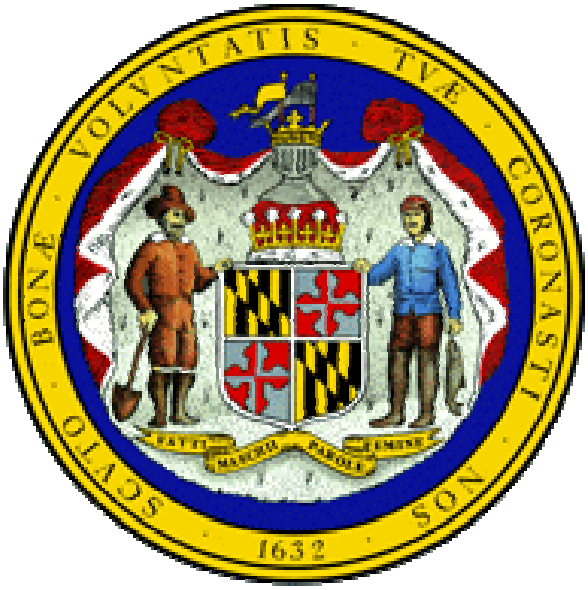
ELECTRONICS RECYCLING WORKGROUP REPORT



Governor Robert L. Ehrlich, Jr.
Lt. Governor Michael S. Steele

Secretary Kendl P. Philbrick
Deputy Secretary Jonas A. Jacobson

Maryland Department of the Environment
December 2004

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EXECUTIVE SUMMARY

Governor Robert L. Ehrlich, Jr. signed House Bill 109 Electronic Waste Collection Systems on April 27, 2004. This bill required the Maryland Department of the Environment to study, in collaboration with local governments, environmental groups, electronics manufacturers, recyclers, and retailers, the solid waste industry, and members of the General Assembly, the funding, establishment, and implementation of an electronic waste collection system in the State by January 1, 2006.

Electronics recycling, or "eCycling," has become an important element in many local governments' recycling programs since it began in earnest in Maryland in 2001. The popularity of eCycling programs for the collection and recycling of televisions, computers, and other electronics continues to increase as citizens become more aware of the need to save landfill space and recycle valuable electronic components.

The Maryland Department of the Environment (MDE) has supported local government eCycling efforts with funding from the US Environmental Protection Agency (EPA) Region 3 eCycling Pilot Project, through a Supplemental Environmental Project as part of an enforcement action with a national waste management company, and through a local government cost share program with unused MDE capital projects monies. However, the State has no new funding source and EPA is no longer providing financial support to assist local governments in continuing eCycling activities.

No national solution to the problem of electronics waste management and recycling has been developed. The National Electronics Product Stewardship Initiative (NEPSI) was created to bring stakeholders, including federal, state, and local governments, manufacturers, retailers, recyclers, and environmental groups, together to develop a national financing system to help maximize the reuse and recycling of old computers and televisions. When NEPSI began to focus its efforts on federal legislation to finance electronics recycling, this caused EPA to distance itself from the group due to possible conflicts regarding potential lobbying by EPA, its grantees, and contractors. EPA stated that it would continue to work with stakeholders, including the electronics industry and local governments to find solutions to the electronic waste issue. EPA also encouraged states to seek partnerships, on their own, with business and industry. NEPSI has continued to meet but has not come to consensus on a solution.

The US Department of Commerce Technology Administration held a Technology Recycling: Achieving Consensus for Stakeholders Roundtable on Electronics Recycling in September 2004 in Washington, DC. Topics of discussion included collection and funding mechanisms for electronics recycling, current electronics recycling activities, and creating a market for recycled technology products. This forum was intended to layout the issues related to eCycling and report to the next Congress on the proceedings. Although there have been several bills in Congress related to electronics waste, none have passed. Only two states, California and Maine have been able to pass significant legislation related to electronic waste, and both are currently struggling with implementation of those laws.

EPA has worked with many states on regional eCycling projects, and began the voluntary Plug-In to eCycling project in January 2003 as part of the Resource Conservation Challenge. EPA has also been unable to launch a national solution to electronic waste. In the EPA response to the USEPA Office of the Inspector General's Evaluation Report entitled *Multiple Actions Taken to Address Electronic Waste, But EPA Needs to Provide Clear National Direction,* EPA stated that it plans to hold a National eCycling Summit to bring together stakeholders to evaluate the progress of their projects, share achievements and data, identify further information needs, update plans, and update performance targets in early 2005. Maryland will seek participation in this Summit to learn of any EPA plans for a national solution to electronic waste.

The Electronics Recycling Workgroup studied the issues related to electronic waste management and learned that there are diverse views, particularly amongst electronic industry representatives, on mechanisms for handling electronic wastes. Two primary means for addressing this problem surfaced during the discussions: 1) the application of an advanced recycling fee, to fund the collection and recycling of electronics, similar to that legislated in California; and 2) a system of shared responsibility with all stakeholders, including manufacturers, retailers, local governments, and citizens, having a role in eCycling, similar to the system legislated in Maine. Each of these systems has its merits and faults. Because many Workgroup members voiced differing opinions on key components of an eCycling system (a definition for electronic waste, a funding mechanism, or whether to ban disposal of electronic waste in landfills and incinerators), they also felt that decisions regarding funding and a system for electronics collection and recycling in Maryland should be delayed to allow for the development of a national electronics waste management system.

Although wide consensus was not reached, the Workgroup members, and MDE, learned valuable information regarding electronics recycling programs, industry preferences for electronics recycling systems, various methods for recycling electronics, international issues, retail industry views, local government and solid waste industry perspectives, data security, and other relevant issues. In addition, relationships developed with manufacturers and recyclers are anticipated to result in partnerships and information sharing into the future.

Maryland law requires local jurisdictions to meet a 15 or 20 percent recycling rate, based on population, and allows each to determine the most efficient way to reach their required rate. This permits local governments the flexibility to establish recycling programs that work best for their citizenry, within the limits of the resources available for these programs. Economics has largely driven local government recycling rates generally resulting in the larger population counties sustaining the highest recycling rates with the most diverse materials recycled.

Although no Statewide, sustainable funding system has been identified to further electronics recycling efforts in Maryland, there has been significant effort by many local governments to continue electronics recycling. Since the Workgroup began meeting in August 2004, three (3) additional permanent electronics collection facilities have been identified, bringing the State's total to seven (7). Another Baltimore/Washington corridor county is expected to commit to establishing a permanent collection facility by the end of 2004. MDE is working with several other counties to encourage them to continue electronics recycling through either regularly scheduled collection events or establishment of permanent collection facilities. This trend by mostly larger population counties in committing to providing electronics recycling services for

residents is similar to those counties' commitments to provide collection of household hazardous waste. Citizens have become aware of the potential hazards of mismanagement of these materials and have begun to expect these collection services from their local governments.

Conclusion

It is recommended that the stakeholders be strongly encouraged to continue to pursue partnerships to expand electronics recycling in Maryland. MDE will continue to encourage the counties that are able to establish permanent electronics collection facilities. However, because of widely varying opinion on key components of an eCycling system, and the great advantage for all stakeholders if some national standards are set, the 2005 legislative session would not be an optimal time to consider Maryland-only legislation. MDE will continue to closely monitor, and seek to actively participate in, national dialogues and trends regarding electronics waste issues. The Department would also recommend that the Workgroup be reconvened only if significant progress is made toward a national solution before July 1, 2005. This report is intended to cover both the December 31, 2004 and July 1, 2005 reports to the Governor and General Assembly required by House Bill 109.

ELECTRONICS RECYCLING WORKGROUP MEMBERS

The Honorable Elizabeth Bobo, Maryland House of Delegates

The Honorable William A. Bronrott, Maryland House of Delegates

Mr. Robert Donald, Computer Donation Management, Inc.

Ms. Candace L. Donoho, Ms. Carol Dowling, Maryland Municipal League

Ms. Erin Favazza, Maryland Association of Counties

Mr. Joshua W. Ferguson, Maryland House of Delegates, Environmental Matters Committee Counsel

The Honorable Barbara A. Frush, Maryland House of Delegates

Mr. Brad Heavner, Maryland Public Interest Research Group

The Honorable Patrick N. Hogan, Maryland House of Delegates

Ms. Pam Kasemeyer, Mr. Steve Wise, Maryland Delaware Solid Waste Association

Mr. Richard Keller, Maryland Environmental Service

Mr. Michael S. Keough, E-Structors, Inc.

Mr. Larry King, Mr. Mark Nelson, Ms. Heather Bowman, Mr. William Kress Hewlett-Packard Company

Ms. Venzena Legge, Carroll County Department of Public Works/Maryland Association of Counties

Mr. Jason Linnell, Mr. Neal McDonald, Electronic Industries Alliance

Ms. Sarah Manning, Mr. Scott Wilson, Subtractions, LLC

Ms. Margaret G. McHale, Maryland State Senate, Education, Health, and Environmental Affairs Committee Counsel

The Honorable Maggie McIntosh, Maryland House of Delegates

The Honorable Karen S. Montgomery, Maryland House of Delegates

The Honorable Dan K. Morhaim, Maryland House of Delegates

Mr. Kendl P. Philbrick, Mr. Jonas A. Jacobson, Mr. Horacio Tablada, Ms. Victoria Schade, Maryland Department of the Environment

Mr. Thomas S. Saquella, The Honorable Jeffrie Zellmer, Maryland Retailers Association

The Honorable Sandra B. Schrader, Maryland State Senate

Mr. Mark J. Sharp, Panasonic/Matsushita Electric Corporation of America

Hilary Miller, Workgroup Staff, Maryland Department of the Environment

INTRODUCTION

Electronic waste is frequently defined as consumer electronics such as unwanted computers, monitors, keyboards, televisions, audio equipment, printers, cellular phones, and other home electronic devices. Electronic equipment contains metals, including cadmium, lead, and mercury, and other materials that can become hazardous to human health and the environment if they are not properly managed. The largest source of lead in municipal solid waste (MSW) is computer monitors and televisions that contain cathode ray tubes (CRT - the picture tube) made with leaded glass. Each CRT can contain between 3 and 6 pounds of lead and other toxics. The largest source of cadmium in municipal solid waste (MSW) is rechargeable nickel-cadmium batteries, commonly found in laptop computers. A leading source of mercury in MSW comes from batteries, switches, and printed wiring boards in electronic wastes.

Electronic equipment also contains valuable resources such as precious metals, engineered plastics, glass and other materials, all of which require energy to manufacture but some of which can be recovered for reuse. Disposal of these useful products prevents recovery of resources and increases pollution generated to manufacture new products from virgin materials.

EPA estimates that more than 3.2 million tons of electronic wastes are disposed in landfills each year. Based on the 2000 US Census Maryland population of 5,296,486, which was approximately 1.88% of the total US population (281,421,906) at that time, Maryland would be expected to discard approximately 60,160 tons of electronics each year. It is estimated that there are over 900,000 televisions and nearly one million computer monitors in basements and garages in Maryland waiting for reuse and recycling.

EPA Region 3 eCycling Pilot Project

Electronics recycling began in Maryland in October 2001 with the EPA Region 3 eCycling Pilot Project. The Project's goal was to develop an economically and environmentally sustainable collection, reuse, and recycling system for electronics based on the principle of shared responsibility among business (electronics manufacturers and retailers), government, and consumers. EPA Region 3 eCycling Pilot Project partners included:

- EPA Region 3;
- Delaware, Virginia, West Virginia, District of Columbia, and Maryland environmental protection agencies; and
- Sony, Panasonic, Sharp, Envirocycle, Inc., Waste Management Asset Recovery Group, Elemental, Inc., Electronic Industries Alliance (EIA), and Polymer Alliance Zone of West Virginia.
- EIA contributing members included: Canon, Hewlett-Packard, JVC, Kodak, Nokia, Panasonic, Philips Consumer Electronics North America, Sharp, Sony, and Thomson Multimedia.

The EPA Region 3 eCycling Pilot Project kick-off was held at the Scarboro Landfill in Harford County on October 27, 2001. About 150 participants brought approximately 7.99 tons of electronics, including televisions, computers, printers, fax machines, and other electronics for recycling to this first event. During the pilot project, there were a total of 5,722 participants in

21 one-day collection events and 2 two-day collection events throughout all regions of Maryland. One permanent electronics collection facility (Wicomico County) was also established with project funding. Over 250 tons of electronics were collected through these activities until the end of project on December 31, 2002.

The EPA Region 3 eCycling Pilot Project gave Maryland and the other Region 3 states the shot in the arm needed to begin collection and recycling of these valuable materials. Without funding and other shared resources from this important partnership, such as idea brainstorming, advertising, and lessons learned, Maryland would not have gotten the start needed to become a leader in eCycling. EPA Region 3 is no longer providing funding for these activities but periodically holds conference calls with Region 3 states to get updates on electronics recycling activities.

Maryland eCycling Efforts

Since the end of Region 3 eCycling Pilot Project, MDE has continued to provide funding support to local governments for 30 additional one-day, 2 additional two-day, and 2 curbside electronics recycling events through approximately $79,000 in unspent capital projects monies from the Solid Waste Facilities Loan Fund. MDE has managed these events through the Maryland Environmental Service and its contractor. The largest single electronics collection event in Maryland to date took place on April 3, 2004 during a 4-hour period in Baltimore County where 1,170 participants generated over 59 tons of electronics. A total of over 2,850 tons of unwanted electronics have been collected in Maryland by State and local governments since October 2001 through a total of 51 one-day events, four (4) two-day events, two (2) curbside collections, and six (6) permanent collection facilities (Howard, Prince George's, Montgomery, Wicomico, and Worcester Counties and the City of Greenbelt) (see Appendix C). Harford County began computer collection in December 2004. MDE plans to assist Somerset County, the only county in Maryland that has not participated in any electronics recycling activities, in the spring 2005 with an electronics recycling event. Any remaining capital projects funding could be used to conduct perhaps one more collection event in a county that has not received MDE funding in the past.

In efforts to seek additional funding sources, MDE, the Northeast Maryland Waste Disposal Authority, the MidShore Recycling Program, and several counties have applied for Dell Electronics Recycling Grants. In addition, MDE has applied for EPA grants to conduct a pilot project for electronics recycling at shopping centers. All these efforts have been unsuccessful. Beyond the remaining capital projects funding, MDE has no source of funding to continue assisting local jurisdictions with electronics collection and recycling, however, citizen demand remains high.

Legislative History

Legislation regarding electronics waste and recycling has been proposed during several recent Maryland General Assembly sessions. During the 2001 Legislative Session, House Bill 111 Solid Waste Disposal – Cathode Ray Tubes – Computer Monitors and Television Screens proposed to prohibit disposal of CRT's from computer monitors and television screens in a sanitary landfill, solid waste transfer station, or incinerator and would have required MDE to consult with representatives of industry, local governments, EPA and Region 3 states regarding methods for management and recycling. This bill received an unfavorable report by the House

Environmental Matters Committee. Similar bills, House Bill 911 proposed during the 2003 Legislative Session and House Bill 111 proposed during the 2004 Legislative Session, also received unfavorable reports by the Environmental Matters Committee.

Also during the 2004 Legislative Session, two other bills related to electronics waste and recycling were proposed. House Bill 328 Environment – Electronic Waste Management, as proposed, would have required MDE to establish an electronic waste recycling system on or before October 1, 2005 and would have required the establishment of an electronic waste recycling fee on the first sale of electronic video devices and computer products in the State. This bill received an unfavorable report by the Environmental Matters Committee. House Bill 109 Environment –Cathode Ray Tubes and Computer Products – Collection Systems (see Appendix A), as originally drafted, would have imposed a prohibition on manufacturers selling, using, distributing, or offering to sell a computer product or CRT in Maryland after July 1, 2005 unless the manufacturer implemented a collection system plan approved by MDE. After negotiation by stakeholders with the sponsors of the bill, all original language was stricken from the bill and uncodified language was added to require MDE to study, in collaboration with stakeholders, the funding, collection and implementation of an electronic waste system in Maryland by January 1, 2006. This bill was signed by Governor Ehrlich in April 2004.

Other States' Legislation

Several states have passed legislation related to electronics waste and recycling. The states of Arkansas, California, Florida, Maine, Minnesota, and Oregon, and Washington have passed electronic waste legislation. Arkansas has banned computers and electronic equipment from landfills effective no sooner than January 1, 2005. California passed the nation's first law that imposes an advanced recycling fee on electronics. A $6-$10 sales fee added to computers and televisions will be used to fund electronics recycling. California also banned CRT's from disposal in 2002. Florida is providing grants annually from FY2001 to FY2005 to expand collection and processing infrastructure. Maine passed a bill in May 2003 that requires manufacturers to implement a plan for manufacturer-financed collection, recovery, and recycling of electronic waste. Minnesota passed a law that will ban disposal of electronics containing CRT's that becomes effective July 1, 2005. The States of Oregon and Washington passed legislation that created advisory committees to study electronics waste recycling.

WORKGROUP OVERVIEW

Workgroup Organization/Structure

In July 2004, MDE sent invitations to stakeholder representatives requesting their participation on the Electronics Recycling Workgroup. One organization declined the invitation for participation due to other obligations. Workgroup members are listed on pages 5 and 6.

The Workgroup began meeting on August 24, 2004 and met every two weeks through October 19, 2004. All meetings were held in the House Environmental Matters Committee Hearing Room in Annapolis and were co-chaired by Delegates Elizabeth Bobo and Karen S. Montgomery. MDE provided staff to the Workgroup.

Presentations by the various stakeholders represented on the Workgroup were made during each of the first four Workgroup meetings. These presentations were followed by open discussion by the members. Members individually submitted recommendations to MDE for a definition of electronic waste and for a funding mechanism and collection and recycling system that MDE compiled into spreadsheets for discussion during the final meeting. Notes from the meetings are included as Appendix B.

Summary of Workgroup Discussions

The Workgroup did not reach consensus on a definition for electronic waste. While some members felt that the definition should be broad and include many consumer electronics such as televisions, computers, cellular phones, VCR's, etc. that have been collected through local government collection events, other members felt that electronic waste should include only CRT's.

Throughout the Workgroup meetings, discussions centered around two major mechanisms for managing electronic wastes: 1) the application of an advanced recycling fee, to fund the collection and recycling of electronics, similar to that legislated in California; and 2) a system of shared responsibility with all stakeholders, including manufacturers, retailers, local governments, and citizens, having a role in eCycling, similar to the system legislated in Maine. A summary of the pros and cons of each of the mechanisms discussed is provided below:

Electronic Waste Management System	Pros	Cons
Advanced Recycling Fee	Fee covers costs of collection and recycling	Consumer pays for recycling
	Guaranteed source of funding; system not dependent on government funding	Does not encourage design for the environment or design for recycling by manufacturers
	Recyclers guaranteed payment for their services	Relieves manufacturers of responsibility for recycling
	No unfunded mandate on local governments to perform collection and recycling; however local	Burdens retailers with collection of fees

Electronic Waste Management System	Pros	Cons
	governments may still collect materials and be compensated	
	Local recyclers benefit; keeps jobs in Maryland	There will be a delay in paying recyclers if the fee is not charged for some time in advance of the implementation of the collection and recycling system
	Builds on existing infrastructure	Burden on State to enforce payment of fee
	Does not require brand sorting	Will present difficulties in collecting fee from internet sales; implementation of fee has been delayed in California
	Users of products pay for recycling	May encourage out of state purchases of electronics while burden of disposal still in Maryland
Shared Responsibility	All stakeholders have responsibility for things they do best	Does not provide sustainable funding
	Builds on existing infrastructure	Requires public education campaign with no dedicated funding
	Take back programs maintain link between manufacturer and product user	Requires brand sorting
	Helps local businesses	Citizens will have to bring materials to collection or recycling facilities
	Provides motivation for manufacturers to design their products to protect the environment and to be more recyclable	Can present enforcement issues with manufacturers
	Creates competition between manufacturers	Has been shown to be somewhat difficult to implement in Maine

There was no consensus of the Workgroup members on a recommendation for a funding or collection and recycling system to manage electronic waste in Maryland. In general, computer manufacturers seem to prefer the shared responsibility method, while television and other electronic product manufacturers appear to prefer the establishment of an advanced recycling fee. In addition, there was clear division regarding whether a ban should be imposed on disposal of electronic waste, particularly CRT's, in landfills and incinerators. Local governments and solid waste haulers oppose a ban because they would have responsibility for ensuring that electronic wastes are not disposed. However, some other members favor a ban because it would make more materials available for reuse and recycling. The only consensus that was reached by the Workgroup was that the types of mechanisms discussed would require legislation to implement them.

RECOMMENDATIONS/CONCLUSION

MDE appreciates the efforts of the Electronics Recycling Workgroup members and has greatly expanded its knowledge regarding electronic waste management. MDE is looking forward to pursuing partnerships with the stakeholders represented on the Workgroup. The Department is currently meeting with counties to encourage them to work with local recyclers to establish and maintain permanent electronics collection facilities or long-term contracts for regular electronics collection events. To the extent it is able, MDE will encourage manufacturers and retailers to expand opportunities for electronic waste take-back and other programs, and work with State and local governments to improve outreach and education to all Maryland citizens regarding reuse and recycling of electronic wastes.

The Workgroup's activities and discussions reflect the general state of electronic waste management and recycling throughout the country. Since there has been no national solution suggested through either the National Electronics Product Stewardship Initiative or the USEPA, there is concern that any legislation passed or any new system implemented would not be consistent with national efforts. This could put the State in a position to repeal laws if a national solution is identified in the next few years that is not consistent with one that is legislated in Maryland.

Currently, several states have passed legislation related to electronic waste but there is no consistency in what is being legislated and some of these states are facing difficulties in implementing their legislation. This disparity in laws throughout the country makes compliance difficult for electronics manufacturers and recyclers. In addition, the European Union has developed directives that US electronics manufacturers are working to comply with so that they can be competitive in the international market. Therefore, these directives could have an indirect impact on US markets. Many electronics manufacturers are working to design their products to be more environmentally friendly by using less toxic materials in manufacturing and by making the products more easily recyclable. This is not only admirable but wise, from a business standpoint, because consumers are becoming more savvy regarding environmental hazards posed by consumer products. But designing for the environment and for recycling can represent additional costs for manufacturers that could be passed on to consumers, thereby placing more proactive manufacturers at a competitive disadvantage.

Since electronics recycling began in Maryland in 2001, the demand on local government and the State from residents for electronics collection services has increased. Citizens have become more aware of the potential hazards associated with improper management of electronics waste and the inherent value in reuse and recycling of electronics and their components, and the volume of electronics collected by local governments continues to increase. Local recyclers have benefited from this increase in available materials and MDE would like to continue to increase the volume of materials diverted from land disposal to reuse and recycling opportunities.

Since eCycling began in Maryland, over 3,100 tons of electronics have been collected for recycling through events, permanent collection facilities, and curbside pickups. To date, MDE has been able to identify relatively small, one-time funding sources to support local governments' electronics recycling efforts, but no sustainable funding source has been identified

to continue to assist local governments. Notwithstanding this lack of dedicated funding, some local governments are now conducting these activities without State assistance. Seven (7) local government permanent electronics collection programs have been established and another county is expected to commit to establishing a permanent collection facility by the end of 2004. These eight (8) programs will serve approximately 58% of the State's population. MDE is continuing to meet with additional counties, the Northeast Maryland Waste Disposal Authority, and the Maryland Environmental Service to encourage the establishment of permanent collection facilities and regular collection events.

Until a national solution can be implemented, it is expected that voluntary efforts and partnership development by all stakeholders, including manufacturers, retailers, recyclers, non-profit organizations, the solid waste industry, and State and local governments, will continue to improve the rate of electronics collection and recycling and support the outreach and education efforts necessary to increase awareness of the need for reuse and recycling of electronics.

APPENDIX A

House Bill 109 Environment - Electronic Waste Collection Systems

HOUSE BILL 109

Unofficial Copy 2004 Regular Session
M3 4lr0408

By: **Delegates Morhaim and Bobo**
Introduced and read first time: January 16, 2004
Assigned to: Environmental Matters

Committee Report: Favorable with amendments
House action: Adopted
Read second time: March 2, 2004

CHAPTER_____

AN ACT concerning

Environment ~~- Cathode Ray Tubes and Computer Products~~ - Electronic Waste Collection Systems

FOR the purpose of ~~prohibiting a manufacturer from selling, using, distributing, or offering to sell a computer product or a cathode ray tube after a certain date unless the manufacturer implements a certain collection system plan; requiring a collection system plan to include certain elements; requiring a manufacturer to submit a certain report to the Department within a certain period of time; authorizing the Department to order manufacturers to take certain actions under certain circumstances; requiring the Department to adopt certain regulations; authorizing the Department to adopt certain regulations; defining certain terms~~ requiring the Department of the Environment to study, in collaboration with certain persons and organizations, the establishment and implementation of a certain electronic waste collection system in the State by a certain date; requiring the Department to report certain recommendations to certain persons by certain dates; providing for the termination of this Act; and generally relating to ~~computer product and cathode ray tube~~ electronic waste collection systems.

~~BY adding to~~
~~Article - Environment~~
~~Section 6-1201 through 6-1204 to be under the new subtitle "Subtitle 12. Cathode Ray Tubes and Computer Products Collection Systems"~~
~~Annotated Code of Maryland~~
~~(1996 Replacement Volume and 2003 Supplement)~~

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That ~~the Laws of Maryland read as follows~~:

~~**Article - Environment**~~

~~SUBTITLE 12. CATHODE RAY TUBES AND COMPUTER PRODUCTS COLLECTION SYSTEMS.~~

~~6-1201.~~

~~(A) IN THIS SUBTITLE THE FOLLOWING WORDS HAVE THE MEANINGS INDICATED.~~

~~(B) "CATHODE RAY TUBE" MEANS A VACUUM TUBE OR PICTURE TUBE USED TO CONVERT AN ELECTRONIC SIGNAL INTO A VISUAL IMAGE.~~

~~(C) "COLLECTION SYSTEM" MEANS THE COLLECTION, PACKAGING, TRANSPORTATION, AND RECYCLING OF COMPUTER PRODUCTS AND CATHODE RAY TUBES THAT HAVE BEEN DISCARDED BY CONSUMERS.~~

~~(D) "COMPUTER PERIPHERAL" MEANS A COMPUTER KEYBOARD, MOUSE OR OTHER POINTING DEVICE, AND PRINTER.~~

~~(E) "COMPUTER PRODUCT" MEANS:~~

~~(1) A DESKTOP COMPUTER, PERSONAL COMPUTER, LAPTOP COMPUTER, OR OTHER PIECE OF AUTOMATED OR ELECTRONIC EQUIPMENT THAT INCLUDES A CENTRAL PROCESSING UNIT; AND~~

~~(2) COMPUTER PERIPHERALS.~~

~~(F) "DIVERSION RATE" MEANS THE PROPORTION OF WASTE MATERIAL THAT IS RECYCLED, COMPOSTED, OR REUSED RATHER THAN SENT TO A LANDFILL OR INCINERATOR.~~

~~(G) "MANUFACTURER" MEANS THE CORPORATION OR OTHER LEGAL ENTITY THAT IS THE BRAND OWNER OR IMPORTER OF A CATHODE RAY TUBE OR COMPUTER PRODUCT SOLD OR USED IN THE STATE.~~

~~6-1202.~~

~~ON OR AFTER JULY 1, 2005, A MANUFACTURER MAY NOT SELL, USE, DISTRIBUTE, OR OFFER TO SELL A COMPUTER PRODUCT OR CATHODE RAY TUBE IN THE STATE UNLESS THE MANUFACTURER IMPLEMENTS A COLLECTION SYSTEM PLAN APPROVED BY THE DEPARTMENT UNDER THIS SUBTITLE.~~

~~6-1203.~~

~~(A) THE COLLECTION SYSTEM PLAN REQUIRED UNDER § 6-1202 OF THIS SUBTITLE:~~

~~(1) SHALL BE CONVENIENT AND ACCESSIBLE FOR CONSUMERS WHO WANT TO DISPOSE OF A COMPUTER PRODUCT OR CATHODE RAY TUBE;~~

~~(2) SHALL PROVIDE FOR THE COLLECTION OF COMPUTER PRODUCTS AND CATHODE RAY TUBES; AND~~

~~(3) MAY NOT IMPOSE ANY COST ON A COUNTY, MUNICIPAL CORPORATION, OR THE STATE.~~

~~(B) IF A CATHODE RAY TUBE IS A COMPONENT OF ANOTHER PRODUCT, THE COLLECTION SYSTEM PLAN MAY SATISFY SUBSECTION (A)(2) OF THIS SECTION BY PROVIDING FOR THE:~~

~~(1) REMOVAL AND COLLECTION OF THE CATHODE RAY TUBE; OR~~

~~(2) COLLECTION OF THE CATHODE RAY TUBE AND THE PRODUCT CONTAINING IT.~~

~~(C) EXCEPT AS PROVIDED IN SUBSECTION (D) OF THIS SECTION, THE COLLECTION SYSTEM PLAN SHALL INCLUDE:~~

~~(1) A PUBLIC EDUCATION PROGRAM TO INFORM THE PUBLIC ABOUT THE PURPOSE OF THE COLLECTION PROGRAM AND HOW TO PARTICIPATE IN IT;~~

~~(2) A PLAN FINANCING THE COLLECTION SYSTEM;~~

~~(3) DOCUMENTATION OF THE WILLINGNESS OF ALL NECESSARY PARTIES TO IMPLEMENT THE COLLECTION SYSTEM;~~

~~(4) (I) A DESCRIPTION OF THE EXISTING COLLECTION AND RECYCLING INFRASTRUCTURE IN THE STATE THAT WILL BE INCORPORATED INTO THE COLLECTION SYSTEM; OR~~

~~(II) AN EXPLANATION FOR NOT INCORPORATING EXISTING COLLECTION AND RECYCLING INFRASTRUCTURE IN THE STATE;~~

~~(5) A DESCRIPTION OF THE PERFORMANCE MEASURES THE MANUFACTURER WILL USE TO DEMONSTRATE THE DIVERSION RATE OF THE COLLECTION SYSTEM AND ANY OTHER MEASURES OF PROGRAM EFFECTIVENESS REQUIRED BY THE DEPARTMENT;~~

~~(6) PROVISIONS TO COLLECT COMPUTER PRODUCTS AND CATHODE RAY TUBES DISCARDED BY CONSUMERS IN THE STATE AFTER JULY 1, 2005, INCLUDING THOSE PRODUCED BY MANUFACTURERS WHO LEFT THE MARKET BEFORE THEIR PRODUCTS WERE DISCARDED;~~

~~(7) A DESCRIPTION OF ADDITIONAL OR ALTERNATIVE ACTIONS THAT THE MANUFACTURER WILL IMPLEMENT TO IMPROVE THE COLLECTION SYSTEM IF THE PROGRAM TARGETS ESTABLISHED BY THE DEPARTMENT ARE NOT MET;~~

~~(8) AN IMPLEMENTATION PLAN TO ENSURE THAT THE COLLECTION SYSTEM WILL BE FULLY IMPLEMENTED ON OR BEFORE JULY 1, 2005; AND~~

~~(9) ANY OTHER INFORMATION REQUESTED BY THE DEPARTMENT.~~

~~(D) INSTEAD OF THE ITEMS REQUIRED UNDER SUBSECTION (C) OF THIS SECTION, A MANUFACTURER MAY SUBMIT A COLLECTION SYSTEM PLAN THAT INCLUDES:~~

~~(1) A CERTIFICATION FROM THE MANUFACTURER TO THE DEPARTMENT THAT:~~

~~(I) THERE WILL BE A NATIONAL COLLECTION SYSTEM FOR COMPUTER PRODUCTS AND CATHODE RAY TUBES FULLY IMPLEMENTED IN THE STATE BY JULY 1, 2005; AND~~

~~(II) THE MANUFACTURER WILL PARTICIPATE IN THE NATIONAL COLLECTION SYSTEM; AND~~

~~(2) ANY OTHER INFORMATION REQUESTED BY THE DEPARTMENT.~~

~~(E) THE DEPARTMENT SHALL ADOPT REGULATIONS FOR THE REVIEW AND APPROVAL OF A COLLECTION SYSTEM PLAN.~~

~~6-1204.~~

~~(A) (1) WITHIN 2 YEARS AFTER THE DEPARTMENT APPROVES A COLLECTION PLAN UNDER THIS SUBTITLE, THE MANUFACTURER SHALL SUBMIT A REPORT TO THE DEPARTMENT ON THE EFFECTIVENESS OF THE COLLECTION SYSTEM.~~

~~(2) THE REPORT SHALL INCLUDE:~~

~~(I) AN ESTIMATE OF THE TOTAL NUMBER OF CATHODE RAY TUBES AND COMPUTER PRODUCTS THAT HAVE BEEN COLLECTED THROUGH THE COLLECTION SYSTEM;~~

~~(II) THE DIVERSION RATE FOR THE CATHODE RAY TUBES AND COMPUTER PRODUCTS;~~

~~(III) THE RESULTS OF ANY OTHER PERFORMANCE MEASURES INCLUDED IN THE COLLECTION SYSTEM PLAN; AND~~

~~(IV) ANY OTHER INFORMATION REQUIRED BY THE DEPARTMENT.~~

~~(B) IF THE DEPARTMENT DETERMINES THAT A MANUFACTURER IS NOT MEETING THE PERFORMANCE STANDARDS REQUIRED BY THE DEPARTMENT, THE DEPARTMENT MAY ORDER THE MANUFACTURER TO TAKE ACTIONS NECESSARY TO ACHIEVE THE PERFORMANCE STANDARDS.~~

~~(C) THE DEPARTMENT SHALL ADOPT REGULATIONS TO CARRY OUT THE PROVISIONS OF THIS SUBTITLE.~~

(a) The Department of the Environment shall study, in collaboration with the persons and organizations listed in subsection (c), the establishment and

implementation, by January 2006, of an electronic waste collection system in the State for the collection and recycling of electronic waste, including cathode ray tubes.

(b) As part of the study the Department shall consider:

(1) methods of funding the system;

(2) possible locations in the State for electronic waste collection facilities that are convenient and accessible for all the citizens of the State;

(3) methods of collecting, packaging, and transporting electronic waste from the collection facilities to recycling facilities; and

(4) economic development opportunities arising from an electronic waste collection system.

(c) In conducting the study, the Department shall collaborate with representatives of:

(1) local governments;

(2) environmental groups;

(3) electronics manufacturers, retailers, and recyclers;

(4) the solid waste industry; and

(5) members of the Maryland General Assembly.

(d) The Department shall report its:

(1) recommendations for funding an electronic waste collection system in the State to the Governor and, subject to § 2-1246 of the State Government Article, the General Assembly on or before December 31, 2004; and

(2) findings and recommendations for the establishment and implementation of an electronic waste collection system in the State to the Governor and, subject to § 2-1246 of the State Government Article, the General Assembly on or before July 1, 2005.

SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall take effect July 1, 2004. This Act shall remain effective for a period of 1 year and 1 month and, at the end of July 31, 2005, with no further action required by the General Assembly, this Act shall be abrogated and of no further force and effect.

APPENDIX B

Workgroup Meeting Notes

Electronics Recycling Workgroup Meeting
August 24, 2004 ● 1:00 p.m.
Environmental Matters Committee Hearing Room, Annapolis, MD
NOTES

Members in Attendance:

Delegate Elizabeth Bobo
Delegate William Bronrott
Bob Donald (CDM)
Carol Dowling (MML)
Erin Favazza (MACo)
Mike Fannon (CDM)
Josh Ferguson (Counsel ENV)
Delegate Barbara Frush
Brad Heavner (MaryPIRG)
Delegate Patrick Hogan
Richard Keller (MES)
Mike Keogh (E-Structors)
Bill Kress (HP Counsel)
Vinnie Legge (MACo/Carroll County)
Jason Linnell (EIA)
Margaret McHale (Counsel EHE)
Delegate Maggie McIntosh
Delegate Karen Montgomery
Delegate Dan Morhaim
Mark Nelson (HP)
Steve Pattison (MDE)
Kendl Philbrick (MDE)
Tom Saquella (MD Retailers Assoc.)
Vickie Schade (MDE)
Senator Sandra Schrader
Mark Sharp (Panasonic)
Mike Snovitch (MES)
Horacio Tablada (MDE)

Welcome and Introductions
Delegate McIntosh welcomed attendees and stated that her goal for the meeting was to set the stage for future workgroup meetings, review the legislation (House Bill 109), review outstanding issues related to electronics recycling, and turn future meetings over to the co-chairs, Delegates Bobo and Montgomery. The next meetings will be held on September 7th and 21st and October 5th at 1:00 p.m. in the Environmental Matters Committee Hearing Room.

Bill Review
Josh Ferguson provided an overview of House Bill 109. Delegate McIntosh stated that the Environmental Matters Committee feels strongly that electronics waste needs to be addressed in Maryland and she hopes to see the road toward a solution under construction in 2005 with implementation throughout the State in 2006. The approach should be realistic and maybe regional, but consumers should have options.

MDE Update
Secretary Philbrick provided a summary of Maryland's eCycling efforts and explained that although EPA and private industry provided some funding for pilot efforts and MDE has provided limited amounts of funding for eCycling, there is no money remaining for these activities. He stated that there are permanent electronics collection facilities in Howard, Montgomery, Prince George's and Wicomico Counties and that a sustainable program needs to be easily available for all citizens. There seem to be two general approaches to funding for electronics recycling: a consumer fee at purchase or shared responsibility. Secretary Philbrick expressed concern regarding security of personal/financial information remaining on computers

when residents take them to electronics collection events or permanent collection sites and requested that the Workgroup look at this issue.

Representatives Remarks
Representatives of the electronics manufacturing and recycling industries indicated that there are parts of electronics that are salvageable and that have value. Some industry representatives indicated that there may be a net expense with recycling electronics, while others indicated that they make a living reselling electronics parts. It was stated that there are differences in recycling of computers and televisions. Concerns were also stated regarding problems with the implementation of electronics waste legislation recently passed in California and Maine and that the Workgroup should look at all states' legislation.

Future Issues
Delegate McIntosh requested that members provide issues that need to be researched and discussed by the Workgroup. There was quite a bit of discussion by the group and the following list of issues was developed:

1. What is the value of electronics waste parts? Is it profitable to recycle them?
2. What is being done to address consistency in manufacturing electronics to encourage recycling regionally or nationally?
3. What is the status of electronics recycling in Europe and what practices there are transferable to the US?
4. Are there possibilities for encouraging electronics recycling through State procurement practices? Can there be procurement breaks?
5. What are other states doing related to recycling electronics and legislating this activity?
6. What are the issues and differences between recycling computers and recycling televisions?
7. What is being done in Maryland with electronics recycling now?
8. Who is available to recycle electronics in Maryland?
9. How are we paying for electronics recycling in Maryland?
10. What are the best practices in other states and countries?
11. What does industry think are the problems and why?
12. What works for industry and what doesn't?
13. Where is industry moving on electronics recycling?
14. Will electronics waste be a continuing problem?
15. What are the barriers to businesses interested in electronics recycling? Why aren't there more electronics recyclers?
16. What are the issues related to security of personal and financial information left on computers destined for recycling?
17. If not all electronic wastes can be addressed in Maryland, can some of them be addressed?
18. What are the issues related to toxics and environmental impacts from disposal of electronics wastes?
19. What are the environmental issues related to disposal of electronics in Waste-To-Energy facilities?
20. What components of electronics are most harmful to the environment?

21. What are the hazardous constituents in specific components of electronics?
22. What federal legislation has been introduced?
23. What is the volume (how many computers and televisions) of the problem?
24. What are the results of the Office Depot/Hewlett Packard take back project?

Future Meetings and Agenda

September 7, 2004 Meeting:

- MML and MACo invite 2 of the 4 counties that have permanent electronics collection facilities and at least one other county that has conducted electronics collection to provide information about their programs regarding how they are funding their programs, is it working, are there gaps and access issues, etc.; MACo will share their survey of the counties regarding electronics collection and recycling; MDE to present information on electronics collection and recycling statewide. MDE and others present information regarding toxics in electronic wastes and environmental issues related to management of electronic wastes; information specific to impacts on waste-to-energy facilities, lists of specific hazards and value of each component of electronics requested.
- Hewlett-Packard provides update/results on Office Depot/HP take back program.

September 21, 2004 Meeting

- Retailers and manufacturers present information on practices that work and why, practices that are problematic and why, where industry is moving on the issue, will the problem continue to grow.
- MDE and others present information about best practices in electronics collection and recycling in other states and countries; California, Maine, and European Union laws and practices were specifically requested.

October 5, 2004 Meeting

- Electronics recyclers present information on problems and practices impacted them, what are the gaps, and why there aren't more electronics recyclers in Maryland.
- Electronics recyclers and others present information regarding security of personal ad financial information left on hard drives destined for recycling.

Delegate McIntosh adjourned the meeting at approximately 2:15 pm.

Electronics Recycling Workgroup Meeting
September 7, 2004 ● 1:00 p.m.
Environmental Matters Committee Hearing Room, Annapolis, MD
NOTES

Members in Attendance:

Delegate Elizabeth Bobo
Delegate William Bronrott
Bob Donald (CDM)
Candace Donoho (MML)
Erin Favazza (MACo)
Mike Fannon (CDM)
Josh Ferguson (Counsel ENV)
Delegate Barbara Frush
Brad Heavner (MaryPIRG)
Delegate Patrick Hogan
Pam Kasemeyer (MDSWA/Subtractions)
Richard Keller (MES)
Mike Keough (E-Structors)
Larry King (HP)
Jason Linnell (EIA)
Delegate Dan Morhaim
Victoria Schade (MDE)
Senator Sandra Schrader
Mark Sharp (Panasonic)
Horacio Tablada (MDE)
Steve Wise (MDSWA/Subtractions)
Jeffrie Zellmer (MD Retailers Assoc.)

Introductory Remarks and Old Business
Delegate Bobo asked the Workgroup members to review the draft August 24, 2004 meeting notes. She advised that Delegate McIntosh had reviewed the notes and that Delegate McIntosh would be preparing a statement that would more strongly reflect her intentions for the Workgroup. It was requested that under "Future Issues" that need to be researched and discussed by the Workgroup, the discussion of a definition of electronic waste be added. In addition, it was requested that a list of official members be provided to the Workgroup during the next meeting.

Maryland Association of Counties (MACo) Presentation
Erin Favazza presented information and a handout concerning a survey of the counties about eCycling that MACo conducted in preparation for the electronics recycling bills that were introduced during the 2004 Legislative Session. She advised that the Counties are interested in eCycling but that it is critical for them to have outside funding to assist them with continuing these activities. She stated that she hoped that one of the results of the Workgroup would be a partnership of its members.

Alan Wilcom, Howard County Department of Public Works, gave a presentation on Howard County's permanent electronics collection facility. This facility began operation as a pilot with a computer recycler in the county in December 1999 collecting computer components except monitors from residents. Two years later, the County began to collect all computer components, including monitors, and televisions, with cathode ray tubes (CRT's) collected separately from other components in roll-off containers. Since the beginning of the program, the County has collected 212 tons of electronics and 167 tons of CRT's from residents and business. Since October 2001, the County has spent approximately $62,529 on recycling CRT's; other electronics have been taken by the recycler, Subtractions, LLC, for free. The County has a 5-year contract with their electronics recycler that ends in 2006.

Shirley Steffey, Calvert County Department of Public Works, provided information on Calvert County's three, one-day electronics collection events. These events have been funded through the State and partly through the County and have been managed by Subtractions, LLC. These events have involved one drop-off point for County residents and have been staffed by Subtractions, two County employees, and community service workers. With each event, the participation and electronics tonnage have increased and Ms. Steffey frequently receives calls requesting additional events. She stated that without funding from the State, Calvert County could not have supported these events alone. She also advised that surveys of participants indicated that most residents are not willing to pay for these events and that if residents are charged a fee, the County may not be assured that they will be recycled in the County.

Maryland Municipal League
Candace Donoho provided information related to electronics recycling on the 157 incorporated cities and towns in Maryland. She advised that the cities and towns are not as far along as the Counties and that many of the cities and towns rely on the Counties for recycling and waste management. She referenced a Massachusetts study that reported that electronics are the fastest growing sector of the municipal solid waste stream. The City of Takoma Park is planning a collection event through a partnership with MDE, MES, and Subtractions. The City of Salisbury has collected approximately 19 tons of electronics through curbside collections funded partly by the City and largely by the State through Subtractions, LLC. Ms. Donoho advised that the Massachusetts study indicated that curbside collection is more expensive than drop-off collection. The City tried a business drop-off in April but this event was not successful. The City of Greenbelt hold collection events four times per year through its contractor, Computer Donation Management (CDM). Approximately 80 cars participate in each event. The City staffs these events and delivers the materials collected to CDM. Baltimore City also uses CDM for collection events. University Park hold collection events through Subtractions, LLC three times per year. The City of Leonardtown uses Southern Maryland Applied Research and Technology Company (SMARTCO), a non-profit organization that refurbishes computers and teaches computer repair, to handle electronics.

MDE Overview of eCycling, Electronic Waste Composition, and Environmental Impacts
Horacio Tablada provided an overview and handout regarding electronics recycling in Maryland since it began in October 2001 and described the EPA Region 3 eCycling Pilot Project and the State's efforts since that project ended. Over 5.7 million pounds of unwanted electronics have been collected in Maryland by State and local governments since beginning the program. Materials have been collected through 50 one-day events, 4 two-day events, and 5 permanent collection facilities (Howard, Prince George's, Montgomery, and Wicomico Counties and the City of Greenbelt). The State has been utilizing about $79,000 in unspent capital projects funding to support these activities for the last two years but there is no funding to support additional activities once that money is gone this fall. Mr. Tablada stated that permanent facilities are the anchor for the Maryland and there is a lot of recycling of electronics that the State is not aware of because there is no requirement to report these activities. Citizens want electronics collection and there are business opportunities and new markets that could be good for the State.

Hilary Miller provided an overview and a handout regarding the potentially hazardous components of electronic wastes. EPA reports that electronic wastes compose 2-5% of the

municipal waste stream and that the National Safety Council reported that only about 11% of discarded computers were recycled in 1999..Toxic materials contained in electronics that may harm human health and the environment if mismanaged include lead, mercury, cadmium, chromium, arsenic, and brominated flame retardants. CRT's are the largest source of contaminants in electronics and are one of the largest sources of lead in municipal waste. Ms. Miller provided copies of a document prepared in 1996 by the Microelectronics and Computer Technology Corporation that lists the various components of personal computers, their locations in the computer, the weight of those materials in the computer, and the recyclability of those materials. This information was also provided by Delegate Morhaim to support the 2004 legislative session electronics bills.

General Discussion

Jason Linnell advised that he could provide more up to date information regarding this topic and that EPA has now says that electronics comprise 1% of the municipal solid waste stream. Mr. Linnell also described ways in which the electronics industry is designing for the environment, such as replacing screws with snap technology. Larry King added that costs of manufacturing to improve recyclability must have some financial benefit to the manufacturer. He also added that there is no standardization on the types of plastics used in manufacturing electronics and that color of the plastic is a large deterrent to recycling plastics.

There was discussion regarding how difficult it is to obtain accurate numbers regarding sales of electronics and recycling in the US and particularly by State. Mark Sharp said he could provide projections of electronics that would be entering the waste stream based on real world electronics collections in other places.

Larry King provided an overview of the Office Depot/HP electronics collection pilot that just concluded September 6th. He said that it would be an understatement to say that the project was successful and that this effort proves that shared responsibility works. In addition backhauling is an inexpensive way to get materials from the collection point to the consolidation point. Mr. King said that he should have final numbers and material breakdowns to share with the Workgroup in about two weeks. He advised that the average age of materials being collected in Europe is 9-11 years and that HP wants to validate that information for the US.

Delegate Bobo provided the following items for the September 21st meeting:

1. Electronics retailers and manufacturers are to make a presentation on practices that work and why, practices that are problematic and why, where industry is moving on the issue, and will the problem continue to grow.
2. MDE and others are to present information about best practices in electronics collection and recycling in other states and countries, with emphasis on California, Maine, and European Union laws and practices.
3. The next two meeting dates and the structure of them will be determined.
4. Delegate McIntosh's statement regarding her intention for the Workgroup will be provided.

Delegate Bobo adjourned the meeting at approximately 2:00 pm.

Electronics Recycling Workgroup Meeting
September 21, 2004 ● 1:00 p.m.
Environmental Matters Committee Hearing Room, Annapolis, MD
NOTES

Members in Attendance:

Delegate Elizabeth Bobo
Heather Bowman (HP)
Delegate William Bronrott
Bob Donald (CDM)
Erin Favazza (MACo)
Mike Fannon (CDM)
Josh Ferguson (Counsel ENV)
Delegate Barbara Frush
Brad Heavner (MaryPIRG)
Jonas Jacobson (MDE)
Pam Kasemeyer (MDSWA/Subtractions)
Richard Keller (MES)
Mike Keough (E-Structors)
Larry King (HP)
Venzena Legge (Carroll County/MACo)
Margaret McHale (Counsel EHE)
Delegate Karen Montgomery
Renee St. Dennis (HP)
Victoria Schade (MDE)
Senator Sandra Schrader
Mark Sharp (Panasonic)
Horacio Tablada (MDE)
Steve Wise (MDSWA/Subtractions)
Jeffrie Zellmer (MD Retailers Assoc.)

Introductory Remarks and Old Business
Delegate Montgomery asked the Workgroup members to review the draft September 7, 2004 meeting notes. The notes were approved as written. Delegate Bobo advised that Delegate McIntosh would be preparing a statement that would more strongly reflect her intentions for the Workgroup.

Electronics Manufacturers Presentation: Panasonic – Mark Sharp
Mr. Sharp provided a PowerPoint presentation (handout of slides provided) suggesting that an Advance Recycling Fee (ARF) with Shared Responsibility is the right answer to the Maryland electronic waste issue. He advised that the ARF is collected on the first sale of a product, is collected by the retailers, and is submitted to a government agency or a third party non-profit organization which pays approved collectors and recyclers to process electronic wastes. Mr. Sharp said that the advantages of the ARF are that it provides sufficient funding, convenient service, the least financial burden on local governments, builds upon and utilizes existing infrastructure, addresses historic wastes and products made by now defunct manufacturers, and provides for consumer education. He added that the manufacturer mandate with shared responsibility approach generally does not cover collection costs, which are left to local governments, provides little incentive for improved environmental design, and is usually supported by larger companies that currently offer recycling options to customers. Mr. Sharp advised that he believes that Maryland will not be managing electronics waste indefinitely and that a national program will be implemented in which an ARF will help with the transition to the national program. He also showed a number of posters that displayed the various brands of computers, monitors, and televisions and the percentages of these brands that were returned for recycling in Florida, demonstrating the difficulty in brand sorting when recycling electronic wastes. Mr. Sharp also provided a handout entitled "Estimates of Televisions and Computer Monitors Discarded Annually in Maryland" which estimates that Maryland may be expected to

collect about 159,000 televisions for recycling or 0.03 per capita annually and about 0.023 computer monitors per capita on average are discarded annually in Maryland.

Electronics Manufacturers Presentation: Hewlett- Packard (HP) – Larry King
Mr. King gave a PowerPoint presentation that described HP's position as a manufacturer and recycler of about 36,000 electronic products. He advised that HP has two recycling facilities in California and Tennessee that recycle about 6 million pounds of electronics per month. He suggested that shared responsibility works because it uses existing infrastructure and is convenient. He used the example of the recent HP/Office Depot take back project to show that convenient recycling leads to better participation. Other retailers also participate in electronics recycling. The shared responsibility method also provides for donations of electronic products, design for recycling and design for environment improvements, and a market driven system. Mr. King advised that the television and information technology industries have different types of business models and product life cycles that result in discrepancy in views on electronics recycling. However, there needs to be a consistent program across the states. Mr. King described the California ARF legislation and some issues related to improper and unsafe methods of electronics recycling outside the US. He stated that HP intends to manage its own electronic wastes and a share of the orphans and will incorporate local businesses into their plans if it makes sense and these companies meet HP's standards and handle materials appropriately. Mr. King also stated that if a take back/drop off program for HP products will be established in Maryland with local retailers and/or local governments, he would favor a 7-day per week program.

Maryland Retailers Association – Jeffrie Zellmer
Mr. Zellmer advised that the Maryland Retailers Association has some 800 members with around 1,400 business locations. He mentioned that the federal Department of Commerce was holding a meeting with stakeholders and the Technology Administration this same day to discuss the national and global issue of management of electronics waste. Retailers are concerned that electronics can be easily purchased on the internet and out of state by Marylanders, yet the problem with recycling and disposal of these products remains in Maryland, particularly with local governments. In addition, an ARF would create problems for retailers with accounting, and collection by retailers would create some logistical problems with storage and might put small retailers out of business. Mr. Zellmer said that there is a system in place in Maryland now that is working and that this system should remain. If a retailer wants to become involved in electronics recycling on a voluntary basis, that is fine, but there should not be a mandatory requirement for participation by retailers. Better education of consumers regarding the various options for electronics recycling should be expanded and Maryland should wait for the federal government to determine a national solution.

MDE Overview of Other States' Legislation – Horacio Tablada
Mr. Tablada provided an overview of other states' legislation related to electronics recycling, and provided copies of California, Maine, and Massachusetts legislation and the European Union Waste Electrical and Electronic Equipment (WEEE) Directive and Restriction of the Use of Certain Hazardous Substances (RoHS) Directive. Arkansas passed a law that requires State agencies to follow certain procedures for reuse and recycling of surplus computer and electronic equipment. Proceeds from the sales of these materials are used to provide grants and market the reuse and recycling of electronics. Arkansas is considering a landfill ban no sooner than January

1, 2005. Florida has provided a grants program and Oregon and Washington have formed advisory committees to study the issue. Minnesota has imposed a ban on disposal of electronic products containing cathode ray tubes in mixed municipal solid waste beginning July 1, 2005. California's ARF legislation was described, as was its connection to the European Union directives. Maine's shared responsibility legislation bans disposal of CRT's in landfills as of January 1, 2006 and bans a manufacturer from selling its products in the state unless it has an approved plan for managing the safe collection and recycling of electronic wastes. Massachusetts has had a ban on disposal, incineration, and transfer for disposal at a solid waste disposal facility of CRT's since April 1, 2000.

General Discussion

Delegate Montgomery summed up the progress of the Workgroup so far and her desire to begin thinking about areas of consensus within the Workgroup. She requested that proposals for a definition of electronic waste be prepared for the next (October 5th) meeting. Delegate Montgomery said that she hoped for a conclusion by the Workgroup after the October 19th meeting.

Delegate Montgomery adjourned the meeting at approximately 2:35 pm.

Electronics Recycling Workgroup Meeting
October 5, 2004 ● 1:00 p.m.
Environmental Matters Committee Hearing Room, Annapolis, MD
NOTES

Members in Attendance:

Delegate Elizabeth Bobo
Heather Bowman (HP)
Bob Donald (CDM)
Erin Favazza (MACo)
Mike Fannon (CDM)
Josh Ferguson (Counsel ENV)
Brad Heavner (MaryPIRG)
Pam Kasemeyer (MDSWA/Subtractions)
Richard Keller (MES)
Dave Kelley (E-Structors)
Mike Keough (E-Structors)
William Kress (HP)
Sarah Manning (Subtractions, LLC)
Margaret McHale (Counsel EHE)
Delegate Karen Montgomery
Delegate Dan Morhaim
Victoria Schade (MDE)
Senator Sandra Schrader
Mark Sharp (Panasonic)
Scott Wilson (Subtractions, LLC)
Jeffrie Zellmer (MD Retailers Assoc.)

Introductory Remarks and Old Business
Delegate Bobo asked the Workgroup members to review the draft September 21, 2004 meeting notes. The notes were approved as written. Delegate Bobo also reviewed the agenda and strategy for next steps for the Workgroup.

Electronics Recyclers Presentation: Computer Donation Management, Inc. (CDM) – Bob Donald
Mr. Donald provided a PowerPoint presentation (handout of slides provided) describing background information about CDM and explaining that he believes that there are enough electronics recyclers in Maryland to handle electronic wastes that are generated. Mr. Donald also described the company's export guidelines that include a requirement that the company not export scrap or non-working monitors and PC's overseas for scrapping and that working/refurbished computers and systems are sent overseas. He said that his company is considered a manual recycler. His company uses manual processing because there is more value in reusable parts, hazardous components such as batteries are removed prior to recycling, and this process creates jobs. He said that most of his dismantlers are handicapped workers. Mr. Donald suggested that the model he favored for addressing the electronics waste issue is a ban on disposal of cathode ray tubes (CRT's) in landfills and waste-to-energy facilities with an advanced recycling fee. He said that there are no pro's to the shared responsibility model because it does not help recyclers, does not motivate the public to recycle electronics, and that separation of the different electronics brands is not easy. An advanced recycling fee with a ban would provide more material to recycle, funding for programs, keep heavy metals out of the waste stream, and create more jobs in Maryland. Mr. Donald recommended a two-year pilot collection study with regional consolidation points, perhaps excluding televisions at first, to determine participation rates and costs.

Electronics Recyclers Presentation: E-Structors – Mike Keough
Mr. Keough gave a PowerPoint presentation (handouts of slide provided) that explained that his company has a different process for handling electronic wastes that involves shredding and separation technologies for electronics recycling, product destruction, information destruction, and document destruction. The process mechanically liberates whole components through destruction and provides material separation by commodity, providing destruction of sensitive information. His process minimizes labor needs while maximizing the volumes of electronic wastes that can be processed, with nothing thrown away. Finished, recyclable products include steel, non-ferrous metals, and non-metallic "E-Scrap." CRT's are collected for demanufacturing, testing, and redeployment. Mr. Keough also advised that he believes that Maryland has more than enough capacity to handle electronic wastes being generated but that the industry has some problems related to the lack of legal clarification on the applicability of RCRA to the electronics recycling industry and the lack of industry oversight by regulators to encourage responsible processing. He said that his company's activities could fit into either a system of shared responsibility or an advanced recycling fee, however he would favor a ban with mandatory recycling of electronics.

Electronics Recyclers Presentation: Subtractions, LLC – Scott Wilson
Mr. Wilson described his company's operations as one involving dismantling of electronics, mostly by hand, primarily for the residential sector, with contracts for permanent electronics waste collection facilities in Prince George's and Howard Counties and with the State of Maryland. He said that his company recently purchased a shredder that will be used for shredding hard drives to provide data security. Subtractions, LLC does not process CRT's but ships them out for recycling. Mr. Wilson said that electronics collection events work well for residents and that people are willing to drive some distance to participate and to pay $5-10 per monitor. He said that he believes that curbside electronics recycling is expensive and won't work well, but that the permanent facilities Subtractions, LLC services have good citizen participation. The company can reduce their fee for counties if the counties can provide some labor for the effort. Mr. Wilson said that citizens won't like to pay a fee up front for electronics recycling and that a system should include local recyclers, but not brand separation which would create extra tracking and billing problems for his company. Sarah Manning advised that the company does not ensure data security and that citizens should take responsibility for their own information/data security.

Solid Waste Haulers Presentation: Maryland Delaware Solid Waste Association – Pam Kasemeyer
Ms. Kasemeyer advised that solid waste haulers are transporters of materials and do not control what goes into dumpsters, therefore an electronics waste disposal ban would be a problem without a collection and recycling system in place or some alternative to disposal. She advised that the ban on disposal of tires showed an increase in illegal dumping and increased problems with management of tires. Tires are easier to see in the waste stream than electronics, which may be very small and hard to spot, unless a there is a truckload of them. Ms. Kasemeyer also said that a ban would create an enforcement and liability issue for haulers and counties and a collection system must be working before materials are banned. Permanent collection at county disposal sites creates citizen awareness of the need to recycle electronics. She said her organization favors a funding system to help counties with establishing permanent collection sites for residents and financial support for existing facilities. Responsible electronics recyclers

are working with local jurisdictions to get good deals for managing electronics. Ms. Kasemeyer said that large companies have a way to handle their electronics.

General Discussion
Delegate Bobo summarized next steps for the Workgroup members involving proposals for recommendations and responsibility for developing the final recommendations to the Governor and the General Assembly. The October 19th Workgroup meeting will begin at 3:00 p.m., rather than 1:00 p.m.

Delegate Bobo adjourned the meeting at approximately 2:55 p.m.

Electronics Recycling Workgroup Meeting
October 19, 2004 ● 3:00 p.m.
Environmental Matters Committee Hearing Room, Annapolis, MD
NOTES

Members in Attendance:

Delegate Elizabeth Bobo
Bob Donald (CDM)
Candace Donoho (MML)
Erin Favazza (MACo)
Josh Ferguson (Counsel ENV)
Brad Heavner (MaryPIRG)
Delegate Patrick Hogan
Jonas Jacobson (MDE)
Richard Keller (MES)
Mike Keough (E-Structors)
Venzena Legge (MACo/Carroll County)
American Joe Miedusiewski (Counsel HP)
Delegate Karen Montgomery
Mark Nelson (HP)
Michael Sanderson (MACo)
Victoria Schade (MDE)
Senator Sandra Schrader
Mark Sharp (Panasonic)
Horacio Tablada (MDE)
Steve Wise (MDSWA/Subtractions)
Jeffrie Zellmer (MD Retailers Assoc.)

Introductory Remarks and Old Business
Delegate Montgomery asked the Workgroup members to review the draft October 5, 2004 meeting notes and reviewed the agenda for the day's meeting. Horacio Tablada described MDE's work to consolidate the recommendations from Workgroup members into a chart for the definition of electronics waste and a chart for funding and a collection system for electronics recycling. He asked that the members provide MDE with any corrections or misinterpretations of the recommendations that were submitted by them.

Electronics Waste Definition
The Workgroup members reviewed the summary information in the electronics waste definition chart and discussed the merits of including and excluding certain materials. It was clarified by Mark Nelson/HP that the chart should say "No" under the column entitled "CPU's" for HP's recommendation as he felt that legislation would be more successful if the focus is on cathode ray tubes (CRT's). He further explained that CPU's can be found in many items, including children's toys, and that these types of CPU's should not be included in the definition. Some members agreed that legislation would be easier to pass if the definition was limited to CRT's. Brad Heavner/MaryPIRG also clarified that MaryPIRG's row of the chart should indicate under the columns "Computer Monitors," "Laptops," and "CPU's" that only personal computers should be included.

Several members favored a broad definition of electronics waste to include electronically controlled products from computers to regular phones and phone systems to microwaves. Other members indicated that the materials that they would like to be included in the definition of electronics waste may depend on the collection and recycling system implemented. In addition if the system were to be funded by an advanced recycling fee, the legislation requiring the fee would likely define those materials. Although there was no true consensus on a complete definition for electronics waste, the members who provided written recommendations generally

agreed that the definition would include, at a minimum, televisions with CRT's and computer monitors with CRT's. There was no clear consensus on whether to include any other materials.

Funding/Collection System

The Workgroup members reviewed the chart for funding/collection system recommendations. Mark Nelson requested that in the row for HP under the column entitled "Ban?" that the statement "No Position" be entered. In addition, Steve Wise clarified that for the MD DE Solid Waste Association and Subtractions LLC row under the column labeled "Brand Sorting?" the entry should be "Not referenced in summary." Also, Richard Keller/MES suggested that perhaps in the row of recommendations by Delegate Dan Morhaim and the column labeled "Role of Manufacturers" the word "State" should be inserted after "Receive."

There was much discussion and disagreement on the two major funding/collection systems (Advanced Recycling Fee and Shared Responsibility) highlighted. Summary of discussions on major topics are discussed below:

Ban: Some members felt that a ban on electronics disposal at solid waste facilities would be beneficial because it would prevent potential toxic materials from entering landfills and causing pollution and would force electronics waste to be properly managed. However, others were strongly opposed to a ban because it would place the burden on local governments and solid waste haulers to keep these materials out of the waste stream and encourage illegal dumping. There was no consensus or majority position for this issue.

Advanced Recycling Fee (ARF): Some members were very supportive of an advanced recycling fee on the sales of new electronics products to provide funding to support and assure Statewide electronics recycling. The funds could be managed and distributed by the State or by a third party, non-profit, independent organization overseen by the State. However, other members stated that an ARF would not provide any incentive for manufacturers to take responsibility by redesigning products and using less toxic materials in manufacturing. Other members said that the requirements placed on manufacturers in the European Union and current efforts by industry to redesign electronic products would result in more environmentally friendly products in the US. Concerns were also expressed by many members that an ARF would cause Maryland consumers to go out of State to make electronics purchases to avoid the fee. In addition, it was mentioned that it would be difficult to collect the fee on internet sales of electronics. It was explained that California's ARF level is based on new sales of electronics that will eventually enter the waste stream and is not designed to cover electronics that are in residents' basements and garages. Other funding sources, including the State's Used Tire Cleanup and Recycling Fund, were suggested to support electronics recycling. There was no consensus or majority position for this issue.

Shared Responsibility: Some members favored a system that would expand on the infrastructure already in place in Maryland and where all stakeholders, including government, recyclers, manufacturers, retailers and non-profits, participate based on their expertise. In this way, none of the stakeholders with a current role in electronics recycling activities would be hindered from continuing those activities and there may be increased roles for some stakeholders. Some members stated that permanent collection facilities should be established in jurisdictions that can afford them. It was also mentioned that the jurisdictions that already have

permanent collection facilities plan to continue to operate them and that several additional jurisdictions are interested in establishing permanent collection sites. However, other members were clearly against shared responsibility. In addition, there was clear disagreement on whether each manufacturer should be responsible for their own products, and therefore, "brand sorting", in a shared responsibility system. Some members indicated that brand sorting would increase costs of collection and recycling electronics. There was no consensus or majority position on this issue.

Roles of Manufacturers, Recyclers, Retailers, Local Government, State Government, and Others: There were varied roles recommended for each group of stakeholders depending upon the system preferred. The electronics recyclers representatives at the meeting indicated that they can process the electronics that they receive, and would like to have more. It was mentioned that one of the major problems with the current electronics collection system in Maryland now, however, is that there is insufficient funding for consolidation of waste electronics. Some counties cannot afford to collect these materials through events or permanent facilities. It was noted that there should be more awareness of other options for citizens to recycle electronics, such as through retailers, recyclers, etc. It was also stated that options for electronics recycling need to be available to citizens at all times, not just through periodic collection events. There was no consensus or majority position on these issues.

Implementation Date/Cost: Not all recommendations included implementation dates or costs. Implementation dates ranged from 6 months from enactment of a law to a phased approach over 5 years and did not seem to depend upon the type of system preferred. Costs were varied based on the type of system preferred. There was no consensus or majority position on these issues.

Legislation: There was consensus that legislation would be required to implement any electronics collection and recycling system that was recommended by the members.

General Discussion

Overall, the members in attendance expressed a desire for a national solution to the issue of electronics waste collection and recycling. Delegate Montgomery suggested that since the only consensus reached during the meeting involved the need to propose legislation, perhaps members would like to meet in smaller groups to continue discussions on some of the issues in an attempt to reach a compromise. Although there was no response on that suggestion, Delegate Montgomery requested that the members continue to work together to try to agree on a proposal for MDE. She asked Delegate Bobo to describe the next steps of the Workgroup. Delegate Bobo stated that MDE would summarize the discussions from this meeting, enhance the definitions and funding/collection system recommendations charts, and develop recommendations for the Workgroup. Delegates McIntosh, Montgomery, and Bobo, Senator Schrader, Committee staff, and MDE would then meet to finalize the recommendations. Then it would be determined if another meeting of the Workgroup will be necessary.

Delegates Bobo and Montgomery thanked the Workgroup members for their efforts and adjourned the meeting at approximately 4:30 p.m.

ELECTRONICS RECYCLING WORKGROUP DEFINITION RECOMMENDATIONS

MEMBER	TELEVISIONS	COMPUTER MONITORS	LAPTOPS	CPU's	KEYBOARDS, MICE, OTHER PERIPHERALS	PRINTERS	FAX MACHINES	CELL PHONES	COPIERS	AUDIO, STEREO, EQUIPMENT	EXCLUSIONS
Maryland Association of Counties - Venzena Legge	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	None stated
MD DE SW Association and Subtractions, LLC - Pam Kasemeyer	Yes	Yes	Yes; No if ARF	Yes: No if ARF	Yes; No if ARF	Yes: No if ARF	Yes; No if ARF	Yes; No if ARF	Yes; No if ARF	Yes: No if ARF	More if ARF
Hewlett-Packard Company - Mark Nelson and Heather Bowman	Yes - Household TV's containing CRT's	Yes - Household computers containing CRT's	No	No	No	No	No	No	No	No	None stated
Panasonic - Mark Sharp	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	None stated
Maryland Association of Counties - Erin Favazza	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	None stated
Delegate Dan Morhaim	Yes - with CRT's	Yes- home or business	Yes?	Yes	Yes	Yes	Yes?	No	No?	No	None stated
MaryPIRG - Brad Heavner	Yes, especially CRT's	Yes, especially CRT's	Yes- personal computers only	Yes	No	No	No	No	No	No	Consumer products not commonly thought of as computing devices such as toys and kitchen appliances
Maryland Retailers Association - Jeff Zellmer	Yes - CRT's and Flat panels	Yes - CRT's and Flat panels	Yes?	No unless personal computer	No	No	No	No	No	No	Portable products or products contained in an appliance
Computer Donation Management, Inc. - Bob Donald	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	White goods

ELECTRONICS RECYCLING WORKGROUP FUNDING/COLLECTION SYSTEM RECOMMENDATIONS

MEMBER	BAN?	ADVANCED RECYCLING FEE?	OTHER FUNDING SOURCE?	SHARED RESPONSIBILITY?	ROLE OF MANUFACTURERS	ROLE OF RECYCLERS	ROLE OF RETAILERS	ROLE OF LOCAL GOVT.	ROLE OF STATE GOVT.	ROLE OF OTHERS (NON-PROFITS ETC.)	ROLE OF CITIZENS	ADDRESSES ORPHANS?	IMPLEMENTATION DATE	COST	IN PLACE WHERE	DESIGN FOR ENVIRONMENT	REQUIRES LEGISLATION?	BRAND SORTING	USES EXISTING INFRASTRUCTURE
Maryland Association of Counties - Venzena Legge	No	No	Manufacturers pay for collection, treatment, recovery, and disposal of electronic waste	No	Pay for collection, treatment, recovery, and disposal of their own products; establish drop off locations with retailers and recyclers; responsible for orphans	Establish collection sites with manufacturers; recycle collected materials	Establish dropoff locations with manufacturers	Establish collection sites with manufacturers; provide materials to recyclers for processing	Establish collection sites with manufacturers; provide materials to recyclers for processing	None stated	Provide materials to collection sites	Yes	Funding; January 2006; System July 2006	None stated	European Union	Yes	Yes	Yes	Yes/No
MD DE SW Association and Subtractions, LLC - Pam Kasemeyer	No	Possibly-nominal with sunset in 2 years	Yes - State general fund appropriation; use of Tire Fund short term	Yes	Compliance with EU Standards; procurement preferences for design standards	Work with State, local, and commercial entities for efficient, environmental-ly sound processing	Participate in public education programs; if ARF, collect and transmit fee; possible role in collection events	Work with State, recyclers, and retailers to establish permanent collection facilities or expand # of collection events	Distribute funds to local govts., recyclers, and others, possibly recyclers; Statewide education program; enforcement of ARF payment if adopted	Participate in collection events and/or a public education program	Increase recycling activities; pay ARF if adopted	No	Summer 2005 for two years or when funding available	Estimates: $80,000 for status quo; $500K to $1M for each permanent site	Concluded EPA Region 3 project; ARF in California	None stated	Yes	No	Yes
Hewlett-Packard Company - Mark Nelson and Heather Bowman	No Position	No	Yes - Manufacturers	Yes - Stakeholders participate based on expertise; preference for consolidation centers, perhaps using existing infrastructure	Responsible for funding transportation and recycling of their branded products; submit plan to MDE on how to collect and recycle their products; share of orphans; could establish consolidation centers	Work with manufacturers as needed	Collection from consumers; transportation to consolidation points; education	Collection from consumers; transportation to consolidation points; education	Collection from consumers; transportation to consolid-ation points; education; enforcement; perhaps establishment of consolid-ation centers	Collection from consumers; transportation to consolidation points; education	Get their materials to collection point/event or consolidation center	Yes	Less than one year from Governor's signature	None stated	European Union; completed EPA Region 3 project; soon in Maine; pilot in Pacific NW with Good Guys and TV manufactuers; nationwide HP/Office Depot; Florida with Best Buy	Yes	Yes	Yes	Yes
Panasonic - Mark Sharp	No	Yes - nominal fee on sales of new products	No	No to consolidate and sort approach	Collect and transmit ARF on direct sales; provide information on products to recycler; report to State on design for environment initiatives, progress on use of recycled materials and recyclability; integrate compliance with EU directives; form nonprofit to administer State program	Provide recycling services with State certification or under contract with not for profit running State program; use environmental-ly safe management	Add ARF on first sale of products	Execute service contracts with recyclers	Enforcement of ARF payment; distribute funds to local govts. or qualified recyclers	Could run State program; provide in-kind funding; consumer education	Pay ARF on new product sale at point of purchase; put product into system at end-of-life	Yes	6-12 months after enactment of law	TBD	California, Netherlands, Norway, Switzerland, Belgium; under active consideration in Minnesota	Yes	Yes	No	Yes

MEMBER	BAN?	ADVANCED RECYCLING FEE?	OTHER FUNDING SOURCE?	SHARED RESPONSIBILITY?	ROLE OF MANUFACTURERS	ROLE OF RECYCLERS	ROLE OF RETAILERS	ROLE OF LOCAL GOVT.	ROLE OF STATE GOVT.	ROLE OF OTHERS (NON-PROFITS ETC.)	ROLE OF CITIZENS	ADDRESSES ORPHANS?	IMPLEMENTATION DATE	COST	IN PLACE WHERE	DESIGN FOR ENVIRONMENT	REQUIRES LEGISLATION?	BRAND SORTING	USES EXISTING INFRASTRUCTURE
Maryland Association of Counties - Erin Favazza	Not immediately; consider after program up and running	Yes - similar to Used Tire Recycling Fee; deposit to State Electronics Recycling Fund to support grants to various entities involved in State electronics recycling program	No	No	Create more environmentally safe products to receive procurement preferences	Recycle products	Collect fee and electronics	Receive funds; collect materials; sort materials	Oversee fund and distribution of grants; keep list of reputable recyclers; education and outreach; annual program review	None stated	Pay fee at purchase; deliver electronics to county or retailer sites	No	Phase in over 5 years; focus on areas of highest demand	None stated; County contribution to Statewide program would be similar to 26% used for 1-day drop-off events or lower	Similar to Used Tire Recycling Fund in MD	Perhaps through procurement preferences	Yes	No	Yes?
Delegate Dan Morhaim	Yes - when system up and running; penalize who put electronics in waste stream	Yes - see other sources of funding	Several sources: fee charged to manufacturers who don't meet standards and don't recycle own products; fee at time of purchase like Tire Fund to purchaser; charge fee/tax on internet sales	Yes; all stakeholders do what they do best	Receive State procurement preference if meet design and recycling standards; make design changes; meet EU design standards to sell in MD; contribute to eCycling Fund on pro-rata basis based on sales	Recycle electronics	Work with stakeholders to help eCycling grow	Establish regular, predictable eCycling programs that are customer friendly	Work with local companies and DBED to help eCycling grow; receive fees for distribution to counties to maintain programs; establish recycling, procurement preference plan in all state and state supported entities (schools, colleges, local govts., etc.); coordinate efforts with regional states	None stated	Pay fee at purchase; deliver electronics to county sites	No	None stated	None stated	None stated	Yes	Yes	No?	Yes
MaryPIRG - Brad Heavner	Yes but with no burden on haulers or disposal facilities	No	Manufacturer take back program; cost of recycling included in manufacturing will create incentives for reducing environmental impacts	No	Recycle and dispose of their products; contract with/reimburse retailers for costs of collection, storage and shipment; contract with/pay recyclers cost of processing waste; must support enough collection centers for convenience of consumers; can join forces with other manufacturers	Submit bids for recycling of materials and disposal of wastes for manufacturers	Voluntarily collect, store and ship materials for recycling	Continue running collection programs voluntarily; could bid as collection centers	Manage fund for orphaned products; bill manufacturers for their market share of orphans	None stated	Provide materials to collection sites	Yes	None stated	None stated	Maine	Yes	Yes	Yes?	Yes/No
Maryland Retailers Association - Jeff Zellmer	No?	No	Funding from Used Tire Recycling Fund for 2-year pilot	No	Encouraged to reduce amounts of and types of hazardous materials used in electronics production; recycling cost to be internalized	Continue work doing now	Exempt from costs and mandatory collections; work with State and local govt. to educate consumer	Educate residents on eCycling	Distribute funds to locals; develop and coordinate state education program	None stated	Determines when there is e-waste; pays small dumping fee	Yes	None stated	$1.5M for Statewide Education Program	Howard County	Yes	Yes	No	Yes

MEMBER	BAN?	ADVANCED RECYCLING FEE?	OTHER FUNDING SOURCE?	SHARED RESPONSIBILITY?	ROLE OF MANUFACTURERS	ROLE OF RECYCLERS	ROLE OF RETAILERS	ROLE OF LOCAL GOVT.	ROLE OF STATE GOVT.	ROLE OF OTHERS (NON-PROFITS ETC.)	ROLE OF CITIZENS	ADDRESSES ORPHANS?	IMPLEMENTATION DATE	COST	IN PLACE WHERE	DESIGN FOR ENVIRONMENT	REQUIRES LEGISLATION?	BRAND SORTING	USES EXISTING INFRASTRUCTURE
Computer Donation Management, Inc. - Bob Donald	Yes - on CRT's	Yes; funds to be held by non-profit or other acceptable means	No	No	Educate customers on how and where to recycle; provide grants to communities to sponsor collections	Reuse as much as possible; recycle rest in safe, responsible manner; prefer dismantling, but mechanical shredding can be made acceptable	Educate customers and collect fee; allow collection events in their parking lots	Pass legislation to ban CRT's from entering WTE's and landfills; each determines whether to use events, permanent facilities, or curbside collection; provide transportation to recycler	Award funding to counties and recyclers to do work; monitor performance of recyclers, set standards, oversee enforcement of ARF collection and ban	Hold and distribute funds	Pay for program	Yes	Pilot study could start immediately in counties with money; entire program will take 2 years to pass legislation and set up ARF system	Pilot study and processing cost minimal; pilot collection and transportation $0.04-0.05 ; retailers cost unknown	Massachusetts closest	No	Yes	No	Yes/No

APPENDIX C

Maryland eCycling Activities

Maryland eCycling Activities

12/22/04

County	population	urban/ suburban/ rural	type	date(s)	# of participants	# of tons	# of pounds	pounds/ participant	cost/ pound	vendor	Processing cost	Publicity Costs	Sony, Sharp, Panasonic (lbs.)
Allegany	74,930	rural	1-day	4/20/2002	300	17.61	35,229	117	$0.17	Was. Man. Inc	$6,084.00	$466.00	
Allegany	74,930	rural	1-day	6/14/2003	108	7.12	14,233	132	$0.09	Subtractions	$1,280.97	$440.36	
Allegany	74,930	rural	1-day	6/26/2004	215	14.67	29,338	136	$0.13	Subtractions	$3,820.56	$398.44	
Anne Arundel	489,656	suburban	1-day	6/8/2002	654	18.72	37,440	57	$0.10	Subtractions	$3,558.00	$7,500.00	
Anne Arundel	489,656	suburban	1-day	4/5/2003	387	18.95	37,898	98	$0.06	Subtractions	$2,241.80	$3,713.50	
Baltimore City	651,154	urban	1-day	8/10/2002	402	21.50	43,000	107	$0.35	Envirocycle	$15,024.15	$4,267.00	7,436
Baltimore City	651,154	urban	2-days	4/24/04- 4/25/04	371	16.76	33,525	90	$0.11	Subtractions	$3,652.50		
Baltimore City/ Montgomery Park	651,154	urban	2-days	4/10/2003- 4/11/2003	79	8.97	17,941	227	$0.00	Envirocycle			
Baltimore County	754,292	suburban	1-day	4/27/2002	450	18.16	36,324	81	$0.17	Subtractions	$6,118.00	$4,930.00	
Baltimore County	754,292	suburban	1-day	11/23/2002	365	16.30	32,600	89	$0.00	CDM			
Baltimore County	754,292	suburban	1-day	5/31/2003	725	28.98	57,969	80	$0.09	Subtractions	$5,217.21		
Baltimore County	754,292	suburban	1-day	11/22/2003	930	37.05	74,105	80	$0.09	Subtractions	$6,669.45	$7,500.00	
Baltimore County	754,292	suburban	1-day	4/3/2004	1,170	59.05	118,093	101	$0.09	Subtractions	$10,628.37		
Calvert	74,563	rural	1-day	8/24/2002	47	3.09	6,184	132	$0.49	Envirocycle	$3,040.00	$555.00	976
Calvert	74,563	rural	1-day	5/10/2003	92	4.31	8,615	94	$0.09	Subtractions	$775.35	$660.20	
Calvert	74,563	rural	1-day	11/8/2003	45	6.18	12,355	275	$0.09	Subtractions	$1,112.40	$500.00	
Calvert	74,563	rural	1-day	6/12/2004	50	8.06	16,128	323	$0.14	Subtractions	$2,235.36	$650.00	
Carroll	150,897	suburban/rural	1-day	4/27/2002	250	11.40	22,809	91	$0.15	Was. Man. Inc	$3,506.00	$387.00	
Carroll	150,897	suburban/rural	1-day	10/19/2002	174	6.39	12,773	73	$0.15	Was. Man. Inc	$1,892.84	$680.56	
Carroll	150,897	suburb/rual	1-day	7/12/2003	305	15.81	31,610	104	$0.09	Subtractions	$2,844.00		
Carroll	150,897	suburb/rual	1-day	6/5/2004	325	14.53	29,053	89	$0.13	Subtractions	$3,786.36	$1,200.00	
Cecil	85,951	rural	1-day	4/20/2002	30	1.40	2,806	94	$0.28	Was. Man. Inc	$787.00	$493.20	
Cecil	90,335	rural	1-day	10/4/2003	60	8.04	16,080	268	$0.09	Subtractions	$1,447.20	$900.00	
Charles	120,546	rural	1-day	9/28/2002	175	13.00	26,006	149	$0.24	Envirocycle	$6,216.20	$675.00	4,193
Charles	120,546	rural	1-day	6/28/2003	220	16.84	33,685	153	$0.09	Subtractions	$3,031.65	$1,000.00	
Charles	120,546	rural	1-day	6/19/2004	120	13.80	27,598	230	$0.13	Subtractions	$3,611.76	$929.00	
Dorchester	30,674	rural	1-day	10/5/2002	5	0.26	529	106	$4.35	Envirocycle	$2,302.25		
Frederick	195,277	suburban/rural	2-day	6/28-29/02	117	6.93	13,856	118	$0.00	Envirocycle			2,188
Garrett	29,846	rural	1-day	8/2/2003	67	6.16	12,328	184	$0.09	Subtractions	$1,109.52	$710.56	
Garrett	29,846	rural	1-day	4/24/2004	150	11.46	22,922	153	$0.13	Subtractions	$3,050.64	$750.00	
Harford	218,590	suburban/rural	1-day	10/27/2001	150	7.99	15,980	107	$0.10	Subtractions	$1,593.00	$2,000.00	
Harford	218,590	suburban/rural	1-day	1/19/2002	200	8.94	17,883	89	$0.13	Subtractions	$2,308.00	$2,000.00	
Harford	218,590	suburban/rural	1-day	4/20/2002	800	19.79	39,589	49	$0.16	Subtractions	$6,486.00	$4,000.00	
Harford	218,590	suburban/rural	1-day	9/14/2002	875	21.00	42,000	48	$0.23	Subtractions	$9,700.00		
Harford	227,713	suburban/rural	1-day	8/9/2003	414	33.13	66,260	160	$0.09	Subtractions	$5,963.40	$500.00	
Harford	227,713	suburban/rural	1-day	4/17/2004	1,000	40.16	80,325	80	$0.12	Subtractions	$9,939.00	$4,500.00	
Midshore	123,344	rural	1-day	4/21/2002	185	6.97	13,943	75	$0.13	Was. Man. Inc	$1,878.00	$1,395.62	
Midshore	123,344	rural	1-day	11/2/2002	175	9.14	18,270	104	$0.22	Was. Man. Inc	$4,072.49	$1,200.00	
Midshore	123,344	rural	1-day	6/7/2003	170	10.50	21,000	124	$0.09	Subtractions	$1,890.00		
Midshore	123,344	rural	1-day	11/1/2003	135	6.74	13,475	100	$0.09	Subtractions	$1,212.75	$2,070.00	
Midshore	123,344	rural	1-day	4/25/2004	321	13.73	27,468	86	$0.13	Subtractions	$3,596.16		
Midshore	123,344	rural	1-day	11/6/2004	216	19.30	38,600	179	$0.07	Subtractions	$2,509.00	$3,000.00	
Montgomery (NIH)	873,341	suburban	1-day	4/12/2003	670	34.05	68,106	102	$0.25	Envirocycle	$16,836.00		
Prince George's	833,084	suburban	1-day	10/26/2003	960	27.66	55,314	58	$0.09	Subtractions	$4,962.06	$3,172.00	

Maryland eCycling Activities

12/22/04

County	population	urban/ suburban/ rural	type	date(s)	# of participants	# of tons	# of pounds	pounds/ participant	cost/ pound	vendor	Processing cost	Publicity Costs	Sony, Sharp, Panasonic (lbs.)
Prince George's	833,084	suburban	1-day	5/16/2004	290	18.14	36,282	125	$0.13	Subtractions	$4,653.84	$1,596.00	
St. Mary's	86,211	rural	1-day	6/15/2002	109	15.70	31,401	288	$0.23	Envirocycle	$7,300.75	$75.00	5,495
St. Mary's	90,044	rural	1-day	8/16/2003	115	6.27	12,540	109	$0.09	Subtractions	$1,128.60	$150.00	
City of Takoma Park	17,299	urban	1-day	10/2/2004		11.15	22,290		$0.13	Subtractions	$2,974.78	$100.00	
Wicomico	84,644	rural	1-day	11/17/2001	39	2.64	5,280	135	$0.16	Elemental	$845.00	$1,250.00	
Wicomico	86,318	rural	1-day	8/23/2003	90	3.54	7,080	79	$0.09	Subtractions	$637.20	$1,600.00	
Worcester	46,543	rural	2-day	11/17/2001-11/18/2001	56	3.00	6,000	107	$0.16	Elemental	$960.00	$1,700.00	
Worcester	46,543	rural	1-day	4/20/2002	82	5.29	10,578	129	$0.16	Was. Man. Inc	$1,651.00	$1,972.00	
Worcester	46,543	rural	1-day	10/26/2002	82	4.98	9,963	122	$0.17	Was. Man. Inc	$1,677.01	$1,700.00	
Worcester	46,543	rural	1-day	4/26/2003	50	2.25	4,501	90	$0.09	Envirocycle	$405.09		
Worcester	46,543	rural	1-day	10/25/2003	138	6.86	13,715	99	$0.09	Subtractions	$1,234.35	$1,500.00	
Worcester	46,543	rural	1-day; 2 locations	5/1/2004	102	7.11	14,222	139	$0.14	Subtractions	$2,006.64	$1,800.00	
Total - Special Events					**15,812**	**778**	**1,555,097**	**98**	**$0.13**		**$203,463.66**	**$76,586.44**	
City of Greenbelt	26,000	urban	perm.	on-going		44.6585	89,317			Computer Donation			
Howard	247,842	suburban/rural	perm.	on-going		380.18	760,360			Subtractions	$19.41/lb. For CRTs no cost for rest		
Montgomery	873,341	suburban	perm.	on-going		1,624.15	3,248,300				$128,139/FY '05 and $75,000/FY '06		
Prince George's	801,515	suburban	perm.	on-going		242.62	485,240			Subtractions			
Wicomico	84,644	rural	perm.	on-going		29.70	59,400			Envirocycle	$2,775.52		
Worcester	46,543	rural	perm.	on-going		6.75	13,500			Subtractions	$.065/lb.		
Total Permenanat						**2,328.06**	**4,656,117.00**						
City of Salisbury	23,743	city	curbside	1/4/2003, 1/11/2003		9.06	18,111						
City of Salisbury	23,743	urban	curbside	01/17/2004 01/24/2004		9.79	19,571						
Total - Curbside						**18.84**	**37,682**						
				GRAND TOTAL		**3,124.45**	**6,248,896**						

Indicates Estimate