

**BRING RECYCLING
TELEVISION AND COMPUTER RECYCLING PROJECT**



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**University of Oregon
Environmental Studies
Service Learning Program**

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THE PROBLEM WITH DUMPING TELEVISIONS:

What is a CRT:

Cathode Ray Tubes (CRTs) are the picture tubes in television sets and computer monitors. Since the invention of the television set in the 1940s, CRTs have become an inexpensive way to convey pictures onto screens. Each year about 240 million CRTs are sold nationwide.

CRT Toxicity:

Despite their wide use, CRTs pose environmental hazards because of their toxic content. They contain lead, phosphorous, cadmium, and mercury. The most prominent and hazardous of these four elements in CRTs is lead. Each CRT is composed of 15-90 pounds of treated glass that contain up to 25% lead oxide (PbO). In a working set the hazardous materials are sealed away to protect the viewer. However, when television sets and computer monitors break and are placed in landfills, these toxins can seep into our groundwater, posing serious threats to the natural environment and the health of the community. Lead in the CRTs combines with organic matter to create a highly toxic substance called leachate.



Garbage at Short Mountain landfill

Lane County's Short Mountain Landfill is designed to catch the leachate before it enters the ground, but removing it from the landfill is costly. The best solution to the problem is to keep televisions out of the waste stream by recycling them, but television recycling is still in its infancy and therefore very expensive. Our research has found only two responsible television recyclers in the United States: Nxtcycle (Utah) and Envirocycle (Pennsylvania).

The effect of Digital Technology:

New Federal Communications Commission (FCC) regulations requiring that television transmission signals be upgraded from the current analog signals to digital signals may increase the number of televisions delivered to the dump. Televisions that currently run on analog transmission signals will need a "conversion box" to pick up digital television, or they simply will need to be replaced. Today, these "conversion boxes" cost between \$500 and \$1000, much more than the cost of a new television. The FCC's projected completion for full conversion to these High Definition Televisions (HDTVs), or digital TVs, is 2006, suggesting that hundreds of millions of consumers will have to choose between purchasing "conversion boxes" or simply replacing their old televisions.

I. THE TELEVISION RECYCLING MARKET

EPA Regulation in the United States

Electronics recycling in the United States is still in the early stages of development. There is little federal regulation, and the guidelines that do exist are often obtuse or contradictory. Although the Environmental Protection Agency classifies the Cathode Ray Tubes (CRTs) of television and computer monitors as hazardous waste, the used electronics generated by households fall under the classification of a “small quantity generator” and are exempt from hazardous waste regulations. However, both federal and state EPAs are rapidly moving toward the reclassification of all computer equipment as “universal waste.” This new classification is designed to reduce the paperwork and documentation associated with the handling of hazardous waste. Under the new classification most medium- and large-sized organizations will be designated as “small quantity universal waste handlers” and will no longer be required to contract specially-licensed hazardous waste handlers. This classification also exempts individuals and small businesses from the liability associated with improper disposal.

The lack of standardized End of Life Regulations and confusing, and sometimes contradictory legislation, have resulted in a number of different approaches that have sprung up across the nation. As a result, the current electronics recycling infrastructure is weak and poorly regulated.

State Regulation in the United States

Only two states, California and Massachusetts, have implemented legal bans on the land-filling of CRTs and other hazardous waste. In 1998, Massachusetts introduced the first legislative ban. There are now more than 50 companies in that state that collect used electronics for repair, recycling, and export. In addition, eight Permanent Regional Facilities for collection of



Leachate pond at Short Mountain landfill

residential CRTs have been established across the state. Across the country in California, the state’s product management directory lists 43 facilities that collect television and computer monitors for recycling.

The regulations in Massachusetts and California have done a great deal to keep toxins out of the landfills and have forced the development of recycling markets in those states. Now the question has been raised as to what to do with the toxins.

Domestic Recyclers (NxtCycle):

There are only a handful of recycling facilities in the United States that actually dismantle and recycle CRTs within our nation’s borders. Nxtcycle, a division of National Environmental Waste,

is a domestic recycling outfit with processing facilities in Phoenix and Utah. The Utah facility has a capacity of one million pounds of electronics scrap per month. This facility is used for reusable PC and monitor testing and refurbishment, electronic teardown, and commodity preparation. The Phoenix facility has a capacity for two million pounds of plastic and metal electronic waste. This facility is used for initial sort and separation, component destruction, plastic granulation, commodity packaging, and logistic and management offices.

Demanufacturing

For its demanufacturing operations, Nxtcycle has an alliance with the Utah Department of Corrections. The materials collected are demanufactured by prison labor provided by Gunnison State Prison. The state provides the services and facilities based on a per monitor service fee. Inmates demanufacture an estimated 20,000 monitors per month. An auto shredder is used for some components, and the “residual fluff” is sent to Butterfield Landfill. The steel is sent to processors and mills in the United States. The plastics that can be recycled are sold for use around the globe. Copper and other precious metals go to primary or secondary smelters in the United States and abroad. The CRT glass is shipped to Envirocycle, a Glass-to-Glass Recycler with facilities in Hallstead, Pennsylvania and Stowe, Ohio. All materials received by Envirocycle are inspected for possible resale. The CRTs with no resale value are smelted and are used in the manufacturing of new products.

Overseas Electronics Recycling Infrastructure

Until recently, very little research on the impact of electronic waste on developing nations has been made available to the public. On February 25, 2002, the report, “Exporting Harm: The High Tech Trashing of Asia,” was released. This report represented a joint effort by several global human rights and environmental organizations, including The Basel Action Network, Silicon Valley Toxics Coalition, Society for Conservation and Protection of the Environment, Greenpeace China, and Toxics Link India. According to this report, 50-80% of electronic waste collected for recycling in the western United States is shipped overseas to developing nations. Electronic brokers who handle this waste use such methods as open burning, acid baths, and toxic dumping. After the valuable metals are removed, the electronics are often land filled in non-designated sites where the leftover toxics can seep into the groundwater and pose serious health risks to the local population. The workers are typically underpaid and unaware of the health risks involved.

While some overseas handlers claim to use more socially and environmentally sound methods, it is extremely difficult to track and regulate the waste once it has left U.S. borders, particularly because many of the nations involved lack environmental protection agencies.

Product Stewardship

As technology advances and the problem of hazardous electronic waste continues to grow, an increasing number of state and local governments are considering alternative options for addressing the issue. Because of the high costs involved, environmental degradation, and the personal health threat to the public, there has been a steady influx of legislation designed to place responsibility on the manufacturers.

The National Electronic Product Stewardship Council is working with government agencies and public interest groups across the nation to pressure manufactures to:

- Design products that can be more easily disassembled and recycled;
- Use less toxic and more recycled/recyclable materials;
- Design products that last longer, with parts that can be replaced or upgraded;
- Take back used products for rebuilding or recycling;
- Develop an environmentally-sound collection and recycling infrastructure; and
- Incorporate the costs of these practices into the product price, to be paid by electronics consumers directly (rather than ratepayers).

There are currently at least 18 states that have introduced bills to address the issue of electronic waste production and disposal.

III. OUR PROJECT

Project Goals

The short-term goal of our project was to responsibly recycle 500 television sets and thereby reduce the amount of electronic waste entering the Short Mountain landfill. We addressed our goal by:

- Educating the public about the environmental and health hazards of improperly disposing televisions and
- Organizing and hosting a television recycling collection drive in Lane County.

Our long-term goal was to promote dialogue and action to develop a permanent television recycling infrastructure in Lane County.

Partnerships

BRING Recycling is one of the nation's oldest non-profit recyclers. Since 1971, they have encouraged people to rethink what they use and what they throw away. BRING helps the Lane County community keep useful items out of the landfill, find ways to use less stuff, reuse as many things as possible, and recycle the rest.

The University of Oregon's Environmental Studies Service Learning Program (SLP) worked with BRING Recycling in an effort to divert television sets and computer monitors from Lane County's landfills. This involved researching the hazards of dumping CRTs in the landfill, establishing a partnership with a responsible electronic recycler, fundraising, educating the community, and organizing the Television and Computer Round-Up.



Student research trip to Glenwood Transfer Facility

Lane County Solid Waste, the manager of Short Mountain Landfill, became interested in our project and efforts to divert CRTs from the landfill. Currently, at the Short Mountain Landfill, there is a dual liner system intact that collects the leachate before it enters the ground. Even though the liner collects the majority of the leachate from the landfill, small amounts leak out and enter the groundwater. Once the leachate is collected, it is sent to the Waste Water Treatment facility where it is processed. This process is very expensive and still poses health and environmental hazards. Lane County recognizes these problems and is joining efforts to eliminating the dumping of CRTs in Lane County's landfills.

Nxtcycle is an Arizona-based electronic recycling company with a dismantling facility in Utah. After extensive research the SLP team found there to be only two responsible electronic recyclers in the US: Nxtcycle (Utah) and Envirocycle (Pennsylvania). For our project a partnership was established with Nxtcycle. We chose Nxtcycle was for several reasons. Firstly, we felt that they were the best option because they met EPA standards, and they dismantle their



A NxtCycle employee palletizes computer monitors at our event

electronics within the United States. Secondly, they provide an employee that oversees the collection drive and palletizes the electronics. Lastly, we selected Nxtcycle because of their proximity to Eugene, Oregon. The items collected at our event were trucked to their Utah CRT demanufacturing facility.

Education and Outreach

We developed an educational campaign to raise local awareness about the hazards of televisions in the waste stream. This campaign included creating and distributing educational brochures

and giving educational presentations to school groups, neighborhood councils, and various community groups in the Eugene-Springfield area. In addition to the education campaign, we used many other media outlets to publicize our event and to raise the community's awareness surrounding the problem of dumping CRTs in landfills. These outlets included radio interviews, newspaper articles, television interviews, Public Service Announcements, posters, fliers, and newspaper advertisements.

Presentation:

To inform the public about the environmental and health hazards of television and computer monitor waste, we developed an educational presentation and delivered it to schools and community organizations around Lane County. Our group delivered 36 presentations to schools and community organizations, reaching approximately 1,123 people (excluding Cascadia Live).



Team members talk to local high school students

Television

Our project was featured on the local TV news on the following stations:

- 4/20/02: KVAL. Coverage of our Earth Day booth.
- 5/2/02: KVAL Taylor Stevenson & Julie Daniel interviewed.

- 5/2/02: KMTR Julie Daniel interviewed.
- 5/11/02: KVAL Kristin Snyder interviewed.

Radio:

Team members were interviewed on the following radio stations:

- 5/3/02: KRVM Radio interview - Erin Hannelly & Nathaniel Nordin-Tuininga.
- KLCC, KRVM, KUGN, KWVA, KPNN interviews- Julie Daniel of BRING.
 - 660 AM radio interview- Steve Mital.



Team members give an interview at KRVM studios

Public service announcements were sent to the following stations:

KUGN, KLCC, KWVA, KPNW, KZEL, KEHK, KUJZ, KRZM

Paid advertisements were broadcast over several area radio stations.

Newspaper:

Advertisements appeared in The Eugene Weekly and Springfield News.

The following newspaper articles were written about our project:

- 4/11/02: *The Register-Guard*. "Get the lead out and recycle old TV." By Julie Daniel. The article included information about television toxicity, solutions to the problem, and our collection drive.
- *The Register-Guard* "Project to Recycle TVs, Computers."
 - This article did a great job advertising our event and contained much of the same electronics recycling information as Julie Daniel's article.
- "Toxics in computers, TVs becoming an e-mergency." *The Register-Guard*:
 - Written by Lane County's waste management specialist, Pete Chism, this was a short but thorough article giving information about what happens to e-waste when it is disposed and recycled.
- 4/25/02: "Students Advocate Proper Disposal of Toxic TVs." *The Torch*:
 - Lane Community College's newspaper, *The Torch*, covered our project in volume XXXVI, # 22. The article included information primarily from our presentation script but also some inaccurate information about television disposal and our collection drive.
- 5/12/02: "TV Turn-in Program a Success." *The Register-Guard*.
 - A short article about our collection drive made the front page of *The Register Guard* City section the day after our collection event. The article included a mid-event count of televisions collected but failed to include final collection numbers or mention that our collection drive included computer equipment.

Email:

Advertisements sent to the following listserves:

UO Climbing Club
UO Students for the Ethical Treatment of Animals (SETA)
UO environmental studies undergraduates
UO environmental studies graduates
UO PPM graduates
Organic Farmers listserv: growers@efn.org
Progressive Lane Activists Network listserv: plan@efn.org

Brochures and Posters:

We created and distributed posters to advertise our collection drive event. We also made small black and white copies of the poster and distributed them at our educational presentations. We created bumper stickers reading "Don't Kill Your TV, Recycle It!" and gave them out at our collection drive.

TV Collection Drive:

The TV and Computer collection drive took place on May 11, 2002, at the Glenwood Central Receiving Station. The fee was five dollars for standard model television monitors and monochrome computer monitors and ten dollars for console sets. This event gave Lane County residents a chance to responsibly dispose of broken television sets and old computers and their components. The televisions and broken computer monitors collected at this event were sent to Nxtcycle, an Arizona based electronics recycling company. We collected approximately 1600 individual pieces of electronics equipment. This included approximately 700 TVs and computer monitors, and 700 computers.



Collecting TVs and computers on event day

IV APPENDICES

A. Workplan

BACKGROUND AND APPROACH

Cathode Ray Tubes (CRTs) are an essential component in television and computer monitors. CRTs are highly toxic. They are composed of 15-90 lbs. of treated glass that contains up to 25% Lead Oxide. Because of the high costs involved in shipping and recycling the vast majority of these sets wind up in the landfills. The toxins released fuse with organic matter to create a highly contaminated substance that many landfills are not designed to handle safely. To add to the seriousness of this problem, the Federal Communications Commission is now in the process of switching television broadcast frequencies. By the year 2006 the standard analog television set will become obsolete.

The increasing level of environmental degradation caused by the dumping of CRT's has already prompted the states of Massachusetts and California to implement laws prohibiting the use of landfills for disposal. These states consequentially lead the nation in the development of an electronics "recycling" infrastructure. However, many handlers of electronic waste use overseas disposal methods. Once the waste has left the U.S. borders, it is no longer subject to our federal environmental and human rights regulations. Oregon has no ban on landfill disposal of electronic waste. As a result, Oregon has a very weak TV recycling infrastructure. Experts believe that huge numbers of old TVs sit in residential and commercial storage space awaiting an acceptable method of disposal.

BRING Recycling is one of the nations oldest non-profit recyclers. They have been helping the Eugene-Springfield community keep useful items out of the landfill since 1971. Today, they send to market over 200 tons of cans, glass, plastic and cardboard every month. Each week they receive several inquiries about television recycling, but they have so far been unable to handle TVs. BRING is interested in developing its capacity to recycle TVs. BRING wants to (1) educate Lane County residents about the hazards of CRT landfill disposal and (2) offer Lane county residents a more environmentally responsible disposal method.

BRING Recycling is interested in partnering with the Environmental Studies Service Learning Program (SLP) to conduct the project. This memorandum describes a work program for researching the TV recycling industry and developing the TV recycling infrastructure in Lane County.

PROPOSED WORK PROGRAM

The Service Learning Program was designed to provide students a hands-on opportunity to work on solutions to real life environmental issues. The SLP student team will develop an economically viable recycling alternative for Lane County. Specifically, we will stage a TV collection drive for the spring of 2002. We will also produce educational materials for BRING to use to educate local residents about CRT recycling. The SLP student team will work under the direction of Steve Mital, SLP Coordinator. Steve will serve as day-to-day project manager to complete the project.

In order to coordinate a TV collection drive, we will break up the project into six areas of activity:

Area I: CRT recycling market research - We will conduct research to locate a responsible CRT recycling facility that will accept a shipment of TVs at a reasonable price.

Area II: Collection drive event logistics - We will establish a TV collection drive date, time, and procedures. We will model this drive based on computer collections drives coordinated by BRING.

Area III: Budget and fundraising - Once a CRT recycler is chosen, we will develop a project budget. A strategy to cover the expenses will be developed. A portion of our costs will be covered by of a drop-off fee. We will explore a wide variety of fund-raising techniques to keep this fee at a minimum.

Area IV: Educational materials production - We will develop materials to educate the community about the hazards of improper TV disposal, the importance of TV recycling, how TV recycling works, and what Oregon and other states are doing to promote TV recycling.

Area V: Event publicity - We will publicize the TV collection. By publicizing our event and the importance of CRT recycling we will insure a good turnout at the collection drive.

Area VI: Supervise TV collection drive - We will staff and supervise the collection drive. This includes receiving TVs and collecting drop-off fees, loading TVs onto truck, supervising shipping logistics, and ensuring that TVs reach CRT recycler.

AREA I: RESEARCH CRT RECYCLING MARKET

Task 1 - CRT Recycling Infrastructure

Research the existing regional, national and international recycling infrastructure.

Task 2 - CRT Recycling Market

Compile a list of regional CRT collection and dismantling facilities

Task 3 - CRT Recycling Market Costs/Restrictions

Research all costs and restrictions associated with each CRT dismantling facility. This includes shipping and drop-off costs, restrictions on out-of-state TVs, TV brands, and monochrome TV restrictions.

Task 4 - Choose Partner Organization

Choose a CRT recycler to work with based on analysis of information collected in Task 3.

AREA II: COLLECTION DRIVE EVENT LOGISTICS -

Task 5 - Choose Site Locations

We will locate 3-4 sites that are easily accessible to the public and provide adequate room for television drop-off, and loading. To accomplish this task we will inquire about past sites that BRING has used for the similar collection drives.

Task 6 - Determine Event Date and Time

Once a location has been determined we will select a date and time for the event. We will set a date and time that will coincide with Lane County Earth Week celebrations.

Task 7 - Equipment and Staffing

We will work with BRING and others to acquire the equipment and volunteer work force necessary for the day's events.

AREA III: BUDGET & FUNDRAISING

Task 8 - Project Budget

We will develop a detailed project budget. This budget will outline our expected costs for event publicity, printing educational materials, cost for dropping off TVs at CRT recycling facility and shipping costs. We will then establish a fee per TV. The remainder of the budget will be covered through our fundraising efforts.

Task 9 - Governmental assistance

We will present a project proposal and budget to both the city and county for assistance with promotional expenses, as well as waivers on permit fees that may be required. We will also inquire about other allotments for which we may be eligible.

Task 10 - Private Business Donations

We will compile a list of local businesses with a vested interest in the television market and solicit them for sponsorship of the collection drive. This may include offering prize incentives for those involved in the drive.

Task 11 -Media.

We will explore free media options such as public radio, EWEB billing statements, and Internet resources in order to cut our promotional expenses.

Task 12 - Private Donors

We will approach private foundations and community groups that support environmental projects for financial assistance.

AREA IV: EDUCATIONAL MATERIALS

Task 13 - Research CRT Statistics

We will compile several facts on CRTs including:

- Problems caused by improper CRT disposal
- How many TVs are in storage in Oregon
- How many TVs are being disposed of in the waste stream in Oregon
- How CRT recycling works

- Why CRT recycling costs are so high
- What Oregon and the city of Eugene are doing about CRT recycling
- Case studies of interesting CRT recycling programs around the country
- Which TV brands are the most recycling friendly

Task 14 - CRT Informative Brochure

We will use the above CRT information to develop a comprehensive brochure and fact sheet to be distributed at the TV collection drive and put on BRING's website.

AREA V: PUBLICITY

Task 15 - Design Press Releases

Write press releases that include information on the importance of CRT recycling and announces the collection drive date, location, and costs.

Task 16 - Publicity Outlets

Generate a list of media outlets in the Eugene/Springfield area. This will include TV, newspapers, radio, email listserves, etc.

Task 17 - CRT Web Page

Develop a web page that includes information on CRT recycling and announces the collection drive date, location, and costs.

AREA VI: SUPERVISE COLLECTION DRIVE

Task 18 - Host Collection Drive

The SLP team will host, staff, and supervise the TV collection drive. This includes

- Develop a system for receiving televisions
- Collecting drop-off fee
- Loading televisions onto truck for shipping
- Distributing educational materials

B. Script

Hi, my name is _____ and this is _____ and we are University of Oregon students volunteering with BRING Recycling to organize a community event.

We've brought with us today this box. The contents of this box can cause cancer, birth defects, Alzheimer's, mental retardation, and heart disease. It also damages our natural environment. Inside this box is a product that many of you have in your homes. Any guesses on what is inside this box?

Remove CRT from box

This is a Cathode Ray Tube. Cathode ray tubes are the picture tubes inside your TV set and computer. As most of us know, their purpose is to convey a picture onto our screens, but what most of us are unaware of is the level of toxicity within a CRT. The tubes are lined with 2-8 lbs. of lead, which protects you from the harmful radiation televisions and computers emit-- much like a lead vests protects your vitals from x-rays.

A problem with this arises when a TV or computer no longer works, is outdated, or we want a bigger and better one and it is discarded. After a TV or computer breaks down, no matter where you take it, it ends up in the landfill **SHOW FLOW CHART**. The lead in TVs and computers acts as any other heavy metal would inside a landfill-- it combines with organic material and forms a toxic leachate, which soaks into the ground and contaminates groundwater and soil with hazardous heavy metals. **SHOW LEACHATE** Newer landfills, such as Lane County's Short Mountain, have implemented a dual liner system in which the leachate is contained beneath the landfill to prevent environmental contamination. **SHOW LINER** At Short Mountain, 3-5 [we later discovered that the actual # is 10-20 tanker trucks of leachate/day] tanker trucks of leachate are carried from Short Mountain Landfill to the Glenwood Transfer Station EACH DAY! There, the leachate is run through underground pipes, where it drains into a water treatment facility. 16,500,000 gallons of Short Mountain leachate are treated each year...enough to fill Amazon pool 25 times! Though landfill liners catch most of the leachate, every liner leaks at least small amounts of leachate into the ground. Some landfills opt to incinerate their trash in order to conserve dumping space, but this releases hazardous Lead Oxide and dioxins into the air and is equally problematic.

And this problem of TVs and computers in the landfills is not expected to go away any time soon. In 1996, the EPA estimated that about 42 million color televisions and computer monitors were sold in the United States. In order to free up radio waves and improve TV picture and sound, analog radio signals, which most TVs run on today, are going to be converted to digital signals, which only run on newer High Definition TVs. This change will destroy the analog TV market and will eventually lead to the disposal of millions of TVs in America.

And, as for computers, most of you probably already know that it is usually cheaper to buy a new computer than to have your old one constantly updated. And by 2007, there will be a half billion obsolete computers in the U.S

So, what is being done about this problem? Some states are already considering the effects of TVs in the landfills: Massachusetts and California have banned TVs in the landfills and have

established recycling facilities and infrastructures. Other states are currently working towards a solution, but are restricted by the high cost of electronics recycling. Currently, there are no laws that regulate the proper disposal of TVs or computers in Oregon, but some organizations such as BRING Recycling are working towards a solution.

Count up in your mind how many TVs and computer monitors you have in your home. How many of you have more than 1?... (2 all the way to 10?). So...what can YOU do about this problem??? Many of you may have seen the bumper sticker before that reads: KILL YOUR TV...we suggest a more environmental statement: **DON'T KILL YOUR TV...RECYCLE IT!!!** If you were to kill your TV, it would end up in the landfill. And then same applies to computer monitors. In order to protect the health of the planet, it is important that we take some action to keep TV and computer CRTs out of the landfill! Which is why we are working with BRING Recycling to organize a TV and computer monitor recycling drive set for May 11th, 2002. This is the first TV collection drive EVER in Oregon, so we really need to get the word out! Our goal is to collect 500 broken TV and computer monitors on May 11th and send them to NxtCycle, an Arizona-based electronics recycling organization.

We chose Nxtcycle because they process electronics in America and in an environmentally-friendly manner that is in accordance with EPA regulations. When NxtCycle processes TVs and computer monitors, the parts are broken up to be reused in new products. For example, the CRT glass gets melted down to be used in new CRTs.

Not all recycling methods are as environmental and safe as Nxtcycle's, however; and, because of loopholes in exports legislation, many electronics recyclers export broken TVs and computers overseas--where environmental and health regulations are not as strong as in the US. **SHOW PICTURES FROM CHINA.** Most of the electronics recycled overseas are either incinerated, emitting toxic ash and smoke, or improperly de-manufactured, exposing workers to countless toxins within TV and computer CRTs. These toxins include: carcinogenic toners, lead, mercury and Lithium, which, when improperly dealt with, result in serious health problems.

Because opportunities (like our collection drive) to responsibly recycle your TVs and computers are rare, take advantage of our responsible recycling collection drive!! And before you go out and buy your next computer or TV, there are a few things to keep in mind. If you are going to buy a TV or computer, you can buy used ones at local resale shops such as St. Vincent's, Goodwill or repair shops. And, if you insist on buying something new, buy high quality products so that they will last longer...and it will take longer for them to end up in the landfill or be recycled. If you are going to buy a new TV, get a HDTV because your analog one will be trash in a few years. If your TV or computer breaks, you can have it repaired instead of buying a new one. Furthermore, you can write your local congress persons and tell them you are concerned about the toxicity of CRTs. The most effective way to protect the natural environment from CRT poisoning, though, is to not purchase TVs in the first place. Your local library and schools offer plenty of opportunities to use the internet and television sets. And this doesn't necessarily mean don't buy a TV or computer at all...maybe just buy one instead of the 5 or 6 that many of you have in your homes. But whatever way you choose to help the CRT problem, remember that you can make a difference!

Our Collection drive is on Saturday May 11th from 10am to 4pm at the Glenwood Central Receiving Station. Because electronics recycling is very expensive and we lack local electronics recycling facilities, we will be charging a 5 dollar drop-off fee to cover some of the recycling and shipping expenses. And we will be asking for a voluntary monetary donation for computer monitors. So please bring your broken TVs and computer monitors to our May 11th event and **SPREAD THE WORD!!!**

Presentation props:

- * Cathode Ray Tube (CRT).
- * Cardboard box (with hazard stickers on it) encasing the CRT.
- * Diagram showing that the places people take broken electronics all lead to the landfill.
- * Bottle of leachate from Lane County's Short Mountain Landfill.
- * Landfill liner from Short Mountain.
- * Bumper sticker: "Don't Kill Your TV, Recycle It!!
- * Pictures of irresponsible CRT recycling in China.
- * Informational brochures about TV recycling and our collection drive event.

C. Educational Presentations

Date	School/Organization	Class/meeting	Teacher	Audience	Phone	Email
4/11/02	North Eugene HS	leadership	Paco Furlan	60		furlan@4j.lane.edu
4/12/02	Churchill HS	environmental	Tim Whitley	25		whitley@4j.lane.edu
4/16/02	Wellspring HS		Ethan Hughes	15	767-9604	
4/17/02	JFK MS	computer	Chris Belonger	35		belonger@4j.lane.edu
4/17/02	University of Oregon	Campus Recycling		25	346-0961	jfleck@oregon.uoregon.edu
4/23/02	Friends of Eugene	board of directors		15		
4/24/02	BRING Recycling	directors	Julie Daniel	15		
4/25/02	South Eugene HS		Jackie Peterson	20		peterson_j@4j.lane.edu
4/25/02	South Eugene HS		Jackie Peterson'	15		peterson_j@4j.lane.edu
4/25/02	Lane Community College	electronics		10		
4/25/02	Friendly Area Neighbors	monthly		20		
4/26/02	Sheldon HS	special ed.	Bob Gundulac	40		gundulac@4j.lane.edu
4/26/02	JFK MS		Leslie Jaeger	30		jaeger@4j.lane.edu
4/26/02	Roosevelt MS	science	Misa Joo	25		joo@4j.lane.edu.
4/29/02	Kennedy MS	leadership	Kevin Miller	25		miller_k@4j.lane.edu
4/30/02	Laurel Hill	monthly		15		
5/1/02	Cascadia Live	weekly TV show		25		
5/1/02	Kennedy HS	natural science	Jim Eisenman			eisenman@4j.lane.edu
5/2/02	UO	geography		75		
5/3/02	UO	geology		100		
5/3/02	Cottage Grove HS			30		
5/3/02	UO	earth resources	Mark Reed	50		mhreed@oregon.uoregon.edu
5/3/02	Creswell HS		Anne Oconnel	20		aoconnel@lane.k12.or.us
5/6/02	Madison MS		Michael Possman	30		possman@4j.lane.edu
5/6/02	LCC	math	Gayle Smith	40	463-5398	
5/7/02	LCC	spanish	Sylvie Matalon-Floendo	30	463-5140	
5/7/02	Madison MS	science	John Stevenson	30		stevenson@4j.lane.edu
5/8/02	Madison MS	science	Zan Shaw	25		shaw@4j.lane.edu
5/8/02	Madison MS	science	John Stevenson	25		stevenson@4j.lane.edu
5/8/02	LCC	open forum		150		
5/9/02	Churchill HS	science	Mike Horowitz	25		horowitz@4j.lane.edu
5/9/02	Churchill HS	science	Mike Horowitz	25		horowitz@4j.lane.edu
5/9/02	UO	env. studies	Louise Westling	150	346-3938	
5/10/02	Madison MS	science	Zan Shaw	35		shaw@4j.lane.edu
5/10/02	Madison MS	science	John Stevenson	35		stevenson@4j.lane.edu
5/10/02	Middelfield Estates	tenant meeting	Dorothy Tuininga	8		

D. Contact Information

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E. State Legislation

ARKANSAS

Bill SB807

Enacted

4/09/01

The Computer and Electronic Solid Waste Management Act. This bill was designed to maximize use and sale of surplus computers owned by state agencies, and to reduce electronic waste in state landfills. It calls for the creation of an Electronics Recycling fund that awards grants to recycling programs.

CALIFORNIA

SB1523

Introduced

2/20/02

This bill would impose a mandatory fee to be paid by consumers. The fee would be used to cover the cost of recycling the products at End of Life and would be applied to CRT devices, such as Computer monitors and Television sets.

SB1619

Introduced

2/21/02

This bill calls for manufactures to effectively label hazardous electronic devices and would force manufactures to either pay a fee to the state, or introduce a take back system for End of Life products.

FLORIDA

SB1922

Introduced

2/06/02

This bill directs the Florida Department of Environmental Protection to conduct evaluation and report of the End of Life electronics waste stream. It asks this agency to provide recommendations.

GEORGIA

HB2

Passed the house,
in the Senate

2/05/02

This bill calls for the creation of a Computer Equipment Disposal and Recycling Council.

HAWAII

HB1638

Carried over to 2002 session

7/23/01

This bill would ask the state Department of Health to determine the regulations and establish a CRT recycling program.

SB812

Carried over to 2002 session

7/23/01

This bill calls for a statewide ban on disposal of CRTs in mixed municipal solid waste.

IDAHO

S1416

Sent to Committee

2/12/02

This bill would redefine computer monitors as “Special Waste”. The new definition would require handlers to use different methods of treatment and disposal.

ILLINOIS

HB983

In Committee

3/16/01

This bill would redefine PC’s and CRT’s as “White Goods”. The definition would prohibit disposal of these products unless certain hazardous components were first removed.

HB3353

Passed the House,

In the Senate

4/10/01

This bill calls for the establishment of computer recycling grants for the establishment and expansion of community computer recycling programs. It also requires the department subject to appropriation, to establish and maintain a statewide electronics recycling network.

MAINE

LD1105

In Committee

2/26/01

This bill calls for a resource recovery plan by the manufacturer. Under this bill, the consumer would return End of Life products to place of purchase, instead of municipal facilities, for disposal.

MASSACHUSETTS

HB4716

House ordered to a third reading.

2/26/02

This bill would prohibit the sale or use of CRTs by manufacturers who have not implemented a recovery plan approved by the Department of Environmental Protection.

MINNESOTA

HB4716

Introduced

2/04/02

This bill calls for the development of electronic waste recovery and recycling requirements.

(The State office of Environmental Assistance has developed a statewide product stewardship policy that is designed to use voluntary initiatives and business partnerships that would eliminate dependency on government funding)

NEBRASKA

LB644

Indefinitely postponed

2/27/02

This bill calls for the creation of an Electronic Recycling Act. It is designed to encourage the development of electronics recycling infrastructure. It also calls for funding to encourage the development of public education programs.

NEW JERSEY

A607

Sent to Senate

2/11/02

This bill is designed to promote recycling, reuse, and proper disposal of CRTs and other electronic waste.

NEW YORK

A6286

In committee

1/09/02

This bill calls for the establishment of collection centers for electronic waste designated as hazardous, and would force manufacturers to assume greater responsibility for the disposal of electronic waste designated as such.

OKLAHOMA

HB1155

Introduced

2/05/01

This bill calls for a landfill ban on CRTs and would require the state's environmental board to establish regulations for the handling and disposal of hazardous electronic waste.

OREGON

HB3301

In Committee on Adjournment

7/07/01

This bill would direct the Environmental Quality Commission to design a product stewardship initiative that would require consumers to pay a fee upon purchase of a personal computer. A portion of the fee would be returned when the computer was brought in for recycling.

PENNSYLVANIA

HB2206

Introduced

12/04/01

This bill would encourage the development of guidelines for a CRT recycling infrastructure and would prohibit the disposal of CRTs in landfills.

RHODE ISLAND

Established a permanent statewide recycling collection facility for computers in February 2001. Items shipped to Massachusetts. (No Legislation passed)

SOUTH CAROLINA

SB1031

Introduced

2/20/02

This bill calls for the establishment of an electronics recycling program. Under this bill, a special recycling fund would be set up to cover costs. A \$5.00 fee would be collected for every CRT collected.

F. Budget

BRING TV ROUNDUP BUDGET

INCOME		EXPENSES	
SPONSORS		Shipping & Processing	
DEQ	\$ 500.00	Nxtcycle	\$ 4,408.00
Walmart	\$ 500.00	Graphic Artist - 10 hrs. @ \$10/hr.	\$ 100.00
Sanipac	\$ 500.00	Color posters - 50 posters @ \$2 each	\$ 100.00
City of Eugene	\$ 1,000.00	Bumper stickers - 350 @ \$100	\$ 100.00
Share it Now	\$ 100.00	Pizzas - 5 @ \$11.10 each	\$ 56.00
Appliance and TV Center	\$ 50.00	Soda - 48 cans @ \$.43 each	\$ 20.64
TOTAL INCOME FROM SPONSORS	\$ 2,650.00	SLP team - dinner	\$ 138.00
FEES		Superheros - dinner	\$ 100.00
Consoles	\$ 690.00	Earth Day booth rental	\$ 20.00
Monitors and TVs	\$ 3,415.00	Educational Presentation materials	\$ 220.00
TOTAL FEE INCOME	\$ 4,105.00	Misc. expenses	
DONATIONS		shrink wrap - 6 rols	\$ 84.00
Cash donations collected on event day	\$ 1,323.00	postage	\$ 10.00
TOTAL CASH INCOME	\$ 8,078.00	xerox, copies, paper	\$ 10.00
In-Kind donations of goods and services		long distance	\$ 10.00
Radio advertisements		Facsimile	\$ 10.00
KRVM - 3 weeks	\$ 112.50	TOTAL CASH EXPENSES	\$ 5,386.64
KLCC - 3 weeks	\$ 247.00	Expenses (Donated)	
KWVA - 2 weeks	\$ 500.00	Radio advertisements	
KZEL - 2 weeks	\$ 500.00	KRVM - 3 weeks	\$ 112.50
Newspaper Advertisements:		KLCC - 3 weeks	\$ 247.00
Springfield News - 1 ad	\$ 103.00	KWVA - 2 weeks	\$ 500.00
Eugene Weekly - 2 ads @ \$189.55 each	\$ 379.10	KZEL - 2 weeks	\$ 500.00
Tent	\$ 15.00	Newspaper Advertisements:	
Food - 10 pizzas	\$ 56.00	Springfield News - 1 ad	\$ 103.00
Printing	\$ 75.00	Eugene Weekly - 2 ads @ \$189.55 each	\$ 379.10
Pallets - 48 @ \$5 each	\$ 240.00	Tent	\$ 15.00
Gaylord boxes - 20 @ \$6 each	\$ 120.00	Food - 10 pizzas	\$ 56.00
Truck - 2 trucks for hauling computer monitors	\$ 180.00	Printing	\$ 75.00
TOTAL DONATION OF GOODS & SERVICES	\$ 2,527.60	Pallets - 48 @ \$5 each	\$ 240.00
In-Kind donations of labor		Gaylord boxes - 20 @ \$6 each	\$ 120.00
BRING Exec. Dir. - 68 hrs. @ \$25/hr.	\$ 1,700.00	Truck - 2 trucks for hauling computer monitors	\$ 180.00
ENVS SLP Coordinator - 200 hrs. @ \$20/hr.	\$ 4,000.00	BRING Exec. Dir. - 68 hrs. @ \$25/hr.	\$ 1,700.00
Lane County Waste Manager - 14 hrs @ \$25/hr.	\$ 350.00	ENVS SLP Coordinator - 200 hrs. @ \$20/hr.	\$ 4,000.00
Forklift Operator - 8 hrs. @ \$30/hr.	\$ 240.00	Lane County Waste Manager - 14 hrs @ \$25/hr.	\$ 350.00
Event Staff - 22 people @ 8 hrs. each @ \$8/hr.	\$ 1,408.00	Forklift Operator - 8 hrs. @ \$30/hr.	\$ 240.00
Mac Renewal staff - 8 hrs. @ \$10/hr.	\$ 80.00	Event Staff - 22 people @ 8 hrs. each @ \$8/hr.	\$ 1,408.00
TOTAL LABOR DONATION	\$ 7,778.00	Mac Renewal staff - 8 hrs. @ \$10/hr.	\$ 80.00
TOTAL IN-KIND	\$ 10,305.60	TOTAL IN-KIND EXPENSES	\$ 10,305.60
INCOME GRAND TOTAL	\$18,383.60	EXPENSES GRAND TOTAL	\$ 15,692.24

G. Survey Questions asked at Collection Drive

1. Q: Where did you hear about this event?

A:

TV	Springfield News	Email	Radio	RG	Presentation	Total
47	4	13	97	222	8	389
9.00%	< 1%	2.00%	20%	50%	1.00%	100%

2. Q: Where do you live?

A:

Eugene	Springfield	Cottage Grove	Other	TOTAL
257	60	11	48	376
68%	16%	3%	13%	100%

3. Q: We are working to establish a permanent electronics recycling infrastructure for Lane County residents. Who should manage this program?

A:

BRING	Eugene	Springfield	Lane County	St. Vincent's	Other	Don't Know
80	2	1	1	2	1	13
36%	< 1%	< 1%	< 1%	< 1%	< 1%	61%

4. Q: Is the fee:

A:

Too much	Fair	Too little	TOTAL
14	324	5	343
4%	94%	2%	100%

H. Comments on event

Pete Chism: Lane County Solid Waste

Pros:

- The actual amount of hazardous waste diverted from the landfill was impressive.
- The students of the Service Learning Program did a good job in educating customers at the event about e-waste.
- The location was useful because people became more familiar with the Glenwood site.
- The people who worked at the event, the Super Heroes, county workers, people from BRING, Troy from Nxtcycle, and students from the University of Oregon, shared a lot of information and formed an educational network throughout the day.

Cons:

- People did not use sunscreen or wear hats.
- There were not enough volunteers.
- Positions were not clearly delegated for directing traffic, giving surveys, or taking inventory.
- There was disorganization in the early stages of the event because positions were not delegated.
- Palletizing the waste was a problem because we were not experienced.
- The *Register-Guard* did not give our event an ample amount of coverage.

Julie Daniel: BRING Recycling

Pros:

- There were no accidents or injuries during the event.
- There was plenty of food.
- The Glenwood site is strategically away from the general public.
- Two lines of cars was a good method.
- One forklift and two operators worked well.

Cons:

- Volunteer training should be on a separate day.
- Matching t-shirts and/or food can be used as incentives to attend training.
- T-shirts can also provide uniformity during the event.
- There should be one person collecting money and taking inventory per line.
- A ticket under windshield wipers may indicate that the customers have paid and given inventory already.
- There should be a large processing area.
- The processing area should have a big, sturdy table of average height.
- A paid expert should be palletizing the waste or gaylords should be provided.
- Volunteers need to fill out liability forms.
- Volunteers need to have medical coverage.

- A cash register may come in handy.
- An express line should be made available to customers with a single item.
- More roller carts would be useful.
- Two shifts of volunteers would be better than one to help prevent injuries.

Ideal Crew per Shift:

- 2 cashiers, inventory takers.
- 1 accountant.
- 1-2 traffic directors.
- 2 surveyors; 1 extra during busy hours.
- 6-8 unloaders; 2 supervisors.
- 4-6 sorters.
- 2 forklift operators.
- 2 stackers.

Other Ideas:

- 10:00-2:00 is the busiest time of an event.
- Volunteer crews should be split 60% in the morning and 40% in the afternoon.

UO Students:

Pros:

- Customers stayed in their cars.
- There were two teams taking inventory, money, and surveys, and unloading cars.
- The roller carts were very helpful.
- The \$5 fee worked well.
- Asking for extra donations worked well when an explanation of its use was given.
- The weather was great.

Cons:

- There was confusion between the inventory process and the unloading process.
- Inventory should be taken before the cars are unloaded.
- Open car doors may help to show that inventory has been taken and the items are ready to be unloaded.
- We could have used more help in general.

Ideas on Publicity:

- Newspaper articles worked the best.
- Newspaper ads are less effective than articles.
- Radio ads were effective.
- Emails and PDFs were not effective.
- Three weeks of publicity is ample time to spread the word.

- Sponsor an event prior to the actual event so that news broadcasters can come create news and in turn help publicize the actual event.
- Neighborhood groups require a 2-3 month advance notice before hosting a presentation.
- Churches are great places to give presentations.
- The presentation and poster make a good combination because the poster acts as a visual reminder of the presentation.
- We should get thrift stores' assistance.

Ideas on Educational Presentations:

- We should start earlier to reach a broader audience.
- Presenting to more diverse audiences is better than focusing solely on schools or community councils.
- There should be more props at the end of the presentation to keep the audience engaged for the entire duration.

Ideas on Research:

- Telephone interviews are far more effective than vast Internet research.
- TV repair shops can provide us with useful technical information.
- More field trips in general would be helpful.
- Talking to experts is a great way to learn about digital cable, HDTVs, CRTs, etc.
- Legalities dealing with electronic recycling are unclear.
- Finding the laws that pertain to e-waste would be useful.
- Exact numbers are extremely hard to find.