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One love

Single-stream recycling has motivated a new wave, but one question: Where does it all go?

by Matthew Schniper

Single-stream. It's the catalyst in an informal social experiment that has proven one consistent fact in city after city adopting the no-sort collection method: Make recycling easier for people, and more of them actually will do it.

According to Bestway Disposal vice president Tom Kiemel, since the company spent upward of a half-million dollars to begin offering single-stream recycling locally this past September, it's seen a 100 percent increase in recycling participation, from roughly 4,000 households to some 8,000 in eight months.

That "overwhelming" increase, otherwise a great accomplishment and understandable goal of green activists everywhere, unfortunately comes at a time when global commodities markets are being sent through the chippers themselves.

Kiemel says Bestway currently pays roughly \$35 per ton to drop recyclables in Denver for processing, whereas just months ago he was receiving a \$35 per ton rebate for its drops. That's a reversal in direction costing the company around \$16,000 monthly, factoring in that Bestway currently diverts about 450 tons from local landfills monthly.

The good news: Bestway's diverting 450 tons from local landfills monthly. Due to paying for less garbage to go to the landfill, Kiemel's able to balance his books enough that "for the foreseeable future, we have no plans for a rate increase ... we don't want to discourage people from recycling." He's optimistic that the market will rebound, as is Waste Management communications manager Melissa Kolwaite.

"We've been in the industry for 40 years," Kolwaite says. "We've seen many cycles of this nature before. While we are in down economy and seeing a depression in the commodities market, it will come back."

No pun intended, right?

With so much energy spent trying to raise awareness to recycle in the first place, most people don't think much about what their recyclable materials come back as.

I decided to track our recyclables from our curbs to the regions where they change hands for remanufacturing, to find out just how much effort and energy go into, say, extruding nylon fibers from your #1 PET plastic bottle for your next fleece jacket. Along the way, I found some pretty hopeful signs of progress.

Follow the duck

Here's the easy-to-track leg of your recycled item's journey: Pretty much everything collected in single-stream format in Colorado Springs heads to Denver to be separated and baled for shipment to end-users. (That's trade-speak for the folks who create something new with the reclaimed raw material — for all you recyclers with a disproportionate ratio of PBR cans to Smart Water bottles in your bins.)

Only materials collected in the free-of-charge, drop-off bins outside of Waste Management's Fourth Street processing facility get bundled for immediate transit to, according to Kolwaite, "companies that either make the base product for new material or actually make a new product." The reason those items go directly is because they are already separated by those dropping off into various bins. Bonus for WM.

That leaves curbside service. For purposes of brevity, we limited this query to two of the largest single-stream recyclers in the area, WM and Bestway. When an individual tosses a phonebook or pizza box into his recycle bin, it first goes to a relay or transfer station locally to be bundled for a trip to Denver for sorting. Once again, Fourth Street serves this function for WM, while a facility on Air Lane, just east of Peterson Air Force Base, accommodates Bestway.

In north Denver, WM's bundles hit a complexity of conveyor belts at a Franklin Street facility for sorting into like commodities, which are then sold down the line to — shout it out if you know the answer — end-users.

Bestway sells ... er, pays to drop its loads with other processors, including WM in the past, and more recently a Denver outfit called Alpine Waste & Recycling and a Boulder company called Eco-Cycle.

To get an idea for how machines actually sort recyclables, visit altogetherrecycling.com to watch a short, campy video that tracks a plastic rubber duck. (Trust me, it's a real riot.)

According to Brent Hildebrand, Alpine vice president of recycling, single-stream processing requires four times the machinery as conventional recycling (his entire plant costs around \$5.5 million) in addition to a few extra pairs of hands to pull contaminants (read: crap you shouldn't have put in your curbside bin, Captain Discernment) from a conveyor line.

"My cost is much higher to produce this stuff right now than what it's worth," Hildebrand says. Hence the role reversal from payer to payee and Bestway's hopefully short-lived predicament.

Virgin burden

So now your expired copies of *Mother Earth News* (and of course, the *Independent*, which by the way is printed in Pueblo on 20 to 25 percent recycled material coming out of Longview, Wash.) have been separated from your empty organic yogurt cups and said aforementioned PBR can collection, and bundled.

Who's buying? Anyone local?

"Unfortunately, we don't have a whole lot of industry in Colorado for end-users," says Marjorie Griek, executive director of the Colorado Association for Recycling, a group that educates and lobbies for recycling as well as helps businesses become more efficient with waste diversion.

Global demands are constantly shifting, so processors sell to whoever will net them the most return, unless they have contractual obligations, which many do. As a landlocked state, Colorado products tend to stay in the U.S., whereas coastal states understandably do more international shipping.

At the moment, Hildebrand says he ships his newspaper to Arizona where it's made into more newsprint; his cardboard to Washington to be turned back into fresh cardboard; and much of his plastic to Wyoming where it's turned into plastic fencing. Inside Colorado, his tin goes to Pueblo where it's turned into rebar and his glass heads to Wheat Ridge's Rocky Mountain Bottle Co., which feeds big users like Coors Brewing Co.

Kolwaite says for proprietary reasons she's only allowed to speak regionally. Waste Management currently sends newspaper to the Pacific Northwest, aluminum to the Midwest, tin and steel to the Northeast, plastics to the Pacific Coast and China, and cardboard to China.

Many a naysayer has questioned whether all the transportation, processing and conversion effort inherent to taking a product from curb to shelf, often round-trip across an ocean, truly makes recycling in its current form efficient at all.

Hildebrand offers one scenario that proves why it is. Take paper, which from virgin stock requires a tree to be cut down, transported, debarked, shredded and processed. To reclaim paper, he says recycled paper is basically tossed into a giant blender and cleaned in order to be ready to be turned back into paper. Collection and transport factored, that's cheaper, not to mention it saves a tree whose continued role in nature bears significantly more value.

According to WM, recycling one ton of paper saves about 17 trees, 7,000 gallons of water and enough energy to power an average home for six months. Making aluminum cans from used cans — which can take as little as six weeks from curb to shelf — takes 95 percent less energy than creating cans from raw materials.

Too bad that statewide, according to data provided by the Colorado Department of Public Health and Environment, we only recycled 16.6 percent — 1,672,580 out of 10,091,301 tons — of municipal solid waste in 2007. (View a breakdown by materials at recycle4colorado.info.) Factor in diverted

compost and industrial byproducts, and that percentage jumps to 28.5, which is still below the national average computed by the EPA of 33.5 percent.

"We're below par at this point," says CDPHE environmental protection specialist Wolf Kray. "But we expect our rate to rise when we release 2008 data on May 1."

Optical upgrade

So, recycling is not perfect, but it's still a great alternative to filling landfills with renewable materials. When are we going to adopt pay-as-you-throw programs, where citizens are charged only for their trash, thereby vastly increasing recycling participation?

Keep dreaming, for now.

Aside from inspiring more people to do it, what else can we do to further improve our model for recycling, and why does that matter?

"It would definitely be better all the way around if we did have more local end-users," says Griek of the Colorado Association for Recycling. "It would be better for the environment ... would create jobs and boost local economies." But she's careful to clarify that it wouldn't be in our best interest to go entirely local: "We wouldn't be able to use all of the materials we create, so we don't want to get rid of global markets altogether."

Two examples of creative local end-users that she's aware of are a company that mixes recycled paper into concrete blocks to create a lighter product with a higher "R-value" (i.e. better insulation), and a business that makes pet bedding from used cardboard and paperboard scraps.

Denver's Alpine Waste is also looking for more local outlets for its products, says Hildebrand. As an in-house test, it recently paved a large square in its parking lot utilizing glass, and he says the pavement is holding up pretty well under the weight of large trash vehicles. Perhaps in the future, the company could sell glass to municipalities to pave roads.

Charlotte Pit, recycling programs manager for the city and county of Denver, says everyone can help by purchasing products high in post-consumer materials, "meaning it comes from curbside programs, which means you're helping drive that demand for the commodity."

Pit's program, Denver Recycles, was the state's first to offer single-stream, starting in 2005. Currently collecting from about 88,000 homes, and adding 200 more per week on average, Denver Recycles increased its collection tonnage in 2007 by 68 percent to 26,500 tons and its participation rate by 40 percent, thanks to the new program.

Denver Recycles, which passes on its collections to Waste Management, is free to residents whose waste is already paid for by that city's general fund, meaning a simple phone call lands them a cart. One might think that having only a 53 percent participation rate speaks to more embarrassing human laziness (we the people who discard 22 billion water bottles annually), but Pit disagrees.

"The fact that 53 percent recognize recycling as a good thing to do and take the time to do it with no incentive to participate is fantastic," she says.

As we look toward the future of recycling, she believes local governments should play larger roles, whether by coordinating collection like her program, employing promotional techniques such as their eye-catching purple bins, or by endorsing policies that encourage recycling such as pay-as-you-throw trash collection.

Bestway's Kiemel says he'll also be looking into yard-waste collection to keep it from landfills, and Griek says Denver has started a pilot project of curbside pick-up of food waste for composting.

"Recycling is definitely going to get better in the coming years," says Alpine's Hildebrand, citing the arrival of new (and expensive) technology like optical sorting machines that use spectroscopy — essentially computers that read different wavelengths of materials — to identify similar items and blow them onto different conveyers with jets of air.

Sounds like a blast.

The easier this whole process gets, maybe — just maybe — more of us will come around to doing it.

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Helpful hints

"The cleaner the products, the more efficiently we run, which drives costs down," says Alpine Waste & Recycling's Brent Hildebrand. So remember to wash bottles and jars.

Here are three other tips to help save you time, keep it clean and make a friend out of your recycler:

Don't worry about removing the plastic window from envelopes.

Remove lids from your soda bottles; when trucks run over them at processing plants, they shoot off "like bullets," says Hildebrand, potentially injuring staff.

Don't put plastic bags in with your recyclables. They gum-up processing machines used in single-stream. Instead, reuse bags at King Soopers for a five-cent rebate per bag or at Whole Foods for a 10-cent per-bag rebate, use them as a wastebasket liner at home, drop them at the Humane Society for the Pikes Peak Region (610 Abbott Lane) to be reused as poop bags, or recycle them inside your local Wal-Mart or King Soopers.