Community Collection of Discarded Computers

Is your community faced with a growing collection of discarded computers? Since most of these devices contain hazardous materials, keeping them out of landfills is an important task. A recent Florida survey found, for example, that 20 percent of all households are ready to or have already disposed of a computer monitor in the last year. This fact sheet will help you analyze your options and develop a successful collection program for computers.

What are the options?

City of Madison One-Day Collection

The City of Madison has collected computers three times during one-day events since 1998. One day events were held at the City Public Works transfer station and at Cascade Asset Management (a local computer equipment recycler), with a total of 34 tons collected. These events were promoted using radio and newspapers, and staffed with volunteers. The first event was free; subsequent events charged $5 per monitor, while participants were provided with discount coupons to local retailers. Each event had promotional costs averaging $186 per ton, including municipal staff time. Electronics firms who wanted to encourage recycling and saw the one-day events as a cost-effective means of accomplishing that goal underwrote some of the promotional costs

Since computers typically contain hazardous materials, the federal government, through the Resource Conservation and Recovery Act (RCRA), has discouraged the disposal of computers by businesses and institutions in landfills, including a ban on CRT disposal. An infrastructure for collection, processing, and marketing of used computers is being developed. However, there is no requirement for households to recycle computers. Nevertheless, many consumers have sought alternatives to disposal and community collection programs are one option. Collection programs can be broken into 3 distinct models, each of which is described below:

- **One-day collection events** provide a drop off location for used computer equipment and operate similar to a household hazardous waste collection day. Key components include developing a promotional campaign, locating temporary storage and contracting with recycling processors for processing and marketing of the collected equipment. Typical costs per ton for one-day events range from $160 to $375 per ton.

- **Permanent collection programs** provide on-going drop

City of Milwaukee and Waukesha County Collections

Both the City of Milwaukee and Waukesha County have implemented permanent drop off programs for used computer equipment. These programs are sited at permanent public works recycling drop off centers and use the WI Department of Corrections for processing and marketing. Advertising is provided through normal municipal correspondence, special recycling notices, web information and newspaper inserts. In the first two months of operation of these programs, an average of 16 cubic yards/month of material was collected from the Waukesha County sites.

City of San Jose, CA – Retail Collection

San Jose piloted a month long retail collection program in October 1997. Three electronics outlets were utilized, with over 80% of all material collected from the vendor providing full corporate support. About one third of all material collected was monitors, half of which could not be resold. Total cost per ton was $584. Corporate sponsors also reported increased sales due to end-users' browsing following equipment drop-off.

off services for consumers. These programs typically contract with a computer equipment recycler to provide convenient locations. Also common to these programs is the usage of existing municipal drop off locations. Typical costs per ton for permanent collection programs are difficult to determine since computer collections are often an adjunct to existing programs.

• **Corporate retail take back programs** utilize retail office supply or electronic retailer outlets as collection locations. Full corporate support, including aggressive advertising by the retailers is critical to the program's success. Typical costs per ton for this type of program range from $142 to $584 per ton collected.

What are the pros and cons of each approach?

Below is a criteria analysis matrix, which can be used to analyze your community's computer recycling options. Ratings can be

Computer Recycling Analysis Matrix			
(1 = not important 5=very important)			
Criteria	One day event	Permanent collection	Retail take back
Cost per ton			
Promotion and			
Location availability			
Volunteer/staff needed			
User fee charge			
Local government			
Corporate support			
Total score			

weighted based upon your local conditions and scores adjusted accordingly to best meet your community's recycling needs.

What are the environmental considerations?

As long as computer equipment is collected for recycling, materials generated are exempt from Wisconsin's hazardous waste rules and do not have to be manifested. However, municipalities should ensure that collection is accomplished in an environmentally sound method, including ensuring all collected equipment is stored under cover, care

is taken not to break CRT monitors, and that an environmentally responsible processor is used to handle end disposal.

What happens to used computer equipment?

Markets for computer equipment and scrap vary greatly, due to the wide variety of materials used, as well as constant technological changes to produce more powerful computers. The table to the right provides a rough break down of some of the materials from a typical PC.

Note that this table does not take into account actual costs incurred by the recycler for dismantling equipment or shipping costs.

Where can I turn for help?

Below are a number of resources that can help with used computer collections.

- Local markets for used computer equipment change almost daily; the most current listing is available from the Wisconsin DNR web site at http://www.dnr.state.wi.us/org/aw/wm/recycle/md/marketsdirectory.htm or by calling your regional recycling specialist.

Value of Demanufactured Computer and Monitor		
Recyclable commodity	**% of PC (by Weight)**	**Value per Unit**
Sheet Iron	37.41%	$0.67
Mixed Plastic	14.22%	$0.18
Precious metal	4.28%	$4.37
Power Supplies	8.39%	$0.16
Aluminum/	4.87%	$0.23
Mixed dirty	0.002%	$0.01
Ribbon Cables	0.60%	$0.03
External Cables	1.28%	$0.08
Mixed dirty scrap	0.13%	$0.00
CRT, leaded glass	21.11%	$0.33
Copper	2.16%	$0.11
Low value boards	5.43%	<u>$0.26</u>
Total Value		**$6.43**

Source: Cascade Asset Management, LLC, Madison, WI, August, 2000

- Wisconsin Department of Corrections provides collection and processing services from municipal drop off locations, as well as schools and state institutions. Call 608-246-7920 for pick-up service information.
- Wisconsin Department of Natural Resources provides regulatory and technical assistance with computer recycling.
- Municipal program contacts include:

    Dane County Department of Public Works
    John Reindl at 608-266-4018

    City of Madison DPW
    George Dreckmann at (608) 267-2626

Handling Broken Screens

Computer screens may be broken, either in shipment or while being handled. Since these screens contain lead, care should be taken to carefully sweep up the glass and include it with other glass materials going to recycling. Health impacts are negligible, since the lead will remain contained within the glass.

City of Milwaukee DPW
Mike Engelbart at 414-286-2355

Waukesha County Solid Waste
Karen Fiedler at 262-896-8014

- The National Recycling Coalition Electronics Recycling Forum offers information about computer and electronics recycling via its web site. To access information on sample vendor contracts, an online discussion forum, as well as other information, go to http://www. nrc-recycle.org, click on the green ball on the left, then go to NRC Programs, then Electronics Recycling Forum.
- The Computer Reuse and Recycling Work Group is sponsored by the UW-Extension and provides a forum for on-going problem solving regarding computer reuse and recycling. Contact Steve Brachman at 414-227-3160 for more information.

What can we do to minimize computer recycling problems?

Given the volume of used computers, much can be done to prevent the future generation of used computers. Communities should focus on the following:

- Encourage leasing of computers – many computer vendors provide leasing options. Although slightly more expensive than purchase, leasing minimizes both maintenance and obsolescence issues, while eliminating disposal concerns.
- Encourage manufacturers to develop "green" computers – computer manufacturers have already achieved significant progress in the greening of computers, including significant reductions in toxics and improvements in energy savings. More can be done with further encouragement.
- Encourage manufacturer take back – European countries have initiated manufacturer take back programs for electronics equipment. Meet with your vendors to see if they will consider similar programs for your community.

For more information, contact your County Extension Agent or SHWEC

County Extension Information

SHWEC Offices

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