

TOOLKIT FOR SETTING UP ELECTRONICS RECYCLING PROGRAMS

SECTION 1

MAY 2003



Table of Contents

| | | |
|---|-------|---|
| Introduction | 1 | |
| Why There is Concern about this Segment of the Waste Stream | 1 | 1 |
| Getting Started | 2 | |
| Checklist 1 ~ Getting Started | | |
| <input type="checkbox"/> Why Begin an Electronics Collection Program? | 4 | |
| <input type="checkbox"/> What Will Be Collected? | 4 | |
| <input type="checkbox"/> Who Will the Program Serve? | 5 | |
| <input type="checkbox"/> What Legal Requirements Must Be Satisfied? | 6 | |
| <input type="checkbox"/> Who Will Manage the Program? | 7 | |
| Checklist 2 ~ Program Management ~ What are the options? | 7 | |
| <input type="checkbox"/> What Will Be the Fate of the CRTs? | 8 | |
| <input type="checkbox"/> How to Minimize Costs? | 9 | |
| Selecting a Program Strategy | 11 | |
| Why Hold a Special Event Collection? | 11 | |
| Why Hold an Ongoing Collection Program? | 11 | |
| Why Curbside Collection? | 12 | |
| The Details | 13 | |
| Overview | 13 | |
| Planning | 13 | |
| Checklist 3 ~ Program Planning | | |
| <input type="checkbox"/> Electronics Recycling Company Selection | 14 | |
| <input type="checkbox"/> Site Selection | 15 | |
| <input type="checkbox"/> Frequency & Hours of Operation | 16 | |
| <input type="checkbox"/> Staff | 16 | |
| <input type="checkbox"/> Whether to Have a User Fee | 18 | |
| <input type="checkbox"/> Publicity | 19 | |
| Program Implementation | 21 | |
| Checklist 4 ~ Implementation | | |
| <input type="checkbox"/> Supplies | 21 | |
| <input type="checkbox"/> Traffic Signs & Cones | 22 | |
| <input type="checkbox"/> Signage Instructing the Public | 22 | |
| <input type="checkbox"/> Worker Training | 22 | |
| <input type="checkbox"/> Collecting & Packing | 23 | |
| <input type="checkbox"/> Handling CRTs | 23 | |
| <input type="checkbox"/> User Fees | 24 | |
| <input type="checkbox"/> Data Collection | 25 | |
| <input type="checkbox"/> Scavenging | 25 | |
| Program Follow-Up | 26 | |
| Checklist 5 ~ Follow-up | | |
| <input type="checkbox"/> Did It Go As Planned? | 26 | |
| <input type="checkbox"/> Ongoing Public Education/Outreach | 26 | |
| <input type="checkbox"/> Data Collection | 27 | |
| <input type="checkbox"/> Program Improvement | 27 | |

| | |
|--|----|
| <u>Ongoing Collection Programs ~ Additional Considerations</u> | 27 |
| • <u>Electronics recycler offers ongoing collection</u> | 27 |
| • <u>Charity operated</u> | 28 |
| • <u>In conjunction with a permanent household hazardous waste collection</u> .. | 28 |
| • <u>Transfer station or solid waste disposal facility</u> | 28 |
| • <u>Long-term solid waste contract</u> | 28 |
| <u>APPENDICES</u> | |

APPENDIX I: REQUEST FOR PROPOSALS FOR CATHODE RAY TUBE/COMPUTER COLLECTION

APPENDIX II: NEPSI SAMPLE PARTICIPANT SURVEY

TABLE OF FIGURES

| | |
|---|----|
| <u>Figure 1 Cathode Ray Tube - From “How Stuff Works,” by Marshall Brain</u> | 1 |
| <u>Figure 2: Key Collection Jobs</u> | 17 |
| <u>Figure 3 Outreach strategies: what works & what doesn’t - <i>Skumatz Study Results</i></u> ... | 20 |
| <u>Figure 4: How Special Event Participants Heard about Collection – <i>Concord, NH</i></u> | 20 |
| <u>Figure 5: Scavenging – “To be or not to be”</u> | 25 |

Introduction

Used electronics recycling is a growing concern for municipal and regional solid waste professionals, as well as environmentalists. In response, there is a growing interest in establishing electronics recycling/reuse programs. The goal of this *Toolkit* is to provide the basic tools to set-up and operate these programs.

Why There is Concern about this Segment of the Waste Stream

This *Toolkit* uses the expression “used electronics” to refer primarily to computers and televisions. However, used electronics recycling/reuse programs often accept a wider range of electronics, including, but not limited to, computer and television peripherals such as VCRs and printers, portable phones and stereos.

National attention has focused on computers and televisions primarily because of the monitors, or cathode ray tubes (CRTs).

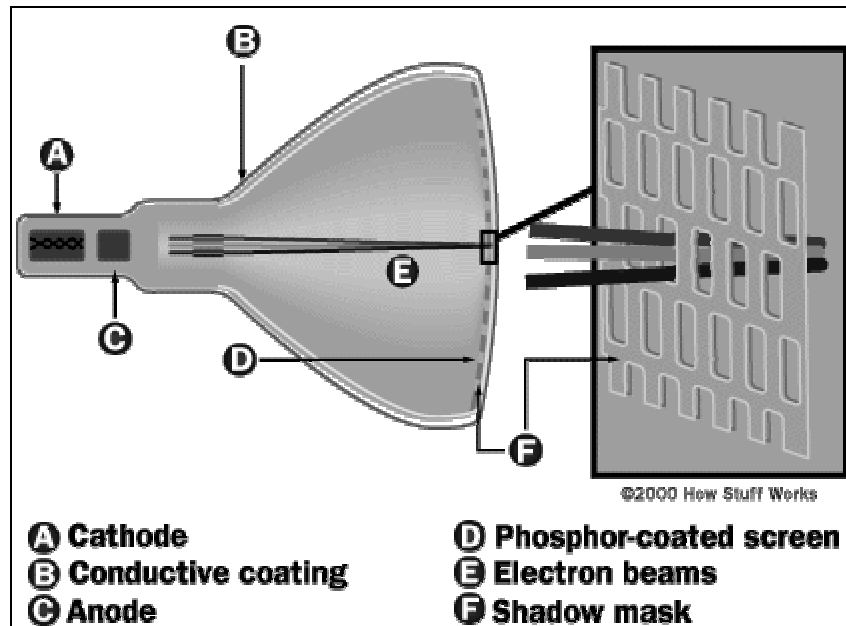


Figure 1 Cathode Ray Tube - From “How Stuff Works,” by Marshall Brain

<http://www.howstuffworks.com/television1.htm>

While simple in design, CRTs have triggered a wide-ranging and often contentious discussion about whether they are hazardous to public health and the environment when disposed in the trash. The reason is because color televisions and computer monitors contain leaded glass. The glass is leaded to protect the viewer from radiation: much in the same way that you wear a lead apron when you get an x-ray. The average CRT sold between 1995 and 2000, including televisions and monitors, is an 18.63-inch CRT with a lead content that varies from 2.14 lbs to 2.63 lbs. The lead content is high enough to render them a hazardous waste by federal definition and to raise environmental and public health concerns. It is also stated that consumer electronics

are the second greatest source of lead in the municipal solid waste stream, after batteries.

Televisions and computers also contain lead solder, copper wires, and heavy and precious metals in the circuit boards. These, too, raise environmental and public health concerns. And, obviously, used electronics are bulky. They take up space in landfills, are hard to manage in incinerators or waste-to-energy facilities, and have great recycling potential. In addition, according to reports in Europe and the U.S., they represent the fastest growing segment of the solid waste stream.

Getting Started

One of the first decisions is to determine the type of electronics collection program to develop. However, before this decision can be made, there are many key questions to answer that will direct the planning decisions.

These questions are listed in ***Checklist 1 ~ Getting Started***. Each item on this checklist is discussed below.

Checklist 1 ~ Getting Started

| |
|--|
| <input type="checkbox"/> Why begin an electronics collection program? <ul style="list-style-type: none"><input checked="" type="checkbox"/> Asked to<input checked="" type="checkbox"/> Increase recycling rate<input checked="" type="checkbox"/> Increase solid waste diversion<input checked="" type="checkbox"/> Encourage reuse<input checked="" type="checkbox"/> Avoid toxics/heavy metals in solid waste<input checked="" type="checkbox"/> Resource conservation |
| <input type="checkbox"/> Who will the program serve? <ul style="list-style-type: none"><input checked="" type="checkbox"/> Residents<input checked="" type="checkbox"/> Municipal buildings<input checked="" type="checkbox"/> Schools<input checked="" type="checkbox"/> Institutions<input checked="" type="checkbox"/> Businesses |
| <input type="checkbox"/> What legal/regulatory requirements must be satisfied? <ul style="list-style-type: none"><input checked="" type="checkbox"/> Federal<input checked="" type="checkbox"/> State<input checked="" type="checkbox"/> Local |
| <input type="checkbox"/> Who will manage the program? <ul style="list-style-type: none"><input checked="" type="checkbox"/> Household hazardous waste programs<input checked="" type="checkbox"/> Volunteers<input checked="" type="checkbox"/> Solid waste/recycling staff<input checked="" type="checkbox"/> Department of Public Works<input checked="" type="checkbox"/> Solid waste hauler<input checked="" type="checkbox"/> Electronics recycler<input checked="" type="checkbox"/> Charity<input checked="" type="checkbox"/> Retailer |
| <input type="checkbox"/> How will the program be paid for? <ul style="list-style-type: none"><input checked="" type="checkbox"/> Program budget<input checked="" type="checkbox"/> User fees<input checked="" type="checkbox"/> Grants<input checked="" type="checkbox"/> Contributions<input checked="" type="checkbox"/> Partnerships |
| <input type="checkbox"/> What will be the fate of the CRTs? <ul style="list-style-type: none"><input checked="" type="checkbox"/> Lead smelter<input checked="" type="checkbox"/> Glass-to-glass recycling<input checked="" type="checkbox"/> Reused or resold<input checked="" type="checkbox"/> Exported<input checked="" type="checkbox"/> Reuse |
| <input type="checkbox"/> What can be done to minimize costs? <ul style="list-style-type: none"><input checked="" type="checkbox"/> Program management & staffing<input checked="" type="checkbox"/> Publicity<input checked="" type="checkbox"/> Transportation<input checked="" type="checkbox"/> Recycling Costs |

❑ Why Begin an Electronics Collection Program?

In other words, what is motivating this effort? There are likely to be several answers to this question.

- ☞ **Being asked to?** Electronics collection and recycling programs are a hot topic within the solid waste community and have been gaining public attention as well.
- ☞ **Increase the recycling rate?** States are under increasing pressure to meet recycling goals set by their legislatures, and to prove the value of their recycling programs.
- ☞ **Increase solid waste diversion?** Landfill capacity may be an issue in the area.
- ☞ **Encourage reuse?** Reuse is a higher value on EPA's, and most state, solid waste hierarchies than recycling, landfilling or incineration for energy.
- ☞ **To remove toxics/heavy metals from the solid waste stream?** Diverting electronic equipment from disposal in an incinerator reduces heavy metal concentrations in air emissions and ash. There is less direct evidence of the immediate toxicity benefits of diversion from landfills.
- ☞ **Resource conservation?** To promote the environmental and economic benefits of recycling by harvesting important commodities.

While there isn't any "right answer" it is critical to understand "why" a collection program is being considered. These answers will guide the formulation of objectives and goals for the program, as well as aid in its design and implementation.

❑ What Will Be Collected?

Electronic equipment is loosely defined as any item that transfers data or has circuit boards. Defining what will be collected as part of the program is integral to the program's design and cost. It should also be a direct reflection of the program goals.

☞ **Computer Monitors and Televisions - Cathode Ray Tubes (CRTs)**

Computer monitors and televisions are the primary focus of this *Toolkit* and the principle target of electronics recycling/reuse programs throughout the country. This is due to the toxic materials in the equipment, and specifically the lead content in the monitors and television screens.

☞ **Computer and Television Peripherals**

Generally, central processing units (CPUs), printers, scanners and small computer peripherals, such as modems, external drives, keyboards, mice, and zip drives are collected as part of computer systems. Similarly, VCRs and DVD players are considered extensions of televisions. Experience has shown that the public wants to recycle the entire system: even if only the monitor is advertised as acceptable, other components will arrive as well.

🔗 **Other Electronic Equipment – Anything with a Circuit Board**

Stereos, radios, portable and cell phones, fax machines, camcorders, and even copying machines are easy to collect – except for the copying machines, of course, and likely to come into the program anyway.

🔗 **Anything with a Plug**

If the objective of the program is to maximize diversion from disposal, this may be an appropriate strategy. It may, however, be quite costly. An amazing array of materials can come in if no limits are set. Examples of “anything with a plug” include:

- 👉 Air conditioners
- 👉 Dehumidifiers
- 👉 Electronic drum sets
- 👉 Irons
- 👉 Lamps
- 👉 Microwaves
- 👉 Play Stations
- 👉 Record players
- 👉 Tape decks
- 👉 Vacuums
- 👉 Vaporizers

🗑️ **Who Will the Program Serve?**

Another fundamental question is who may participate in the program.

- 🔗 Residents
- 🔗 Municipal buildings
- 🔗 Schools
- 🔗 Institutions
- 🔗 Businesses

Government, institutions, schools and businesses may not be aware of options for electronics recycling and may have limited options. Offering access to a recycling program or electronics recycling company is a valuable service.

By opening the program to a larger audience, there is the possibility that volumes of materials may become quite high. This is because businesses usually have more electronics to be handled than does the average household. The same is true for schools and municipal buildings. These larger volumes require more staffing to handle and more supplies for packing and loading. This need not present a problem, however, as long as the volumes are anticipated and arrangements made. This could be done in several different ways, including:

- Requiring that anyone other than a household make an appointment for recycling. In this way there is the opportunity to arrange for the material to arrive at convenient times and to have the necessary supplies on site.

- By making arrangements with the recycler to go to the business or for the business to go to the recycler rather than using the program as an intermediate site.

By including the non-residential sector, there may be security issues and program demands that residents are unlikely to require. Sometimes businesses, government and institutional customers have security and end-of-life hazardous waste liability concerns. They may need to have their computers shredded and the metals recovered as the preferred end-of-life management strategy. Reuse may not be an acceptable option and they may also want to know that there will be a certificate of recycling.

□ What Legal Requirements Must Be Satisfied?

Legal requirements can impact both large and small program details: from signage to transportation.

Federal Requirements

The CRTs in color computer monitors and televisions are often hazardous when discarded because of the presence of lead in the CRT. Facilities and communities that are disposing or recycling used CRTs should always check with their state environmental agency about state regulatory requirements, which may be different from federal regulatory requirements.

This discussion summarizes current (December 2002) relevant federal regulatory requirements. For the complete federal hazardous waste requirements for generators, consult 40 CFR Parts 260-262. Facilities that are disposing or recycling CRTs should always consult their state regulatory requirements, which may be different from federal regulatory requirements.

Households: Used electronics, including CRTs, generated by households are not considered hazardous waste and are not regulated by federal law.

Donation or Resale: CRTs sent for continued use (i.e., resold or donated) are not considered hazardous wastes.

Small Quantities: The disposal of CRTs and computers by any type of small business or organization (no matter how many employees nor what type of business it is) is *not* regulated under most federal requirements as long as the business or organization discards less than 100 kilograms (about 220 pounds or less than 5 CRTs) per month of hazardous waste, including used CRTs.

Large Quantities: Wastes from facilities that generate over 100 kilograms (about 220 lb.) per month of hazardous waste are regulated under federal law when disposed. CRTs from such facilities sent for disposal (not reuse or recycling) must be manifested and sent as "hazardous waste" to a permitted hazardous waste landfill. CRTs sent for recycling from such facilities are also currently subject to Federal regulation.

State Requirements

It is important to find out from the state environmental agency if there are any legal requirements that pertain to the collection of used electronics for recycling. In addition, there may be permit requirements for in-state recyclers. If this is the case, be sure that the electronics recycling company selected for the program has the appropriate permits to operate and transport these materials.

Who Will Manage the Program?

Managing the program includes the design and implementation phases. Answering the following questions can help guide the decision of who should (or can) manage the program.

| Checklist 2 ~ Program Management ~ What are the options? |
|---|
| <input type="checkbox"/> Is there a solid waste or recycling staff person or operator? |
| <input type="checkbox"/> Is there an organized volunteer program that works with recycling? |
| <input type="checkbox"/> Are there electronics recycling or reuse companies in the area? |
| <input type="checkbox"/> Are there local political reasons why maintaining day-to-day responsibility for the program is important? |
| <input type="checkbox"/> How is bulky waste collection handled? Municipal curbside? Contracted curbside? Collection? None of the above? |
| <input type="checkbox"/> Is there a privately owned/operated solid waste or recycling facility in the area? |
| <input type="checkbox"/> Is there a national electronics retailer such as Best Buy, Circuit City or Staples in the area? |

Is There a Role for Partnerships?

Partnerships may be an option for program management or funding. To identify potential partners, think about the community and which organizations and companies might share an interest in electronics or in recycling. For example:

- ☞ Electronics retailers
- ☞ Electronics recyclers
- ☞ Solid waste haulers
- ☞ Solid waste facilities
- ☞ Local businesses
- ☞ Charities
- ☞ Reuse companies
- ☞ Manufacturers of electronics (including phones, etc.)
- ☞ Software companies
- ☞ Television/electronics repair shops

-- are all likely candidates.

For example, retailers might participate in the organization and management of the collection or provide a parking lot for holding a collection. A manufacturer that reimburses the cost of recycling is also a sponsor or partner. A local business might provide a collection site or staffing.

In communities that host non-municipal landfills or waste-to-energy facilities, it may be possible to negotiate with the facility operator to provide electronics recycling for residents of the community as part of the host relationship.

Before contacting these entities, have a clear idea of what they would contribute in the partnership, e.g. in-kind contributions, use of space, funding, advertising, the cachet of their name, discount coupons as an incentive, etc. Also be prepared to explain why *they in particular* are being contacted, how they will benefit from the partnership, and why this program is important to their mission.

❑ **What Will Be the Fate of the CRTs?**

CRTs are the most difficult and expensive material for recyclers to handle because the recycling market options are limited. Usually, CRTs will have one of four fates:

- ☞ Lead smelter
- ☞ Glass-to-glass recycling
- ☞ Reused or resold
- ☞ Exported

☞ **Lead smelter.** CRTs are used as a replacement material for flux in the burning process. Currently, this is the most common fate for CRTs.

☞ **Glass-to-glass recycling facility.** These facilities melt the glass for use as feedstock for making new CRTs.

☞ **Reused or resold.** This generally occurs through charities or electronics recycling companies that have repair/refurbishing as a business priority.

☞ **Exported.** This is an increasingly common practice and while this is an area of intense environmental and political interest at this time, it should be noted that there are legitimate export markets for CRTs. Almost every recycler in the United States uses export markets for some of the materials at least some of the time.

Ask potential electronics recycling companies what they do with their CRTs, or set CRT management requirements in bid specifications. Be sure to do due diligence by contacting the export markets that a prospective electronics recycling company uses. It is important to ask the ultimate electronics recycling company every few months about export business practices because they can change and electronics recycling companies are unlikely to keep the program updated of a change in end markets.

☞ **Reuse.** Special event programs are able to have charities and reuse organizations on site during the event to cull and separate the reusable or repairable materials before the recycler has access to them. For ongoing events, including curbside collection, the strategy of setting aside electronics with potential for reuse can still be used, but it will likely need to be adjusted. Program staff can be trained to sort likely reusable materials and to put them aside in appropriate containers or packaging for collection by a charity. When material is regularly set aside for reuse by someone other than the recycler, there is likely to be a slightly higher price charged by the electronics recycling company – but less material will be going to them so the cost may balance out in the end.

Certificate of Recycling

Requiring, and receiving, a certificate of recycling from a recycler can help to promote the credibility of the program, to provide a degree of quality assurance from the electronics recycling company, and to provide a comfort level to the non-residential sector about long-term legal liability for the disposal and end-of-life management of electronics. In addition, if the program is open to businesses and government customers they may need a certificate of recycling.

☐ How to Minimize Costs?

The size and limits of the program budget will naturally have a significant impact on the program details. There are four key areas to examine for cost containment:

- Staff
- Publicity and outreach
- Transportation, and
- Recycling fees

In order to maintain control over the budget, it is important to know:

- ✓ Transportation costs
- ✓ Recycling fee (paid to recycling company)
- ✓ Supply expenses
- ✓ Staff expenses
- ✓ Other anticipated expenses
- ✓ Whether there will be a user fee

The balance of expenses and potential revenues will guide the degree of public response that the program can afford. With a limited budget, consider whether to use all the funds in a special event, or whether there is adequate infrastructure and funding to offer an ongoing collection program. As a general statement, the staffing and outreach cost for ongoing collection programs and special events are very similar, but ongoing collections receive about two-and-half times more material by weight; thus a greater overall cost for fees paid to the recycling company.

☞ **Program Management & Staffing** – Under some circumstances, having a third party manage the program arrangements can minimize direct costs. Partners, such as

a recycler, retailer or charitable organization, can assume primary responsibility for the program, and government becomes a partner through intention, publicity, and possibly some recycling fee cost sharing.

Some collections have been quite ingenious in finding ways to staff programs with minimal staffing costs.

- ✓ Use prisoners or people serving community service sentences
- ✓ Donations of labor from sponsors or communities
- ✓ Have a solid waste hauler, recycler or charity operate the program
- ✓ Hold the collection on a weekday

The cost of staffing for the program will be a function of the number of paid on-site staff. Some programs have contained costs by holding collections only on weekdays.

☞ **Publicity** - Take advantage of free or already existing communication systems by using:

- The web
- Community cable television
- Press releases
- Interviews in the local paper
- Articles in local newsletters
- Inserts in tax or utility bills (sometimes free, sometimes the cost of copying only)
- Public service announcements on radio and television
- Others to promote the event – i.e., electronics retailers, commercial haulers, charitable organizations
- Donations of printing for posters, fliers, etc.
- Community service printing programs, such as prisons and vocational schools (both require more lead time than commercial enterprises might)
- Speaking opportunities at events or gatherings: clubs, schools
- For curbside or on-going collection programs, include information on electronics recycling on the annual recycling information provided to households

☞ **Transportation** costs can be limited by:

- Using municipal trucks and staff to move materials to the recycler or reuse organization, or to a consolidation point for more cost effectiveness. However, be clear whether costs will be charged back to the solid waste management program and, if so, how they compare to the recycling vendor's price
- Using electronics recycling companies within the area

☞ **Recycling fees** are harder to contain, but can be limited by:

- Maximizing diversion to reuse
- A sound procurement (or bidding) process
- Limiting the types of materials that are collected (i.e., excluding televisions)

- Providing the packing materials (gaylord boxes, pallets, and stretch film). A gaylord box is a three or four cubic yard box that sits on a pallet. It is usually cardboard.
- Providing the labor for loading trucks
- Allowing materials to be shipped overseas

Selecting a Program Strategy

Once the general program questions have been answered, it is time to select a program model.

There are three principle strategies:

- ☞ Special event collection
- ☞ Ongoing collection
- ☞ Curbside pick-up

Why Hold a Special Event Collection?

A special event collection is a program that occurs for a very short period of time, typically, one or two days, four or fewer times per year. Special event collections offer several advantages:

- An opportunity to test how the community will respond to an electronics recycling/reuse program.
- Serve as a “clean-out” of materials in storage and then permit a more predictable ongoing program model.
- If there is no recycling center or other location to which electronics can be easily added for ongoing collection, then a special event might be the best option.
- If there is a tradition of special events, such as household hazardous waste events, furniture swaps, bulky wastes, etc., then this model might be the best tool.
- Good potential to limit the cost because it is time constrained.
- A recycler/reuse organization might be willing to operate the collection.
- Advertising and promotion can be less expensive.
- There might be a sponsor, a retailer for example, who would host or cost-share for a special event.

Due to the focused time frame of the collection, there are typically higher tonnages and participation rates at special events than there would be on any one day at an ongoing or curbside collection program.

Special events also offer the opportunity to hold it in conjunction with another event, such as a household hazardous waste collection, compost bin distribution, or plant sale.

Why Hold an Ongoing Collection Program?

An ongoing collection program is one that is operated on a regular and predictable schedule. For example, the program is open on the first Saturday of every month, every

day that the recycling center is open, etc. Access to these programs often mimics the hours that regular recycling is available.

If there is a recycling center or a permanent household hazardous waste collection program, an ongoing program is an appropriate addition to the program. Or, if a special event has been tried and it was a success, the next step might be to hold the event more often - once a month, for example – and transform it into an ongoing program.

If there isn't an ongoing recycling collection program or permanent household hazardous waste facility, and there isn't a sponsor or other organization to partner with that can provide a regular collection location, then an ongoing collection program may not be the best-suited selection for the community.

Ongoing collections advantages include:

- Natural as an “add-on” to current collection recycling collection or household hazardous waste program.
- Extended opportunities for participation.
- Excellent opportunities for public education.
- Flexible model with many variations.
- The opportunity to thoroughly explore different partnerships and funding strategies.

Why Curbside Collection?

It is possible to collect electronics as a curbside commodity, just as is bulky waste. Bulky waste collections are the model for how most curbside collection of electronics operates. If there is a private hauler under contract to provide bulky or solid waste curbside service then a simple contract amendment might be all that is necessary to add this program.

The hauler may ask for help to set-up and promote the program, or to pass on the cost of recycling. It is also possible that the hauler may want to select the recycler that it works with and to contract separately with them. Still be sure to determine that the electronics recycling company meets the program standards.

As with any other recyclable, the public generally prefers curbside. Curbside collections are the least expensive per ton to operate. Console televisions are more commonly recycled in curbside programs than in special event or ongoing programs for the obvious reasons of ease of transport.

Despite its advantages, curbside collection of electronics should *only* be implemented as an add-on to an existing bulky waste program. It is not cost-effective to do otherwise. In addition, many curbside collections are offered in combination with other electronics program offerings – such as an annual special event.

A drawback to curbside collection is that the material is generally of poor quality by the time it reaches a processor and therefore has less potential for reuse/repair. Materials

left at the curb get wet and may not be handled as carefully as material at an ongoing program or special event.

The Details

Overview

No matter which program strategy is selected, there are consistent needs and program costs that must to be addressed. They fall under the general categories of:

- **Planning**
- **Program Implementation**
- **Follow-up**

Each of these is addressed in detail below, and is accompanied by a checklist.

Planning

| Checklist 3 ~ Program Planning |
|---|
| <input type="checkbox"/> Electronics recycling/reuse company selection <input checked="" type="checkbox"/> Develop a procurement document <input checked="" type="checkbox"/> Evaluate management practices <input checked="" type="checkbox"/> Identify potential companies <input checked="" type="checkbox"/> Does the company satisfy legal requirements |
| <input type="checkbox"/> Site selection <input checked="" type="checkbox"/> Site features <input checked="" type="checkbox"/> Types of locations |
| <input type="checkbox"/> Frequency & Hours of Operation |
| <input type="checkbox"/> Staff <input checked="" type="checkbox"/> Key staff roles |
| <input type="checkbox"/> Whether to have a user fee <input checked="" type="checkbox"/> The decision <input checked="" type="checkbox"/> How much to charge |
| <input type="checkbox"/> Publicity <input checked="" type="checkbox"/> How to publicize <input checked="" type="checkbox"/> What to publicize |

❑ **Electronics Recycling Company Selection**

🔗 **Develop a procurement document**

One of the most critical pieces of any collection design is selecting an electronics recycling/reuse company. Be sure to be aware of any state, and possibly local, procurement laws that apply if the effort is organized by a public entity.

Choosing the vendor is the opportunity to ensure that all of the program requirements that were determined via **Checklist 1 ~ Getting Started** are realized. Defining program and vendor requirements, asking for disclosures and documentation, and checking references are all part of the procurement process.

A request for proposals or invitation to bid is the tool for communicating the expectations to electronics recycling/reuse companies. There are many examples of these documents, so there is no need to start from scratch.¹ Be sure to craft a procurement document that is specific to the program and budget needs that have been identified. Even if the state has an electronics recycler/reuse company on state contract, weigh that company's merits against the standards that have been developed. Implementing a procurement process may also result in lower prices – even from the company on state contract.

🔗 **Evaluate company's management practices**

There are significant choices to be made when selecting an electronics recycling/reuse company. Determine that the company meets the goals and objectives of the program. For example,

- Is there a reuse or remanufacturing component?
- Does the company have a zero landfill policy?
- What are the end markets for each material?
- Is overseas export part of the management strategy?
- Which elements of the electronics are recycled and which are managed as solid waste?
- What types of processes are done in house?
- Are the electronics shredded?
- How are items stored, where, and for how long?
- Does the electronics recycling company allow third party audits of their facilities?
- Will the company provide the names of other customers for references?

🔗 **Identifying potential electronics recycling/reuse companies**

The first step is to identify potential companies to include in the selection process. Some strategies to identify companies are to:

- Find out if the state has electronics recyclers on state contract.
- Ask the state environmental agency for information about "licensed" electronics recycling companies.

¹ Example in the Appendix

- “Ask around” for recommendations.
- Consult the International Association of Electronics Recyclers (IAER) website (www.iaer.org).

🔗 **Does the electronics recycling company meet relevant requirements?**

Once potential electronics recycling/reuse companies have been identified, determine the federal, state and local requirements to which they are subject:

- Does the company possess necessary federal, state and local permits?
- Are there any federal, state or local enforcement actions against the electronics recycling company? This can be determined by asking the company to disclose such problems as part of the procurement process, and by contacting environmental agencies and making direct inquiries. These are not mutually exclusive, however.

☐ **Site Selection**

Identifying a suitable collection site is a key consideration. It needs to be suitable both for the program operations, and also for public access.

🔗 **Site features**

The site should have the following features:

- Cover for the materials collected. This can be a garage bay, a tent, a shed, a 40-yard trailer, etc.
- The capacity to handle a line of cars and not back up into a roadway.
- Maneuvering space for the transporter/electronics recycling company.
- A location that is familiar to residents.
- Pavement is not a requirement.
- Access to a phone (a cell phone is fine if it will work at the site).
- Depending on the arrangement with the recycler/reuse organization/hauler, storage space may be required.
- A loading dock or pallet jack.

🔗 **Types of locations**

Many types of locations are likely to provide the key site amenities. These include:

- Recycling centers
- Solid waste facilities
- Permanent household hazardous waste collection facilities
- Charities
- Electronics recycler facilities
- Fairgrounds
- Parking lots
- Departments of Public Works

In most cases, ongoing collection programs are located at recycling centers, transfer stations, or DPW Yards. These sites have many attributes. They often have storage

capacity, are staffed, have dealt with the traffic flow concerns, and are essentially already set-up. All that may be necessary is additional signage and a dedicated location for the collection and storage of the electronics. Special events tend to take place at recycling centers and in parking lots. However, anyplace in the area that meets the basic site requirements and for which permission can be obtained, is suitable.

Frequency & Hours of Operation

Usually **special event collections** are one-day events. Depending on the area, four (4) hours is likely to be an ample period of time. Another approach is to hold the event over a period of two days – possibly involving a weekend.

For ongoing collection programs the location is likely to influence the frequency and hours. For example, if the collection is being operated at the Recycling Center this will probably dictate one of two extremes:

- At all times that the Center is open
- At hours that the Center is not generally open

In the first case the Center has adequate staffing, the physical space to dedicate to gaylords or other packing/sorting materials, traffic patterns, and demand.

In the second case, the Center is small with staff already strained with responsibilities, conflicting traffic patterns, and inadequate demand to warrant the additional pressure on resources. If the collection is offered at a parking lot, the owner of the site will probably determine how often and when the site is available. Or, if it is held in conjunction with a charitable organization or other entity, their needs will likely define the frequency.

Curbside programs

If the community offers curbside bulky waste collection, adding electronics to that program can be simple. It may be done by appointment – for example, a call is placed to the Department of Public Works (DPW) and a date and time is scheduled to put the materials outside. Then they are picked-up by the curbside program and brought back to a designated electronics sorting and packing area.

Or, electronics might be added to regularly scheduled bulky waste days.

Staff

There are many tasks in developing, implementing, and conducting following-up. It is also important to be sure that there is adequate staffing at all times.

The major areas of responsibility are listed below, with suggested staffing.

| Responsibility | Program Type | Suggested Staff |
|--|-------------------------|---|
| Program development & design | All | Solid waste manager |
| Program management & oversight | All | Solid waste manager |
| Contracting with electronics recycling company | All | Solid waste manager |
| Site set-up & close-down | Ongoing & Special Event | Solid waste manager |
| Greeter | Ongoing & Special Event | Volunteer |
| Traffic control | Ongoing & Special Event | Police |
| Unloading & packing | Ongoing & Special Event | Two or three strong & trained individuals per line of traffic |
| User fee collection | Ongoing & Special Event | Solid waste manager/Municipal employee |
| Data collection | Ongoing & Special Event | Volunteer |
| Equipment operator | Ongoing & Special Event | Someone who knows how to safely handle a pallet jack, bobcat and other relevant machinery. This is <i>not</i> suitable for volunteers or inexperienced individuals. |
| “Gopher” - Communicating between different parts of the collection, getting water and food, checking on signage, etc | Ongoing & Special Event | Volunteer |

Figure 2: Key Collection Jobs

For ongoing and special event collections, there should be at least one person on-site at all times who has experience with similar events. This can be the recycler.

🔑 Key Staff Roles

The **program manager** has significant responsibilities concerning preparing staff (includes volunteers) and the site.

- Be sure that each staff person understands their responsibilities and the expectations of the day.
- Be sure that each person is properly trained and attired for the job that they will be performing.
- Have emergency contact information, including life-threatening allergy information, on site for each staff person.

- Volunteers should be asked to sign liability waivers developed by the municipal attorney. Beware, however, that release forms are not always foolproof.
- Be sure that the municipality or government has insurance that covers non-employees in case of injury or accident during the event for, volunteers or contributed labor.
- Have one or two back-up people that can be called in case extra or replacement staffing becomes needed.
- Be sure that all supplies, signage, and equipment are on-site before the event or program begins.
- Primary responsibility for vendor relations.
- Problem solving and decision-making.

The program manager and primary assistant should plan on being on site for at least two hours more than the operating hours.


Traffic control is a very important position. While this can be a volunteer or a staff person, for a special event we suggest that it be a police officer. The reasons:

- ✓ They are trained for this type of work.
- ✓ If a problem does develop they are best equipped to handle it.
- ✓ If an emergency takes place, they are well situated to ensure a speedy and efficient response time.

Greeting participants prior to arrival at unloading area is another important position. The job is to:

- Count vehicles
- Survey participants
- Tell people to stay in the car and that the materials will be taken out for them
- Either have the person unlock the trunk or have them give the greeter the keys so they can unlock the trunk
- Tell them when they can pull forward to be unloaded and answer questions about which materials are being accepted and the fees being charged
- Distribute any educational materials
- If there is a user fee, the greeter could collect the fee and give a receipt (if requested).

Whether to Have a User Fee

 **The decision whether** to have a user fee can be influenced by a number of factors. Some of them include:

- Are the residents used to paying for disposal of bulky items, e.g. tires, appliances?
- Can the program afford not to charge a user fee?
- Is there a system already in place to accept fees and have it be dedicated to paying the program costs?
- Are there political reasons why or why not to charge fees?

🔗 **How much to charge**

If the decision is made to charge a user fee, then the question becomes the size of that fee. The electronics recycling company can give advice about the likely cost per item, but there will be additional costs that might be address through the fee. For example:

- Advertising
- Supplies
- Insurance
- Packing materials
- Police
- Signage
- Staff
- Transportation
- Recycling fees

Generally, user fees do not cover the full program cost, but rather defray it. Further, there is a growing body of experience that indicates that a user fee of approximately \$5 per item (a CRT, a television, a printer, a CPU, etc.) results in the least public resistance.

☐ **Publicity**

As with any recycling/reuse program, outreach is essential. The purpose of the publicity is to encourage participation and to ensure that participants understand how the program will work.

🔗 **How to publicize**

Start outreach and advertising at least three full weeks ahead, and ideally have some articles and other press coverage approximately four weeks before the special event or the launch of the ongoing program.

Do not rely on free publicity to be the sole promotion for the program. While these tools are important, use display advertising, radio advertising, and if appropriate in the setting, television advertising. A recent study by Skumatz Economic Research Associates indicates that print communication is the most effective for promoting and sustaining recycling.

The study drew the following conclusions²:

² “Evaluating the Impact of Recycling Education”, by Lisa Skumatz, Ph.D., and John Green, *Resource Recycling*, August 2001, page 35 – 36.

| Outreach strategies that resulted in <i>increased</i> recycling & diversion | Outreach efforts that did <i>not</i> result in increased recycling & diversion |
|--|---|
| ◆ Newspaper ads or articles in urban areas | ◆ TELEVISION promotion in rural or urban areas |
| ◆ Bill stuffers in urban areas | ◆ Billboards in urban areas |
| ◆ Brochures in suburban areas | ◆ Point-of-purchase promotion in urban areas |
| ◆ Direct mail in rural areas | ◆ Door-to-door promotion in urban areas |
| ◆ Billboards in rural areas | ◆ Bill stuffers in rural areas |

Figure 3 Outreach strategies: what works & what doesn't - Skumatz Study Results

In addition, practical experience with electronics collections has contributed additional guidance. For example, at a two-day event held in Concord, NH participants indicated how they heard about the event.

| | |
|--------------------------------|------|
| Newspaper (articles & display) | 36% |
| Radio (NPR Story) | 28% |
| Friend or Co-Worker | 13% |
| Insert in Water Bill | 6% |
| Poster at Work | 4% |
| Posters in Mall | 3% |
| Internet | 3% |
| Drive-by | 3% |
| Fliers from School | 3% |
| TOTAL | 100% |

Figure 4: How Special Event Participants Heard about Collection – Concord, NH

Because the electronics recycling/reuse program will present a new recycling/reuse opportunity, be prepared for questions and phone calls. The timing of the publicity needs to take this into consideration.

What to publicize

The publicity needs to include:

- What is and isn't being accepted for collection
- When (date and time) & where the collection is taking place
- Why someone should participate
- Any fees
- Contact information for questions

If there are any sponsors or partners, it should be acknowledged in all publicity.

Program Implementation

All programs require supplies and the correct handling of materials. In addition, all programs should collect data about the program. Curbside collection programs are different only in the type and amount of supplies that will be necessary.

| Checklist 4 ~ Implementation |
|--|
| <input type="checkbox"/> Supplies |
| <input type="checkbox"/> Traffic signs & cones |
| <input type="checkbox"/> Signage instructing the public |
| <input type="checkbox"/> Worker training |
| <input type="checkbox"/> Collecting & packing |
| <input type="checkbox"/> Handling CRTs |
| <input type="checkbox"/> Data collection |
| <input type="checkbox"/> Scavenging |

Supplies

Any program, other than a purely curbside one, will require a number of items in order to ensure that the site functions safely and efficiently. The electronics recycling/reuse company may provide the supplies if it was described in the procurement process and the contractual agreement. An opportunity to save on the collection costs is to supply these packing materials through donations and contribution.

Essential equipment and supplies include:

- Pallets
- Gaylords (if applicable)
- A bobcat with forks, pallet jack, fork truck or other machinery to move gaylords or pallets to a truck
- Stretch film if using pallets alone
- Supplies for labeling (depending on the circumstances, this might be as simple as a felt pen to mark the outside of a gaylord)
- Rechargeable Battery Recycling Corp. (RBRC) battery recycling container
- Tents to keep the equipment and staff out of the weather
- Cinder blocks, bags of sand, or other heavy objects to secure tent to ground without staking it into the ground
- Chairs for site workers
- Tables – 8 foot, several
- Garbage and recycling containers
- Weighted signs (i.e., stop, no smoking)
- Saw horses/barricades

- Duct tape
- Orange traffic cones
- Handheld radios if it is a large or spread out area
- Clipboards with attached pens
- Receipt book
- Office supplies, including pens, pencils, markers, staplers, staple removers, paper clips, tape
- Something to collect the money in - a cash box, aprons with pockets, a cash register, envelopes, etc.
- Safety vests, gloves, and other personal protective equipment for all site workers, including volunteers
- Food and water for site workers
- And a camera for photos! Don't forget the film.

Traffic Signs & Cones

Using signs and traffic cones to clearly indicate the correct traffic flow, including how to exit the site, is essential.

Depending on the anticipated number of vehicles and site configuration, consider having more than one line for unloading.

Signage Instructing the Public

Signage is also important for:

- Announcing the collection location and hours
- Fees (if relevant)
- If prohibiting scavenging, say so
- Thanking sponsors

Worker Training

Computers, televisions, CRTs and their peripherals are heavy and awkward. Handling them can easily result in back injuries, cuts and bruises. Be sure that the staff and volunteers are trained in the use of personal protective equipment, and in the safe lifting and handling of heavy materials. They should wear safety equipment such as heavy gloves, hard toe shoes, and back supports. Wearing reflective gear and readily visible clothing (such as safety vests) will help to prevent traffic mishaps.

In Lincoln, Nebraska

“Each volunteer . . . attend[s] a brief training session. . . [they are] given a brief history on computer recycling, the hazardous components of computer and television monitors, and why there is a cost involved in [recycling] the equipment. In addition, volunteers [are] given a brief demonstration on proper lifting techniques and [are] provided with written information about preventing back injuries. [It is] suggested that volunteers only carry equipment if the participant

ask[s] for assistance. . . Volunteers [are] also required to complete a release form, removing liability for injuries from WasteCap of Lincoln and the Contractor.”³

For ongoing programs and curbside collection, attendants should be trained to separate the electronics from other bulky material - i.e., a part of the truck is segregated by welding in a panel for collecting the electronics – or the electronics are sorted out at the transfer station. This may also require that the trash collectors be trained to leave behind electronics when they see them at the curb and to put a sticker on them, or leave a flier, explaining why the materials were left behind, and how to deal with them.

❑ Collecting & Packing

In some ways collecting used electronics is wonderfully simple. It gets put in a gaylord or stacked on pallets and wrapped with stretch film. Or the electronics recycling/reuse company may be on site and be responsible for all the material handling and collecting. Whatever the circumstances, it is essential to understand what the electronics recycling/reuse company requires for terms of packing and labeling. Besides safety concerns, pricing will be a function of how materials are intended to be handled and packed. The labeling requirements will be dependent on state law. Be sure to check with the state environmental authorities to ensure full compliance.

When packing the gaylords, pallets or other containers:

- ✓ Be sure that the containers are as close to the unloading area as can be safely arranged. This is to minimize the distance that materials have to be carried – thus making it less likely that workers will be injured, that they will get exhausted, and that breakage or dropping will occur.
- ✓ Data collection is an important component of collection events. The moment of packing is a key opportunity for data gathering. Someone – and it should not be the people unloading the vehicles – should keep count of what goes into each container; for example, 12 televisions, 6 monitors.
- ✓ Be sure that someone is paying attention to when containers are getting full and need to be moved and replaced with empty ones.
- ✓ In addition, someone needs to be responsible, in a timely manner, for notifying the electronics recycling company or hauler if truck trailers or containers are filling up and need to be replaced.

❑ Handling CRTs

Because of the wide size range for computer screens and televisions it is not possible to accurately predict how much one weighs. However, a general estimate is that a 15”

³Recycling Used Electronics: Report on Minnesota’s Demonstration Project, Minnesota Office of Environmental Assistance, 2001, page 3.

computer monitor or 21" television weighs between 35 and 50 pounds. A console television can weigh more than 125 pounds.

As stated above, it is important that the staff handling these materials be adequately trained and wearing appropriate safety gear. The risk of harm is to the person, not to the CRT. A CRT is very hard to break or damage if it is in its original case. Occasionally, however, someone will remove the CRT from its housing. This happens most often in the case of console televisions.

These "bare" CRTs present real safety hazards. While it is rare for an injury to occur, the health and safety dangers are:

1. By touching the unprotected glass it is possible to receive a serious shock. A CRT can carry a latent charge of up to 25,000 volts for up to a year.
2. Parts of the glass are very sharp and can cut skin. If mishandled or broken the glass tube can implode.
3. The tube is under vacuum pressure; while difficult to break, broken glass is dangerous and safety glasses designed for exposure to exploding particles should be worn when handling bare CRTs.

Like all appliances the cathode ray tube is heavy. Improper lifting can result in serious back or foot injuries, or even implosion.

☐ User Fees

If the decision has been made to charge user fees, it is essential that the public to be fully informed - in advance - about the fees.

Special Event & Ongoing Programs

- Make clear what form payment may be made in: checks, local checks only, no out-of-state checks, cash, no credit cards, etc.
- Have change on site
- Be prepared to provide a receipt
- Be sure that the person(s) handling the money is a municipal employee or otherwise covered in case of theft or loss of the funds
- Be prepared to secure the funds until they can be deposited on behalf of the entity that will be paying the bills. Keeping careful track of the revenues received and keeping them safe until they are turned over to accounting or a bank is an important responsibility
- If the materials are going to reuse, provide a receipt to the program participants for a charitable donation (for federal income tax purposes and in some cases for state income tax purposes as well). Have the municipal attorney provide the appropriate language. A partnering charity might provide a donation receipt, as well

Curbside

Charging a per unit or per CRT fee for curbside collection is relatively common. It is generally in the form of a sticker purchased at City Hall or the DPW. Where a sticker is required items will not be picked up unless the stickers are obvious. Some programs worry that stickers will impede the reuse potential or recyclability of the electronics. Usually this is not the case. It is worthwhile, however, to check with the recycler or reuse organization to determine if it has any restrictions or specific requirements about where on the unit to place the sticker.

Another approach to financing of curbside programs is to add a fee into annual trash bills.

Data Collection

In order to collect information about the success and characteristics of the collection program, data collection is essential. Surveying participants is a key first step.

Scavenging

At the same time that materials are brought in to be recycled/reused, some people will ask if they can take any of the materials brought in – or not ask and just take them. Establish the scavenging policy head of time. There are reasons, pro and con. In general, however, it should be discouraged.

| |
|---|
| <p style="text-align: center;">Pro</p> <ul style="list-style-type: none">☞ May pay less because materials will be diverted – however, some recyclers charge a higher fee if scavenging will be allowed.☞ May increase opportunities for reuse.☞ Scavenging can be a source of revenue: if there is a fee it will be collected but the material is not sent to the electronics recycling company. <p style="text-align: center;">Con</p> <ul style="list-style-type: none">☞ Ultimately, the same materials will need to be managed as solid waste or a recyclable.☞ The original user is not expecting the computer to pass into someone else's hands: there could be privacy and confidentiality concerns.☞ There is a risk to the public if they handle, or dig for, materials.☞ The scavenged materials will not get weighed or counted in the data.☞ There is no guarantee that the scavenged material will be recycled or reused. Scavengers often are looking for specific parts from CPUs and may not bother to recycle the parts that they didn't want (particularly the plastic housings). |
|---|

Figure 5: Scavenging – “To be or not to be”

Program Follow-Up

| Checklist 5 ~ Follow-up |
|--|
| <input type="checkbox"/> Did it go as planned? |
| <input type="checkbox"/> Ongoing public education/outreach |
| <input type="checkbox"/> Data analysis |
| <input type="checkbox"/> Program improvements |

Did It Go As Planned?

It is important to be sure that the electronics recycling/reuse company fully complies with contractual or other arrangements, including providing the requested data, accurate billing, and certificates of recycling. Paying close attention to these details will contribute to future success and customer satisfaction – as well as cost containment.

Despite the best publicity program, there will inevitably be calls from people who either missed the special event, or are unclear on the ongoing or curbside collection program details. Be prepared to handle these calls and to use them as opportunities to learn about improved program planning, communication and outreach.

Finally, be sure to send thank you letters to volunteers and sponsors. And be sure to ask for their feedback as well. Volunteers, staff and sponsors are among the best resource for information about how the program went/is going and what should be changed.

Ongoing Public Education/Outreach

When the special event is over, or a few months into a curbside or ongoing program, send out a press release that describes the program, the number of participants and volume of material, and why the community has benefited from this effort. The press is likely to call with follow-up inquiries and this is an opportunity to spread the word about “why,” “how,” and “when.”

Advertising limited to the launch of the program is not enough. An ongoing public education and outreach campaign is essential to ensure that the program is sustained and grows over time. Naturally, for special events this is not as critical, but if the program is likely to be repeated ongoing outreach will be important.

The ongoing outreach effort should emphasize the same key points that were used in the initial promotion of the program: what is being accepted, where it is being collected, why they should participate, any fees, and contact information for questions. This is

also an opportunity to address any changes in approach or information that is necessary as a result of program experience.

□ Data Collection

Collecting data is critical for evaluating the program as well as for publicizing its successes. Data collection also

- Provides a mechanism for checking that the electronics recycling/reuse company billed correctly
- Others would like to learn from the experience
- To share what happened with the public
- Provides accountability to supervisors
- Helps to assess which outreach strategies were most effective

The National Electronics Product Stewardship Initiative has developed a “standard” survey it encourages all collection programs to use for data collection from participants, as well as a survey for collection organizers. It is hoped that with this consistent data collection system, a picture of the evolution of electronics collections can be captured. (Refer to Appendix II for the participant survey and the following website for the organizers’ survey <http://www.ergweb.com/nepsi/default.html>)

□ Program Improvement

Many programs that collect data use it in combination with on-site experiences to evaluate the program and make recommendations for program changes. For example, experience may indicate that the program should

- Use a different electronics recycling company
- Change the type or timing of publicity
- Change what is being collected
- Use fewer (or more) staff/volunteers
- Change the collection site

Once the special event is over or a few months into an ongoing collection program, have a follow-up meeting with some participants, site staff/volunteers, sponsors, and other organizers to evaluate the program and determine program changes.

Ongoing Collection Programs ~ Additional Considerations

There are a wide variety of models for ongoing collection programs. The most common strategy is as an add-on to an ongoing recycling collection program.

Other models include:

- **Electronics recycler offers ongoing collection**

In some cases electronics recyclers offer residents of their community or region the opportunity to bring electronics directly to their facility for recycling. Sometimes a fee is

charged or an appointment may be required. This can replace the need for a locally managed program.

If there are electronics recyclers in the area, consider contacting them about offering such a program. Be sure to do the same type of due diligence that would have been done to select an electronics recycling company, however.

- **Charity operated**

A reuse/charitable organization may already offer ongoing collection at its facility or at a regularly scheduled collection location for working computers and televisions. Or the organization might be willing to cooperate in developing such a program.

- **In conjunction with a permanent household hazardous waste collection**

Existing programs and facilities can be modified to include electronics.

- **Transfer station or solid waste disposal facility**

Host communities for a transfer station, landfill or waste-to-energy facility might contact the company that owns and operates the facility and request that they accept electronics for recycling. The reasons to offer can be quite compelling:

- Great public relations with the community.
- Excellent way to maintain good working relationships with the municipality.
- This is significant in terms of permits and oversight.
- In many host community agreements there are provisions for “give backs” to the community. Ask for this to be one of them.
- Decrease their potential liability as a hazardous waste site or failing other environmental limits by eliminating the second highest source of lead in municipal solid waste.
- In some states, solid waste facility siting and operating permits require community environmental support or recycling activities offered to the public. An electronics-recycling program is likely to, at least, partially satisfy such a requirement. Contact the state environmental agency to determine if there is such a requirement.

- **Long-term solid waste contract**

The same rationale applies for a community with a long-term contract for solid waste disposal. Request that the facility add collection electronics recycling. It saves the community from having to be directly involved, provides a tremendous public service, and the cost will be absorbed in a line item that exists; thus it is not a new program cost to the community and is likely to be a simple political sell.

If there are many municipal contracts for waste disposal, it may be possible to secure the facility’s cooperation for all of the contract communities. Speak with some of the “disposal partners” and attempt to present a multi-community request.

APPENDICES

APPENDIX I: REQUEST FOR PROPOSALS FOR CATHODE RAY TUBE/COMPUTER COLLECTION

MAINE STATE PLANNING OFFICE WASTE MANAGEMENT & RECYCLING PROGRAM REQUEST FOR PROPOSALS FOR CATHODE RAY TUBE (CRT)/COMPUTER COLLECTION

I. Introduction:

A. Purpose of Document

The purpose of this document is to provide interested parties with information to enable them to prepare and submit a proposal for the collection and transportation of cathode ray tubes (CRT's), present in TV sets and computer monitors, as well as computer peripherals (CPU, keyboard, mouse, speakers, printers, scanners, etc.) from three (3) collection points in Maine, and to arrange for their reuse, recycling, sale, dismantling, and/or salvage.

B. Purpose of CRT Collection Program

The State of Maine desires to offer a pilot program for the collection and transportation, with appropriate dismantling, salvage, sale, reuse, and/or recycling of residentially generated CRTs and computer peripherals. It is believed that the disposal of CRTs and computer peripherals in landfills, MSW incinerators, or environmentally inappropriate sites, may be a threat to public health and safety.

The Office has keen interest in data that will help determine what happens to these items, particularly CRTs and CPUs. The data from this project, focused on residentially generated CRTs and computer peripherals, obtained through collection events, will include the number of collected units actually returned to the marketplace, the level of refurbishment needed to do this, and the actual percentage that have been sold back to consumers one (1) year out from the date of collection, versus the number of units in inventory and the number of units waiting to be refurbished.

C. Description of Collection Event

The Maine State Planning Office has selected three collection areas for this project: two of these areas are urban centers and the third is a rural region. Of the two urban centers, one serves approximately 225,000 residents and the other 100,000 residents; the rural region serves approximately 10,000 residents. Collection points are in southern and southeastern Maine, within a 150-mile range of Kittery, Maine. The local community will be responsible for providing the outdoor collection area. The collection area will have suitable access for residential vehicles as well as tractor-trailer trucks.

Collections shall be held on two (2) consecutive Saturdays. It is planned that collection at the smaller urban center and the rural region will be held on the same day while the larger urban center's collection will be held on a different Saturday. All collection events shall be completed on or before the last Saturday in August 2001.

The Contractor will arrive on site the day of the collection event, with adequate and appropriate staff, support equipment and trucking capability. Contractor shall allow for time to set-up and present a brief (20 minutes) visual training and information exchange for municipal officials and other interested parties. {This training will occur only at the two urban collection events.} It is planned that the actual collection will be provided from 9 AM to 3 PM that day. Only residentially

generated materials will be accepted. To minimize confusion and residential contact with the program, the contractor will be expected to remove the CRTs and/or computer peripherals from the public's vehicles at each collection site. At the conclusion of the collection event, the Contractor shall remove all collected electronic materials and support equipment from the site. Acceptable items are listed in Appendix A.

II. Scope of Work:

A. Prior To Collection

The Contractor shall meet with the Project Manager from the Maine State Planning office at each collection location a minimum of one (1) time prior to the event to review the program, the schedule, and all operatives and coordination necessary to achieve optimal efficiency for the collection effort.

The Maine State Planning Office will develop and coordinate a public awareness and education campaign in conjunction with local entities to promote each collection event.

B. Site Operations

The contractor is responsible for providing all equipment, packing supplies and labor necessary to appropriately manage the accumulated items at the collection events.

The contractor shall provide a minimum of twenty (20) minutes of visual training and information exchange about the collection, transportation, and proper handling of CRTs and computer peripherals prior to any material collection on the day of the collection event. This training shall be offered to municipal employees and other interested parties.

The Contractor shall be responsible for all site operations from the point where the general public vehicles containing the CRTs and/or computer peripherals enter the unloading area until the general public vehicles leave the unloading area. Upon the public arriving at the collection point, the Contractor personnel, upon permission, shall open the doors of the vehicles and remove the CRTs and/or computer peripherals. A Contractor shall accept up to three (3) CRTs per vehicle. There will be no local residency requirements for participants.

The Contractor shall have sufficient personnel to promptly handle at least one (1) vehicle at a time from the rural region location and sufficient personnel to handle at least three (3) vehicles at one time at each of the two urban centers. The collection day will begin at 9:00 AM and end at 3:00 PM. At the end of each collection event, the Contractor shall provide to each Program Manager the number of vehicles delivering items and an estimated weight for all CRTs and computer peripherals collected during the event from residents.

C. End of Collection Event

The contractor shall load all collected materials into their vehicles, clean up and stow all equipment at the end of the days' event. The Contractor shall meet with the Project Manager and appropriate staff to ensure that nothing is left behind from the collection effort and shall verify that the site is in as good as or better condition in all respects than it was prior to set-up and preparation for the collection. No vehicles or equipment shall remain at the collection site overnight after the day of collection, unless approved by the Project Manager.

D. Transportation, Dismantling, Salvage, Sale, Reuse, and/or Recycling of Collected Items

The Contractor shall assume title and ownership for all CRTs and computer peripherals collected at each site. The Contractor shall maximize the reuse and recycling of CRTs and computer peripherals collected. The Contractor shall transport and arrange for the reuse, recycling, sale, and/or dismantling of the CRTs and computer peripherals with the vendors specified in their proposal. The State reserves the right to change, alter or disallow use of any proposed vendor should information submitted not accurately reflect the vendors status or history with environmental rules, regulations and/or laws.

The Contractor shall provide written documentation of the ultimate dismantling, salvage, sale, reuse, and/or recycling sites for CRTs and computer peripherals collected at the collection event. The Contractor shall also verify that any hazardous substances contained in the CRTs and computer peripherals collected are reused, salvaged, and/or recycled in a manner that constitutes strict adherence with the regulations of the US Environmental Protection Agency.

E. Record keeping and Reporting

Within sixty (60) days after the completion of the final collection event, the Contractor shall report to the Maine State Planning Office all data gathered from each collection site. Data shall be reported on the number and weight of CRTs and computer peripherals collected by type (e.g.: computer monitor, T.V., keyboard, etc.) at each location, and their final disposition.

Twelve months after the completion of the final collection event, the Contractor shall report to the Maine State Planning Office information on the disposition of the collected CRTs, CPUs and computer peripherals, specifically: the number of collected units actually returned to the marketplace and the level of refurbishment needed to do this; the actual percentage that have been sold back to consumers one (1) year out from the date of collection; the number of units in inventory; and, the number of units waiting to be refurbished. In the case where the contractor has relied upon a subcontractor for the refurbishing, retrofitting, reuse and sale, contractor shall obtain this data from the subcontractor.

F. Contract and Payment

The successful bidder is expected to enter into a contract with the State of Maine to provide the services outlined in this Request for Proposals. Payment shall be made as follows:

Seventy (70) percent of bid price paid on invoice submitted by Contractor within thirty days of the last collection event;

Fifteen (15) percent of bid price paid on invoice submitted by Contractor within thirty days of receipt of report due within sixty (60) days of the last collection event;

Fifteen (15) percent of bid price paid on invoice submitted by Contractor within thirty days of receipt of report due twelve (12) months after the last collection event.

III. Requirements for award of contract:

A. Licenses and Permits

Bidders must provide documentation that they possess the federal and state licenses and/or permits needed to provide the services requested in this RFP. The Contractor shall supply copies of any and all relevant permits, licenses, and other regulatory items required under

federal and state regulations or standards relating to the collection and transportation of CRTs and computer peripherals. The contractor is also required to provide regulatory compliance information relating to the intended recipients of the collected used electronics, including those industries that will be responsible for the dismantling, salvage, sale, reuse, and/or recycling of the collected used electronics. The Maine State Planning Office shall secure necessary Maine DEP approvals for the location and offering of these specific collection events.

B. Compliance with Applicable Laws and Regulations

All services provided under this contract must be carried out in compliance with all applicable federal and state laws and regulations. Regulations to be complied with include, but are not limited to, environmental protection, occupational health and safety, and transportation.

C. Hold Harmless

The Contractor shall indemnify, defend, and hold harmless the municipality in which the collection is made, all municipal officials and householders, collection site owners, all volunteers associated with the collection program, the State of Maine and all officials, employees and participating householders of the State of Maine against any losses, claims, actions, damages, liability, and expenses, including but not limited to those in connection with loss of life, bodily and personal injury, or damage to property occasioned wholly or in part by the Contractor or by persons employed directly or indirectly by the Contractor in connection with the CRT and computer peripheral collection, transportation, dismantling, salvage, sale, reuse, and/or recycling.

D. Insurance

The Contractor shall obtain and maintain in full force for as long as necessary to fund the Contractor's indemnification and defense obligations, the following types and amounts of insurance:

1. A Commercial General Liability Insurance policy shall afford limits no less than the following:

- \$2,000,000 – General Aggregate
- \$1,000,000 – Products & Completed Operations Aggregate
- \$1,000,000 – Personal & Advertising Injury
- \$1,000,000 – Each Occurrence
- \$ 50,000 – Fire Damage
- \$ 5,000 – Medical Expense

2. An automobile/truck liability insurance policy covering owned, non-owned, and hired vehicles. Said policy of insurance to have a minimum limit of \$1,000,000.00 per occurrence combined single limit for bodily injury, including death and property damage (with Pollution Exclusion Removed).

3. A Workers' Compensation and Employer's Liability insurance policy with Maine statutory limits for workers compensation and a minimum of \$1,000,000.00 per accident for employer's liability.

4. Contractors Pollution Liability coverage in an amount not less than \$1,000,000.00 per occurrence and \$2,000,000.00 aggregate.

The Contractor shall provide proof of insurability with submission of the proposal. Contractor shall name as additional insured on Contractor's General Liability Insurance policy the municipality in which the collection effort will be held, the individual site owner, and the State. The Contractor shall also furnish signed original certificates or bona-fide copies of the certificates of insurance to the Program Manager or the State of Maine and its affiliates upon request within seven (7) days but no more than thirty (30) days prior to the first collection event.

IV. Requirements for Proposal Submission:

A. Description of Collection Event

The Contractor shall provide in the proposal a complete description of how the work is to be preformed. This description shall include at least the following four (4) elements:

1. A typical site set-up plan, including the estimated times required for set-up, training, collection, and cleanup at the site.
2. The proposed method of handling the CRTs and computer peripherals at the site and how the various items accepted will be inventoried and manifested.
3. A Contingency Plan to include the following elements:
 - a. Description of provisions for the prevention of environmental contamination, and the management and cleanup necessary in the event of an explosion, fire, or release of toxic or hazardous substances.
 - b. Description of how the following will be handled: unknown wastes, inclement weather, spills of hazardous waste, and accidents.

A list of all emergency equipment and supplies the Contractor proposes to bring to or provide at the site.

4. A list of any subcontractors or consultants to be used during the collection event and describe the specific activities for which they are to be used.

B. CRT/Computer Peripheral Dismantling, Salvage, Sale, Reuse, and/or Recycling

The Contractor shall describe the plan intended for managing the used electronics accepted during the collection events, including dismantling, salvaging, sale, reuse, and/or recycling to be employed for each type of CRT and computer peripheral collected.

The Contractor shall provide a general overview description of the company(ies)/facility(ies) proposed to be used for the dismantling, salvage, sale, reuse, and/or recycling of CRTs and computer peripherals collected.

If a Bidder desires to propose an alternative method to meet any of the specifications required in this RFP, the Bidder's response must include the following information; (a) identify the specification, (b) the proposed alternative, and (c) thoroughly describing how the proposed alternative achieves substantially equivalent or better performance to the performance required in the RFP specification. The Office will determine if a proposed alternative method of performance meets or exceeds the original specification.

C. Qualifications of the Contractor

The Contractor shall demonstrate that it has substantial expertise in all areas relating to the collection, transportation, dismantling, salvage, sale, reuse, and/or recycling of CRTs and computer peripherals.

The Contractor shall include in the proposal a brief description of the firm, its general nature and background including its experience in the specific field of handling CRTs and computer peripherals. Length of experience, skilled personnel and specialized equipment available and other resources or particular expertise shall be included.

In particular, the following information shall be provided:

1. Name and address on the firm (and its parent firm if the firm is owned or a subcomponent of a larger firm), and name, address and telephone number of the particular office to be responsible for the CRT and computer peripheral collection program (if different from the firm's headquarters)
2. Characteristics of the firm including number of employees, types of work undertaken by the firm, typical clients, and other relevant information with emphasis on dealing with CRTs and computer peripherals
3. Qualifications and the number of personnel who will be at each collection site.
4. Documentation of their regulatory history, identifying any incidences of noncompliance with federal, state, or local laws and regulations. Bidders shall document any past notices of violation they have received from the EPA or any other state or local regulatory body within the last three (3) years and provide a brief description of when, where, and what the violation was.
5. If any subcontractors and/or consultants are to be used, the same information as requested in items 1 through 4 shall be provided.

D. Monetary Bid Proposal

The Contractor shall offer a price per pound for all CRTs and computer peripherals collected. This shall include the cost of collection, transportation, dismantling, salvage, sale, reuse, and/or recycling. This per pound cost shall be the only cost allocated to the State for this contract.

Costs shall be reported for each of the following items in a cost per pound dollar amount similar to the example in Table I (variations will be accepted):

TABLE I:

| | |
|--------------------------|-------------|
| Television sets: | |
| [20" screen | \$ _____/lb |
| > 20" screen | \$ _____/lb |
| Television Consoles | \$ _____/lb |
| Computers {CPU's} | \$ _____/lb |
| Laptop Computers | \$ _____/lb |
| Computer monitors | |
| [14" screen | \$ _____/lb |
| > 14" screen | \$ _____/lb |
| Computer keyboards | \$ _____/lb |
| Computer mice | \$ _____/lb |
| Computer speakers | \$ _____/lb |
| Computer printers | \$ _____/lb |
| Computer scanners | \$ _____/lb |
| Computer gaming controls | \$ _____/lb |

V. Instructions to respondents:

A. Clarification of the Specifications

If additional information is necessary to assist the Contractor or vendor in interpreting these specifications, their questions may be forwarded in writing to the State Planning Office:

Tom Miragliuolo, Planner
Waste Management and Recycling Program
Maine State Planning Office
38 State House Station
Augusta, ME 04333-0038
Telephone: (207)287-9074

If a Contractor discovers any significant ambiguity, error, conflict, omission or other deficiency in this Request for Proposal, the Contractor shall immediately notify the above named individual of such an error and request modification or clarification. A pre-bid informational meeting will only be held upon the request of a potential bid Contractor. If a pre-bid meeting is scheduled then all known recipients of this Request for Proposal will receive written notice prior to the meeting date.

B. Revisions to the Request for Proposal

No changes or exceptions will be made to this Request for Proposal except by the State Planning Office, which will issue an immediate written notice (by FAX and certified mail) to all known recipients of this Request for Proposal. Recipients should advise the State Planning Office of their FAX numbers and addresses and the name of their representative responsible for the response upon requesting this Request for Proposal in order to facilitate any necessary communication.

C. Response Submission

In order to be considered in the proposal evaluation process, all proposals must be packaged in triplicate, sealed, and show the following information on the outside of the package:

Contractor's name and address

Bid: CRT/Computer Peripheral Collection

Contractors must submit all materials required for acceptance of their proposal no later than 2:00 PM EST on July 12, 2001, to:

Division of Purchases
Burton M. Cross Building, 4th Floor
9 State House Station
111 Capitol Street
Augusta, ME 04333-0009

All proposals received after the above date will be returned to the Contractor unopened. Adequate postage to cover mailing must be affixed in order to insure prompt delivery of the proposal. The State will not be responsible nor will accept proposals delivered late or with postage due.

D. Contract Award

The successful bidder will be notified by July 20, 2001. A contract will be awarded based upon the following four (4) criteria:

1. General Contractor experience and ability to perform a successful collection event. This includes the Contractor's safety record (25%)
2. Contractor experience with collection of these special wastes, primarily CRTs and computer peripherals. (25%)
3. The intended plan to maximize the reuse, recovery and recycling of CRTs and computer peripherals collected (25%)
4. The cost to fulfill the requirements of this RFP and resulting contract (25%)

E. Form of Contract

The successful bidder will be expected to enter into a Standard State of Maine Agreement to Purchase Services (BP54), a blank copy of which is attached to this Request For Proposals.

The State reserves the right to reject any or all proposals submitted under this Request for Proposals. In addition, the State reserves the right to enter into negotiations with successful bidder(s) to modify the final project to reflect any changes found to be appropriate.

Appendix A

Materials To Be Accepted:

| | |
|--------------------|--------------------------|
| Television Sets | Television Consoles |
| Computers (CPUs) | Laptop Computers |
| Computer monitors | Computer printers |
| Computer speakers | Computer Scanners |
| Computer keyboards | Computer gaming controls |
| Computer mice | |

8. If you had to pay to recycle your electronics, when would you prefer to pay?

When I purchase the item

When I recycle the item

Other (please specify):

9. If you had to pay to recycle your electronics, what is the most you would be willing to pay?

\$_____

10. The electronics you brought in today were used by a

Residence

Government

Business

Institution

Thank you for participating in today's electronics collection event.

(To be filled out by collection event host)

Collection event location (city, state): _____

Date: _____

Collection event type (e.g. municipal drop off, retailer): _____

Participant Number _____