

By Tammy Zborel

Waste Reduction: Strategies for Cities

In the past 50 years, the amount of municipal solid waste (MSW) generated in the U.S. has nearly tripled. The collection, transportation and disposal of this waste presents a considerable cost to local government, poses threats to public and environmental health, and when landfilled or incinerated results in a permanent loss of valuable materials such as metals, glass, paper and organic matter.

In response to these challenges local governments have been developing innovative, cost-effective and responsible strategies to divert waste from landfills, recover and repurpose valuable and/or toxic materials, and even generate revenue and support local businesses. This guide presents four strategies that cities may consider to reduce MSW and benefit their communities.

FOOD WASTE COLLECTION AND COMPOSTING

Food waste, defined broadly as uneaten or inedible portions of food from homes, restaurants, grocery stores, cafeterias, and commercial establishments, makes up a sizable and costly portion of MSW. Food is the third largest discarded item by weight (12% of MSW in 2008) and as a nation we spend approximately \$ 1 billion annually for its disposal. While many cities and towns have implemented programs to divert yard waste from landfills, similar efforts to capture and compost food waste remain an underutilized cost saving and waste diversion opportunity.

A well-known example of city-led food waste collection is occurring in San Francisco, where the city has created the first large-scale urban food waste collection and composting program in the country. While voluntary composting for residents and commercial establishments has been offered since 1999, the city stepped up waste diversion efforts in 2009 by passing the first law mandating the collection of food waste and other compostables. Each day, residents, restaurants

WHEN LESS IS MORE

Reducing municipal solid waste saves more than just landfill space. Waste reduction and diversion strategies:

REDUCE

- Costs of collection, transportation and disposal
- Air, water and soil pollution
- Emissions
- Need to extract raw materials for new products
- Threats to public health

CREATE

- Markets for recycled products
- Jobs and support for local businesses
- Healthy communities

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and area businesses send nearly 600 tons of food scraps, soiled paper and yard trimmings to compost facilities where they are turned into nutrient rich compost, later sold to Bay Area farms and vineyards. Since the law's passage, composting rates have increased 45 percent, and in combination with several far-reaching recycling and waste reduction efforts the city boasts an impressive 77 percent landfill diversion rate — the highest in the country.

Small towns are looking at this solution as well. In 2010 the towns of Hamilton and Wenham in Massachusetts introduced the first voluntary curbside compost program in New England. Following a successful 74-home pilot program in 2009, participation increased to 550 households in the program's first year. In addition to saving on trash disposal costs, the resulting compost is made available to participating households at no charge, making the program a win-win for the city and residents.

DECONSTRUCTION

The construction and demolition of buildings involves a tremendous amount of financial and natural resources. The U.S. Environmental Protection Agency (EPA) estimates that approximately 170 million tons of building-related construction and demolition (C&D) debris was generated in 2003. More than half of these materials — countless tons of brick, wood, concrete, asphalt, metal, glass, doors, windows, carpeting, plumbing fixtures, shingles, etc. — some in good condition, and some containing toxic chemicals or compounds, were discarded into landfills. Using the process of deconstruction, together with C&D debris recycling, cities and private property owners can realize a range of benefits.

Deconstruction is the systematic dismantling of a building that allows for the reuse and/or recycling of building materials. In addition to reducing the amount of waste entering landfills, deconstruction provides significant economic opportunities in the form of job training programs and support for local businesses that salvage and repurpose these materials. Recognizing the importance of reducing C&D waste in landfills, many cities have issued ordinances and set C&D reduction goals. State agencies have also passed legislation to reduce C&D in the waste stream. As many cities face the daunting task of repurposing vacant properties left in the wake of the housing foreclosure crisis, serious attention should be paid to how unused buildings and surplus building materials will be disposed.

As part of its far-reaching Green Building and Green Points Program, the City of Boulder, Colo., requires at least 50 percent of waste from the construction of new buildings and major renovations or demolition of existing buildings to be diverted from landfills. A free deconstruction assessment and consultation is provided through a local non-profit and the city provides a list of area options for developers and property owners to reuse, donate or recycle C&D materials. In a program requiring similar levels of C&D diversion, the Town of Atherton, Calif., offers “house demolition sales” whereby salvageable materials may be given or sold directly from the property at a publically announced sale. The City of Chicago

is investing federal American Recovery and Reinvestment Act (ARRA) funding to create more than 100 green job opportunities in deconstruction for the formerly incarcerated. The city is partnering with two area non-profits to provide training in the selective dismantling of city-owned buildings. Proceeds generated from the sale of building materials are invested back into the program.

BENEFITS OF DECONSTRUCTION:

- Job training
- Support for small business such as salvage and resale companies
- Historic preservation
- Diversion of waste from landfills
- Reduced disposal costs (transportation and tipping fees)
- Reduced financial and environmental costs associated with purchasing new raw materials
- May earn LEED ratings points
- Possible tax credits for donating materials to nonprofit salvage and resale companies



PAY-AS-YOU-THROW

Variable-rate or unit-based pricing programs — commonly referred to as “pay-as-you-throw” (PAYT) — have been successful in thousands of communities to reduce MSW and increase diversion strategies such as recycling and composting. As the name implies, customers are charged for waste disposal based on the amount (by weight or unit) generated rather than a flat-fee. An incentive is therefore created for customers to reduce waste at the source (i.e. avoiding disposable products or excessive packaging) and reuse or recycle items.

In response to the need for fair and consistent accountability in payments, a number of rate structures have been developed. Common methods include basing charges on the size of the container used and/or requiring customers to affix pre-purchased labels to bags. Unlimited quantities of recyclables are typically collected for no additional fee, and some programs allow customers the option of waste pick-up every other week (versus weekly) for a reduced fee.

In an effort to reduce operating costs, the City of Malden, Mass., instituted a commercial PAYT system in 2000 using start-up funds from the state Department of Environmental Protection. Following the success of the program, the city council approved an ordinance in 2008 to extend PAYT to all residential solid waste. The rate structure requires all trash to be placed in city-approved bags (\$1/15-gal; \$2/33-gal) available for purchase at area retailers and select city departments. In the first year since implementing residential PAYT the recycling rate increased 74 percent while solid waste tonnage decreased 49 percent. The savings in disposal costs, together with revenue from the sale of PAYT bags, has totaled almost \$2.5 million. The high compliance rate (98%) may be attributed to the city’s strong outreach efforts including media announcements, public meetings, the establishment of a hotline service and four working groups.

BENEFITS OF PAY-AS-YOU-THROW:

- Reward those who generate less waste; increase fairness and accountability
- Raise consumer awareness of the waste content in products purchased
- Reduce MSW tonnage to collect, transport and dispose in landfills or incinerators
- Lower emissions and vehicle miles traveled by waste haulers
- Increase rates of recycling and composting
- Potential revenue generation
- Reduced pollution entering air, water and soil

ELECTRONIC WASTE

The proportion of electronics — such as televisions, computers, printers, cell phones, stereo equipment, VCR/DVD players and video game consoles — discarded into the waste stream is rising at a rate two-to-three times faster than any other waste segment. According to the U.S. EPA, 82 percent (1.84 million tons) of the 2.25 million tons of obsolete or unwanted electronics was landfilled in 2007. “E-waste,” as it is often termed, presents numerous public and environmental health and safety concerns as discarded items often contain heavy metals that may be toxic (i.e. lead, mercury, cadmium) when released into the air, soil or water through landfills or incinerators.

As rates of e-waste continue to rise, a number of states have passed legislation banning electronics from landfills entirely and/or requiring manufacturers to take back products at the end of use. Hundreds of local governments have also taken steps to increase consumer awareness about proper disposal, provide e-waste collection services or resources and lead by example by requiring Environmentally Preferable Purchasing and recycling of city-owned electronics.

In 2002, the City of St. Louis, along with Jefferson, Saint Louis and St. Charles counties, formed “e-cycle St. Louis” to expand opportunities for residents to safely dispose unwanted electronics. The group works with area retailers and businesses to establish collection sites and presents information via a searchable map.



To help consumers divert electronics from the waste stream the U.S. EPA developed an eCycling initiative and an Electronics Challenge as part of its WasteWise program for public and private entities.

ENVIRONMENTALLY PREFERABLE PURCHASING: WASTE REDUCTION STARTS AT THE SOURCE

While many cities and towns have established community-wide recycling programs to reduce the amount of *disposed* waste, few have taken steps to encourage reduction of the amount of waste *generated*. Source reduction is the term used for minimizing both the volume and overall toxicity of waste. Environmentally preferable purchasing policies are the mostly common strategies used to guide citywide purchasing decisions and typically include language on waste and toxicity minimization.

In 2002, Newton, Mass., developed an explicit source reduction program, which included a focus on resource reuse throughout the city. An informative “how-to” guide directed at helping municipalities reduce waste was created based on the experience. Similarly, the New York City Department of Sanitation’s Environmentally Preferable Purchasing Guide provides a great resource and checklists to get started.

ABOUT THIS PUBLICATION

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The Home Depot Foundation, created in 2002, supports nonprofit organizations dedicated to creating and preserving healthy, affordable homes as the cornerstone of sustainable communities. The foundation’s goal is for all families to have the opportunity to live in healthy, efficient homes they can afford over the long-term; to have access to safe, vibrant parks and greenspaces; and to receive the economic, social and environmental benefits of living in a sustainable community. For more information, visit www.homedepotfoundation.org and follow on Twitter @homedepotfdn. Created in 2009, the Sustainable Cities Institute (SCI) is a two-part initiative from The Home Depot Foundation that provides a one-stop shop for cities and sustainability professionals to find vetted best practices from across the country to help them identify and implement local sustainable practices and policies as well as communicate with other cities about sustainability related issues and topics. For more information, visit www.sustainablecitiesinstitute.org and follow on Twitter @sustcitiesinst.