A 10-Year Bridge Strategy to Build a

Zero Waste Key West

Who is Eco-Cycle

- Created in 1976
- Largest U.S. “Zero Waste” corporation
- 60 employees
- $4 million per year in revenues
- 57,000 tons/year of most diverse items in U.S.
- $15/ton landfill foe

eco·cycle

Working to Build Zero Waste Communities

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Eco-Cycle's CHaRM … the Center for Hard to Recycle Materials

- Electronic scrap and TVs
- Styrofoam block
- Plastic bags
- Large #2 plastic items
- Textiles
- Books
- Tennis shoes
- Toilets and sinks
- Bike tubes and tires
- Cooking oil

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"Zero Waste: #1 Fix For The Planet"
Newsweek, 2008

ENVIRONMENT AND LEADERSHIP

10 Fixes for the Planet

Scientists, inventors and entrepreneurs are focusing on ways to help the environment. Some of our favorite ideas.

By ANNE UNDERWOOD

IF WES JACKSON, FOUNDER and president of the Land Institute in Salina, Kans., has one complaint, it's what he calls "our deficit spending of the Earth's ecological capital," from oil and minerals to water and trees. NEWSWEEK asked dozens of thinkers for their solutions, from 300mpg cars to using enormous kites to help pull ships.

1 Zero waste: Recycling paper, plastic and aluminum is a start, but, oh, so 20th century.

ERIC LOMBARDI HATES waste. "Landfills are like black holes, where resources go in and never come out," says the executive director of Eco-Cycle, a nonprofit recycler in Boulder, Colo. "As the world's population explodes and its resource base shrinks, we can't afford that." Instead, Lombardi wants manufacturers to make most or all of their products fully recyclable, using materials designed to be recaptured rather than ending up in junkyards. It's not impossible, as companies like Shaw Carpets and office-furniture maker Steelcase are showing. Both make products with stringent C2C Certification, indicating total recyclability—and 40 other other companies, tapping into the green building trend, are doing the same. "Waste is expensive and inefficient," says Lombardi. "It only appears cheap because the market doesn't send bills to industry for groundwater pollution and resource depletion."

2 LED light bulbs: Never mind the cliché, they really might be a better idea.

NOW THAT WE'VE ALL DUTIfully stocked up on compact fluorescents, guess what? A new generation of even better bulbs may be on its way. LED

WASTE-BUSTER: *Lombardi with bags to be made into decking*

52 NEWSWEEK | APRIL 14, 2008

PHOTOGRAPH BY BRYCE BOYER FOR NEWSWEEK

- White House special council on recycling
- *London Times,* National Public Radio (NPR), Newsweek
- Italy, New Zealand, England, France, Romania, American Samoa, Wales and Saipan

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Ask a different question… get a different answer

- If we don't bury it or burn it… what DO we do?

- **Resource Recovery (Zero Waste)**

- "Waste is a social issue first, a market issue second."

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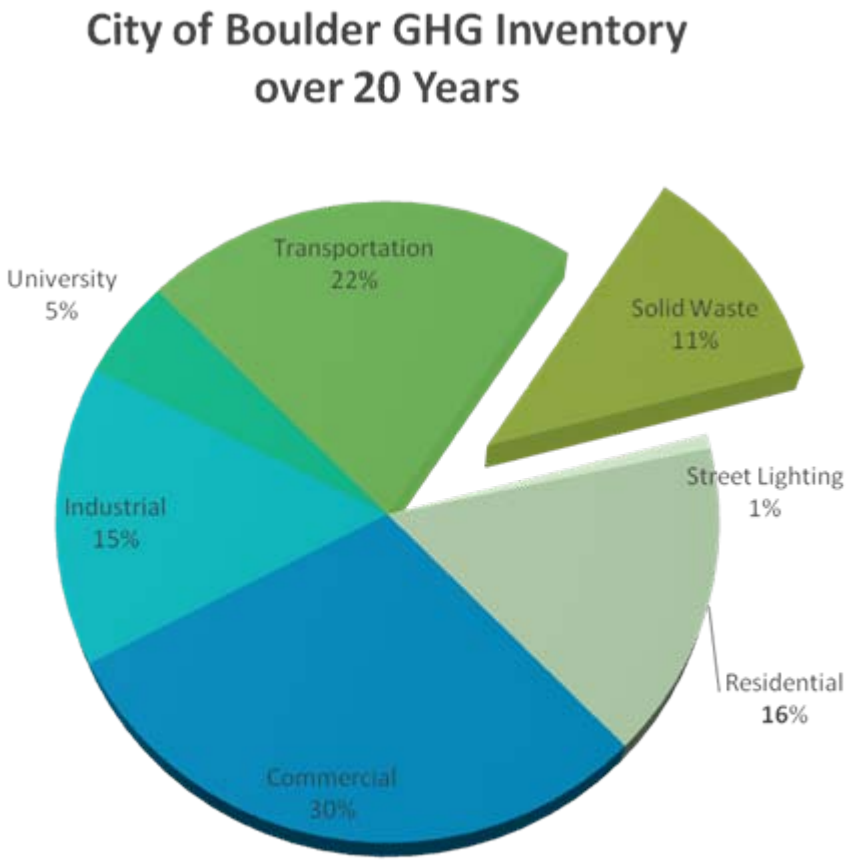
Landfills = Greenhouse gas



- Solid waste accounts for more than 10% of Boulder's GHG emissions
- Waste is a short-term climate solution, a quick fix that "buys us time"

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Waste to Energy: The False Fix

- **Economics/market say NO**
  - no new plants since 1995
  - no "conversion technologies" at full scale capacity
  - economic risk: long-term "put or pay" contracts required

- **Communities are saying NO**
  - state moratorium in MA recently extended
  - strong community opposition: dozens of proposals rejected over past two decades

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Waste to Energy: False Fix

- **Environment is saying NO**
  - incinerators emit more CO_2 per mega-watt hour than coal-fired and oil-fired power plants
  - emit particulate matter, volatile organic compounds (VOCs), heavy metals, dioxins, sulfur dioxide, carbon monoxide, mercury, carbon dioxide and furans
  - recycling saves 3 to 5 units of energy for every one unit of energy produced

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Lake County, FL incinerator woes

- Not enough trash in county to fuel incinerator:

> "solid-waste statistics show a 'disturbing trend' that could **potentially cost the county millions of dollars** unless it finds new waste sources."

- Feeding the incinerator undermines recycling:

> We don't want to turn off what we've turned on," Smith said. "But **we're also not promoting recycling** in a big way right now."

--***Orlando Sentinel*, Dec. 27, 2009**

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What is Zero Waste

- ZW is not …
  - ZW is not "integrated" solid waste management (ISWM). ZW is total commitment to pursue zero;
  - ZW does not require getting to zero; (ZW Int'l Alliance accepts 90% recovery for now);
  - ZW does not accept current waste-to-energy technologies (except anaerobic digestion);
  - ZW does not accept current landfilling practices.

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Defining Zero Waste

- ZW is a total commitment to:
  - **Downstream resource recovery** through recycling and composting;
  - **Mid-stream product longevity** through re-use, repair and durable design;
  - **Upstream waste reduction** through Re-design, ZW Purchasing, Producer Responsibility and New Rules by Government.

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10-Year Bridge Strategy to Zero Waste

New rules & COOL beginnings…

Why bother

The benefits of Zero Waste

Why 10 years?

Reaching 50%

Reaching 70%

Reaching 90%

How to process whatever's left

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Why bother?

Problems and Opportunities

Problems:

- ✓ Greenhouse gases from landfills and incinerators
- ✓ Resource wars: oil, water, coltan, diamonds, timber
- ✓ Siting disposal facilities nearly impossible

Opportunities:

- ✓ Your public wants more recycling!
- ✓ Local jobs
- ✓ Local water and air protected; GHG savings

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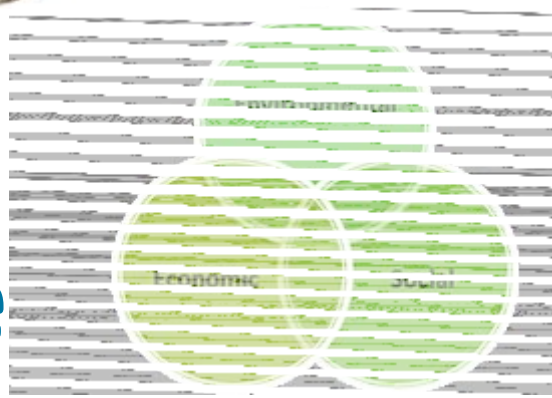

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Reaching
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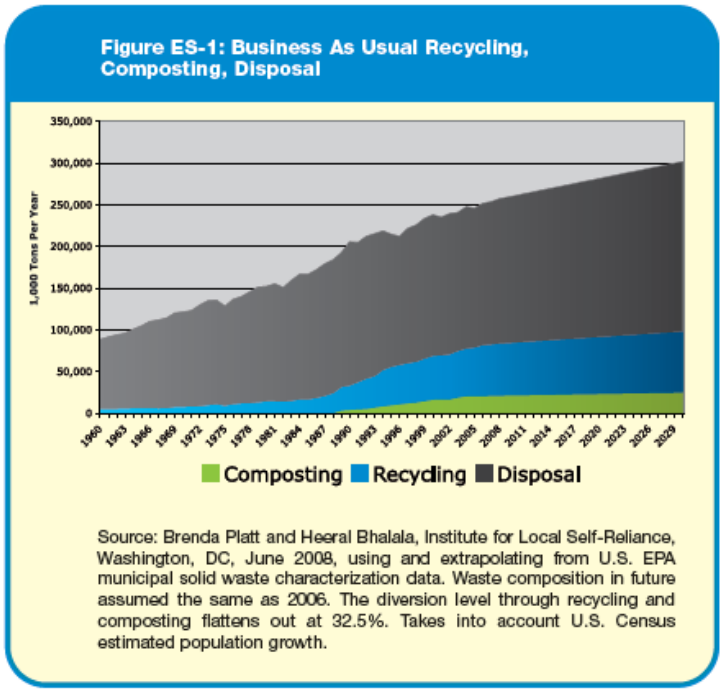
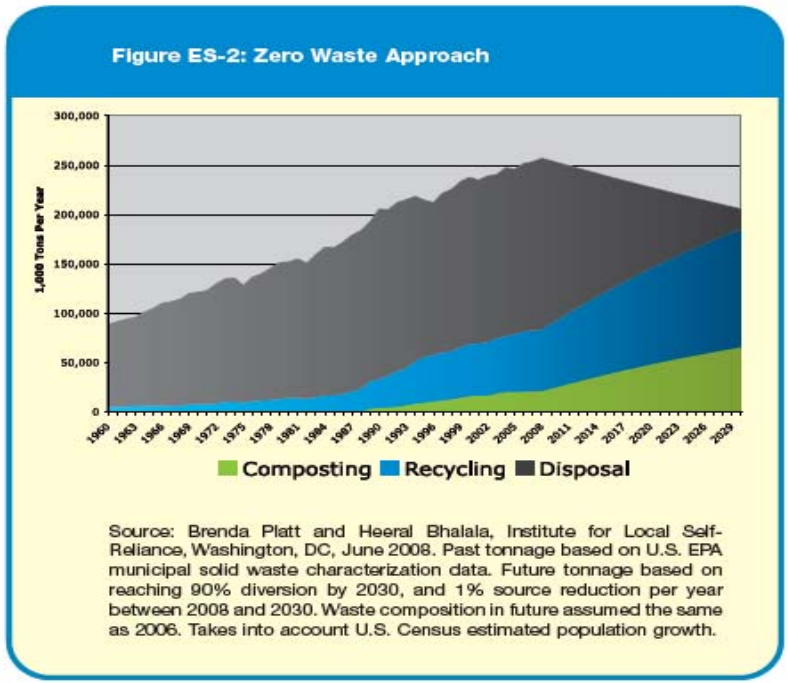
Meet your Kyoto Goals





90% Recovery over 20 Years & 1% Reduction/yr =

GHG savings equal to 21% of coal power plants Shutting down !!

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Green jobs & economic development

- Recycling, reuse & remanufacturing account for 3.1 million jobs in the U.S. – 1 out of every 3 green jobs
- 10-100x as many jobs in recovery versus disposal
- Revenues from recycling, reuse and remanufacturing industries totaled $290 billion in U.S. in 2007

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All this just from separating our discards … mixed waste is the enemy

Recycled Paper
21%

Food Scraps
20%

Glass and Plastic Bottles
Aluminum and Steel Cans
4%

Plant Trimmings
5%

Compostable Paper
& Fiber 10%

Construction and
Demolition Waste
25%

Other
15%

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courtesy of Jack Macy, SF Dept. of Environment

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Why 10 years?

- **Physical infrastructure development**
  - A Zero Waste Community needs time to build the five requisite facilities for resource recovery: MRF, Composting, CHaRM, C&D, and Reuse/Repair.
- **Regulatory infrastructure**
  - The creation of “new rules” for the marketplace to enable the cleanest companies to win the profits will require negotiations and politics; there can be “ZW Millionaires.”

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Why 10 years?

- **Cultural behavior shift**
  - The toughest job: to create human behavior change and get ALL discards sorted at the source into recycling, composting and "whatever's left."
- **Prevent expensive mistakes**
  - New landfill or incinerator can cost $500 million and once that commitment is made, flexibility for future changes becomes difficult.

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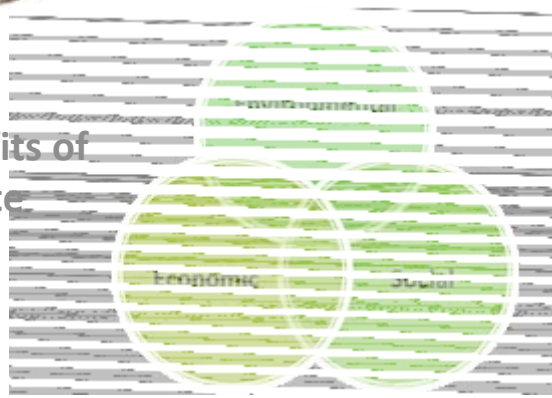

Reaching 50%

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Key strategies for 50% recovery

- **Universal curbside recycling and composting collections**
- **Yard Waste drop-off centers**
- **Pay-as-you-throw pricing structure**
  - single largest incentive to increase recycling
- **Minimum 25% C&D recovery**
  - incorporate recycling requirements and deconstruction into green building codes
- **Education**

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COOL: Compostable Organics Out of Landfills

Organics make up half of our discards

Yard trimmings banned from FL landfills since 1992

Paper is **one-third** of the waste we create and it's 22% of what we throw away

We throw out 98% of food scraps

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COOL: Composting has multiple benefits

Soil is the foundation of our society but most of us don't know anything about tilth, humus or N-P-K. What you need to know is applying compost to soils:

- Suppresses plant diseases and pests;
- Reduces or eliminates the need for chemical fertilizers;
- Promotes higher yields of agricultural crops;
- Improves water holding capacity and erosion control,
- Improves drainage and permeability

Fertilizer run-off leads to ocean dead zones—applying compost offsets fertilizer use.

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Reaching 70%

Reaching 90%

Why 10 years?

Reaching
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Key strategies for 70% recovery

- **Mandatory recycling and composting at all homes and businesses**
- **Reduce trash service frequency to every other week**
- **Finish building the local Zero Waste Infrastructure**
  - Create local CHaRM (Hard-To-Recycle Center)
  - Create local Reuse for used building materials (UBM's)
  - Promote local "reuse retail" businesses (thrift and repair)
- **Minimum 50% C&D recovery**
  - deposit system on building permits
- **Education, education**

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Every other week trash collection

- **Organics collected weekly**
  - minimizes odors
  - incentivizes people to use composting
- **Recycling and trash alternate every other week**
  - Saves $2.50 - $3.75 per household per month off the costs of collection trash, which helps offset processing and collection costs for organics
- Toronto: biweekly; Arcata, CA: up to monthly; Boulder, CO: on-call bag option

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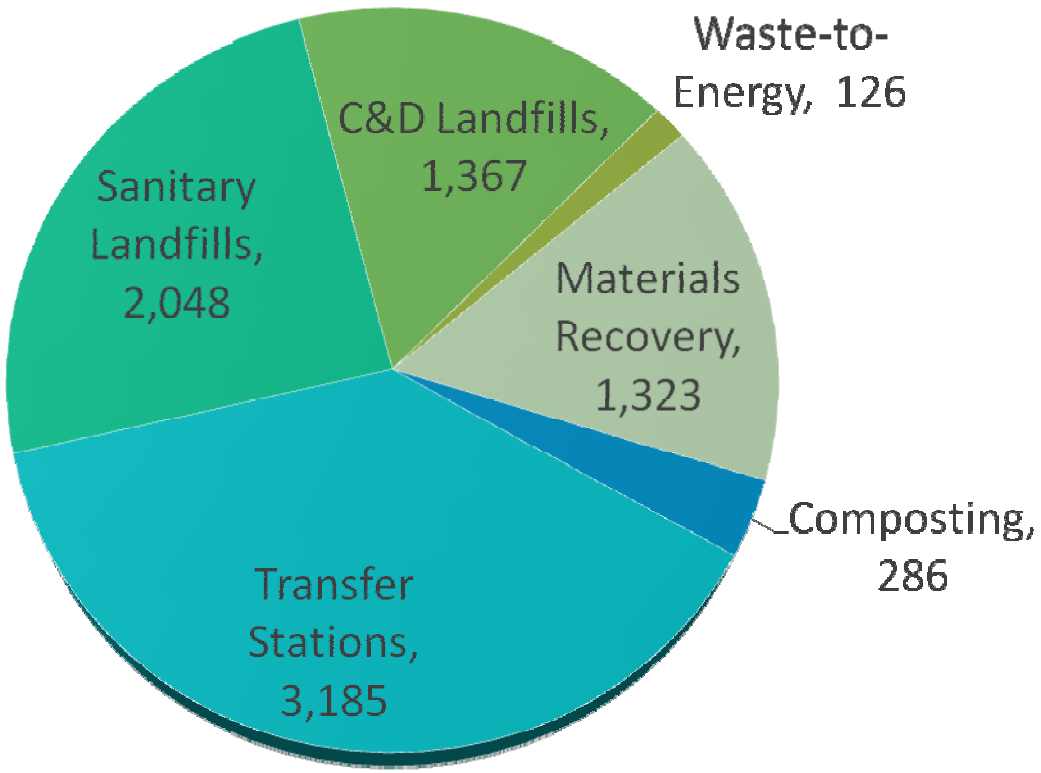
Where our infrastructure is today

8,300 "waste" Facilities by Type, 2009



Data from Waste Business Journal, 2010

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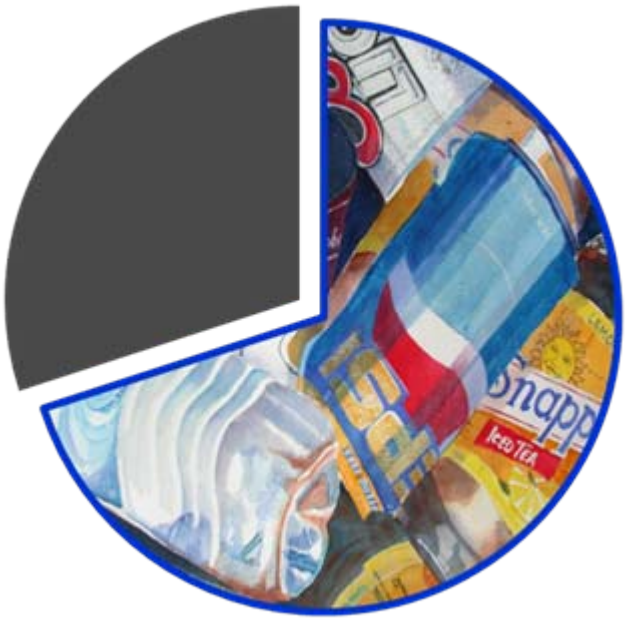
State goals beyond 70%

- Washington: 80% by 2020
- Florida: 75% by 2020
- Minnesota: 75% by 2025
  - 3% waste reduction per capita
- Massachusetts: 70% by 2010
- California: 37 communities above 70%
  - San Francisco: 72%



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Key strategies for 90% recovery

- **Mandatory participation across all sectors**
  - business, residential, industrial, C&D, multi-family units
  - San Francisco could be at 90% ***today*** with full participation
- **Producer Responsibility (EPR) policies change our world**
  - Industry phases out toxic products to increase recovery potential
  - Industry funds collection of hard-to-recycle products and packaging
  - Industry rewarded for design-for-recovery
- **Developing (local) markets for everything discarded**
  - 85% of materials have a market today… keep going !!
- **Education, education, education**

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Handling whatever's left

Don't let the 10% "tail" wag the dog !

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Handling whatever's left: Key Principles

1. Low financial risk/investment;

2. Minimize environmental hazards;

3. Identify remaining materials and sources to phase out use;
   - **Rates-and-dates** approach preferable over disposal ban - but must be enforceable and demand compliance

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"Safer" Landfilling

- **Safer Landfilling means <u>pre-processing</u> and <u>bio-stabilization</u> before burial:**
  - Follow lead of Germany and EU on this;
  - Windrow composting at landfill to stabilize organics – it's cheap! ;
  - Additional recovery of recyclables, then "Dirty" compost buried, or tested for limited use;
  - Can be scaled down as residuals decrease with little to no lost investment.

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Anaerobic Digestion

- **Anaerobic digestion**
  - Energy recovery from organic portion
  - May be some synergy with wastewater treatment plants
  - Local economics will determine feasibility
    - facility moving forward in San Jose, CA

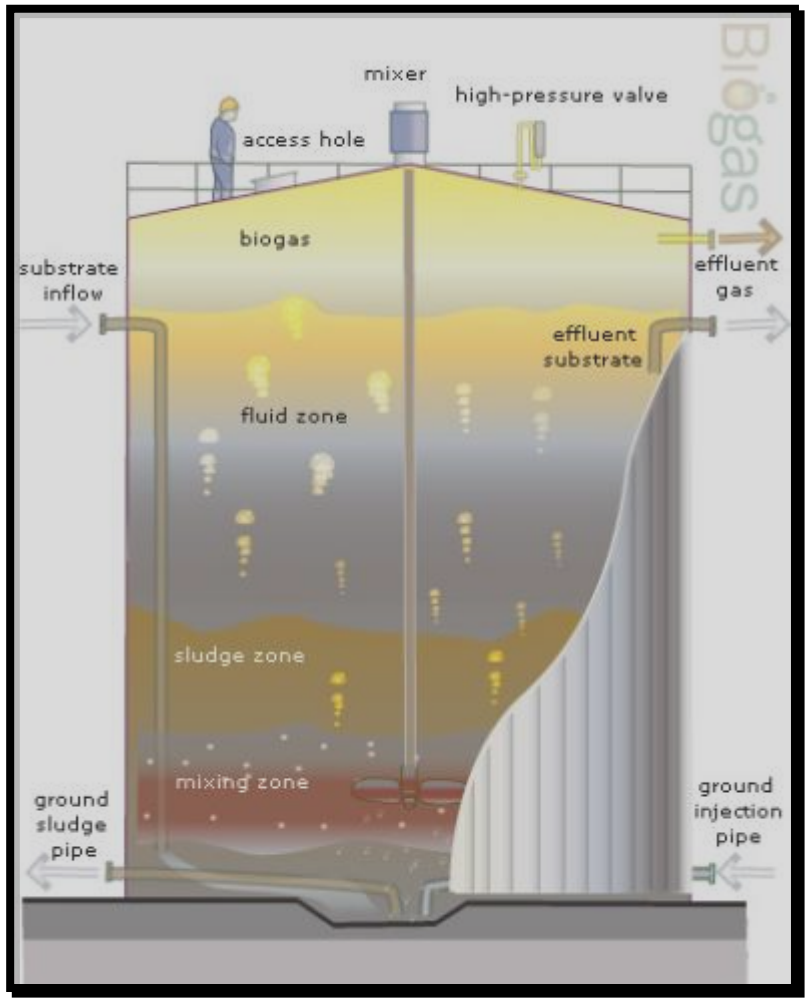

Photo courtesy of Renewable Energy Association, www.r-e-a.net

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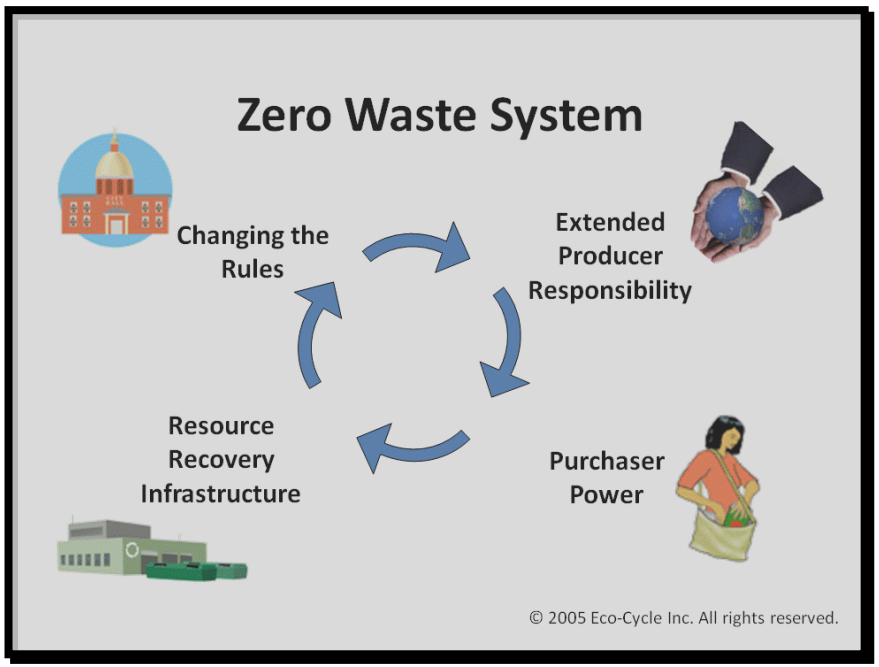
Results !!!

1. Local landfill capacity will be quickly and cheaply extended;
2. Ten year planning and implementation schedule will create momentum for success;
3. Crisis decision making (and spending) can be averted.



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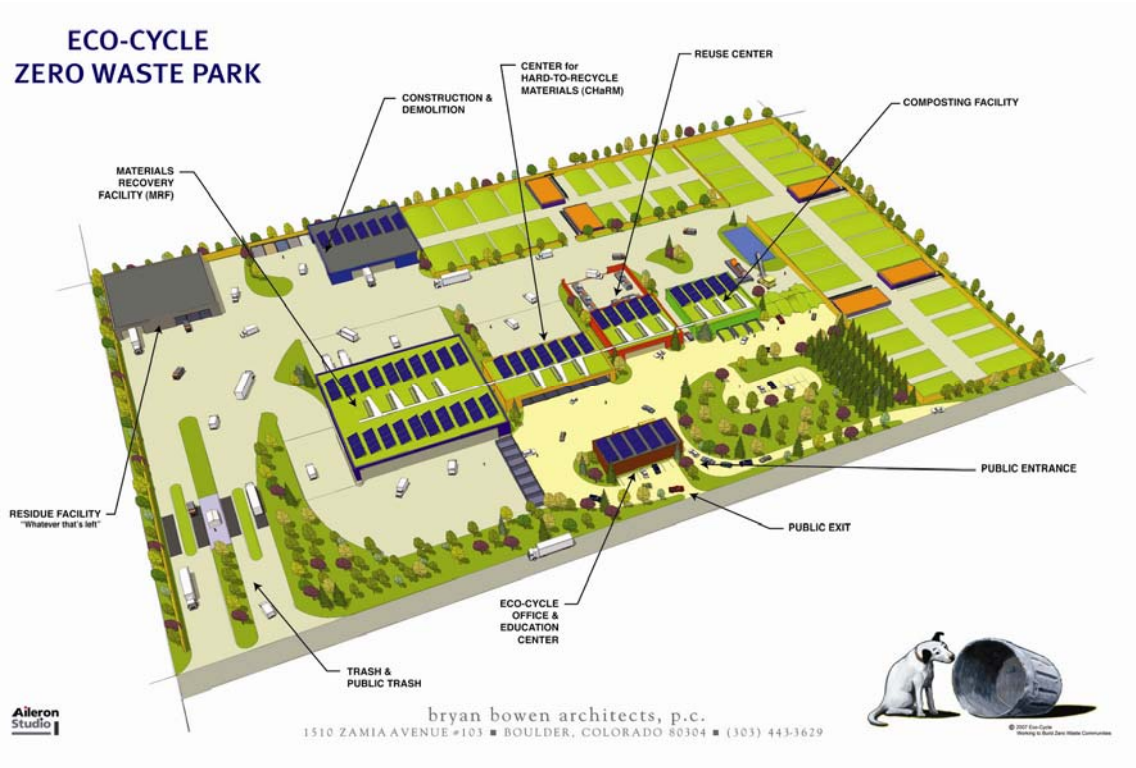
Results

No new landfills or incinerators!



Invest in Zero Waste parks instead

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Next steps

- Community assessment of Zero Waste as part of waste master plan
  - A “zero” waste planner is not the same as a waste planner
  - First Task:

    Issue RFQ/RFP for Zero Waste Plan
  - Model after Austin RFQ

- ZW Facility Gap Analysis:
  - MRF, composting, C&D, reuse/repair, CHaRM

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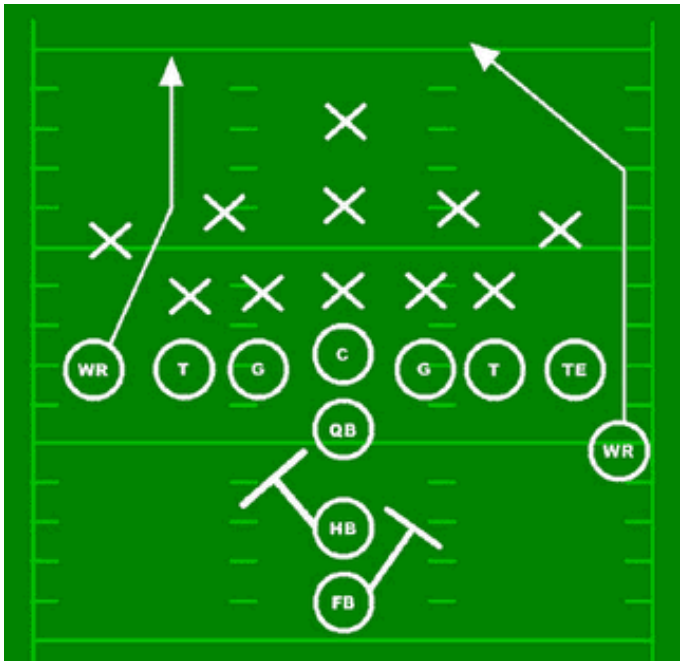
Next steps

- Ten year timeline:
  50%, 70%, 90% goals
- Funding: disposal fee, litter tax
- **Goal: Eliminate the single trash bin and Zero Waste economics will dominate**



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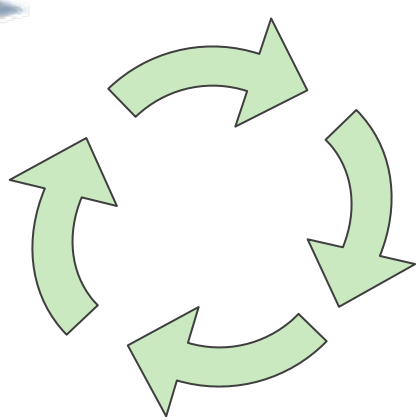
Zero Waste Economy

Design for the Environment

Clean Production

Retail Stores

Shifting Financial Incentives



Buying is Power

Changing the Rules

Producer Responsibility

Jobs, Jobs, Jobs

Resource Recovery Parks

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A new "Business-as-Usual"

Waste as both a social <u>and</u> market issue results in a mutually-beneficial growth spiral of both private and community benefit informing each other over time toward the goal... an evolution and growth process.

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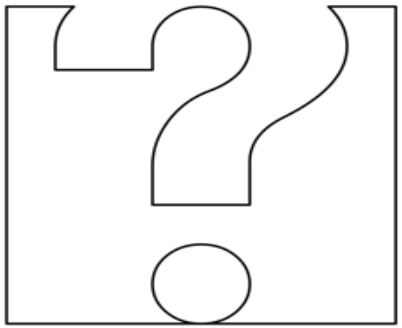
Ask a different question… get a different answer

- Waste management = managing a problem
- Waste is a social issue first, a market issue second.
- Resource management = managing opportunities



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