# Follow the Waste Stream

The "waste stream" is a term to describe the entire life cycle of the garbage we produce – from putting out the trash and recycling for pickup to landfilling, energy production and the reuse of recycled materials. Let's follow the journey . . .

## Recycle

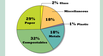
Materials you recycle go this way...

## Disposal

Materials you place in the trash go this way...

Depending on where you live, the trash you put out for collection may go to a waste-to-energy facility or a landfill.

- In 2005, Maryland residents and businesses recycled 2.87 million tons. That represents 39.2% of the municipal solid waste generated.
- Breakdown by type of recyclable, 2005:




## Recycling Facility

Collection trucks bring recyclables to a WM Recycle America facility. The recyclables are unloaded onto an area called the "tipping floor." Notice that this is a "single-stream" facility. That makes recycling easier for everyone in the community, since recyclables don't need to be separated for collection.

From the tipping floor, recyclables are placed on conveyor belts where they are sorted by machine or hand into broad categories of paper, plastic, glass and metal.

## Waste-to-Energy Facility

In a waste-to-energy facility, through the use of extremely high-temperature combustion, trash is converted into clean, renewable energy that is used to light homes and heat buildings. Emissions from the waste-to-energy facility are thoroughly cleaned using state-of-the-art air quality control systems.

## Landfill

A landfill is an engineered system designed for safe, environmentally sound long-term waste disposal. Trash is deposited in the landfill and compacted. The landfill's liner and gas and leachate extraction systems protect the surrounding land and water supply, and operating procedures include regular environmental monitoring.

## Paper

Paper recyclables are separated into four categories:

Corrugated Boxes
Old Newsprint (ONP)
Mixed Paper
Office Mix

Paper recyclables are baled and sold primarily to paper mills.

Old newspaper is de-inked by washing and rinsing it in large vats of water. This process also separates the short fibers from the long fibers.

Some mills are able to use 100% recycled paper, while in others, recycled paper (long fibers) is combined with wood scraps from lumber mills. This is mixed to a pulp and poured onto large rollers and drained. The sheet is lifted and fed through heated rollers, then trimmed and rolled. The rolls are sent to printing plants.

## Recycled Paper

## Plastics

Mixed plastic containers are sorted by type and color. Air is blown into the mix to separate heavier and lighter plastics. In some facilities, plastic containers are optically scanned for separation into types, such as PET, HDPE, etc.

Textile, plastic, bottle, carpet and other manufacturers use these commodities.

Baled, recycled plastics are sent to a plastics remanufacturing plant. The plastics are ground up, washed, melted and formed into plastic pellets. The pellets are used to make containers, bottles, paint, clothing, furniture and many other consumer goods.

## Recycled Plastic

## Glass

Glass recyclables are crushed to form cullet, which is then cleaned of debris and contaminants. Depending on the facility, glass may be sorted by color before or after crushing, or it may be shipped to end users without sorting.

Cullet is loaded onto trucks for transport to a variety of customers. It's used in a number of applications, including new containers for consumer products, road bedding, sandblasting, counter tops, and other uses.

For use in making new glass containers, the cleaned cullet is mixed with sand, soda ash, feldspar and limestone at a glass plant. It is fed into a furnace and melted at temperatures reaching 2,700° Fahrenheit. Using recycled glass in this way reduces emissions and energy usage, extends the life of plant equipment, and conserves raw materials.

## Recycled Glass

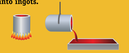
## Metals

Magnets are used to separate the steel from the rest of the recycling stream. Steel attracted to the magnet is removed to a storage bin for baling.

Aluminum remains on the sort belt and is mechanically separated by an eddy current.

After separation, cans are crushed and baled for transport to steel or aluminum mills.

Tin and steel are recovered through chemical and electrolysis baths. Then they are purified, melted and cast into ingots.



The steel is heated in large vats and poured onto sheets. The steel is coated with tin and shaped into cans.

Aluminum is melted and poured into ingot molds or rolled into sheets. The ingots are used by industries to make new aluminum products.

The sheets are shaped into cans, siding, storm window frames and other products.

## Recycled Metal

# Closing the Loop

Recycled containers and products are purchased by manufacturers, who use them to produce or package their products that are shipped to retailers.

Consumers buy the products from a wide variety of retail stores. As we use the products, we create waste that begins the cycle all over again.

# Choose wisely!

There is currently no economical technology for separating waste from recyclable materials. So the success of recycling depends on you: *Place recyclables in the proper recycling container.*

WM WASTE MANAGEMENT