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***Beyond Garbage***  
***A World Without Waste***

Richard Gertman  
*For Sustainability Too*

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# Getting Started

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- What is your ultimate goal
- What is the best way to get there
- What facilities do you need to get there
- How much will it cost



# My goals include ...

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- Eliminate Garbage
- Eliminate inefficient use of materials
- Eliminate use of materials that can't be recycled
- Haul NO waste directly to landfill
- Process all collected materials
- Maintain Recovered Material Quality
- Landfill NO compostable organics



# No More Garbage

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Garbage is created when we mix putrescibles (food) and non-putrescibles (recyclables) together (in a packer truck) so that they can't be separated back apart



# Getting to the Future

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**Backcasting:** You can't get there if you don't know where you want to be!

**My Top Ten Programs:**



# Managing Materials

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- **Upstream:** Extraction and refining of materials; production of products and packaging, transportation to market
- **Downstream:** when the consumer no longer wants the product



# 1. Upstream Policies

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## **Product DReesign:**

- Light-weighting
- Design for Reusability
- Design for Recyclability
- Use materials efficiently



# Box Design

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Top & bottom:  
 $2 \times 8 \times 12 = 192$  sq in

**Box: 6 x 8 x 12**



Top & bottom:  
 $2 \times 6 \times 8 = 96$  sq in





# Extended Producer Responsibility (EPR)

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*and* Product Stewardship

Government or Industry Led

- End of life responsibilities
- The role of EPR and Bans

# EPR



To reduce toxic or Harmful products  
To manage not easily recyclable products



# End of Life Management

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- Container Deposits
- Product Take Backs
  - Carpet
  - Electronics
  - Paint
  - Mattresses



# Reduce Loss

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- Repair
  - Fix-It First
- Reuse
  - Find it a new home – give it away



# Reduce Food Loss

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- Buy Smart
  - Sell by dates
  - Best if used by dates
- Use food before it spoils



## 2. Downstream Policies

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### **Materials Recovery:**

Collect and process unwanted materials and return them to use in manufacturing new high quality products; instead of extracting new materials.



# A Sustainable Materials Management System

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- Recycling is about keeping some stuff out of the landfill.
- Recycling is about recovering resources to be used in manufacturing new products.
- Recycling is about reducing the extraction of resources to be used in the manufacture of new (consumer) products.



# Recycling is ...

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**mopping the floor  
while the faucet is  
still running**





## 3. Selective Routing

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Collect like materials in each load:

- Reduces contamination
- Makes processing easier



## 4. Commercial Wet-Dry

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- Collect in two trucks, instead of three trucks
- Commercial Dry materials are almost all recyclable
- Commercial wet materials are mostly compostable, and are already bagged



## IT'S DRY

Place accepted material loosely in the container.



## IT'S WET

Place accepted organics loosely in the container. No Glass, Metal or Plastics!





## 5. Residential Wet-Dry

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- Collect only two streams, not three
- **Automate collection**
- No garbage is collected
- No loss of recyclables or compostables to landfill



# Every-Other-Week Collection

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- Another way to Keep  
Collection Costs Low

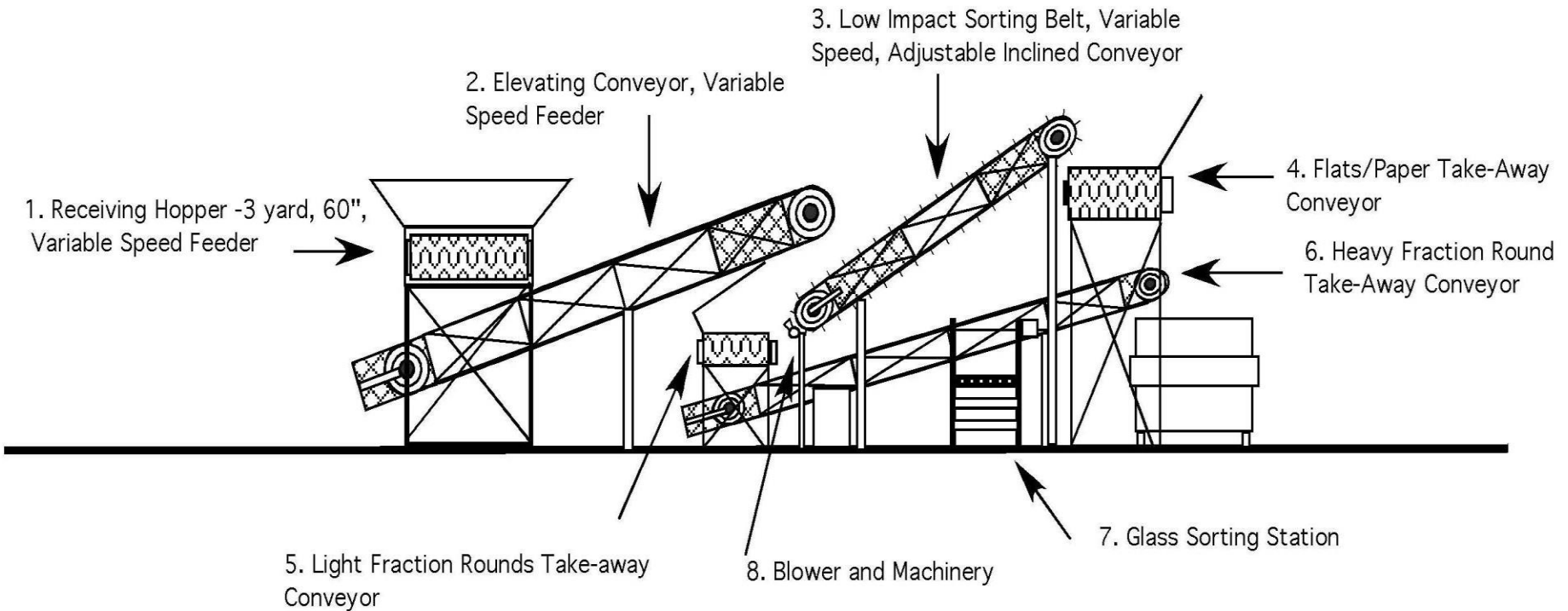


## 6. Primary Processing

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- To prepare high quality materials for use in manufacturing new products
- To separate back out what is collected commingled
- It's not about throughput

# Low Impact Sorter





# 7. Secondary Processing

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- MRFs don't have sufficient time or space to sort all of the grades of marketable materials.
- Re-Sort to market higher value materials









## 8. Food Scraps

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- Organics recovery has to be part of any program that gets to zero waste.
- No organics to landfill



## 9. Beyond Garbage

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We charge for collecting garbage; we don't charge for collecting recyclables.

If there is no garbage, how will we charge for collection services?



# Zero Waste Rates

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- As we increase recovery and processing, the costs go up and the revenue goes down
- Pay-As-You-Throw sends mixed messages



# Zero Waste Funding

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- Base on electric utility model
- Small increment of service to encourage behavior change



# RATES

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1. Charges based on total volume of garbage collected
2. Charges based on total volume of all materials collected
3. Charges at one rate for garbage, and at lower rates for recyclables or compostables
4. Electric model - Base usage at lower rate, additional use at higher rate



# Costs and Revenues

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- Design an efficient collection system to reduce costs
- Process materials to higher quality to increase revenue





# 10. Market Development

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- Produce high-value-added products
- Buy Recycled
- Tax incentives
- New Business Incubators



# Create Local Jobs

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- Recovered materials can become feedstock for producing new high-value products locally

# Getting To NO Garbage



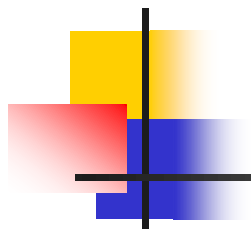
- Design a program that will get you to your goal in the most cost effective way.
- Don't settle for less.



# The Future is a World Without Waste

*From EPA*





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# **Richard Gertman**

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[4sustainability2@gmail.com](mailto:4sustainability2@gmail.com)

408-318-8347