TALKING TRASH

Each year, Seattle produces a veritable mountain of trash—everything from broken furniture and toys to food waste, electronics, and even recyclable plastic, glass and paper. Fortunately, we're not getting buried under our trash, but did you ever wonder where it goes? And what's the real price that we're paying for all that garbage?

By Carol Tice

PHOTOGRAPHS BY KEVIN P. CASEY

Mounds and mounds of recycling—and where does it all go?

IT'S 2 O'CLOCK in the afternoon on a warm day, and on Meridian Avenue N near 133rd Street in North Seattle the street is lined with boxy green and black plastic trash bins. Trash and recycling trucks rumble along, stopping as men climb out to hustle the large bins to their compactors.

Like garbage everywhere in Seattle, the trash put out by residents on this quiet residential street—the banana peels, old newspapers, plastic milk jugs, torn underwear, the blister-packs that once held children's toys—is beginning its journey across town, around the world and, in some cases, back home again.

From every Seattle neighborhood, the trash and recycling trucks converge at the city's two transfer stations north and south of town. There, refuse is consolidated by category and then placed in larger container trucks to be hauled to its next stop.

What is and isn't in that trash and what ultimately becomes of it tells a story about us as a society, says Cheryl Smith, a Washington State Department of Ecology project manager for Beyond Waste, the name of the state's plan for reducing solid waste and toxic substances over the next 30 years.

"Solid waste is like anthropology," she says. "It tells us a lot about our culture and our values."

What is our trash saying about us?

Clearly, we're making an effort to recycle. But our mountain of nonrecyclable garbage tells us we're still buying too much stuff, and that stuff comes wrapped in too much packaging. Both nationally and locally, the pressure to change our trashy habits is rising. Environmentalists are finding a broader audience as evidence of global warming gains mainstream acceptance. And spiking prices for petroleum—from which our plastics are derived—are motivating many to seek alternatives.

Locally, expect lots of changes to the garbage rules in the coming years, as Seattle grapples with how to keep its trash pile from growing even as its population does.

SEATTLE IS CONSIDERED A progressive recycling city. For instance, few other cities will let you recycle food waste in your yard-waste bin at curbside, but Seattle has allowed this since mid-2005. As of that year, Seattle's municipal solid-waste recycling rate of 44 percent was on par with the statewide rate. Seattle's recycling rate has likely edged up since then, with the introduction of new recycling programs, including a ban on placing items that are recyclable in with garbage.

Local environmental activists are pushing for a raft of new recycling initiatives. Some of that recycling future is certain, and not far off—a law approved by the state Legislature in 2006 will compel producers of televisions, computers and peripherals to pay to recycle them beginning in 2009.

While Seattle looks good when compared with the U.S. average recycling rate of 27 percent, the view through a global lens isn't as rosy, says Sego Jackson, a nationally regarded recycling expert who's principal planner for Snohomish County Solid Waste Management. For instance, eight nations recycle more than 80 percent of their glass, while Washington state's bottle-recycling rate is 30 percent. The city of Seattle's goal—originally set in 1988—to up the overall recycling rate to 60 percent isn't exactly earth-shattering, he says. Our new electronics-recycling law may be a sound first step, he notes, but European Union recycling laws go further, mandating that producers pay for the recycling of all electronics and appliances—even cars. "In high school, if you got a 60 percent on a test, it would mean you basically flunked," he says. "There's an awful lot more to do."

Environmental activists find many friends such as Jackson among city, county and state waste managers. The city of Seattle certainly wants to cut its trash load, as it costs the city around $20 a ton to process recycling but about $50 a ton to process garbage. So more recycling gives Seattle Public Utilities more funds to spend on things like consumer education, better facilities and equipment.

Left, a container is flagged for including non-recyclables; below, despite these full bags of recycling, Seattle only has a recycling rate of 44 percent; the city's goal is 60 percent

CARDBOARD HEADS TO NORTHWEST MILLS TO BECOME PHONE BOOKS. SOME PLASTICS HEAD TO CHINA, OTHERS BECOME PLASTIC LUMBER IN BRITISH COLUMBIA AND STILL OTHER TYPES HEAD BACK EAST TO BECOME FLEECE GARMENTS.

It costs a small fortune to dispose of Seattle's garbage, and while the city deals with the hassle, Seattle residents pay the bill—$20 million a year overall, $240 a year for the average household. Much of the money goes to waste-management giants. To get a sense of the scale of the garbage industry, consider Houston-based Waste Management Inc. (WMI), operator of many local trash-hauling runs, the rail yard that ships off Seattle's garbage and the landfill where our garbage ultimately rests. WMI operates more than 280 landfills nationwide, and made a net profit of more than $1 billion last year on revenues of more than $13 billion. Our trash is a gold mine for these companies. What they do with it after hauling it from the curbside is a story that takes you around town, to a railroad yard and, in some cases, hundreds of miles away.

EVER WONDERED WHETHER your recycling really gets recycled, or where the garbage goes after it leaves your house? Some sleuthing along the trail of local trash yields the following answers respectively: mostly yes (less than 2 percent of King County's recycle-bin items end up as trash), and the actual trash winds up in a vast landfill in eastern Oregon.

Let's start with the recyclables. The organics—in Seattle, everything from grass clippings to rotten peaches—head north, to Cedar Grove Composting on Smith Island in Everett. There, in eight weeks flat, state-of-the-art technology turns the contents of Seattleites' composting yard-waste bins into rich, dark brown mulch at the largest composting facility in the United States.

Cedar Grove takes 164,000 tons of organic waste at this plant alone, from Seattle and King County and parts of Snohomish County. The loads are mixed up to combine carbon-rich (for instance, lawn

Top left, sorting trash at a recycling center; top to bottom, Seattle nonrecyclable trash begins its journey at a local transfer station, then moves onto trucks; about 60 railcars a day head out to a landfill in Oregon. At left, sorting hazardous waste at a transfer station

clippings) and nitrogen-rich (branches, dead shrubs) materials, then funneled into enormous hump-shaped piles 160 feet long by 25 feet wide by 12 feet high.

A relative of Gore-Tex fabric is draped over the heaps, which lets the piles breathe while the temperature rises naturally to between 160 and 170 degrees, killing weed seeds and pathogens in food waste. Fans underneath the heaps shoot air in periodically to keep the oxygen level at about 8 percent, fueling the materials' breakdown while keeping down the smell. This 3-year-old facility, employing German technology, uses 90 percent less energy than the company's still-operating older composting plant in Maple Valley.

After a final two months of aging, the compost is bagged and sent to landscapers and landscape suppliers, contractors and home owners. Many Puget Sound residents purchase Cedar Grove Compost at The Home Depot for around $4 per 1-cubic-foot bag and spread it on their gardens, bringing their waste back home in less than half a year.

The other recyclables—newspaper, plastic milk jugs, aluminum cans and glass bottles—don't travel far. Their first stop is Allied Waste–Rabanco Recycling, just a stone's throw from Starbucks' corporate headquarters in SoDo.

IN ALLIED'S CAVERNOUS, 60,000-SQUARE-FOOT FORMER STEEL MILL PLANT IN SEATTLE, 15,000 TONS OF MIXED RECYCLABLES COME IN EACH MONTH, PILING UP EACH WEEKDAY INTO A MOUNTAIN MORE THAN TWO STORIES TALL AS THEY AWAIT SORTING.

In Allied's cavernous, 60,000-square-foot former steel mill plant in Seattle, 15,000 tons of mixed recyclables come in each month, piling up each weekday into a mountain more than two stories tall as they await sorting. In 1998, when materials marketing manager John Caputo came to this plant, he recalls the amount was 12,000 tons.

Amidst a clattering din, employees in bright orange safety vests, dust masks and goggles hand-sort grades of plastics and remove nonrecyclable items, such as tennis shoes and dirty plastic grocery bags. Magnets pull aluminum cans away from newspaper, which air jets blow over the top of the machine and into bins.

Balers shape newspaper, cardboard and plastics into enormous cubes that wait in neat rows to be shipped out. From here, the sorted items fan out around the globe and begin their transformation into new goods. Cardboard heads to Northwest mills to become phone books. Some plastics head to China, others become plastic lumber in British Columbia and still other types head back East to become fleece garments. Whole glass bottles become new bottles at local factories, while less valuable broken glass is used in roadbeds.

Seattle's remaining garbage—the part that residents don't sort into containers for organic and recyclable waste—amounts to about 438,000 tons a year. This is trucked to a Union Pacific rail yard south of downtown Seattle. Seven days a week, trucks line up to transfer their loads to railcars—5-ton metal containers that hold 25 tons of trash or more.

Six days a week, the 60 or so railcars of Seattle trash are joined by trash trucked in from Bellingham, Marysville and Auburn. When the train hits 110 cars or so, usually around 3:30 in the afternoon, it's ready to head out.

The garbage train snakes 600 miles south and east, the rails following Interstate 5. After changing crews in north Portland, the train follows I-84 along the southern bank of the Columbia River, past The Dalles, out to the tiny town of Arlington, Oregon, population about 500. There a rail spur turns inland, and after winding 11 miles through rocky, barely arable pastureland the train arrives early the next morning at WMI's 17-year-old, 700-acre landfill.

Here, workers operate a pair of forklifts that garbage haulers call "goats," one plucking full trash containers off railcars and placing them onto trucks headed for the landfill, the other putting empties back onto the rails as trucks return. They take 2.3 million tons of garbage here a year; Seattle's contribution is less than 20 percent of the landfill's total annual input (other trash coming to the landfill hails from cities including Portland, Bellingham and points in between).

RECLAIMING THE GOODS

IS THERE AN AFTERLIFE FOR OLD COMPUTERS AND REFRIGERATORS?

Discarded refrigerators, freezers, computers and other electronics reach the end of their useful lives a few blocks southeast of Safeco Field at Total Reclaim Inc., the largest decommissioner of devices containing ozone-damaging refrigerant—chlorofluorocarbons (CFCs)—in the Northwest.

At the 16-year-old company's Seattle headquarters, co-owner and vice president Craig Lorch calls these appliances "dogs;" for the most part they aren't worth the labor of rehabbing them for reuse. They come here to be disassembled and sold for scrap.

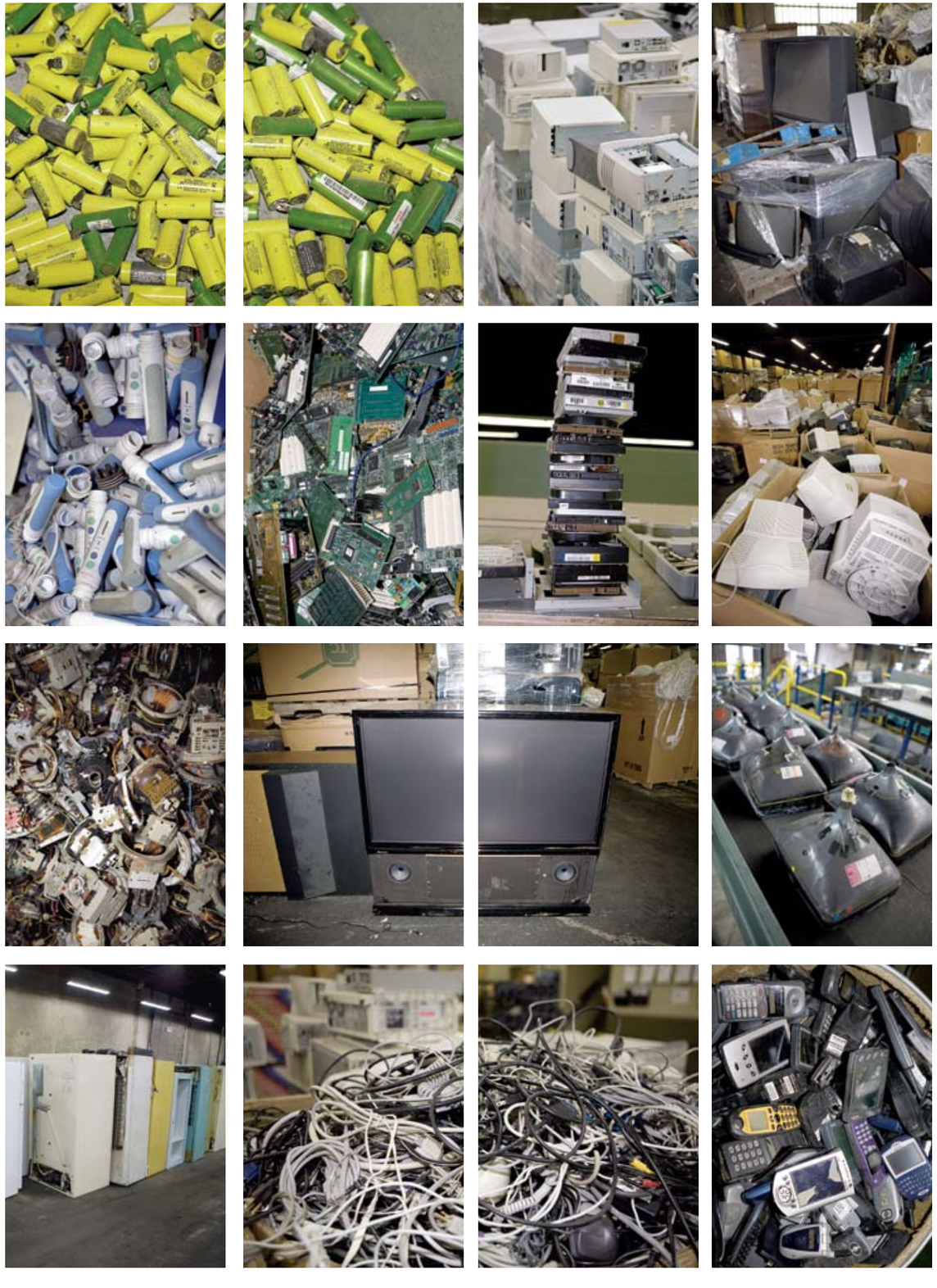
Lorch was a grad-school intern in public administration at the University of Washington when he teamed up with refrigerator-industry alumnus Jeff Zirkle to learn how to dispose of old refrigerators without harming the environment. After a 1990 amendment to the U.S. Clean Air Act banned the release of CFCs into the air, Total Reclaim was born in 1991.

Total Reclaim processes some 45,000 appliances a year, through locations here, in Alaska and Portland. After a refrigerator's coolant is siphoned out and purified for resale (fishing fleets are big customers) and valuable metals are removed, the refrigerator carcasses are sent to an automobile shredder to be sold as scrap.

As for computers, only models with Pentium III or higher chip speeds are considered for reuse. Total Reclaim partners with Seattle nonprofit InterConnection to refurbish a few reusable units for use in the developing world.

On Total Reclaim's assembly line, a computer's parts are separated before they begin a journey to points around the globe. Steel is often recycled locally, to places such as Nucor Steel Seattle Inc. in West Seattle, which turns the steel into rebar for projects such as the new Tacoma Narrows span.

Precious metals such as copper and platinum from solder and circuit boards head off to Sweden and Belgium, where they'll be cooked back into purified raw metals again. Leaded glass from computer monitors and television screens goes to Samsung in Malaysia, where it is made into monitors and television screens. A lot of plastic ends up in China. Environmentalists have decried the polluting methods used to dispose of it there. "People may not like to hear it," Lorch says of how China handles the plastic, "but a lot gets burned." *C.T.*



Right, you can't just throw old computers in the trash; Total Reclaim decommissions all types of old electronics and appliances and sends the pieces around the world where many find new life

Can You Recycle This?

Plastic grocery bags. A stray bag in your trash is likely to gum up the recycling machinery, so don't include these in your recycling.

Plastic film (such as Saran Wrap) is only marginally recyclable. Few secondary markets are interested in this material.

Batteries. The city of Seattle says batteries can be placed in the garbage, but they also can be recycled at a few specialty sites. Rechargeable batteries are recyclable. For more info on programs that will recycle household batteries, go to King County's What Do I Do With...? Web site (metrokc.gov/dnrp/swd/wdidw/).

Plastic container lids. The tops of plastic jugs that milk and orange juice come in are not recyclable.

Recyclable plastics. A recycling symbol doesn't necessarily mean a plastic container is truly recyclable. In general, plastic with the numbers 1, 2, 4 and 5 are widely recyclable. Plastic labeled 3, 6 and 7 is considered difficult to recycle successfully. But read carefully: Some of the best new biodegradable plastics have the number 7 label—a confusing category that includes good and bad recyclable plastic. For more information, see the Smart Plastics Guide (healthobservatory.org/library.cfm?refid=77083).

Shredded paper. It causes problems for the recycling machinery, so is not recyclable. It can be included in your yard-waste bin for composting.

Juice boxes. Composed of paper, aluminum and plastic, these can be recycled with other plastics.

Compact fluorescent bulbs. These contain toxic mercury and require specialty recycling. See the King County Take It Back Network (metrokc.gov/dnrp/swd/takeitback/index.asp) for a list of reyclers.

Packing peanuts. While not readily recyclable, they are quite reusable. See King County's What Do I Do With...? Web site (metrokc.gov/dnrp/swd/wdidw/index.asp) for local companies that will take them. See the Plastic Loose Fill Council Web site (loosefillpackaging.com) for more information.

On the two-mile drive from the rail yard up to the top of the landfill, the plastic grocery bags make for an eye-catching sight. As the fabric tops are rolled off the metal shipping containers in preparation for dumping, the lightweight bags blow away, man-made tumbleweeds that catch in the brush. WMI contracts with the local county prison to have inmates come four days a week to pick them up.

Those expecting to see a towering mountain of stinking, rat-infested garbage would be disappointed. First of all, the landfill isn't a mountain, but a small valley that's being slowly filled in. And in keeping with current health codes, the trash is covered with a layer of dirt at the end of each day, obscuring most of the refuse from view. At the very bottom of the growing trash mound is a heavy black plastic liner, and on top of it are layers of basalt rock and clay, and a network of gravity-fed pipes that siphon off liquids, all to keep the decaying garbage from fouling the land beneath it.

EVENTUALLY, THE TRASH PILE WILL BECOME A RELATIVELY INERT MASS OF NONBIODEGRADABLE MATERIALS, PLASTICS, DISPOSABLE DIAPERS AND THE LIKE, WHICH WILL SIT UNCHANGED FOR MILLENNIA.

"You're driving on landfill now," site manager Will Spears tells a visitor by way of explanation, as you wouldn't know otherwise. A 20-year veteran with WMI, Spears winds his white company pickup up the rocky dirt road to the dump point, which shifts every couple of days as the pit fills up.

In 15- to 20-foot layers, the garbage is shaped into landforms that equipment can safely drive atop. At the top of the current dump site, the trucks back into heavy metal "tippers" that grab their railcar and tip up the front end, depositing their contents out the back and onto the ground.

Spike-wheeled Caterpillar tractors weighing 100,000 pounds or more move in to compact and flatten the just-dumped trash. At this point, the garbage is a homogeneous, unrecognizable mass—from discarded couches to leftover doughnuts, it's all been broken up and blended until every pile looks alike.

Down below, a small lined pond holds the liquid that's trickled through the pipes. Arlington doesn't get much rain, so there isn't a lot of runoff, Spears says. Periodically, the pond's contents are pumped back through the landfill to encourage further decay.

Seattle's garbage has, as much as it can, returned to the earth. The tab: $20 million a year.

There'll be a bit of action in the decades to come—as the organics discarded (rather than composted) by consumers decay, they give off methane gas. After nearly 20 years of accumulating trash, Waste Management thinks it'll have enough gas flow to pipe it out and sell it within a year or two. Spears says it should generate enough energy to power 5,000 homes.

In roughly a century, this landfill will be at capacity. Then, a thick layer of dirt will hide Seattle's trash from view. Methane gas will continue to be piped out for perhaps 30 years more, as the organics in the trash complete their decay. Eventually, the trash pile will become a relatively inert mass of nonbiodegradable materials, plastics, disposable diapers and the like, which will sit unchanged for millennia.

Replanted with native grasses, the acreage will again become hardscrabble grazing land like the hills around it. "We'll have turned a subtle valley into a subtle mound," Spears observes.

SINCE THE 1980S, Seattle has been working to encourage recycling and cut back on its garbage load. It turns out, the biggest ways to cut the trash bill are shockingly simple.

If residents here just recycled all of the recyclable items they actually use, the garbage reduction would be dramatic. City of Seattle figures show 35.5 percent of the city's landfilled garbage is compostable food and yard waste; another 22.5 percent is recyclable paper, and 17.3 percent is glass, metal and recyclable plastic. Add it up, and that's more *(continued on page 278)*

Trash

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than three-quarters of everything that's going to the Oregon landfill.

Anxious to find new ways to encourage recycling, the city commissioned a study on how to reduce its solid waste. Released last April, the study offers an action plan for getting from the current 44 percent to 60 percent recycling by 2010.

In July, the City Council adopted a zero-waste strategy—an effort led by City Councilman Richard Conlin, chair of the council's Environment, Emergency Management and Utilities Committee. By 2009 all single-family residents will participate in an organic food waste pickup program (including currently forbidden items such as meats and bones), and by 2011 this program will extend to multifamily units such as apartment buildings and condominiums, and also the commercial sector.

Conlin would like to impose a surcharge on plastic grocery bags by next year and is considering a ban on Styrofoam food containers in 2009. Activists believe bans will be necessary to meaningfully increase our recycling rates.

"Everyone likes carrots better than sticks," says Dan Cantrell, executive director of the Washington State Recycling Association, an industry group based in Tukwila. "But in order to make a significant change, we need to get tougher and make some requirements. Our voluntary beverage-container recycling rate in Washington state is 30 percent. We're doing a terrible job on our own."

Seattle Public Utilities' solid waste director, Timothy Croll, says the city's solid-waste managers are looking at which recommendations can be easily introduced and how best to execute them. Among the items he sees as "no-brainers": Expand the organics-recycling program to include more foods and add a food-scraps collection program for apartments, along with measures to compel recycling of construction and demolition waste.

Croll estimates just adding the list above would divert 5 percent more garbage out of Seattle's waste-stream.

But activists see much more that can be done, beyond this low-hanging fruit. They're looking beyond bans and recycling, back up the production chain to manufacturers, hoping that in coming years consumer pressure will mean less wasteful product and package design.

Spurring manufacturers to design products with fewer toxic materials and less waste is the next frontier, says Jackson of Snohomish County Solid Waste Management. More products should be designed like the Herman Miller Aeron chair (popular during the dot-com boom years), which is up to 94 percent recyclable when its useful life ends.

The electronics producer responsibility law that will take effect in 2009 should be just the beginning, says Suellen Mele, program director at Washington Citizens for Resource Conservation in Seattle. For instance, Mele was among those active in helping launch a take-back pilot program for discarded medicines that's now in place at 11 Group Health clinics.

A 20-year veteran recycling activist, Mele would like to see something along the lines of Germany's Green Dot system, in which manufacturers prepay for the eventual recycling of their products and in exchange may use the Green Dot mark on their packaging. "Products need to be designed with recycling in mind," she says.

Washington Department of Ecology's Smith is thinking beyond more enviro-friendly product design, to more efficient use of natural resources in creating products. She cites the 1989 study done by physicist and environmentalist Robert Ayres, who found that 94 percent of natural resources are wasted from when the material—petroleum, for instance—is extracted to when it turns up in a finished product—as a plastic, for example. The plastic will typically contain just 6 percent of the original petroleum. Six months after their extraction, only 1 percent of the resources remain in use.

Ultimately, if Seattle residents want to be really environmentally responsible, there's one final step to take, says recycling consultant Kim Ducotè, general manager of Seattle-based Resource Stewards.

"Recycling is all well and good on every level," she says. "But we need to start reducing our consumption. Just because you stick a can in a recycling bin doesn't make you a saint." S