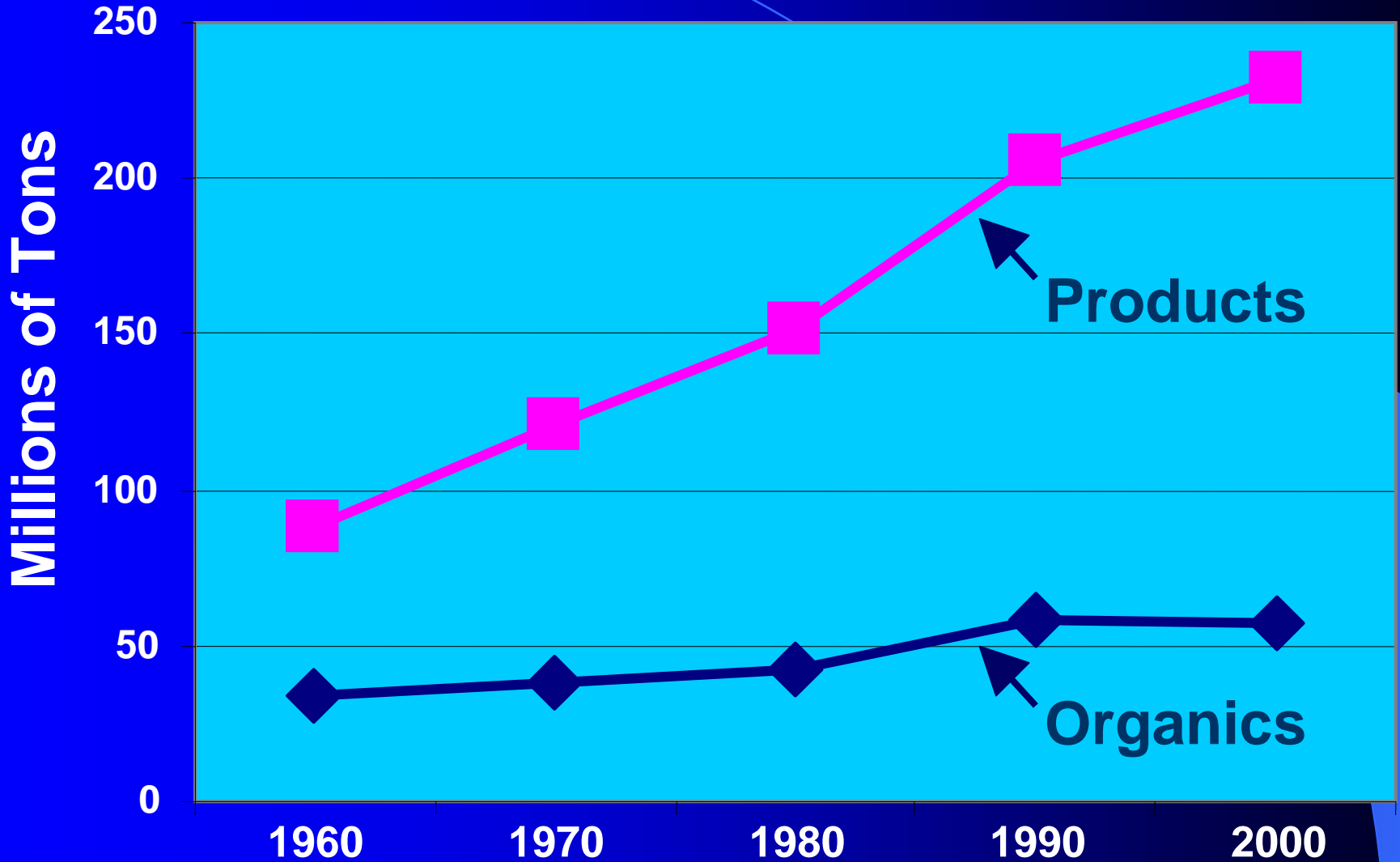
**Green Businesses and
Jobs**

Upstream = 71 x MSW Waste



**Total
Weight**

US Municipal *Discards* 1960-2000



Source: Bill Sheehan, Product Policy Project

CA 20-Year History of EPR

EPR Programs in CA	Responsibility
Beverage Containers	Govt.–Producers – Retail
Tires	Government – Retailers
Used Oil	Government – Retailers
Monitors	Govt.–Producers – Retail
Cell Phones	Retailers Takeback
Rechargeable Batteries	Retailers Takeback

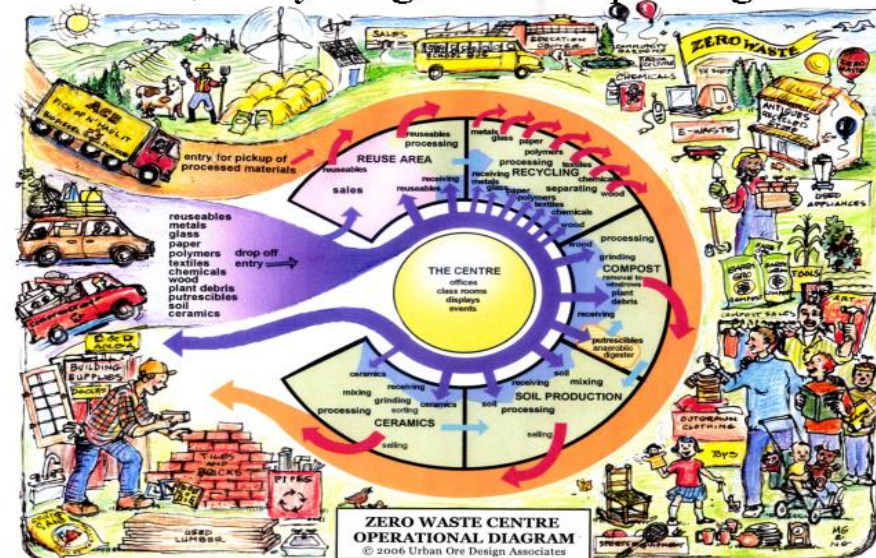
Downstream

- **Reduce** - “Waste” is not inevitable
- **Reuse** products and packaging, retaining their original form and function
- **Recycle or compost** the rest

Resource Recovery Parks

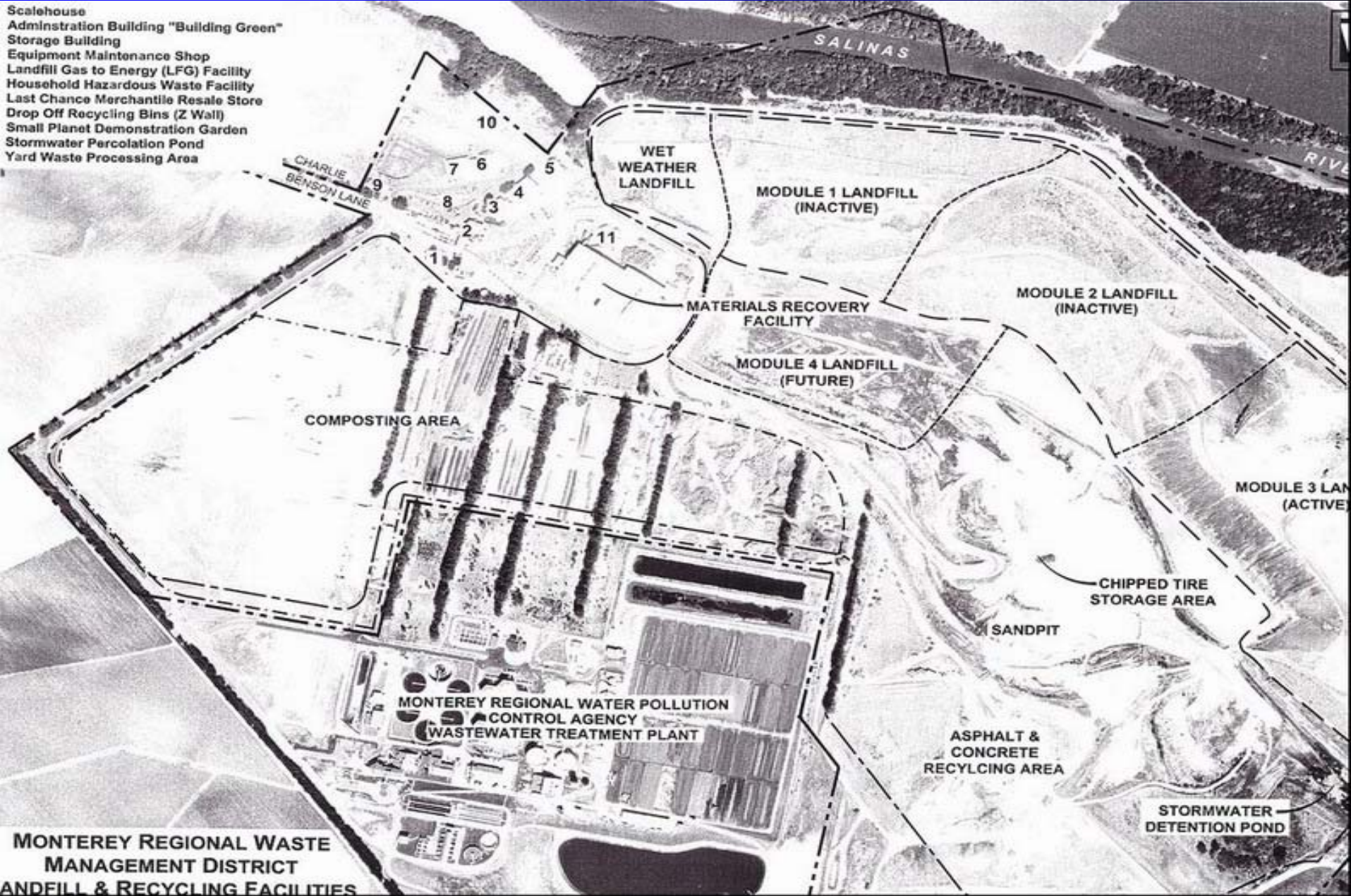
- Reuse, Recycling & Composting Processing, Manufacturing and Sales
- Like Airports or Shopping Centers
- Drop & Shop Convenience for Public
- Lower Waste Fees
- Buy @ Discounts

All 12 categories are feedstocks for Reuse, Recycling and Composting



Monterey RR Park

- Scalehouse
- Administration Building "Building Green"
- Storage Building
- Equipment Maintenance Shop
- Landfill Gas to Energy (LFG) Facility
- Household Hazardous Waste Facility
- Last Chance Merchantile Resale Store
- Drop Off Recycling Bins (Z Wall)
- Small Planet Demonstration Garden
- Stormwater Percolation Pond
- Yard Waste Processing Area



COMPOSTING AREA

WET WEATHER LANDFILL

MODULE 1 LANDFILL (INACTIVE)

MODULE 2 LANDFILL (INACTIVE)

MATERIALS RECOVERY FACILITY

MODULE 4 LANDFILL (FUTURE)

MODULE 3 LANDFILL (ACTIVE)

CHIPPED TIRE STORAGE AREA

SANDPIT

MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY WASTEWATER TREATMENT PLANT

ASPHALT & CONCRETE RECYCLING AREA

STORMWATER DETENTION POND

MONTEREY REGIONAL WASTE MANAGEMENT DISTRICT LANDFILL & RECYCLING FACILITIES

San Luis Obispo RR Park



Del Norte RR Park



Wetlands and Buffer

Natural Lighting

Loading Docks

Sea Containers for Storage

Recovery Loop

HHW Building

Area for Future Resource Recovery Park

Recycling Drop-off

Urban Ore, Berkeley



Keys For RR Park Success

- Co-Locate with Transfer Station (TS) or Landfill
- Harness Avoided Costs of Transfer and/or Disposal
- Operator Incentives & Rules
- Involve Local Recycling Businesses
- Cost To Public Lower If Source Separated
- Cluster Resources; Reuse Is 1st Priority

Green Businesses and Jobs

- **Expand, attract, and support green businesses and green collar jobs**
- **Reserve sufficient land for Zero Waste infrastructure**
- **Buy green goods and services**
- **Recycling Industry = Size of Auto Industry**

10,000 tons of SW =
Landfill - 1 job
Composting – 4 jobs
Recycling – 10 jobs
Reuse – 75 –250 jobs

Source: www.ilsr.org

New Rules Help Local Business Be Green

- **Adopt Zero Waste goals**
- **Develop Zero Waste plans**
- **Adhere to Zero Waste Business Principles***
- **Meet waste reduction targets**
- **Source separate designated materials**
- **Recycle construction and demolition debris**
- **Deconstruct existing buildings**
- **Develop LEED-certified Green Buildings**
- **Buy green products and services**

*see www.grrn.org/zerowaste/business/

Incentives

- **Change Economics So What Was Marginal Is Now Economic**
- **Pay For What You Want:
Waste Prevention, Reuse, Recycling & Composting**
- **Don't Pay For Wasting (Or Much Less)**
- **Recognize Waste As Symptom Of Inefficiency**
- **Harness Forces Of Marketplace To Achieve Goals**

Current Markets & Zero Waste

- **EPR for Normally Recyclable Materials**
- **Require Recycling Goals and Recycled Content**
- **Allow Charges for Recycling Services**
- **Tighter Collection and Processing Specs**
- **Develop Local (value-added) Markets, focusing on Reuse, Organics and C&D**
- **Strengthen Green Building Reuse and Recycling Specs**
- **Climate Change is Driver**

Zero Waste Resources

- **Austin Zero Waste**

<http://www.ci.austin.tx.us/sws/zerowaste.htm>

- **Oakland Zero Waste Strategic Plan:**

<http://clerkwebsvr1.oaklandnet.com/attachments/14983.pdf>

- **Palo Alto Zero Waste Strategic Plan:**

<http://www.city.palo-alto.ca.us/civica/filebank/blobdload.asp?BlobID=7100>

- **GrassRoots Recycling Network:** www.grrn.org

- **Zero Waste International Alliance:** www.zwia.org

- **Earth Resource Foundation:** www.earthresource.org



**If you're not for Zero Waste,
how much waste are you for?**