

Recycling Works... But Needs YOU

Learn where your recyclables go—and why it matters



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Tour a Material
Recovery Facility

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What goes in,
what comes out

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Plastics reused locally



Waste Not, Want Not

Finite resources' lives are extended in a closed loop system.

BY MATTHEW CRAGGS

After five decades in the recycling industry, today's environmental issues and solutions are nothing new to Richard "Rick" Anthony. The core concept—Reduce, Reuse, and Recycle to create a closed loop system—remains in place and as effective as ever in curbing waste.

Now retired, Anthony is on the board of five national and international recycling organizations. Locally, he's a founding member and director of Zero Waste San Diego, which helps the public and businesses understand and comply with the latest waste and recycling ordinances.

Many current recycling movements—such as composting, fix-it clinics, and a consumer's right to repair everything from tractors to cell phones—seek to divert waste from the landfills, where so much waste has accumulated.

"In the 1970s," Anthony says, "I saw this straight line system—to take from the environment, make the products, sell the products, and then discard them."

Conversely, a closed loop system seeks to redirect materials back into the production process to be used again.

"The producers create the product," Anthony says, "they sell it, I use it, there's a take-back system, and the producer can use that product again."

For some items, such as beverage containers, a take-back system is already in place. For instance, in 2021, The Coca-Cola Company reported they collected and recycled 61% of the bottles and cans they produced.

The recycling process for many products—such as technology, hazardous waste, and composite plastics—is more complex than aluminum cans, but Anthony says that with the right community engagement and infrastructure, 90% of waste can be

repurposed.

Yet, in a consumer-centric society overflowing with countless products, each needing to take a different path towards reuse, it's easy to question if a plastic bottle dropped in the recycling bin really makes a difference. News reports that China is importing less recycled material for processing has certainly added to a consumer's concern.

Though this shift from China affected some large waste management companies, Anthony says San Diego relies largely on U.S. markets for processing recyclables.

For example, rPlanet Earth, located in Vernon, California, recycled over 13.5 million pounds of plastic into new packaging products in 2020. They opened a new closed-loop polyethylene terephthalate (PET) recycling facility in October 2018, which is claimed to be the world's first vertically integrated recycled PET (rPET) plant.

Similarly, aluminum and steel cans are largely recycled domestically back into new containers or other products. And organic recycling was never done overseas, with much of the compostable materials being sent to Bakersfield before making its way around the state as fertilizer.

"Locally," Anthony says, "with the winery and cannabis industries, there's a huge demand for soil."

These closed loop, reliable and renewable sources of fertilizer and composted materials can help farmers and producers lower their costs and consumer prices, while creating hundreds of local public and private jobs in waste collection and management.

Beyond this wide range of local and global benefits, Anthony says closed loop systems come down to simple resource management.

The recycling process for many products—such as technology, hazardous waste and composite plastics—is more complex than aluminum cans, but 90% of waste can be repurposed.

Richard "Rick" Anthony
Founding member and director of
Zero Waste San Diego

DID YOU KNOW?



Today, **lasers and air blowers** scan and sort recyclable materials at the recycling centers.

Modern technology—such as machines to lift bins and lasers and air blowers to sort different plastic grades—has **lessened the physical demand** on waste collection and management workers.



For safety of workers and the machinery,

only place accepted materials in the blue bin (see pages 4-5).

Getting the **most** from recyclables

State-of-the-art material recovery facilities sort items that will become new products—but problematic materials must be left out

BY DEBBIE ARRINGTON

Sorting recyclables is faster than ever; it has to be to keep up with demand for steel, aluminum, plastic, glass and paper. Material recovery facilities, known as MRFs, in Lemon Grove and Escondido use the “newest and best technology,” says Bob Hill, Director of Recycling and Marketing for EDCO Waste and Recycling Services. “Between the two of them, they can process 1.8 million pounds of material every day.”

“People are recycling more, and it continues to go up,” he adds. “With these state-of-the-art facilities, we have the ability to capture more. We’re not losing anything.”

What happens to those recyclables? Most of them become new American-made products. “Nearly all of our plastics stay in the U.S.,” says Hill. “Nearly all of our glass stays in (California).”

How does a MRF work? “Optic sort lines identify paper and redirect it to the proper line with jolts of air,” Hill explains. “You need optic sorting; the lines are moving way too fast (to sort by hand).”

Optic scanners also sort some plastics and glass by type and color. On the metal line, magnets sort steel cans from aluminum.

Contamination from items that shouldn’t be in the blue cart can block those scanners from doing their job. Among the offenders: plastic bags, textiles, carpeting, e-waste, food waste, wood and batteries. Water can be a problem, too; it wets paper and acts like glue.

“Batteries are the worst; they can cause fires,” Hill says. “Plastic bags clog up the screening process and stop the sort lines from doing their job.” This is why it’s important to keep these materials out of your blue bin and handle them properly.

What happens to your recyclables? Here’s a snapshot:

METAL

Steel cans have the highest recycling rate of any material—more than 88%. Two-thirds of all new steel products manufactured are made from recycled steel. “Those cans can become bicycles, shovels, lawn mowers, whatever—anything made of steel,” Hill says.

All aluminum cans go to a processing facility to be turned into new aluminum cans. The two local MRFs process 160,000 pounds of aluminum a month; that’s the equivalent of 5.12 million aluminum cans.

PAPER

Most recycled paper still goes overseas for processing, says Hill. Baled at the MRFs, cardboard and mixed paper are sent to Indonesia, Vietnam, Malaysia, Taiwan and South Korea. “They process it into pulp. That pulp is then imported by China, where it’s processed into new material for boxes.”

GLASS

Bottles are purposely broken for sorting. An optical sorter separates the glass by color: Clear, brown and green. (Other colors are lumped in with the green.) The sorted glass—1,400,000 pounds a week—is shipped to end users to make new bottles and other products. Most locally sourced glass goes to Gallo Glass, the nation’s largest glass container plant. The Modesto facility was founded by Ernest and Julio Gallo to make their winery’s bottles.

PLASTIC

The most-recycled plastics are Nos. 1, 2 and 5. No. 1 (PET) is mostly clear water bottles. At the processor, “the bottles are made into beads and then processed into new water bottles,” Hill says.

No. 2 is HDPE (high-density polyethylene). This category includes “natural plastic” (such as milk jugs) and pigmented HDPE (detergent bottles, lawn furniture, etc.). “Because of the pigments, these (recycled) plastics are used for other things such as trash cans, recycling carts and piping.”

No. 5 is PP (polypropylene) and does what No. 2 can’t: Take heat exposure without losing its form. Examples include cups, lids, cottage cheese containers and yogurt cups. “It’s great for recycling, but not all processors have the ability to process it,” says Hill. “We do. There’s a big demand for it right here in the U.S.”

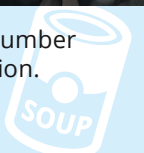


PHOTO BY CHARLIE NEUMAN

WHAT HAPPENS TO A METAL FOOD CAN?

Used for packaging everything from soup to pet food, metal cans can be recycled into an infinite number of products—anything made of steel. Food-grade cans use steel, coated with tin to prevent corrosion.

Follow along to see the journey of an empty, clean and dry soup can!



1 Goes into the recycling cart



2 Next stop: A recycling truck takes it to a material recovery facility (MRF)

3 Magnets separate it from aluminum and other materials



4 It gets **crushed, baled and transported** to a metal recycling facility

5 Tin and paper are removed by a chemical pressure-wash



6 Remaining steel is **shredded into tiny pieces**

7 Steel pieces are **melted** in a furnace and **converted into flat sheets**



8 Recycled steel becomes **new cans, tools, bicycles, construction beams, automotive parts, appliances** and much more



The Closed Loop

What goes in each bin—and what comes out—illustrates what happens to waste in San Diego

BY ANH NGUYEN

Recycle Bin

Make sure to recycle right: empty, dry and loose, which means no or minimal food residue, no liquid remaining and do not bag your recyclables.

Plastic

Plastic bottles, cups, tubs and containers with #1, 2 or 5.

Remember: No plastic bags or film

Paper

Newspapers, magazines, envelopes, junk mail, office paper, paper bags, paper containers, juice/milk/soup cartons and flattened cardboard

Remember: Paper needs to be dry

Metal

Steel and aluminum cans, tin cans, empty aerosol and dry paint cans, clean aluminum foil

Tips: Empty and scrape cans first

Glass

Glass bottles and jars

Remember: No windows, ceramics or drinking glasses

End products:

Plastic: Old PET bottles to new bottles and carpet

Paper: Old cardboard to new cardboard.

Metal: Old aluminum cans to baseball bats

Glass: Old glass bottles to new glass bottles and fiberglass insulation



Never Put in the Recycle Bin:

Batteries
Pet Waste and Diapers
“Tanglers” like hoses, chains & cords
Plastic bags and bagged recyclables
Electronic Waste
Clothing and Textiles

Green Bin

In San Diego County, the green bins now accept ALL organic waste, including yard trimmings, food scraps and food-soiled paper, such as napkins, paper towels and greasy pizza boxes. Non-lined paper takeout containers can also be placed in your green bin.

Yard Trimmings

Untreated wood, grass clippings, leaves, branches, weeds, tree trimmings, flowers and plants, fruits and vegetables

Tips: Cut or break down any large branches or yard trimmings to help maximize space in the bin. Place these into your green cart first to absorb any liquids or mess from food scraps.

Food Scraps

Banana peels or apple cores, coffee grounds and paper tea bags, eggshells, meat, fish, bones, paper take-out containers and food-soiled paper

Remember: No plastic or compostable plastic bags

Tips: Wrap your scraps in paper or newspaper before placing them in the green bin the night before collection. Certain items such as meat can be kept in the freezer until then.

End Products:

Yard waste and food waste into compost



Trash Bin

In San Diego, the trash bin is designated for non-recyclable and non-organic waste. Materials placed in this bin do not get sorted and are disposed of at the landfill.

Non-Recyclable and Non-Organic Waste

- Plastic bags and films or plastic wrappers
- Plastic or metal utensils & straws
- Compostable plastic
- Glassware or broken glass and ceramics
- Pet Waste
- Diapers and personal hygiene products
- Rubber and leather

Remember: Do not dispose of hazardous waste in the trash bin (toxic, flammable or corrosive products, propane and helium tanks, needles and syringes, medications, motor oil, electronics and batteries, fluorescent tubes & Compact Fluorescent Lights, non-empty aerosol cans).

End Result:

Landfill

Plastics Recycled **Locally**

Learn how a family-owned Vista business is combining two important goals to improve our environment

BY ANH NGUYEN

At the forefront of innovative and sustainable technology, a California-based company is the first manufacturing plant in the United States to use waste plastic in asphalt.

In 2019, Chris and Rebeca Sparks, longtime business partners and spouses, launched The Sparks Company, which provides unique and affordable solutions to repurpose waste plastic while addressing infrastructure needs.

"Roads and plastic aren't going anywhere anytime soon, so we might as well all do our best to help them last as long as possible, and clean up the Earth along the way," says Rebeca Sparks, Sparks' chief operating and chief financial officer.

DID YOU KNOW?

In 2021, California passed SB 343, a bill that **prohibits false advertising and marketing claims** about the recyclability of a product or packaging, such as using recycling symbols (the chasing arrows) on product labels that fail to meet a California regulator's strict recyclability criteria.

A product or packaging is "recyclable" only if it is made from a material type and form that is collected by recycling programs in jurisdictions encompassing at least **60% of the state's population** AND sorted into defined streams for recycling processes by at least **60% of the state's recycling programs**.

This bill hopes to prevent consumer confusion about what can actually be recycled and what can't, which may influence purchases at the front-end, reducing single-use trash pollution and supporting recycling goals.

For more information, you can review the bill at:
SB-343 Environmental advertising



Between 1980 and 2019, annual plastic use in the United States has tripled, surpassing 84 million metric tons, according to Statista Research Department.

With the growing plastic epidemic, preventing waste from entering landfills and oceans is the best way to help stop pollution and improve the natural environment.

"We divert waste plastic from landfills and incineration sites, combine it with our proprietary cross-linking polymer, and essentially revert the plastic back into the oil it was made from," Rebeca says. "This is then used to replace part of the virgin oil in asphalt, making stronger, longer-lasting roads, while keeping plastic out of our landfills."

The Sparks Company's journey began in 2017 when Chris' family still owned California Commercial Asphalt, which was approached by both the University of California San Diego and MacRebur Limited in Scotland to conduct a pilot project using waste plastic in asphalt.

After being impressed with the technology, Chris and Rebeca, with their combined skills and professional experiences in both the asphalt production and paving industry, started discussing the need for a more affordable and sustainable solution to paving roads. By the end of 2019, their product was already in almost every asphalt plant in San Diego.

Rebeca says she believes even small changes like switching out disposable cutlery, plates and cups for reusable ones can make

a difference at the landfill. Her advice for other companies or businesses that are considering 'greener' processes is to believe in the process and to pursue it.

"There is only one Earth, and if every company takes even a small step to be 'greener,' it will result in some really big steps towards making the world a better place," she says.

To learn more about The Sparks Company and its asphalt processes, visit <https://www.thesparksco.com>

"Roads and plastic aren't going anywhere anytime soon, so we might as well all do our best to help them last as long as possible, and clean up the Earth along the way."

Rebeca Sparks
COO and CFO,
The Sparks Company



Transforming Food Scraps into Fortune

Recycling organic materials is good for the environment and your yard

BY ANNE STOKES

Ask any gardener and they'll tell you compost is as good as gold—black gold, that is. Plants are healthier, grow bigger, produce more fruits, vegetables and blooms, and are less susceptible to pests and disease. Using compost reduces the need for artificial fertilizers, pesticides and water, as it retains more moisture than dirt alone. And the benefits extend beyond your yard: Artificial fertilizers and pesticides end up in watersheds and pollute the water we all depend on. Fortunately, compost can be used to protect our watersheds too.

"What compost helps to do is improve groundwater quality by reducing the amount of pollutants that enter the groundwater system," says Marco Cervantes, environmental manager at the Otay landfill. "It's kind of like a sponge, the compost absorbs all those nutrients, all those metals, salts ... before they have a chance of getting into the groundwater table."

Recycling green materials and food scraps—which creates compost—even has global benefits. According to CalRecycle, organic materials make up more than a third of materials in landfills. And the methane gasses they emit contribute to the negative health effects that are already occurring in California. Diverting organic materials from landfills not only prevents millions of pounds of valuable materials from going to waste, it helps keep our state clean and people healthier.

"One of the goals of SB 1383 is we're trying to reduce ... gasses like methane from the landfill. If people can recycle their food, we're then reducing that amount of methane," says Risa Baron, municipal manager for Republic Services. "If we can divert people's food (scraps) from the landfill, it gives a longer life to our

landfill."

The good news is the County of San Diego is making it easier for everyone. Residents can recycle their food scraps and yard trimmings in their weekly pick up. After eight weeks of processing at the composting facility, the organic material is transformed into that black gold. It's shared with multiple city and county agencies where it's used for public parks and other spaces. It's also available for sale to the public and the Otay landfill even offers free compost giveaways several times a year.

"If we really want to support environmentally friendly and sustainable practices, this is something that needs to be done," says Baron. "It's a better path."

For more information on recycling food and yard trimmings that can be recycled together, as well as compost resources and rebates, visit tinyurl.com/SDCOrganicsRecycling or 1-877-R-1-EARTH (1-877-713-2784)

"If we really want to support environmentally friendly and sustainable practices, this is something that needs to be done. It's a better path."

Risa Baron
Municipal Manager,
Republic Services



Windrows at the Republic Services Otay Compost Facility, where organic material is piled up in lines and covered to help with the composting process.

PUT TO GOOD USE

1/3 of materials going to landfills are organic



And of that, **18% of landfilled material is food.** According to the EPA, landfills were the source of more than 94 million metric tons of greenhouse gases just in 2020 alone.

But state and local laws implement **new and innovative** ways to keep organic materials like yard clippings and food from taking up room in landfills and generating greenhouse gases. Composting not only reduces what ends up in landfills but puts those materials to good use.



Here in California,

recycled organic materials (compost and mulch) are used in several statewide programs and efforts, including:

- ▶ **CalRecycle's Healthy Soils Program** subsidizes ranchers and farmers who use compost and mulch to improve local habitats and keep greenhouse gases like carbon sequestered in soils
- ▶ **Caltrans' use of compost** along California's thousands of miles of highways and local roadways to reduce erosion and irrigation costs
- ▶ **Compost use on fire-scarred landscapes** to prevent erosion, remove toxins and help prevent mudslides after wildfires

RECYCLE RIGHT!

REMEMBER **EMPTY, DRY AND LOOSE!**

Recycling keeps our communities cleaner, keeps reusable materials from filling up landfills and reduces our need for virgin materials. But contamination can undermine everyone's efforts.

"It really creates this issue of how this material is now dirty, less valuable and may not be able to be recycled anymore," explains Natalia King Quick, Recycling Specialist II with the County of San Diego's solid waste planning and recycling section. "There's still value in keeping that material clean and ensure that it actually does get recycled down the line instead of becoming trash and taking up valuable space in the landfill."

In addition to condemning recyclables to the landfill, contaminants create mold, attract vermin and create hazardous conditions for sanitation workers. Here are a few tips to remember:

1 Empty

No food or minimal food residue



2 Dry

No liquids remaining



3 Loose

Do not bag recyclables



Have questions on what's recyclable?

For more information, visit R1Earth.org or WasteFreeSD.org or call their toll free hotline at 1-877-R-1-EARTH (1-877-713-2784).