

Disclaimer



Notice: This presentation has been provided as part of the U.S. Environmental Protection Agency Resource Conservation Challenge Web Academy Recycling and Solid Waste Management Educational Series. This document does not constitute EPA policy. Mention of trade names or commercial products does not constitute endorsement or recommendation for use. Links to non-EPA web sites do not imply any official EPA endorsement of or a responsibility for the opinions, ideas, data or products presented at those locations or guarantee the validity of the information provided. Links to non-EPA servers are provided solely as a pointer to information that might be useful to EPA staff and the public.



Single Stream Recycling Best Practices

Richard Gertman

RCC Webinar

March 20, 2008

Single Stream



- ✓ Has the potential to increase recycling by residents
- ✓ Has the potential to increase supply to recycled product manufacturers
- ✓ But won't if it is not done right!

Implementing Single Stream



- ✓ Savings in collection and worker injury
- ✓ Higher processing costs
- ✓ New collection and processing equipment costs
- ✓ Higher manufacturing costs -
when processing is not done right
- ✓ Overall not much change in cost,
but more recyclables collected
- ✓ But are they made into new products?

Re-Thinking Wastes



Recycling is a Resource Management System

- ✓ Recyclables are resources, not diverted wastes
- ✓ Garbage is the residue of a resource based system

Closing the Loop!



- 1) Collection of recyclables
- 2) Processing into commodities
- 3) Manufacturing into new products
- 4) Purchasers buying recycled products
- 5) Consumers recycle them in the collection system

Best Practice



“Collection”
is not the same as
“Recycling”

*Recycling includes processing
and manufacturing new products!*

Best Practice



“Diversion”
is not the same as
“Recycling”

*Recycling includes making new products
from the recovered materials!*

Best Practice



GOALS: conserve resources
and produce quality feedstocks

*The economics of the system should
serve, not determine, the goals*

Who is in charge?



The City, County, State, District, Authority, Hauler, Processor, and Resident each play an important role, but the

Local government controls the curbside recycling program

Program Cost



- ✓ Request services that will achieve the program goals
- ✓ Get the best price for the services requested
- ✓ Don't put savings before performance
 - do you police drive a Ford Focus?
 - so fully fund your recycling program!

Best Practice



Promote your program,
early and often!

You wouldn't hire a PR firm
to collect garbage,
so don't hire a garbage collector to
promote your program

Program Promotion



Tell the public

- ✓ What to Recycle
- ✓ What not to recycle
- ✓ How to prepare recyclables
- ✓ Why to recycle
- ✓ What happens to the recyclables
- ✓ How well the program is working

It's a Balancing Act



- ✓ Diversion or Commodities
- ✓ 'Collect It All' or
'Only Marketable Materials'
- ✓ More Labor or Equipment
- ✓ Capital Cost or Operating Costs
- ✓ Lower Costs or Higher Revenues

Cart Collection



Higher recovery rates are from

- Higher participation
- Collecting more material types
- The large wheeled cart

*Relative size of garbage carts
and recycling carts is a factor*

Automated Collection



- ✓ Larger container = higher recovery rate
- ✓ Easier to store recyclables
- ✓ Easier to get to the curb
- ✓ Reduced worker injury & costs
- ✓ Less litter on windy days
- ✓ Keeps the paper dry
- ✓ Fewer setouts increases efficiency

Convenience (*for whom?*)



It's easier to:

- ✓ Throw it all in together
- ✓ Wheel the cart to the curb
- ✓ Collect the cart contents
- ✓ Promote the program

But it's not as easy for the processor or the manufacturer

Contracting



- ✓ Specify the services you want to receive
- ✓ Specify what happens if it is not done 'right'?
- ✓ Offer incentives as rewards for cleaner recyclables

Collection



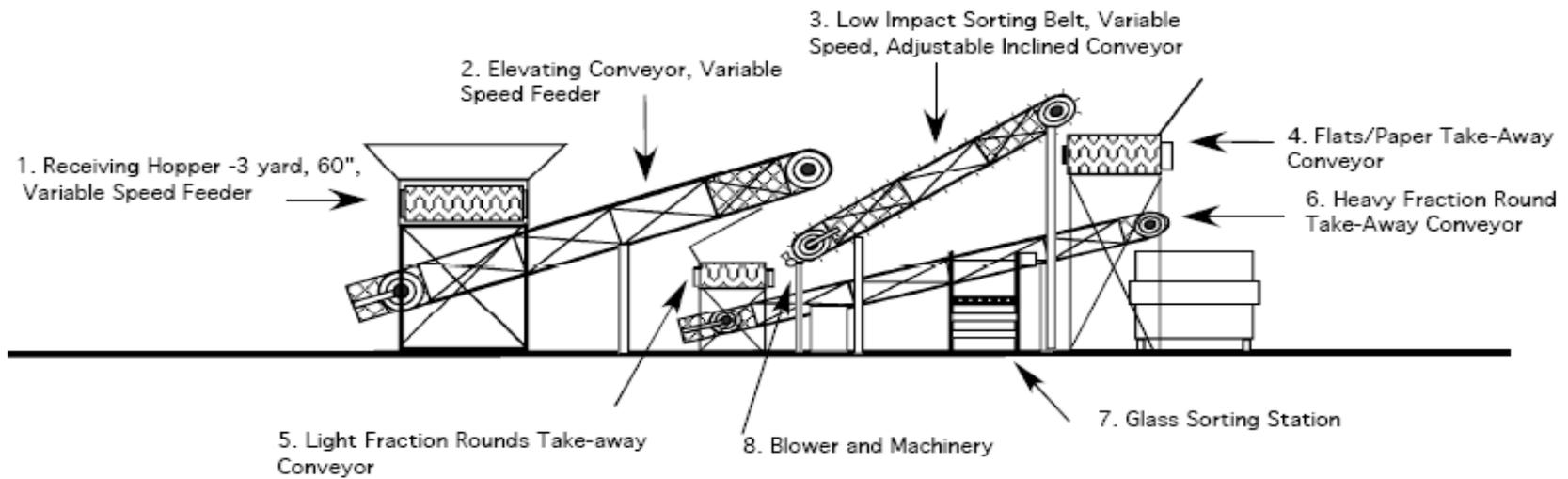
- One truck or two
- for garbage and recyclables
- Size of compartments
- Number of Loads per day
- Compaction rates
- Monitoring set-out quality
- Mirrors and cameras

What about Glass?



- ✓ Bottles are not the problem,
broken glass is!
- ✓ Glass is broken during processing
- ✓ Change to low-impact processing
 - separate the glass before it breaks
 - ✓ allows removal of contaminants
 - ✓ allows color sorting of bottles

Low Impact Sorter



Low Impact Sorter



PET and HDPE



PET and HDPE recovery is higher
if all plastic containers are collected
than if only PET and HDPE are collected

Processing & Quality



- ✓ Tons per day received v. processing equipment capacity.
- ✓ If equipment is rated at 25 TPH the optimum is really 20 TPH but facility is actually run at 30 TPH
- ✓ Balance higher per ton cost of sorting with added market value.
- ✓ Don't skimp on staffing

Processing Operations



- ✓ Receive only what you can separate
- ✓ Plan on receiving materials you don't want
- ✓ Process in sequence to produce quality
- ✓ Meter flow of materials to minimize process line burden depth
- ✓ Don't make a big storage pile, it degrades recyclables

Processing Variables



- ✓ Design to process the number of streams of materials will you receive
 - single stream and dual stream
 - residential and commercial
- ✓ Plan for future growth
- ✓ Prepare for seasonal population changes
- ✓ Be ready for future changes in the markets for your recovered materials

Market Focus



'Just Good Enough'
is not good enough!

Sort materials into high quality
feedstocks for manufacturing

Market Compatibility



- ✓ Types of materials collected
- ✓ Targeted Recyclables
- ✓ Unwanted Recyclables
- ✓ Unwanted Wastes
- ✓ Problem Materials

Best Practice



Require feedback about
materials quality
from the manufacturers
who buy your recyclables

Best Practice



- ✓ Make sure processing system can take apart what collection put together
- ✓ Ensure that marketed materials meet manufacturers specifications
[ISRI Specs]
- ✓ Produce quality feedstock materials to maximize revenues

Sampling



- ✓ Sample collected materials to identify contaminants
- ✓ Sample processed recyclables to make sure you are shipping the right material to the right buyer
- ✓ Sample the residue to make sure you are not discarding recyclables

Contaminants & Residue



- ✓ Minimize non-recyclable materials received
- ✓ Design processing system to minimize degradation of recyclables
- ✓ Minimize recyclables disposed
- ✓ Send the right recyclables to the right market

Processing Contract



- ✓ Focus on what happens to the collected materials
- ✓ Identify processing steps taken to avoid degrading materials
- ✓ Maintain quality of shipped product
- ✓ Allowable residue rates should not include contaminants collected

Reporting



- ✓ To track how well the program is working
- ✓ To know whether the program goals are being reached



Richard Gertman

Environmental Planning Consultants

A Green Business

1046 West Taylor Street, Suite 208

San Jose, CA 95126

408-249-0691

richard@environplan.com