Public Outreach for Your Residential Commingled Recycling Collection Program:

A best management practices guide for governments

Curbside pickup is an important first step in the residential commingled recycling process. Consistent messages within and across jurisdictions to residents on what to include in their commingled carts and why are key to a successful recycling program. They reduce confusion and result in higher quality materials entering the Material Recovery Facility (MRF). Higher quality materials that enter the MRF mean more materials will actually be sent on to the intended manufacturers—where the actual recycling occurs.

The purpose of this guide is to create consistent messages and images for programs that have a focus to ensure best and highest use of recyclable materials and maximize their market value. It is intended to be used by local government public outreach staff in Washington as a tool to inform the public on what to include in their recycling cart and why. This guide can be used for planning purposes, in training new staff or volunteers, or jurisdictions can use its messages in their outreach methods – website, brochure, presentations, displays, social marketing, etc. It is not intended for public distribution. It is intended to assist staff in communicating with the public.

The Expanded Southwest Region Commingled Workgroup created this guide as part of the statewide WA Commingled Recycling Improvements Project. It is a follow-up to the guide titled, *What to Include in Your Residential Commingled Recycling Collection Program: A Best Management Practices Guide for Governments* (July 2011). Both best management practices guides are based on the group's report, *Beyond the Curb – Tracking the Commingled Residential Recyclables from Southwest WA* (June 2010), and represents the consensus of the Workgroup members, which includes stakeholders from local governments, haulers, MRFs/processors, and end-users. The full report and links to both guides is posted at http://www.ecy.wa.gov/biblio/1007009.html .

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Note: Because of the dynamic nature of the industry, the Workgroup will review this document annually and update it if necessary.

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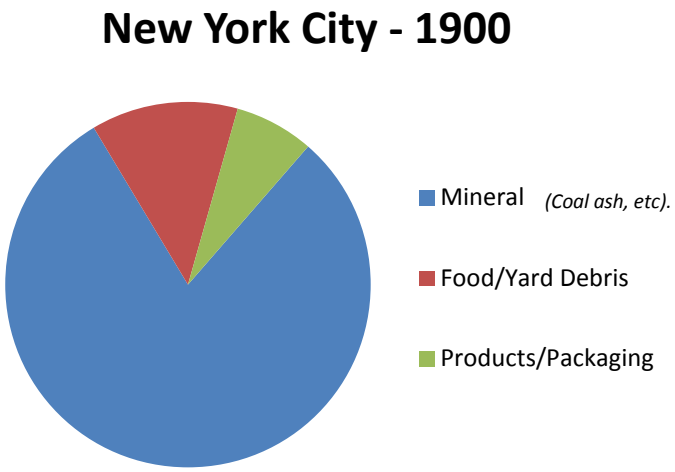
The History of Waste

The volume and type of waste has changed dramatically over the decades, so it's important to understand how we got here when addressing public outreach for your program.

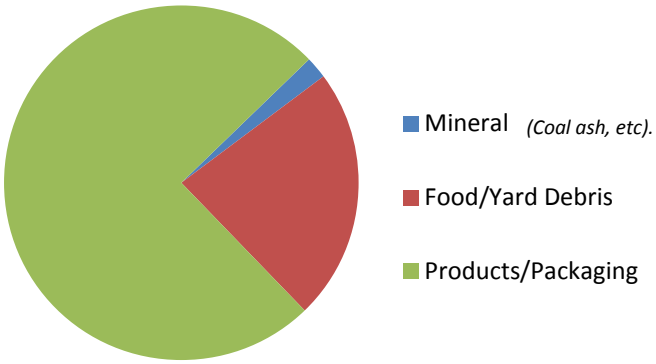
Then:

Source: Product Policy Institute



Source: U.S. Environmental Protection Agency

Now:



Source: U.S. Environmental Protection Agency

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The Product Lifecycle

Source: U.S. Environmental Protection Agency

Not all products or packaging are created equal

Today's technology allows product packaging to be very innovative in terms of product protection and marketing, but choices made during production can cause problems at end of life for the commingled recycling system. Even if it appears two different products or packaging types are made of the same material (i.e. plastic), they can either help or hinder the recycling process based on the shape, durability, market demand, and specific material used to make it. Mixed material products and packaging (metal and plastic, or plastic coated paper) can be especially challenging for the recycling system and often are destined for disposal.

Products and packaging change daily

New products and packaging enter the market on a daily basis. Recycling programs are designed to be easy and consistent, both for the resident and for the processing facility. It would not be feasible to change what is accepted in a commingled recycling program as often as there are changes in packaging and products, so collection decisions must be made on quantity of specific packaging types in the waste stream, how easily it can be processed, whether it contaminates other valuable materials, and whether there is a viable market for the material. Focusing on the major packaging types that are abundant and recoverable, rather than the packaging that is difficult to capture and market, is a recommended strategy for a residential commingled recycling program that is focused on producing quality, high-value recyclables for the marketplace.

The Evolution of Curbside Recycling Programs in WA

Just as the types and volumes of waste have changed over the years, curbside recycling programs have changed to keep up , especially in the last ten years. One major change is the shift to automated collection as a way to increase tons collected, while reducing collection costs and worker injuries.

Collection

Then: Late 1980s (First curbside programs) **Now: 1998 to present**

Stacked bins **Dual-Stream – Cart + bin** **Singlestream cart**

Manual → **Automated Commingled**

Outreach

As collection programs have changed, so has the outreach to residents. The focus has shifted from wordy brochures and extensive "Yes/No" lists to reliance on photos, descriptions of container shape, and a focus on what goes in which bin – rather than a 'No' list.

Old Version

Yes/No Style

New

Recycling, Garbage, Organics

Outreach *cont.*

The importance of color

A vital part of the evolving outreach strategies has been the increasing coordination and use of color so the public associates certain colors with certain collection options. Over the years, blue has become increasingly recognized by the public as the color for a recycling bin. Green is generally viewed as an organics collection bin. Using these colors across your outreach methods – from the carts on the curb to the colors on your website and brochures – will serve as visual reminders to your residents, and be one more way to reduce confusion and the resulting contamination of recyclables (and organics).

Recycling Cart

Organics Cart

Garbage Cart

Consistency from the curb….. to the preparation instructions… to online resources.

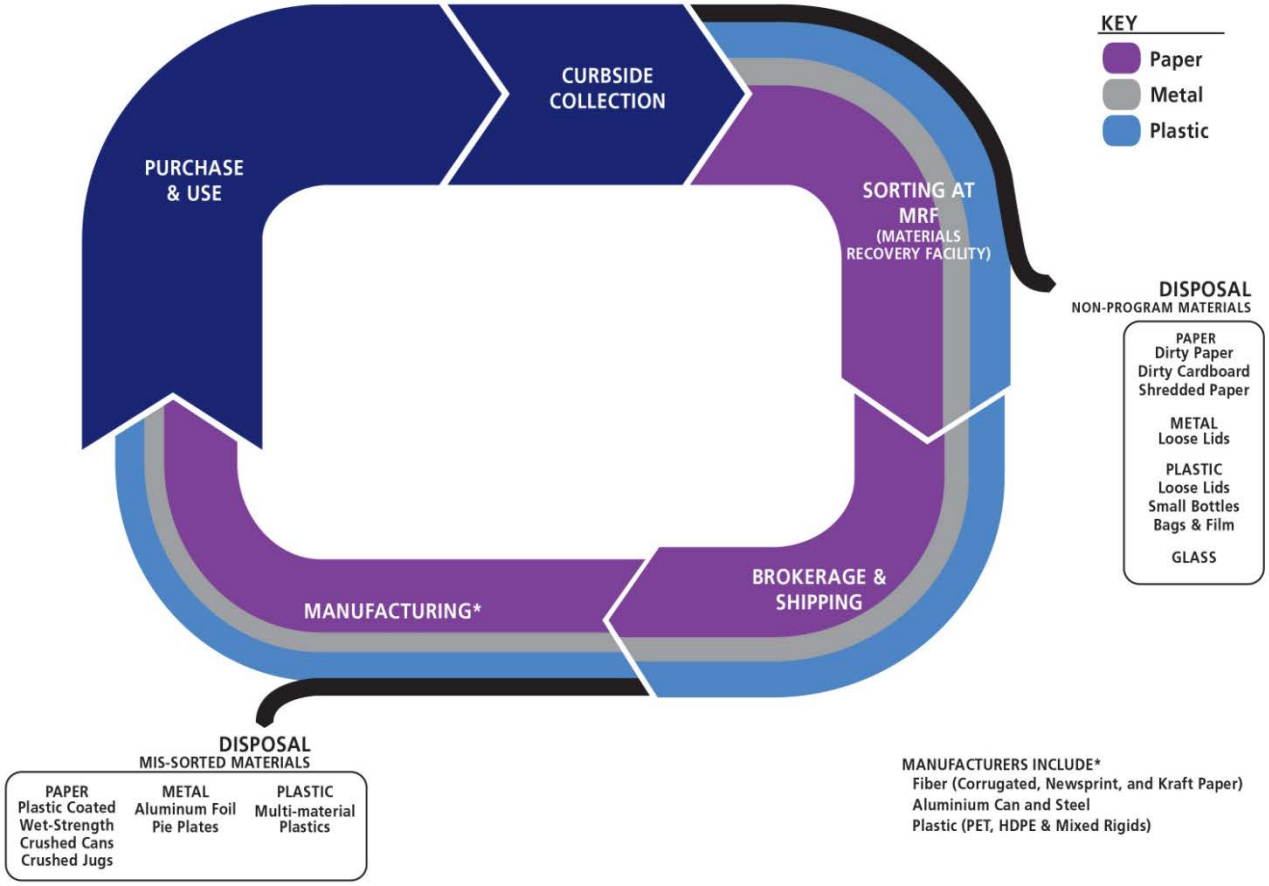
Source: City of Portland, OR

Already have carts? Change the lid!

If you already have carts that don't match the recommended color scheme above, consider providing blue lids until your jurisdiction is ready to purchase new carts. This also provides a more flexible use of existing carts when residents wish to change sizes or have a damaged cart.

Source: City of Santa Cruz, CA

How Does the Commingled Recycling System Work?



Source: Inspired by GreenBlue's Material Flow Design and created by Pierce County, WA

Benefits of a commingled system

For a collection system, there are many benefits for choosing an automated, single cart approach. Reduced worker injuries and more efficient route times mean lower costs for collection. The trucks can compact all the materials together, rather than having to leave the route to empty the entire truckload when only one material type has reached capacity in the truck. Because there is less or no sorting by the residents, there is increased participation. In addition, the increased capacity of the cart allows for higher collection volumes and the ability for programs to add materials without having to invest in more bins. Automated carts have a lid and wheels which improves public convenience and privacy, and prevents material from blowing out of the bins. They also keep pests from getting in, and keep materials drier, making them easier to process and worth more in the marketplace.

Limitations of a commingled system

The major limitation of a commingled recycling system is that which is mixed together must then be separated. Many of the benefits on the collection side of the system can cause problems for the processors, and in turn the end-use manufacturers. Some materials like glass, plastic film and flattened containers are difficult to separate once mixed together, and can cause cross-contamination of other materials (usually, paper) and problems with

equipment. The increase in collection volumes and participation can overwhelm the processing system, causing cross-contamination, an increase in non-program materials, and ultimately, 'lost' recyclables. There also tends to be lots of variation in what is collected across jurisdictions, causing confusion for residents and making it more difficult for the processors to rely on a consistent mix which aids in sorting.

The savings achieved from the automated collection system result in higher shifted costs to the processors and mills. It is more labor intensive to sort and produces a lower quality material. The capacity, shape and privacy of the cart might lead residents to use the recycling cart for excess garbage. Because carts offer increased capacity, many jurisdictions that switch to commingled carts will often reduce garbage service to every-other-week, exacerbating the dumping issue – an unintended consequence. Residents often hold the belief that everything can go in the recycling cart, and it will get sorted and recycled. Mistakes can be made due to the visual similarity of garbage and recycling carts. Either way, direct feedback to the resident is much more difficult with an automated collection system.

Your recycling cart is just the beginning – not the end

Placing materials in your cart starts the system that eventually ends in recycling – materials transformed into new products. Some materials are not accepted in the cart because they cause problems when mixed with other materials. The choices you make on what goes in and what stays out will enable everything in the commingled cart to be easier to separate and ultimately, recycle. However, curbside recycling is just one way to manage your household waste. Be aware of your shopping habits and avoid buying over-packaged or difficult to recycle materials. Reuse packaging whenever feasible, or donate to make available for others to reuse. Use drop-off locations for materials that don't belong in the cart, but are highly recyclable when kept separate.

What happens to materials I drop off—for example, plastic bags?

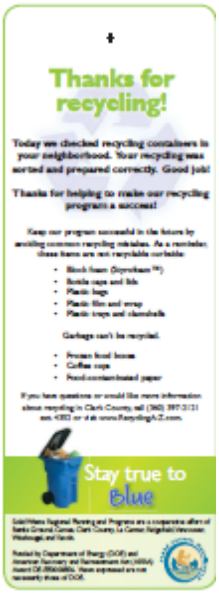
Source: Hilexpoly.com

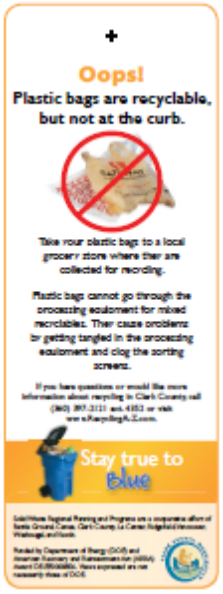
Source: King County

Curbside Feedback for Automated Collection Systems

How do you know your outreach methods are working and your residents are following your program guidelines for what goes where? Giving customers direct feedback was easier with a manual, multi-bin collection system – leave a note with the offending material(s). Automated collection with lidded carts makes that task much more daunting! Direct feedback to the customer is invaluable in sustaining a collection system that produces quality recyclables and not garbage. Without it, it is difficult to truly assess the success of your outreach, and ultimately your curbside recycling program.

Because direct feedback programs for automated collection systems are relatively new in Washington with limited application to date, it is not clear at this time what the best management practices are for such programs. Clark County and the city of Vancouver did a curbside inspection and tagging project in 2010 and examples of their tags are shown below.





FAQs about the Commingled Recycling System

If commingling our recyclables makes it harder to sort and market, why did we switch to single stream collection?

See ***Benefits of a commingled system*** on page 6.

Do my recyclables really get separated and recycled?

Yes, materials accepted in the program are sorted and shipped for recycling. The system isn't perfect—there are some losses—but there is a financial incentive for the processors to separate and market the recyclables.

If you're sorting everything anyway, why can't I put in wood and [*name any material here*]….

Machines do some sorting, but people also do hand sorting. Anything that is a potential safety hazard for the employee cannot be accepted in the cart. Additionally, space can be an issue in collection vehicles and at processing facilities, so there can only be a limited number of material types sorted. Lastly, as more and more materials get mixed together, the harder it becomes to separate back into their individual material types at a quality that manufacturers are willing to buy.

Why can't I put all scrap metal in my cart, like auto parts?

Auto parts pose a safety hazard for collection equipment and processors because of their weight and shape. Potential hazardous material contamination is also an issue. Pipes can fling, causing a serious safety issue or can tear up the processing belt. They can be recycled at most metal recyclers or in the recycling drop-off area at your transfer station.

Why does it have a recycling symbol on it if I can't put it in my cart?

The number within the symbol is used to identify what type of plastic it is, not necessarily if it is recyclable within your program**.** See the following question and ***Talking About Plastics*** on page 15.

Why can X jurisdiction recycle this and we can't?

Recycling is local. Different processors have different capabilities in terms of what they can sort and market. If the recycling processor doesn't have a market for a material, they do not want it and it cannot be accepted curbside. Jurisdictions vary in their priorities and fees for their recycling programs – this will, in part, determine what they accept.

Why isn't recycling free? Aren't you making money off of the sale of materials?

Providing curbside collection service for materials of any type costs money. The sale of recyclables only partially offsets the cost of collection, transport and processing. It is a priority for jurisdictions to reduce our waste by recycling and diverting material from the landfill. We are doing it as cost-effectively as possible.

I'm so confused about what should go in my recycling cart and what shouldn't. Help!

An easy way to simplify the process is to just focus on the basic materials – sheets of paper, cardboard, steel and aluminum cans, plastic bottles and jugs.

Why can't we put glass in our carts?

When bottles break in the truck and at the processing facility, shards of glass get in the paper and cause damage to processing equipment at the paper mills. This is a major issue for quality and reduces marketability of the paper. This missorted glass is not recycled. Broken glass containers also pose a safety hazard for hand-sorters at the processing facility.

Why can't we put plastic bags in our carts?

Plastic bags get tangled and caught in processing equipment, reducing the effectiveness of the sorting. The machines have to be shut down so workers can manually cut the bags free. This is a safety hazard for workers and it creates excess down time of the processing equipment, which is costly. Consequently, plastic bags in

your cart are a high cost/low value material. Plastic bags that are returned to grocery stores or other drop-off locations are baled without going across the sorting equipment, and are a high value material.

Why can't I recycle [any plastic item]?

See pages 14 and 15 for a specific material and tips on ***Talking About Plastics.***

Why can't I include wet or dirty paper?

Wet paper gets torn into small pieces that fall through the processing equipment or create unrecyclable globs at the paper mills, and go to the landfill. Additionally, mills pay for paper by weigh. They do not want to pay for water and food weight. Lastly, food-soiled paper causes pest-related health and safety issues.

Why can't I recycle frozen food boxes (or other non-recyclable papers)?

They contain a plastic coating or chemical that keeps them from dissolving in water (so they don't fall apart in the freezer). This coating or chemical also keeps the packaging from dissolving at paper mills that use machines and water to pulp the fiber, preventing it from being recycled.

Why isn't shredded paper accepted in my curbside recycling cart?

The small pieces fall through the processing system and are not recovered. It can also get contaminated with small pieces of glass, metal lids and tabs, and plastic caps. It also can blow out of the cart during collection creating litter.

Why aren't we supposed to crush cans, cartons, bottles and jugs anymore?

Sorting machinery sorts materials based on whether they are round (containers) or flat (papers). Now that all materials are mixed together, flattened items get caught up in paper and end up at paper mills where they are not recycled, and add significant costs to paper manufacturers. Collection trucks do compact the materials to save space on the route, but the pressure is not significant enough to flatten containers.

Do I need to take labels off?

No.

Do paper boxes need to be flattened?

No, unless you need space in your cart.

Why can't I include containers that have food or liquids in them? How clean do they have to be? Do I really need to rinse?

Manufacturers who buy the used containers purchase the material based on weight. They do not want to pay for food and liquids. In addition, if the containers have to travel a long distance, food and liquid cause odor and pest issues. Please empty and give containers a quick rinse. They don't have to be washed.

What I do with metal lids?

Drop the lid into the bottom of the empty can, and crimp the top of the can. This will keep the lid from falling out and ending up with the paper and will ensure it gets recycled with the metal can.

Special Note about Needles/Sharps, Medical Waste, Ammunition and Fireworks:

These materials pose significant safety hazards for employees at processing facilities. They are NOT recyclable through your curbside recycling program. Dedicated and ongoing outreach should be given to educating residents on proper disposal of these items.

Public Outreach Best Management Practices Guide

Curbside Commingled Collection

PAPER

Preparation

Dry
Clean
Larger than a postcard

Material Accepted	Notes/Examples
Mail	
Magazines and Catalogs	
Newspaper	Inserts OK
Printer and Notebook Paper	
Paper Bags	Not layered, lined, or plastic coated
Corrugated Cardboard	
Paper Food Boxes (non-refrigerated)	Cereal, crackers, pasta
Paper Boxes (Non –food)	Shoe, tissue
Phone Books	
Paperback Books	

Material Not Accepted	Because:
Shredded Paper	Falls through processing system
Plates	Food-soiled
Cups	Food-soiled
Pizza Boxes	Food-soiled
Napkins	Food-soiled, short fiber length
Paper Towels	Food-soiled, short fiber length
Tissues	Food-soiled, short fiber length
Fireworks/Firecrackers	Fire & safety hazard

Material May Not Be Accepted	Because:
Milk Cartons	Does not break down at many paper mills
Plastic Coated Cartons	Does not break down at many paper mills
Foil Coated/Aseptic Cartons	Does not break down at paper mills
Egg Cartons (paper)	Food contamination. No Styrofoam™

Key Messages

- Dry, clean and larger than a postcard.
- If you used it to write on or read, or it's a box, recycle it!
  Exception: If the paper was ever wet or refrigerated, do not include it.
- No food-soiled paper (*See **FAQs** for an explanation*).

Public Outreach Best Management Practices Guide

Curbside Commingled Collection

METAL

Preparation

Empty
Quick rinse
No loose lids
Do not flatten or crush

Material Accepted	Notes/Examples
Steel/Tin Cans	Tuna size (6oz) or bigger
Aluminum Cans	Do not crush
Pots and Pans	Plastic handles and non-stick pans OK

Material Not Accepted	Because:
Small Pet Food Cans	Fall through processing systems
Auto Parts	Safety hazard for processors
Loose Lids (from steel or tin cans)	Fall through processing systems
Ammunition	Safety hazard
Alkaline Batteries	Fire hazard
Rechargeable Batteries	Hazardous waste
Sharps/Syringes	Safety hazard

Material May Not Be Accepted	Because:
Aluminum trays, pie plates and foil	Not compatible with aluminum can markets Collected in small amounts, difficult to separate at MRF
Aerosol cans	Safety hazard
Scrap Metal—long, heavy, large, and/or flexible	Safety hazard
Paint cans	Paint residue, potential hazardous material

Key Messages

- Empty; quick rinse; no loose lids; do not flatten or crush.
- All metal is recyclable, but is not always appropriate in the commingled cart.

GLASS

Material Not Accepted	Because:
Bottles & Jars	Break and contaminate other materials
Drink Ware	Not recyclable with container glass
Ceramics	
Mirrors	
Light bulbs	
Windows	
Plate Glass	

Key Messages

- Put in separate curbside bin or take to drop-off site – empty; quick rinse.
- Glass is the only traditional recyclable material that breaks.
- Broken glass is a safety hazard for processing line workers.
- Glass is a major contaminant of other materials, especially paper.
- Just because glass is technically recyclable, it doesn't mean the economics are always in place to recycle it to its highest use.

Public Outreach Best Management Practices Guide

Curbside Commingled Collection

PLASTIC

Preparation

Bigger than your fist
Empty
Quick rinse
No lids or caps
Do not flatten or crush

Material Accepted	Notes/Examples
Bottles	
Jugs	
Jars	If it had a screw-on lid
Dairy tubs	Yogurt, sour cream, cottage cheese, margarine, butter
Rigid plant pots	No dirt
Buckets	Handles OK

Material Not Accepted	Because:
Bags	Clogs machinery at MRF
Lids and caps	Fall through processing systems
Cups	Flattens and gets sorted as paper
Clamshells	Flattens and gets sorted as paper
Frozen food trays	Flattens and gets sorted as paper
Motor oil bottles/jugs	Hazardous material
Pesticide bottles	Hazardous material
Herbicide bottles	Hazardous material
Syringe/Sharps	Safety hazard
Medical plastics (tubing, bags, trays)	Biohazard, not recyclable curbside
Bio-plastics	See below-Generally not recyclable with other plastics
Foam (Styrofoam™)	Flattens and gets sorted as paper
Bubble wrap	Clogs machinery at MRF
Chip bags	Not recyclable
Frozen food bags	Clogs machinery at MRF
Utensils	Fall through processing systems
Toys	Not recyclable curbside
Tyvek™ bags	Gets sorted as paper
Blisterpacks (toys/electronics)	Flattens and gets sorted as paper

Material May Not Be Accepted	Because:
Clear tubs	Optical sorting issue
Small containers	Fall through processing systems
Prescription bottles	Fall through processing systems
Pudding cups	Flattens and gets sorted as paper

Key Messages

- Bigger than your fist; empty; quick rinse; no lids or caps; do not flatten or crush.

Talking About Plastics

Residents are often confused by which plastics can be recycled curbside and which can't. This is not surprising given the vast array of plastic packaging and products in the marketplace. While all plastics may be recyclable somewhere, many plastic products and packaging are not all compatible with a commingled recycling system.

Don't talk about numbers, even if that's the question they ask (i.e. *Can I recycle #4's*?). Use photos and focus on shape in your outreach materials.

Instead, ask what shape the container is and explain that while the number refers to the type of plastic resin, the shape is very important when it comes to melting down compatible plastics. Also worth noting: Our program only accepts plastics that can be effectively sorted from the other materials and sold in the marketplace.

Why does the shape matter with plastics and curbside recycling?

Sorting machinery sorts materials based on whether they are round (containers) or flat (papers). Now that all materials are mixed together, flattened items get caught up in paper and end up at paper mills where they are not recycled and add significant costs to paper manufacturers.

Not all plastics are the same – even if they have the same number.

The chemistry of plastic remanufacturing can be very confusing, so it's best to keep it simple when speaking with the public. Basically, how a plastic was made determines at what temperature it can be melted down to make a new product. Containers or packaging that was made into different shapes using different methods does not melt at the same rate and cannot be recycled together.

When in doubt – throw it out!

If the plastic package is brittle, crinkly, or easily flattened, it will likely appear like paper to the processing system and will ultimately be disposed. If you are not sure, put it in the garbage.

Why can't we put plastic bags/film in our recycling cart? Where do we take it?

Plastic bags get tangled and caught in processing equipment, reducing effectiveness of the sorting. The machines have to be shut down so workers can manually cut the bags free. This is a safety hazard for workers and it creates excess down time of the processing equipment, which is costly. Consequently, plastic bags in your cart are a high cost/low value material. Plastic bags returned to grocery stores or other drop-off locations are baled without going across the sorting equipment, and are a high value material.

Why can't we put Styrofoam ™ in our recycling cart?

Foam is easily crushed and torn apart, making it very difficult to sort from other materials and recover for recycling. It is also mostly air, so it is an extremely low value material for its bulk.

What I do with lids and caps?

Most processing facilities ask you to throw them away, because loose caps and lids are too small or flat to sort as plastics.

Biobased and degradable plastics and recycling

For an excellent source of FAQs on degradable plastics, please see the Association of Post-Consumer Plastics Recycling webpage:

http://postconsumer1.ipower.com/faqs/degradable-plastics-faqs

Source: Waste Connections, Vancouver, WA

Commonly Used Terms

Here are some terms and their definitions commonly associated with a residential commingled recycling program:

Boxboard – Thin, lightweight paperboard used in making packaging boxes or cartons such as for cereals or shoes. Boxboard is often confused with cardboard because of its shared usage and similar general form. Besides not having the wavy middle layer, boxboard is usually grayish in color when you tear it and look at the inner layer.

Cardboard – see **Old Corrugated Containers (OCC).**

Chipboard – see **Boxboard**

Commingled Recycling – Mixing recyclable materials for the purposes of efficient collection. Commingled recycling collection systems usually involve a wheeled cart with a lid that ranges from 32-90 gallons in capacity.

Commingled System—For the purposes of this work, 'the commingled system' was defined the as places, including the house, curb, MRF, and mill; and the people, including residents, recycling program managers, policy makers, haulers, processors, brokers, and manufacturers which are involved in the inputs or outputs of the residential commingled recycling programs.

Contaminant – A material that degrades or destroys the value of another material.

Contamination – The inclusion of unwanted materials in with wanted materials, e.g. food on paper.

Cross-contamination – The inclusion of materials that are wanted by a different end market, e.g. aluminum cans in paper.

Dual-stream – One type of a commingled collection system in which some recyclable materials are placed in a cart or bin at the curb, and one or more different materials are placed in another cart or bin. Examples: All materials except glass in one cart, and glass in a bin next to the cart; all fibers in one cart and all containers in another cart.

End User –The company that first uses recycled material to manufacture a product. The product of an end-user may be further converted into further value-added products, such as a sheet of boxboard from a paper mill being converted into a box.

Fines –With respect to commingled MRFs, anything smaller than 2 inches. See **Residual**.

HDPE – High density polyethylene. Its resin identification code is 2.

Materials Recovery Facility (MRF) - Pronounced "merf," it is a facility that accepts, sorts, processes, and bales different types of recyclables for sale to an end-user. For the purposes of this report, a MRF refers to facilities that sort residential commingled recyclables.

Mixed Waste Paper (MWP) – Mixed paperboard, magazines, and catalogs. Mills use mixed paper to produce paperboard and tissue, as a secondary fiber in the production of new paper, or as a raw material in a non-paper products such as gypsum wallboard, chipboard, roofing felt, cellulose insulation, and molded pulp products such as egg cartons. Typically not used for molded pulp products due to the contamination level and risk of damage to food. Also used for production of medium used in corrugated containers.

Old Corrugated Containers (OCC) – Contains a wavy middle layer. Mills use old corrugated containers to make new recycled-content shipping boxes. AKA: *corrugated containers*, *cardboard*.

Old Newspapers (ONP) – Mills primarily use old newspapers to make new recycled-content newsprint and in recycled paperboard and tissue. This grade is also used in cellulose insulation, molded food products, and as fiber source in medium production for corrugated containers.

Paperboard – Denotes paper products used for packaging (corrugated boxes, folding cartons, set-up boxes, etc.).

PET –Polyethylene terephthalate. Also abbreviated as PETE. Its resin identification code is 1.

Plastic Film – A thin flexible sheet of plastic which does not hold a particular shape when unsupported.

Polycoated – A type of fiber packaging that contains an outer layer of plastic coating to protect the fiber from breaking down in wet and freezing conditions.

Recycling – According to state law (RCW 70.95.30), *recycling* means transforming or remanufacturing waste materials into usable or marketable materials for use other than landfill disposal or incineration.

Residual – The material that remains after sorting occurs at a MRF—typically, destined for disposal. Includes, but is not limited to, fines. See **Fines**.

Rigid Plastic Container – A package (formed or molded container) which maintains its shape when empty and unsupported.

Shredded Paper – Although not a separate grade of paper, shredded paper can be recycled (usually as a mixed grade) as long as it is shredded to an appropriate size and does not contain an unacceptable level of contaminants, such as plastics, or outthrows such as manila folder, gold bond paper, or other dyed papers. Residentially shredded paper is usually too finely shredded to get separated from other materials and processed as paper.

Singlestream – One type of a commingled collection system in which all recyclable materials are placed in one cart at the curb.

Stickies – Classified as any glue or ink based materials that are used in producing a product to the customer that when recycled turn into microscopic tacky particles. Typical sources of stickies are envelope glues, stamps, magazine/paperback book bindings, credit card promotional mailings, etc.

Thermoforming—A manufacturing process where a plastic sheet is heated to a pliable forming temperature, formed to a specific shape in a mold, and trimmed to create a usable product. Also called *thermomolding*.

Wet Strength – Paper that has been treated with a moisture resistant chemical that gives it the ability to maintain a percentage of its strength when it has been saturated with water. It possesses properties that are resistant to rupturing and disintegrating when wet. Example: Carrier stock is a type of wet strength boxboard used to carry a six-pack of beer bottles or a case of soda. See **Polycoated.**