

The Changing Waste Stream

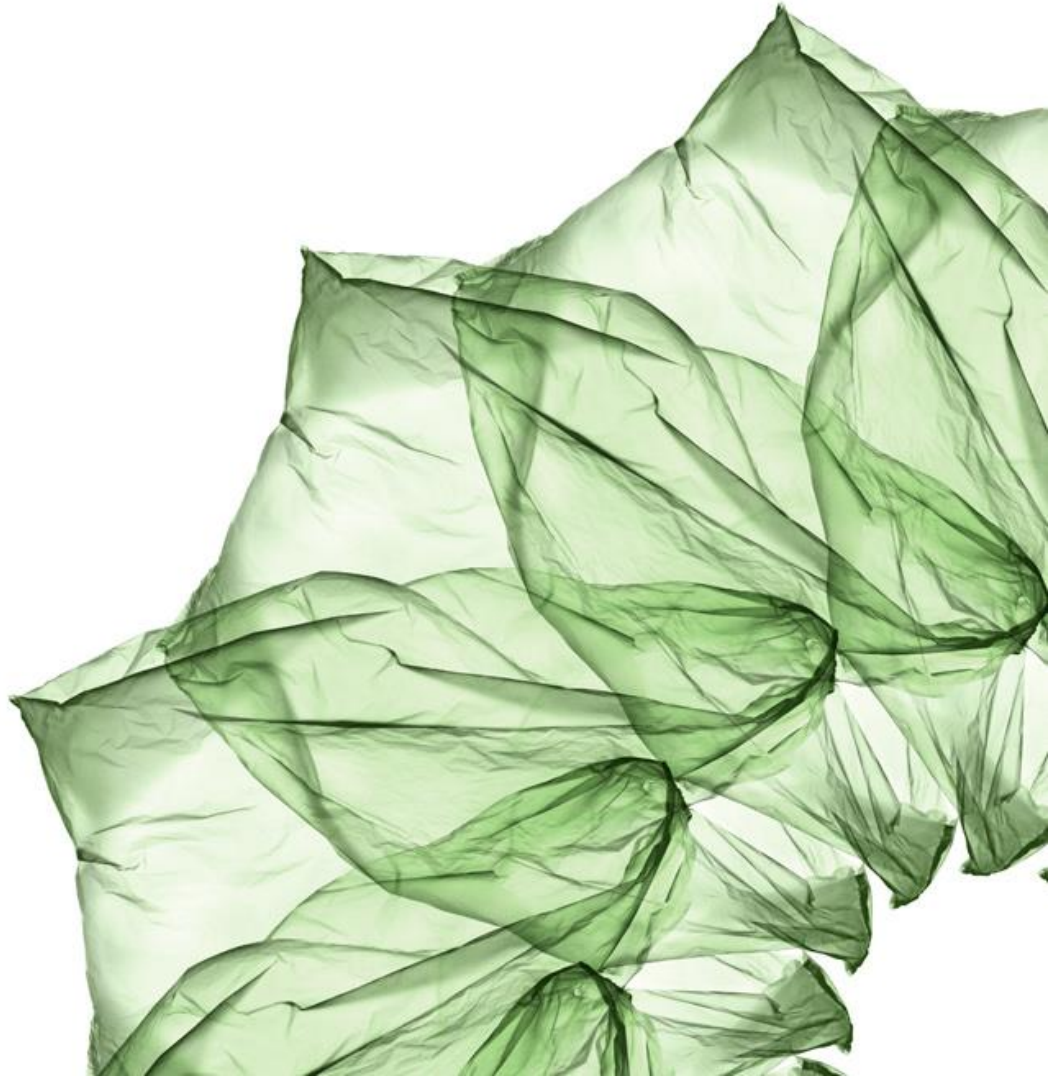
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Trends in recycling

What makes something recyclable?

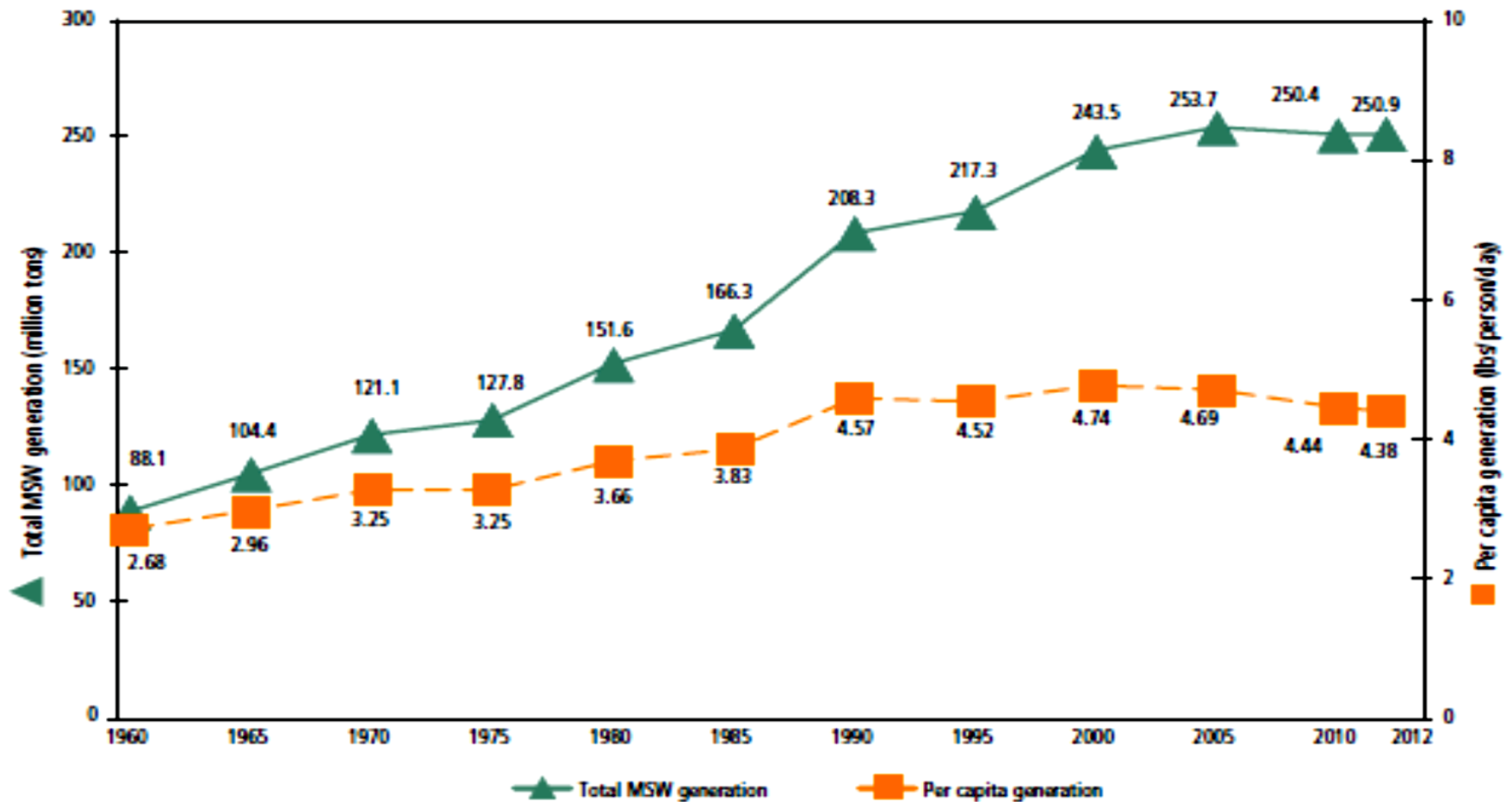
What's next?

The Evolving Ton

- The materials and products we use in our daily lives have evolved
- Per capita waste generation is down 8% since 2000, affecting recycling, landfilling and waste-to-energy.
- We are seeing less paper, more plastic and no growth in metal.



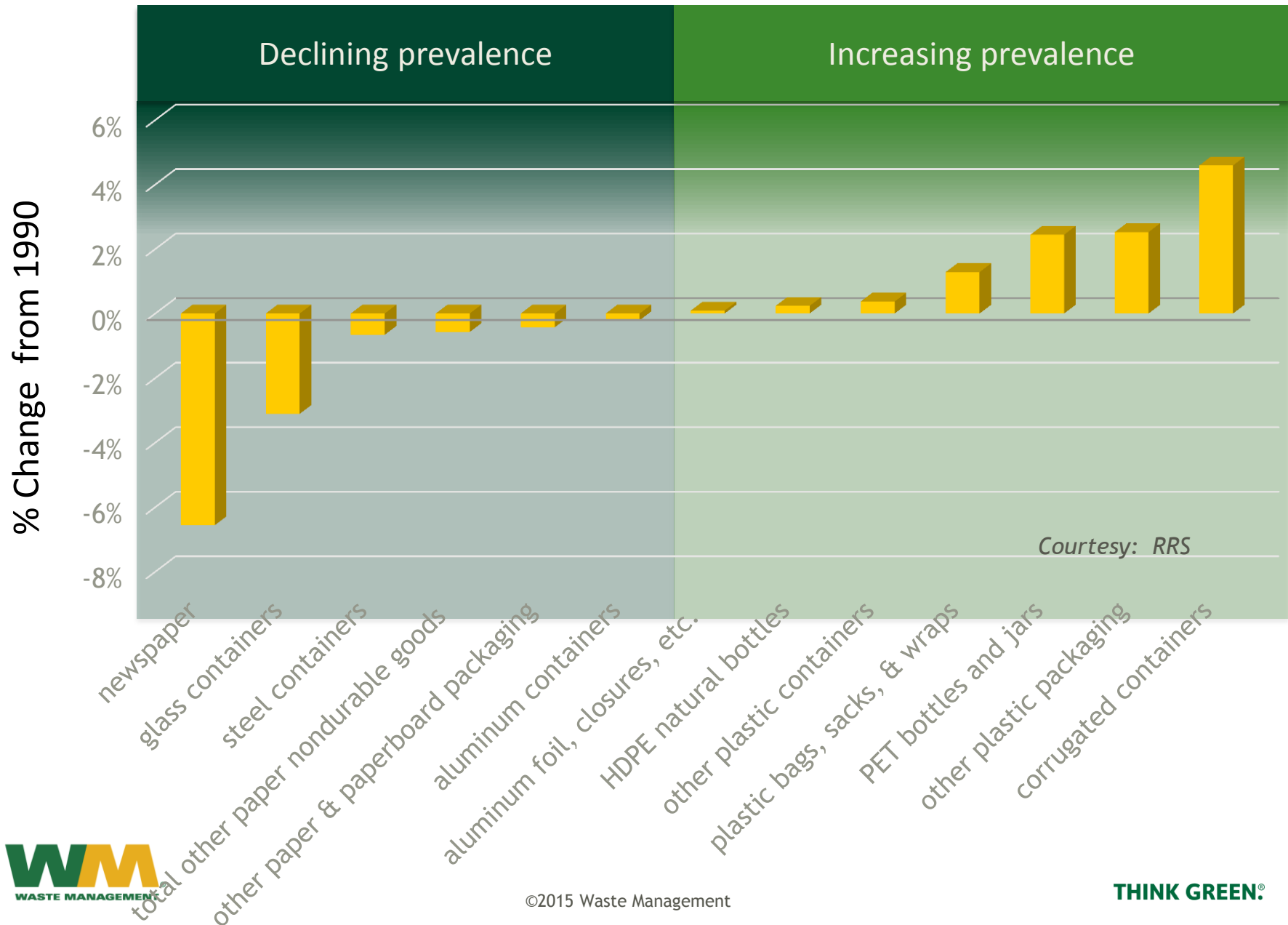
Waste generation and recovery rates in the U.S.



¹ U.S. short tons unless specified.

US EPA 2012 MSW Report

Change in Paper and Packaging: 1990-2012



Change in the Recycling Industry

A history of change

Change is not new to our industry:

- Glass to aluminum
- Glass and aluminum to plastic
- Trend from source-separated collection to single stream collection
- Ongoing trend towards domestic market constriction and growth in export markets

What is different/the same in 2015?

Paper

A changing industry

- **Newspaper** has historically made up 60% of recyclables collected. All types of paper made up 80% of the material we received for recycling.
- **A 50% reduction in newspaper** readership in last 10-years resulting in the consolidation/closure of major recycled **newsprint** mills in North America
- There is an increase in residential single stream material which has increased the volume of a grade called **Curbside Mixed Paper.**
- New low cost manufacturing technology in China competes with aging North American machines so more Mixed Waste Paper goes to China

Plastics

Impact of changing market conditions

- At the same time that paper grades have changed, plastics volumes are increasing
- Plastics made up 12.7% of the waste stream in 2011, up from 10.5% in 2010
- The 12.7% plastics in the waste stream by weight makes up over 25% of the waste stream by volume
- Use of single serve containers and plastic packaging is up
- Plastic bottles have “light weighted” - water bottles take up the same space (volume) but weigh up to 25% less
- Recyclers must process more bottles to get a ton, and these tons are more expensive to process.
- Our cost are incurred by volume and our revenue is by weight.

The changing waste stream means we process more volume with less weight which leads to higher processing costs

The evolving package



Glass jars,
metal cap to
PET jar,
PP cap

- Light-weighting
- Flexible packaging expected to grow 4-6% annually in the next few years



HDPE Bottle, PP Cap to multi-layer, flexible film pouch



From steel can,
paper label
adhesive to multi-layer, foil-lined flexible film pouch

The Millennials are coming - what should we expect?

- Millennials are defined by the group of young adults between 19-27 in 2015. They number 79 million this year, making them a larger demographic group than Baby Boomers (76 M). They are just starting to have children and to reach their peak purchasing years.
- Millennials are not beholden to traditional packaging. Cans, jars and bottles do not always fit with their lifestyle.
- They are more likely to eat convenience food, food on the go, and 17% more likely to purchase food from convenience stores and one-stop-shop mass merchandisers than traditional grocery stores.

Millennials want meals they can prepare and eat quickly, with little or no cleanup - and minimal leftovers.

The average Millennial eats nearly one-third fewer meals per year involving leftovers than adults in their late 30's and 40's.

Brand Aptitude, 2012

Implications

- Less foodwaste
- More custom packaging
- More small packaging
- More packaging that cannot be recycled in MRFs with existing technology
- More packaging with no end markets



ON THE GO PACKAGING: Fresh Fruits & Vegetables



Changes in society impact end-of-life options

- Convenience trumps sustainability
 - We are using more, smaller packaging (single serve) - which often end up in the residual at MRFs
 - Packaging is becoming lighter - plastics, metals and even glass and cardboard is lighter
 - Many new plastics are laminates that cannot be recycled

Because curbside recyclables are primarily packaging and printed paper, recyclers must adapt their infrastructure and operations to a rapidly changing waste stream over which they have no control.

Net impact on MRFs: Lighter inbound material

- The volume in a ton has increased with the loss of ton density.
- Inbound material at MRFs is now 45-60% paper and 40-55% containers
- Glass and residue is a greater percentage of our recycling mix

These all have implications on the design of MRFs, and increase the cost of recycling

Trends in recycling

What makes something recyclable?

What's next?

What Makes Something Recyclable?

All of these are necessary for sustainable recycling



Collection

- Convenience
- Size/shape
- Public education



Processing

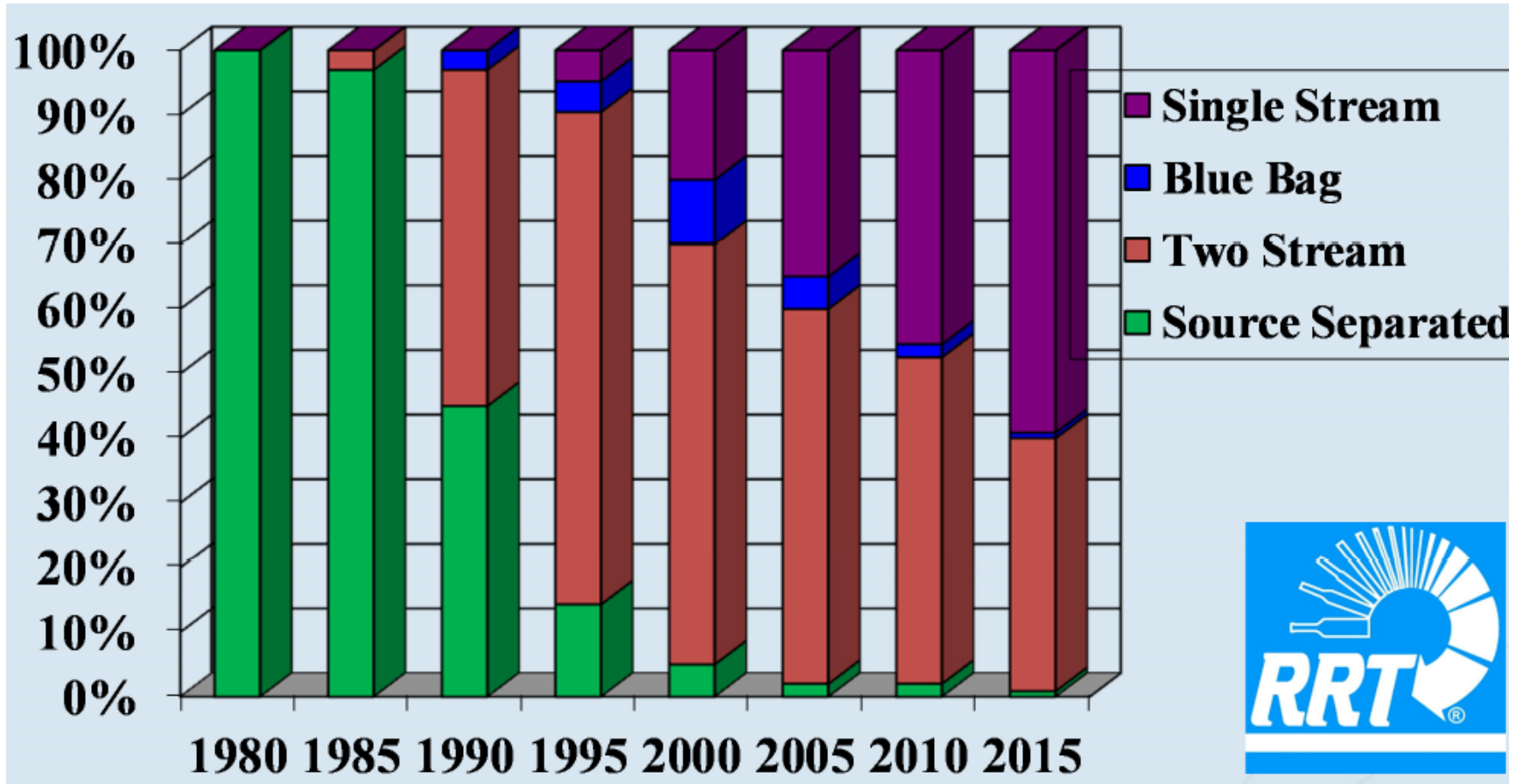
- Identification
- Sorting
- Size



End-Market

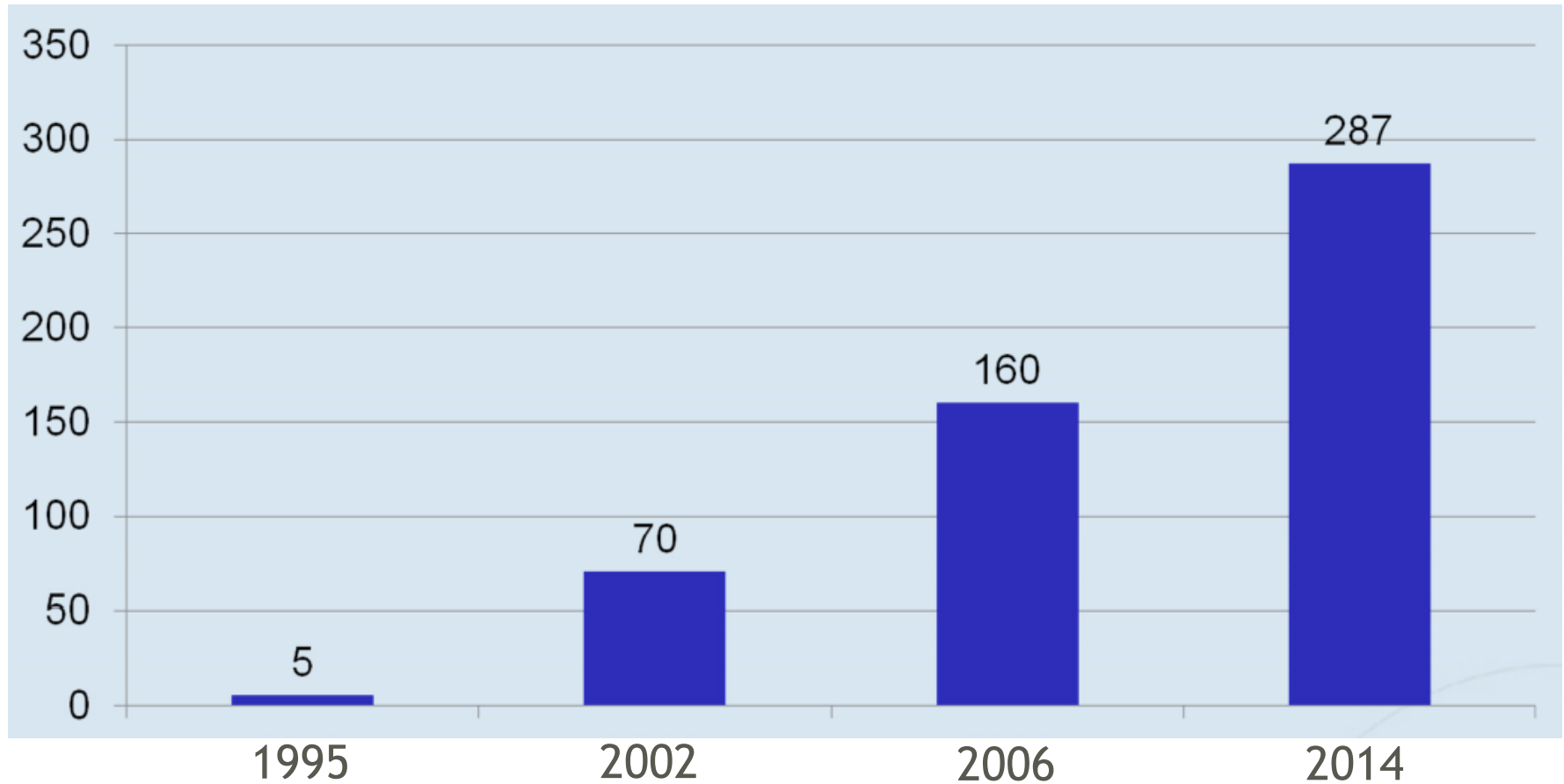
- Demand
- Volume
- Value

Transition to Single Stream Collection and MRFs



Courtesy Nat Egosi, RRT

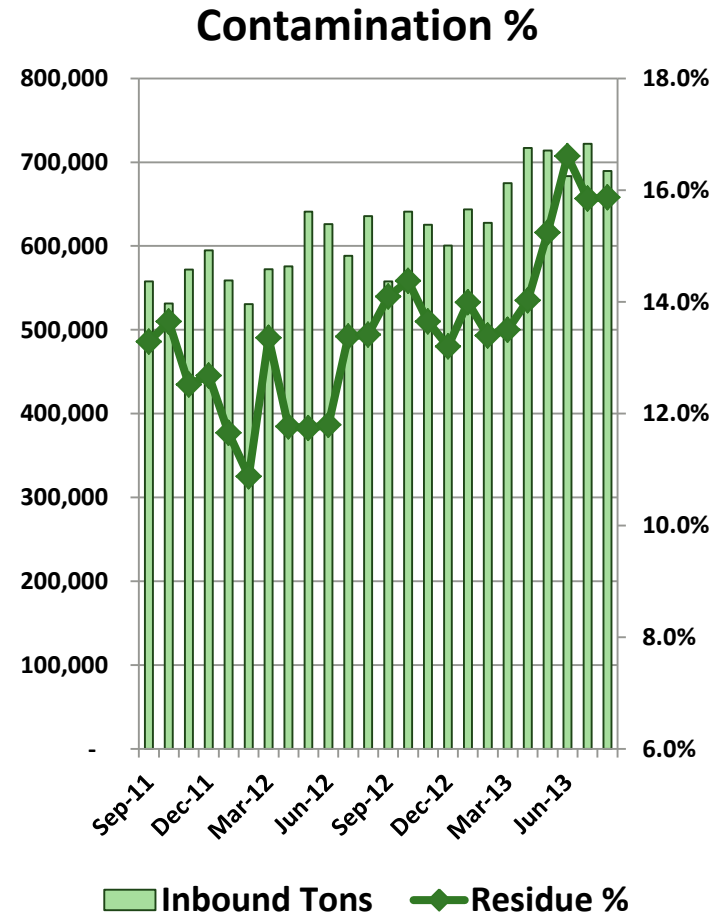
Growth in Single Stream MRFs



Source: Governmental Advisory Associates, Inc. Database of Materials Processing Facilities in the United States. Westport CT., 2015.

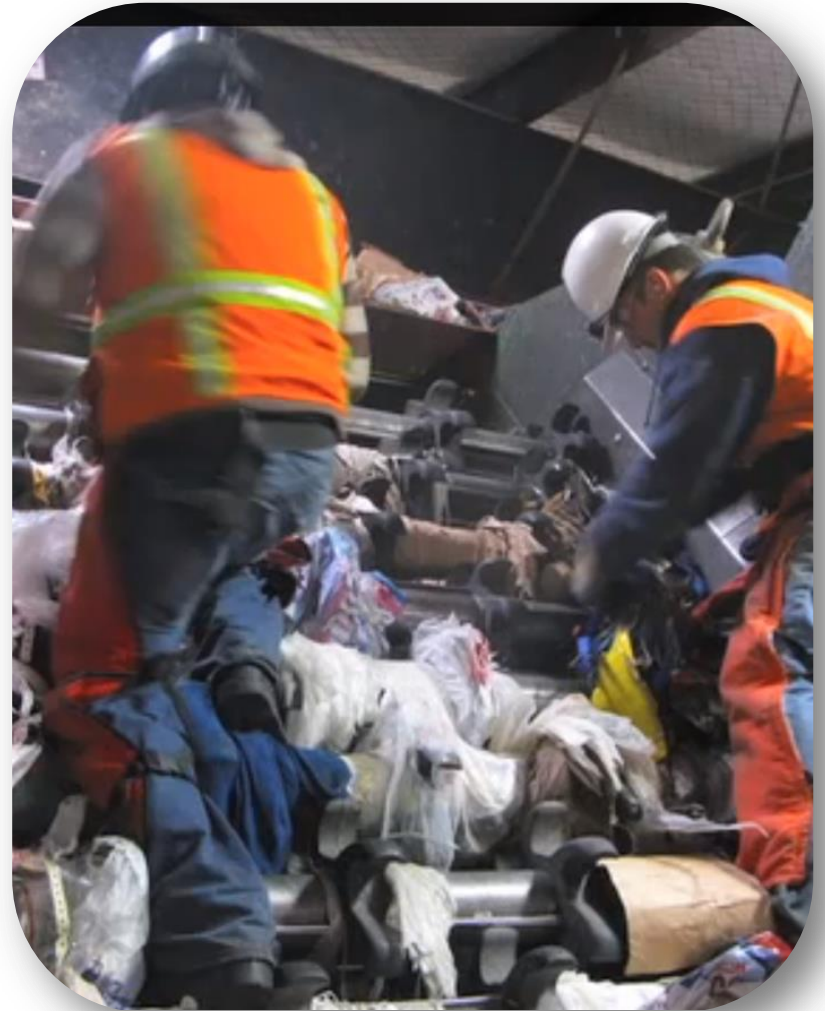
Contamination in Single Stream Recyclables

- Contamination of loads is *on average* 16% of inbound tons and increasing
- Contamination can be up to 50% of incoming loads
- Contamination cost an average of \$140 per ton
- Markets are demanding reduced contamination (Green Fence)
- Processing costs continue to increase, which is driving up cost to customers



WM MRF Data - 2013

Film Plastics in Disc Screens



Price and Volume

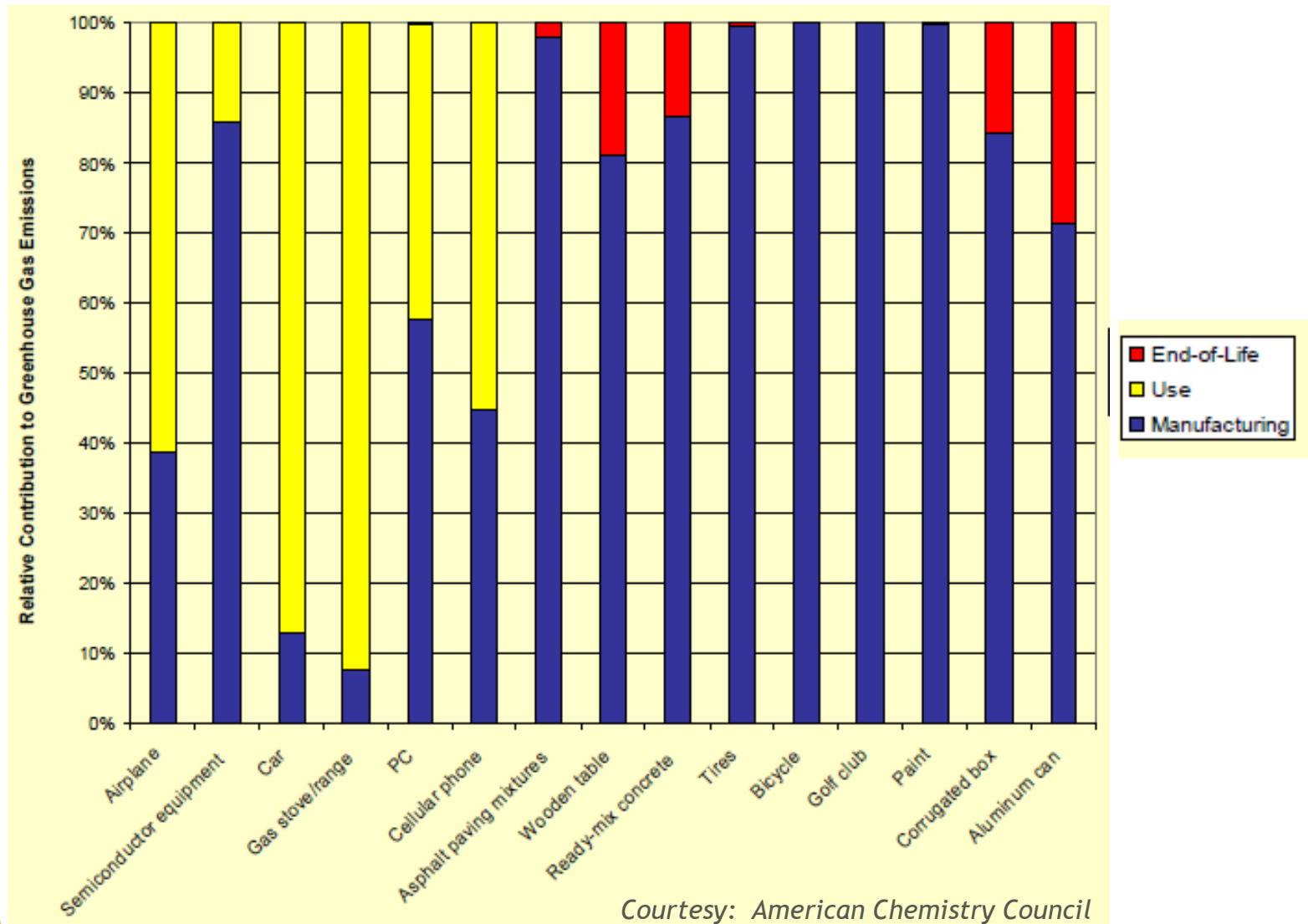


What do these changes mean for recycling?

- The changing waste stream has increased processing cost at MRFs, driving up the overall cost of recycling
- There are more non-recyclable materials in the feedstock - which increases the cost of recycling programs
- There are more low-value materials in the recycling stream, which reduces overall revenue. Communities with revenue-sharing may see less revenue from the sale of commodities.
- A lighter recycling stream makes it harder to increase recycling rates
 - More light-weight plastic
 - More lower value materials
 - Light-weighting of all packaging

The Role of Life Cycle Thinking

Why product/packaging design is important



Courtesy: American Chemistry Council

Is recycling percentage the right way to measure success?

- **Recycling is measured in weight, not volume.** Lightweighting combined with a switch to lighter materials has the effect of stalling diversion rates and falsely suggesting the programs have become ineffective
- **Overall environmental benefits must be our first priority.** If a material has a net environmental benefit but cannot be recycled, should we support its use?

Trends in recycling

What makes something recyclable?

What's next?

Back to the Basics: Public Education and Outreach for Recycling

Recycle Often. Recycle Right.SM

The Path to Sustainable Profitable Recycling

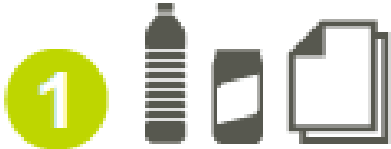


Recycle Often. Recycle Right.sm

Getting Back to the Basics of Recycling

- Built on behavior change science framework:
 - Keep it simple
 - Focus on barriers and benefits
 - Tell people why
 - Ask for a commitment
 - Measure and scale
- Focus on specific changes that are (almost) universal; can translate on a national level
- Focus on basic materials with large recycling potential: paper, bottles and cans
- Address contamination issues that cause the most issues at MRFs: Wet items and plastic bags
- Help lead industry towards improved recycling

Simple Messages



Recycle all my empty bottles, cans and paper.



Keep food and liquids out of my recycling.



Keep loose plastic bags out of my recycling.

Simplifying the Message

- Focus on 3 simple behaviors that could greatly impact recycling nationally
- Tested
- Accompanying myth busters/FAQs for those that want to dig deeper

Recycle Often...

...because it's the responsible thing to do

- Recycle empty plastic bottles and metal/aluminum cans (glass*)



- Recycle clean, dry paper and cardboard



Recycle Right...

...because following a few simple rules will make the process work

- Keep plastic bags out of your recycling container



- Keep food, food-soiled paper, and liquids out of your recycling container



Brochure

You Have the Power!

Ever wonder, "Why and how to recycle?" Every day we encounter hundreds of recyclable items. By recycling properly, you help materials get to their next best use, which in turn saves tons upon tons of raw materials, time, energy and expense.

It's Time to Rethink Recycling

69% of plastic bottles don't get recycled.* 45% of aluminum cans end up in the garbage.* Liquids often spoil a whole load of otherwise recyclable paper. That's why it's time to get back to the basics of good recycling. The fact is that some recycling actions make a bigger impact than others. These Recycling Rules will help you rethink recycling to make a sustainable impact!

Become a Recycling Ambassador. Whether you're a home owner, teacher, city official, business, kid, or a recycling enthusiast, all the information you need to help pass it on is just few clicks away.

*Source: US Environmental Protection Agency

RECYCLING RULES

1. RECYCLE ALL BOTTLES, CANS AND PAPER

2. KEEP ITEMS CLEAN AND DRY

3. NO PLASTIC BAGS

Certain offenders can slow down the recycling process or even ruin the load.

Participation is Key!

Please consult your local municipality for their acceptable materials and additional details of local programs, which may differ slightly.

Always recycle:



Plastic Bottles
& Containers



Food & Beverage
Cans



Paper



Flattened
Cardboard
& Paperboard



Food & Beverage
Cartons

Do NOT include in your recycling cart:



NO Food Waste



NO Plastic Bags
& Film



NO Foam Cups
& Containers



NO Needles

To Learn More Visit:
[\[website-xxxxx.com\]](http://website-xxxxx.com)

Realize the value of recycling.
Here's how.

Questions?
[Contact Customer Service:
000 000 0000
email@xxxxx.com]

Always recycle:



Plastic Bottles
& Containers



Food & Beverage
Cans



Paper



Flattened Cardboard
& Paperboard



Food & Beverage
Cartons

Do NOT include in your mixed recycling cart:



NO Food Waste
(Compost instead!)



NO Plastic Bags
& Film
(Find a recycling site at
plasticfilmrecycling.org.)



NO Foam Cups
& Containers
(Check Earth911.org for options.)



NO Needles
(Keep medical waste out of recycling.
Place in safe disposal containers.)

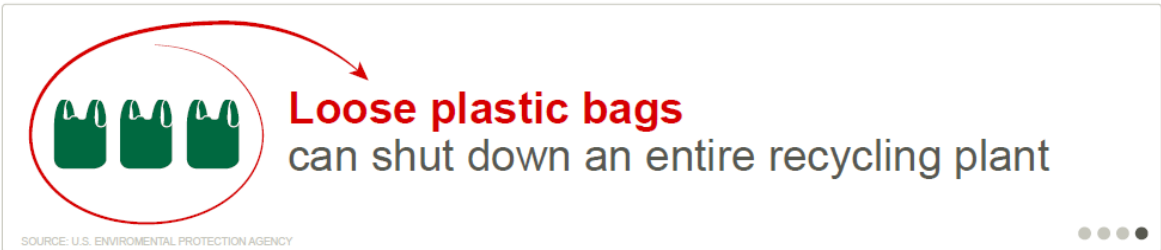
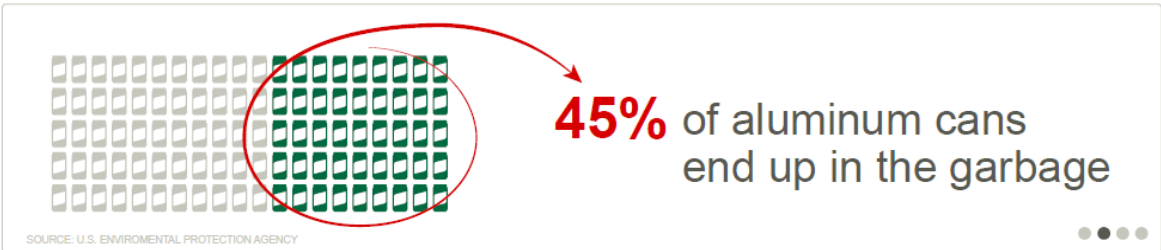
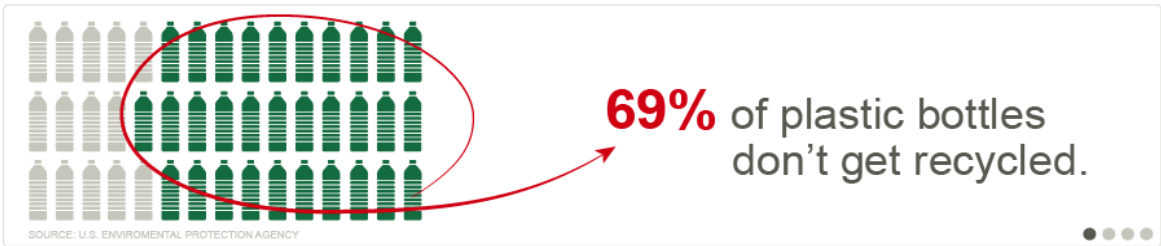
To Learn More Visit:
[website-xxxxx.com]

Please consult your local municipality for their acceptable materials and additional details of local programs, which may differ slightly.



THINK GREEN®

Tell People Why






Mythbusters

MYTH: All plastics can be recycled.

ANSWER: False

Not all plastics can be successfully recycled. At this time, only some plastics can be made into new things. Recycle plastics by shape: bottles, jars, jugs and tubs.

ITEM	ANSWER	MORE INFO
<p>Clamshell Packaging</p> 	No	The plastic "to go" containers or containers holding berries, apples, bakery items, etc., are not consistently made of high-value plastic, are difficult to recycle and are usually contaminated with food when disposed. See more at: http://oregonstate.edu/sustainability/blog/2014/01/recycling-mythbusters-plastic-recyclables
<p>Plastic eatery: utensils, plates and cups</p> 	No	Plastic straws, utensils, including "compostable" utensils, plastic plates and plastic cups come in such a wide variety of non-usable, low-grade plastics that it is impossible to identify and separate the recyclables from the non-recyclable look-alikes (same as the clamshells). Fast food packaging, like utensils, are complicated and are not readily recovered through modern Material Recovery Facilities (MRFs), or by secondary processors who buy MRF bales.
<p>Chip bags, nutritional bar or candy wrappers</p> 	No	There is no real end market for this, often hybrid material. In fact, there are only a few niche markets for it. Please consult your local municipality to discover any specialty recycling opportunities.

Resources

- www.RecycleOftenRecycleRight.com
Users can access the campaign online and make a digital promise to rethink recycling by “getting back to the basics of good recycling” and encourage others to do the same.
- EPA, KAB, SWANA and NW&RA collaborated to create:
<http://beginwiththebin.org/recycling/recycling-smart>



RECYCLE OFTEN. RECYCLE RIGHT.

ABOUT VIDEO RESOURCES NEWSROOM SOCIAL CONTACT

69% of plastic bottles don't get recycled.

Maybe it's time to rethink recycling.
Make the promise. Doing just these three things will make a huge difference.

1. Recycle all my empty bottles, cans and paper.
2. Keep food and liquids out of my recycling.
3. Keep loose plastic bags out of my recycling.

First Name: _____ Last Name: _____
Email: _____ Zip code: _____

☐ Sign me up to receive news, updates and information to help me keep my promise.

SUBMIT

3457 Others have made the promise. Will you?

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PRIVACY POLICY ENGLISH ESPAÑOL



Sustainable recycling requires broad, multi-stakeholder support

Local recycling goals must be realistic. Policies and contract terms must support these goals.

Local regulations and our recycling contracts must be aligned to ensure the development of economically sustainable recycling programs

Sustainable recycling must include public education and outreach to support local regulations and economic realities

Questions?



Thank you.