3.0 Source Reduction

3.1 Introduction

Source reduction is the adoption of practices that generate less waste. Source reduction approaches include changes in product design and packaging, reduction of consumer purchases, and the reuse of materials or goods. By decreasing the amount of waste that must be disposed of, waste reduction programs decrease the environmental issues associated with waste disposal. Reusing a grocery bag, buying materials in bulk, and reselling unwanted but still useable materials or products are typical examples of waste reduction.

This section describes existing source reduction activities within Hawai`i County, identifies current issues and concerns with respect to current source reduction practices, and presents options for achieving further source reduction.

3.2 Background

3.2.1 Regulatory Context

As described in the Hawai`i Integrated Solid Waste Management Act (Hawai`i Revised Statutes [HRS] Chapter 342G-2), each county is required to consider solid waste management practices and processing methods in the following order of priority:

1. Source reduction
2. Recycling and bioconversion (including composting)
3. Landfilling and incineration

Chapter 342G-3 of the Hawai`i Revised Statutes established a 25 percent waste reduction goal by 1995, and a 50 percent goal by 2000. Hawai`i County's 5-year management plan (developed following the 2002 IRSWMP Update) established a 50 percent goal by 2008.

3.2.2 Resolution 356-07 (Zero Waste)

In 2007, the County of Hawai`i adopted Resolution 356-07, "A Resolution to Embrace and Adopt the Principles of Zero Waste as a Long-term Goal for Hawai`i County." The resolution embraces the Zero Waste philosophy of solid waste management and committing to take the necessary steps to incorporate the Zero Waste philosophy into legislation, policies, and actions.

The Zero Waste philosophy is based on the concept that current standards of waste management are inefficient and unsustainable, and that waste can be virtually eliminated by emulating sustainable natural cycles, where all discarded materials are treated as resources that can effectively be reused. It is a whole-system approach that emphasizes a closed-loop production and consumption system by (1) reducing the volume and toxicity of waste through product and packaging redesign strategies, (2) reusing materials and products for

alternative uses, as well as for their original intended use, and (3) recycling and composting all remaining materials for their best use. Within the Zero Waste framework, materials that cannot be easily and conveniently reduced, reused, recycled or composted are returned to the manufacturer, who is ultimately responsible for product disposal. The Zero Waste approach includes aggressive education of public and private entities, as consumer choices are considered to be the driving force in changing consumption and disposal patterns.

With a focus on eliminating waste at the source, one of the fundamental principles of Zero Waste is redesigning products and packaging, by taking into account the entire life-cycle of a product. In contrast to the current emphasis on disposability, products and packaging within the Zero Waste framework are designed with an emphasis on minimal use of materials, use of recycled and benign resources, longer product lives, and maximum potential for every product to be repaired, reused, or recycled. Critical to this principle is the concept of extended producer responsibility (EPR), a policy tool in which manufacturers are held legally and financially responsible for the waste and environmental impact associated with their product and packaging, rather than passing that responsibility on to the consumer. Under EPR, manufacturers are mandated to `take back' their end-of-life products and create closed looped systems. As a result, EPR enforces design, production and packaging strategies that take into account the quantity and type of materials required for production, product lifespan, and the ability with which products can be disassembled and recycled.

In addition, Zero Waste emphasizes an aggressive combination of reuse, recycling and composting. Within the Zero Waste framework, all organic materials, including yard trimmings and food scraps are composted and treated as “biological nutrients” rather than being disposed of in landfills where they can potentially contribute to future environmental liabilities. Instead of using revenues generated through the tax base or other financial resources to build new landfills or incinerators, the Zero Waste approach advocates for investment in recycling, composting, and reuse facilities, especially those that accommodate the entire spectrum of reuse and recycling activities (for example, resource recovery parks). By supporting the reuse and recycling of discarded products and materials, the Zero Waste approach creates jobs and stimulates local economies. According to the Institute for Local Self Reliance's report Wasting and Recycling in the United States 2000, ”On a per-ton basis, sorting and processing recyclables alone sustains ten times more jobs than landfilling or incineration.” The report concludes, ”each recycling step a community takes locally means more jobs, more business expenditures on supplies and services, and more money circulating in the local economy through spending and tax payments."

A Zero Waste Implementation Plan developed for the County of Hawai`i[1] during 2008 outlines suggested changes to the way that solid waste is handled within the County. As stated in Resolution 356-07, the County of Hawai`i recognizes “that Zero Waste is a long-term goal and that in the interim, programs may need to be implemented that may be counter to the Zero Waste philosophy but are necessary to reach the long-term goal of Zero Waste and that such programs should not be prohibited by the embracing and adoption of the long-term goal of Zero Waste.” To this end, the components of the Zero Waste Implementation Plan which can be realistically achieved during the life span of this IRSWMP have been incorporated into this Plan. The remaining components are expected to

be implemented over the longer term, as part of the County's effort to take incremental steps toward achieving Zero Waste.

3.2.3 Review of 2002 IRSWMP

Following is a summary of the recommendations put forth in the 2002 IRSWMP relative to source reduction, and a description of the actions taken to achieve each recommendation.

2002 IRSWMP Recommendation	Status
Source Reduction and Reuse	
Hire County Recycling Coordinator	The County hired a full-time Recycling Coordinator in mid-2003 who is responsible for directing other County staff and vendors engaged in waste reduction and recycling efforts.
Ban Yard Trimmings at Recycling and Transfer Stations and Landfills	No ban has been established to date. In order to establish such a ban it is necessary to provide an alternative process for disposal of yard trimmings. The County has issued a request for proposals to determine if there are vendors interested in operating a yard trimmings disposal facility.
Establish County Policy to Restrain Disposal of Recyclable Materials	In 2007 the Solid Waste Division drafted a resolution that would mandate recycling at County offices. This has not yet been implemented.
Increase Tipping Fees at Landfills	The County has incrementally increased the landfill tipping fees from $35/ton in 2002 to the currently approved rate of $85/ton in 2007. Increasing the tipping fee provides incentive to generate less waste.
Enhance construction and demolition (C&D) Waste Recovery	The County opened the Kea`au Recycling and Reuse Center, as well as two smaller reuse centers at the Laupahoehoe and Keauhou Recycling and Transfer Stations, each of which collects limited C&D materials for reuse.
Increase Incentives for Diversion of Clean C&D Wastes	The County is encouraging demolition permit applicants to include a re-use component in demolition plans for larger projects.
Phase-in Landfill Bans on Recyclable C&D Wastes	The County is currently focused on Public Education and facilitating private entities that can create programs or facilities that provide incentives for diversion of clean C&D wastes. In 2007 Arc of Hilo opened a C&D waste re-use center and is promoting this to local contractors.
Institute New Fee System for Waste Management	Not implemented yet.

3.3 Existing Conditions

The current status of source reduction efforts in Hawai`i County is described below. This discussion includes (1) a description of County operated or sponsored programs, (2) an overview of County waste reduction staffing levels, (3) a description of other programs conducted by private entities, and (4) recent or pending legislative efforts.

3.3.1 Hawai`i County Waste Reduction Programs

3.3.1.1 Backyard Composting

Using funding received from the County of Hawai`i, Recycle Hawai`i (and subcontractor Hawai`i Rainbow Worms) conducts a minimum of 12 composting workshops across the island on an ongoing basis. In addition, they distribute Earth Machine backyard composters to both workshop attendees and schools. In 2005, they distributed approximately 336 composters, 43 of which were provided to schools across the island.

3.3.1.2 Reuse Centers

The Kea`au Recycling & Reuse Center (KRRC) is located at the Kea`au Recycling and Transfer Station. It was initially funded as part of an Environmental Protection Agency (EPA) grant to the County of Hawai`i, Department of Environmental Management and Hawai`i Island Economic Development Board (HIEDB). Recycle Hawai`i manages operations at this site under a contract with the County of Hawai`i. KRCC provides a designated area for drop-off and pick-up of useable materials such as toys, clothing, house wares, and small appliances. KRCC also includes an area dedicated to home remodeling materials (for example, reusable toilets, pipes, gutters, doors, windows, and so forth). Items are available for free or sold at a modest price, and the money is used to help fund operations and education outreach programs. In addition, reusable latex paint collected at designated household waste collection events and at KRRC is sorted and mixed and is available for purchase at a discount over the retail price of new paint. KRCC also serves as a location for the composing workshops, and is used for school tours.

Kea'au Recycling & Reuse Center located at the Kea'au Transfer Station

KRRC serves as a model for creating similar recycling and reuse centers at other recycling and transfer stations around the County of Hawai`i. Two smaller limited reuse centers have been opened at the Laupahoehoe and Keauhou Recycling and Transfer Stations. Each of these locations includes an unstaffed, but regularly monitored, designated drop-off area

near the transfer chute. The County of Hawai`i intends to open approximately nine additional Recycling and Reuse Centers at other recycling and transfer stations around the island.

3.3.1.3 Reduction and Reuse Education

The County of Hawai`i has a well-developed education program targeting waste reduction and reuse. Its main education initiatives include:

- Information provided via the internet
- Recycling infoline
- Newspaper, radio, and television advertising
- Brochures
- Community outreach
- Community events
- School programs
- Business education
- Awards program

More information about these initiatives is provided in Section 5.0, Public Education and Information.

3.3.1.4 Landfill Disposal Fees

In July 2007, the County of Hawai`i increased landfill disposal fees to $85 per ton. Rates by vehicle size and volume, which apply when weights cannot be obtained, were increased to $51 per vehicle for light trucks, $96 for medium trucks and $153 for large trucks. For all other vehicles, disposal fees were increased to $27 per cubic yard for compacted material, and $17 per cubic yard for non-compacted material.

3.3.1.5 Procurement Policies

Public sector procurement can help reduce waste, foster reuse of products and stimulate markets for recyclable materials and compost. In addition, these procurement policies can serve as a model for other entities, including private sector businesses and institutions.

Pursuant to Hawai`i Revised Statutes §342G-41-44, the County has a policy to "give preference to vendors who utilize products with recycled content," when purchasing paper and plastic materials (for example, office paper, printed materials, plastic bags, and so forth), and has a policy to make double-sided copying standard practice at County offices.

3.3.1.6 Elimination of Tires from Landfills

In December 2007, the County of Hawai`i approved Bill 189, which amends the Hawai`i County Code, and prohibits the disposal of whole, cut, sliced, chipped or shredded tires in the island's landfills.

3.3.1.7 E-Waste Producer "Take-Back" Program

http://www.recycleHawai`i.org/images/stories/documents/Ewaste_Flyer.pdf

The County of Hawai`i contracts with Recycle Hawai`i to operate two permanent e-waste collection locations. This program allows residents and businesses to recycle their entertainment electronics (TVs, VCRs, DVD players, radios), computers, computer monitors and peripherals, cell phones, telephones, microwaves, fax machines, copiers, digital cameras, printers, and laptops. Kona and Hilo drop off locations are available for the residents and selected non-profit organizations to drop off used items at no charge; businesses and other government agencies are assessed a recycling fee. Recycle Hawai`i ships the used e-waste to California for recycling, which is being conducted by E-World Recyclers. Recycle Hawai`i has also partnered with various foundations and the Sony Corp/Waste Management Inc.'s Take Back Recycling Program to expand the program this year to include the permanent drop-off sites. To date more than 400 tons of e-waste has been shipped off-island for recycling.

Hawai`i State legislation enacted during 2008 will require development of take back programs by manufacturers of certain types of e-waste.

Recycle Hawai`i also operates year-round collection sites for cell phones, ink, and toner cartridges. See:
http://www.recycleHawai`i.org/images/stories/documents/Ewaste_Flyer.pdf

Several private businesses also operate programs designed to promote recycling of e-waste, including Long's Drugs and Home Depot. Long's Drugs operates collection bins for used batteries and small electronic devices.

During 2007 the County approved Resolution 30-07 "Requesting that the Mayor issue a Directive to Implement Recycling Programs at all County Agencies and Departments." The drafted directive has not been issued to date.

3.3.1.8 Private Reuse Programs

In addition to the Recycling and Reuse Center at the KRRC, there are several privately operated reuse facilities including the Habitat for Humanity Restore and Laulima Hana (The Arc of Hilo). The Habitat for Humanity Restore is located in Kona, and is primarily focused on reusable building materials, as well as products returned to local big-box stores, such as Wal-Mart. The Laulima Enterprise is a non-profit enterprise of the Arc of Hilo and is a reuse store for construction and demolition (C&D) materials donated by contractors and home-owners. In addition to these facilities, there are a variety of other reuse businesses, including thrift shops and used book stores, located around the island that sell used merchandise, such as furniture, clothing, house wares and books.

3.3.1.9 Product Bans

Several counties in the State of Hawai`i have attempted to ban a variety of products, including plastic bags, styrofoam food containers and incandescent light bulbs; however, to date, none of these bans have been successfully implemented in Hawai`i County. On July 22, 2008, the Hawai`i County Council Committee on Environmental Management voted in support of Bill 326, which would ban plastic bags at the point of retail purchase, however, the legislation was not ultimately adopted by the Council.

3.3.2 Hawai`i County Staffing Levels

Successful delivery of local government waste reduction programs requires devoting an appropriate amount of resources including staffing. Hawai`i County has demonstrated its commitment to waste reduction by assigning the following staff to County waste reduction and recycling programs:

- One full-time recycling coordinator
- Two full-time equivalent (FTE) recycling specialists for the HI-5 recycling program
- Two FTE recycling specialists
- One part-time student helper

In addition, using funds provided by the County of Hawai`i, Recycle Hawai`i employs three full-time education specialists, who are responsible for educating the public about waste reduction and recycling programs on the north, west and east portions of the island, respectively. Recycle Hawai`i also has other personnel that conduct educational programs at KRRC and other various workshops & community events.

3.4 Issues and Concerns

As described above, a number of source reduction activities have been recently conducted in the County of Hawai`i, including programs and initiatives by both the County as well as other organizations. In spite of these efforts, the County recycling rate is just under 30 percent, which is well below its 2008 target of 50 percent. There is more that could be done by the County and waste generators to promote changed behaviors that would ultimately reduce the quantity of materials entering the waste stream. The need to implement additional programs and policies is further established by the County's commitment to Zero Waste.

3.5 Options for Improvement

Pursuant to HRS 342G-26, an overview of various measures that could be implemented to increase source reduction is provided below. These options were developed based on successful initiatives implemented in other jurisdictions that may be applicable and appropriate for Hawai`i County. Note that the options focus on waste reduction and reuse; education, recycling, and composting programs are discussed in other sections of the IRSWMP update.

3.5.1 County Source Reduction Practices

The County of Hawai`i has an opportunity to serve as a model for the entire island and demonstrate their commitment to the Zero Waste approach by implementing comprehensive source reduction policies for all County operations. The County could make a more pronounced commitment to environmentally preferable products. This effort could include an evaluation of current practices at all County offices and buildings, and identification of opportunities for increased source reduction. All county employees could be provided with documents providing information about the County's commitment to Zero Waste, and ideas of how each employee and department can reduce their waste.

Specific policies and activities that the County could adopt include:

- Adopt and implement an environmentally preferable purchasing policy and additional environmentally preferable procurement guidelines. Set environmentally preferable purchasing and recycled content as "defaults" for departments to use in departmental purchases of supplies and equipment not centrally procured.
- Establish a Zero Waste Purchasing Committee with a mandate to develop the County's purchasing policy.
- Include measurable Zero Waste goals in job descriptions and annual performance evaluations.
- Establish a Green Building Policy and evaluate the extent to which those policies can be encouraged or required for new private construction and major renovation projects.
- Use electronic mail, document storage and retrieval systems to achieve a "paperless office."
- Accept electronic submittal of all applications and required submittals.
- Provide incentives for staff members who develop and implement new initiatives that reduce waste.
- Promote and encourage in-house composting programs.
- Encourage or mandate the use of re-usable mugs, plates, and silverware and install dishwashers in County facilities where feasible.
- Publish major accomplishments and progress of each department on the County Web site.

The federal government has undertaken various initiatives to include the environment in its purchasing decisions. The County could consider EPA's Comprehensive Procurement Guideline program as a model for helping its employees purchase products that use materials recovered through recycling.[1] The EPA has already designated or is proposing to develop recycled-content recommendations for a series of products.

Estimated cost: There are many County actions that could be accomplished at little or no cost. The initial review of purchasing policies would require staff resources throughout many departments but should not require additional staff. Green-building policies will increase the cost of construction somewhat: estimates on the extent of likely increases differ, but many jurisdictions have successfully implemented such policies. Purchasing policies can increase the cost of materials somewhat. The net result would probably be a small percentage increase in costs for many County activities and material purchases.

3.5.2 Business Waste Audits and Reduction Plans

The County currently produces the Hawai`i Island Business Recycling Guide and Workbook, which provides local businesses with information on how to conduct a waste

[1] U.S. Environmental Protection Agency. Comprehensive Procurement Guidelines. Available at: www.epa.gov/cpg.

audit and establish a waste reduction and recycling program. This effort could be expanded into a program that includes County staff increasing the extent of the technical assistance provided to local businesses to conduct waste audits and help them implement sustainable best business practices to minimize waste, with an emphasis on Zero Waste principles.

As part of the County's effort to work with local businesses to reduce waste, the County could encourage retailers and their suppliers to take-back products and packaging that are currently difficult to reuse, recycle or compost. Potential take-back programs could be publicized by posting all cooperating retailers on the County's Web site and publishing frequent articles and/or ads in the local newspaper and County newsletter.

The County could develop a program to work cooperatively with local businesses to emphasize building deconstruction and support local initiatives for adaptive reuse of materials generated during deconstruction projects.

A more aggressive stance that has been adopted by some communities would be to require that all new building permits in the county above a particular size threshold include a Waste Reduction Plan, perhaps with a monetary deposit, to address waste associated with construction or demolition projects. To be effective, this type of policy must be accompanied by good opportunities for recycling construction and demolition materials. Thus, it would probably need to be accompanied by the development of processing facilities that currently do not exist. Recent efforts by private businesses on the island of O`ahu to develop such facilities have met with initial success, suggesting that the potential for successful start up of similar enterprises in Hawai`i County exists.

Estimated cost: The cost of this option would differ depending on the speed of implementation. It could be implemented slowly with existing staff and resources or more rapidly if additional resources were provided. At least initially, there would be some added cost to businesses to conduct audits and change existing material management methods.

3.5.3 Visitor Industry

Because tourism is one of the largest industries in Hawai`i County, hotels, motels and other lodging facilities contribute a significant portion of the County's waste. There are a variety of basic measures that these facilities can implement to reduce their waste stream, including:

- Replace disposable products with reusable products (utensils, dishes, cleaning supplies)
- Buy in bulk, when possible
- Offer newspapers only upon request
- Change linens only upon request
- Utilize soap and shampoo dispensers rather than disposable containers
- Utilize air hand dryers or reusable napkins in public restrooms, rather than disposable
- Change lighting fixtures from incandescent to fluorescent bulbs or light emitting diodes (LEDs)
- Practice grasscycling

- Implement onsite composting
- Donate or sell lightly used furniture or appliances instead of landfilling

This program could be implemented as a sub-element of a broader business waste audit and reduction program (see Chapter 3.5.2), or as a stand-alone program. The County could seek partner businesses and organizations within the visitor industry to build on existing waste reduction efforts by industry. At least initially, there would be some added cost to businesses to change existing material management methods.

Estimated cost: The cost of this option would differ depending on the speed of implementation. It could be implemented slowly with existing staff and resources or more rapidly if additional resources were provided.

3.5.4 Expanded Reuse Facilities

The County currently operates the KRRC, as well as two smaller reuse centers at the Laupahoehoe and Keauhou Recycling and Transfer Stations, all of which have been successful at diverting both household products and C&D materials from the landfill. Recently, the County has selected a vendor to develop reuse centers at other recycling and transfer stations. Additional facilities could be added to the other recycling and transfer stations around the island, to increase the number of residents with nearby access to a reuse facility. In addition, the County could develop and communicate to residents and businesses a list of the highest priority materials to be reused, and coordinate with private and non-profit reuse centers to maximize the type and quantity of materials that can be accepted.

Estimated cost: The cost of this option would depend on the number of facilities implemented, site specific design considerations, and the resources devoted to staffing and outreach at each facility. For planning purposes, a new reuse center can be established for somewhere in the range of $20,000 to $80,000 depending on site specific conditions. Each new facility would probably require an additional $30,000 to $70,000 per year in annual staffing costs.

3.5.5 Establish Pay-As-You-Throw System for Residential Discards

Implementing a pay-as-you-throw (PAYT) system creates a financial incentive for residents and businesses to reduce their waste. As reported in a recent EPA co-sponsored publication[2], PAYT systems, also known as variable rates programs or user pay, ask households to pay more if they put out more garbage for collection. This simple concept – akin to paying a water or electricity bill – has been embraced by almost 7,100 communities in the United States, and has led to the diversion of perhaps 6.5 million tons of municipal solid waste (MSW) per year that would otherwise have been landfilled. It provides a powerful financial incentive for residents to reduce waste discards.

[2] *Pay as you Throw (PAYT) In the US: 2006 Update and Analyses, Final Report*. 2006. Co-Sponsored by: EPA Office of Solid Waste, Jan Canterbury, Washington DC Skumatz Economic Research Associates, Inc., Superior, CO, Prepared by Skumatz Economic Research Associates, Inc.

In Hawai`i County, this program could be implemented in one of two ways:

- By charging residents on a volume or weight basis for garbage delivered to County recycling and transfer stations while allowing drop-off of recyclable or compostable materials at no-charge.
- By implementing universal collection of garbage for all households in the County.

Both options have the additional benefit of eliminating misuse of the residential-only recycling and transfer stations by non-residential generators. A discussion of each option follows. These options will be investigated in greater detail in Section 8.0, Collection and Transfer.

3.5.5.1 PAYT at County Recycling and Transfer Stations

PAYT could be implemented at County recycling and transfer stations by establishing volume-based rates that would be charged for discarding materials at each station. Typical volume rates include some combination of per-bag and per-vehicle fees. Because the County would prefer to avoid security and other issues relating to collection of fees at transfer stations, this system could be implemented using pre-purchased bags and tags, eliminating the need to collect fees at the recycling and transfer stations. Residents would be provided a pre-determined number of County-approved garbage bags, and tags that can be used for disposing of larger items. Additional bags and tags could be purchased from the County or through local retail outlets.

To implement this option, all recycling and transfer stations would need to have a full-time attendant to monitor residential disposal. In addition, the program would need the following:

- Adequate bins for dropping off readily-recyclable materials at, or nearby, the recycling and transfer stations.
- A small building or other structure for an attendant to use while monitoring incoming loads.
- Adequate space to allow for vehicle queuing at the recycling and transfer stations.
- An agreement with retail stores to sell pre-approved bags or tags on behalf of the County.

It is possible that not all recycling and transfer stations would have the physical space to accommodate the infrastructure needs for a PAYT system. Thus, it is possible that some stations would need to be closed, relocated, or substantially modified in order to implement this program.

Implementation of this option would require implementation of an aggressive public education and information campaign to ensure that residents understand the rationale for implementing the PAYT program. The County would need to modify its financial systems to account for the new revenue source.

Estimated cost: Estimating the initial infrastructure costs for this option would require conceptual designs at each of the County's 21 recycling and transfer stations. The

infrastructure cost could vary considerably depending on site-specific conditions and the extent to which modifications are feasible at each station. For planning purposes, the initial infrastructure requirements would probably cost somewhere between $1 million and $2 million. The annual cost of operating the system would probably be between $1.5 million and $2 million.

3.5.5.2 Universal Collection with PAYT Rates

While not unprecedented, the County's current system of providing recycling and transfer stations distributed throughout the county is a relatively uncommon way of providing garbage collection services to residents. PAYT rates could be implemented as part of a move to provide universal garbage, recycling, and perhaps organics collection services to all County residents. Elsewhere in the United States, residential collection services typically are either provided by local government or by the private sector under a contract or franchise arrangement. The Hawai`i Supreme Court's "Konno decision" affirmed the rights of the United Public Workers (UPW) union to perform work that "customarily and historically" has been performed by government workers. However, subsequent to that ruling, the Hawai`i Legislature in HRS 46-36 provided for a "managed competition" process in which local government and the private sector would compete on the basis of efficiency, effectiveness, and price for new government services. Additional research would be needed to decide the best way to proceed with universal collection should this be an option the County would like to implement.

PAYT collection rates can take many forms including using a variable can, metered bag or metered tag system. The key aspect of this system is to charge a progressive rate for each additional garbage unit collected above the basic service level (for example, one can per week).

Like PAYT at County recycling and transfer stations, implementation of this option would require implementation of an aggressive public education and information campaign to ensure that residents understand the rationale for implementing the PAYT program. Significant up-front planning would be required to assess a wide range of implementation details. The County would need to establish billing systems, a customer service organization, and modify its financial systems to accommodate this new service. The County could elect to assess the potential for reducing property taxes as an offset to the new revenue source.

Estimated cost: Garbage collection rates in Hawai`i County (where available by subscription) typically range from $20-30 per household per month. On the mainland, rates can vary from $10 to $30 or more per household per month depending on disposal fees and the type of service provided (e.g., including separate collection of recyclables and/or yard and/or food waste).

3.5.6 Expanded Home Composting Program

The County has an ongoing backyard composting program, including educational workshops, that has distributed more than 300 composting machines to residents and schools. The County has indicated their intent to continue this program, which could be expanded to reach a wider audience. The program could include an aggressive promotion

campaign and a target penetration rate of at least 25 percent of single-family households within five years.

Estimated cost: It would cost the County approximately $75 to $100 per unit for purchase, storage and delivery of each unit. Thus, if the County were to target delivering approximately 2,000 households per year, it would reach a 25 percent penetration rate in 4 to 5 years at a cost of $150 to $200,000 per year. Existing staff resources would need to be used to develop the plan for how best to distribute the units and to provide suitable promotion and user education.

3.5.7 Expanded Reusable Bag Program

As part of their educational outreach program, the County has conducted Bring-Your-Own Bag (BYOB) promotional events at local grocery stores and at various community events such as Earth Day, during which reusable grocery bags are given to interested residents. To expand this program, the County could significantly increase the number of reusable bags that are distributed to residents, and increase its outreach to encourage participating grocery stores to increase the financial discount for using reusable bags.

Estimated cost: This option would require additional staff time and $10,000 to $30,000 annually for additional materials.

3.5.8 Expand Source Reduction Education

A key to the success of reuse programs is the education of the staff (government, private for-profit, and non-profit) who operate the facilities within the program. Once staff have been trained on the basics of how these programs work, they will need to develop systems to implement programs for the public. The methods for providing materials to markets include retail sales, dismantling for recycling, and ensuring materials reach markets accessible to the public.

A series of enhancements to the County's education and promotion programs are suggested in Section 5.0, Public Education and Information.

3.5.9 Establish Extended Producer Responsibility Policy

As previously described, EPR is a policy tool that extends manufacturer's responsibilities to include responsibility for life cycle costs of their products and associated packaging. This approach has been successfully implemented in various communities throughout Europe and Canada, as well as parts of the United States. A brief discussion of some international and United States EPR experience, as documented in a recent report[3], follows.

The first EPR program was put in place in Germany in 1991 with the advent of the German Packaging Ordinance, also referred to as the Green Dot program. The Packaging Ordinance held producers responsible for managing packaging waste. The Packaging Ordinance resulted in the Duales System Deutschland (DSD), a non-profit company, which licenses its logo - the green dot - for a fee. Packages bearing the symbol are collected, sorted, and

[3] Van Rossem, C., Tojo, N., Lindhqvist, T. 2006. ***Extended Producer Responsibility*** *An examination of its impact on innovation and greening products.* Report commissioned by Greenpeace International, Friends of the Earth and the European Environmental Bureau (EEB).

directed to recyclers by DSD. Fees are based on the material and weight of the package and are paid by the "filler" - usually the owner of the product brand name. Germany has shifted full responsibility for managing packaging waste to industry.

Because take back and recycling of packaging by each individual producer is not always practical, EPR policies usually permit producers to form "producer responsibility organizations" (PROs) which enable them to fulfill their responsibilities collectively. There are presently more than 250 PROs established to meet EPR obligations in Europe. These organizations license their logos for a fee and use the revenues to finance collection and recycling. It is important that the fee structures imposed by PROs reward companies that choose to design less wasteful and more economically recyclable products. PROs include the DSD in Germany, Eco-Emballages in France, Alstoff Recycling in Austria, Fost Plus in Belgium, VALPAK in the United Kingdom and the Rechargeable Battery Recycling Corporation (RBRC) in the United States.

Canada has widely embraced the EPR principle, referred to there as 'Product Stewardship' or 'Industry Product Stewardship' by governments and producers. All ten provinces have developed mandatory EPR programs for a wide array of product groups. Products that are covered by mandatory programs in some or all provinces include packaging materials, newsprint and fine paper, household hazardous wastes (HHW) such as paint, motor oil, tires, lead-acid batteries and waste electrical and electronic equipment (WEEE). There are also a number of nationwide voluntary programs, namely for rechargeable consumer batteries, agricultural pesticide containers and beer containers.

British Columbia sets itself apart from other provinces by its approach to Product Stewardship, where there are currently nine industry groups in B.C. operating recycling programs for electronics, paint, oil, beverage containers, tires, pharmaceuticals, pesticides, gasoline, solvents and flammable liquids. In April, 2008, British Columbia announced plans to add mercury-containing products such as light bulbs and thermostats to its product stewardship program, and expanding its list of covered electronics to include products such as stereos, cell phones, and other hand-held devices.

There are also a wide variety of EPR programs in Japan, Taiwan, Korea, Australia, New Zealand and other countries that span the full range of voluntary and mandatory programs.

Although there are no nationwide mandatory EPR programs in the US, there are several US-wide voluntary programs, namely for batteries, cars and carpets. The RBRC was established to manage a program for the recovery and recycling of Ni–Cd batteries. RBRC launched the first industry-wide voluntary take-back program in the US (and Canada) and set a goal of 70 percent Ni–Cd battery collection by 2001. Attempts to create national programs for drink containers and electronics (the "NEPSI process" from 2001 to 2004) did not come to fruition.

At the state level, especially for electronics, there are a number of proposed and operational regulations in place that employ various elements of EPR. The State of Hawai`i's pending e-waste take back program is a good example. Other examples include California, Maine, Maryland, and Washington that have either implemented or proposed regulations requiring the collection and recycling of certain categories of waste electrical and electronic equipment (WEEE). Although the Californian and Maryland programs incorporate few or no elements of EPR, the Maine and Washington legal texts have proposed a framework that encourages

elements of individual responsibility to be incorporated in any operational programs that are developed.

A good example of how local governments can work together to promote EPR is the California Product Stewardship Council http://www.caproductstewardship.org/. It is an organization of local governments from throughout California who aim to shift California's product waste management system from one focused on government funded and ratepayer financed waste diversion to one that relies on producer responsibility in order to reduce public costs and drive improvements in product design that promote environmental sustainability. Its function includes:

- Build capacity and knowledge among local governments, and build relationships with stakeholders, to bring about producer financed and managed systems for product discards, including, but not restricted to, products covered by the Universal Waste Ban.
- Provide a forum for the exchange of information regarding existing and proposed EPR programs.
- Develop and recommend practical local and statewide EPR policy and educational tools such as model ordinances and legislation, newsletters, articles, policy briefings, and so forth
- Provide effective leadership on EPR initiatives in California and develop a prioritized list, with timelines, of future EPR programs.
- Educate elected and appointed officials and other decision makers on the benefits to local government of EPR.

At the local level, New York City has tabled its own law on the take-back and recycling of certain WEEE categories. This sentiment for a fundamental shift in the financial burden of dealing with end-of-life products from municipalities to producers and consumers seems to be gaining momentum in the US, as highlighted by the recent resolution by the San Francisco Board of Supervisors that supports state-wide legislation and local initiatives requiring manufacturers to take responsibility for collecting and recycling their products at the end of their useful life. Many other municipalities are preparing EPR plans and working with industry and state and federal EPR advocates to advance EPR programs.

Although the County of Hawai`i has some limited programs that resemble EPR, such as the HI-5 program in which qualified containers can be returned to Certified Redemption Centers for a rebate, significant progress would be required to implement a fully-functional EPR program. Given its relatively small size and geographic isolation, it would be difficult for Hawai`i County to effectively implement an EPR program on its own. However, the County could prepare and adopt resolutions stating its support for EPR, and could work to lobby state and federal lawmakers to advance EPR initiatives. It could collect and review various city/county resolutions related to EPR and state its strong support for EPR to its citizens and state and federal officials.

Some policy statements the County may want to consider include:

- Express support for state and federal policies to eliminate subsidies, internalize externalities for virgin material production and wasting, and involve producers in

taking physical and/or financial responsibility for their products and packaging through reuse, repair, or recycling them back into nature or the marketplace.

- Express support for state and county agencies to support product stewardship, by creating a state/counties coalition to work towards EPR, along with other active states.
- Express support for policies designed to relieve local taxpayers from the burden of managing wastes they have no control over. This could include identifying specific product categories that have the greatest impact on local programs.
- Express support for mandatory recycled content, as well as "cradle-to-cradle" product take-back and recycling services. Insist that the cost of the programs be paid by manufacturers and internalized into the cost of their products.

Examples of EPR framework policy and legislation from California, Oregon, Washington, and Minnesota can be found at http://www.productstewardship.net/policies.html.

Estimated cost: To implement this option, the County would need to invest some ongoing staff time and perhaps $30,000-$70,000 of consulting assistance for research, policy analysis, and drafting legislation. The price of some products affected by EPR programs could increase depending on exactly how EPR was implemented.

3.5.10 Create a Zero Waste Fund

In order to encourage local innovation and participation, the County could fund community Zero Waste initiatives with fees levied on landfill disposal. This funding could include leveraging private sector investments by adopting supportive policies and providing technical assistance and support letters for independent financing and/or grants. The more that nonprofits and private companies invest in expansion of reuse, recycling and composting programs, the less the City needs to invest. The County could also identify and support proposals for state, federal and foundation grants and loans for local Zero Waste businesses and service providers.

Estimated cost: The cost of this option would depend on the extent to which the County elects to fund this program. For planning purposes, initial seed funding could be budgeted in the range of $50,000 and $200,000 per year. Some added staff time would be necessary to develop and administer the program.

3.5.11 Public-Private Partnership with Community Based Organizations

The reuse industry on the island should be surveyed. In Austin, Texas, Goodwill Industries has developed a dismantling program, with the backing of Dell Computers (also based in Austin). There may be other non-profits or businesses interested in participating in reuse programs within the County. The County could convene a meeting of interested parties to determine the level of interest, evaluate what challenges such a program would face, and identify potential mechanisms to assist with initiation of the program.

Independent community-based organizations (CBOs) may see this as an opportunity for their clients. From sheltered workshops to social enterprises, these CBOs are potentially available to take on repair and refurbishing as well as dismantling of discarded items into recyclable commodities.

Reusable items delivered to drop-off centers and landfills could either be sold from ReStores at these locations or picked up in covered box trucks or bins and taken to an offsite ReStore. Providing available and convenient drop-off locations is key to the success of this program. Companies with sheltered workshops could bid for individual products such as appliances, electronic discards, and furniture repair or for collecting all the reusables received at a designated site.

3.6 Recommendations

On the basis of the analysis presented above, the results of the zero waste study, and discussions with stakeholders, the Plan recommends the following to improve source reduction:

1. **Develop County policies or ordinances that mandate certain actions be taken to reduce the source of waste currently entering landfills, including:**
   - Develop County ordinances requiring that a waste reduction plan be submitted to obtain commercial or residential building permits. Coordinate implementation with the Department of Planning and Permitting.
   - Develop Extended Producer Responsibility (EPR) policy statements or resolutions expressing strong support for initiatives that require manufacturers of certain products or materials to take responsibility for the life cycle costs of their products.
   - As a component of the EPR policy, implement a campaign to develop EPR for difficult to recycle products, and lobby state and federal lawmakers to advance EPR initiatives.
   - Implement a County government source reduction program, by implementing policies, procedures, and incentive programs that will reduce waste streams currenly being generated within various County departments and agencies.
2. **Implement a PAYT program.** A critical element of the County waste management program is to provide incentives for the public to participate in source reduction and other programs to reduce waste going to landfills. PAYT programs have proven to be a highly successful and cost-effective method of reducing waste going to landfills in many similar communities nationwide. After considerable deliberation by SWAC about its advantages and disadvantages, this Plan update recommends implementing PAYT at County recycling and transfer stations. Implementation steps recommended the PAYT program include the following:
   - Designing a program that can be effectively implemented at the County's recycling and transfer stations, and that is convenient and cost-effective for the public.
   - Conducting an education and public outreach campaign prior to implementation of the PAYT program.
   - Conducting outreach to retail businesses in order to facilitate their participation in the program.
   - Purchasing and delivering the PAYT bags and tags.

- Developing and implementing a pilot program at no cost to the public to introduce the program and identify ways in which the program can be implemented most effectively.
- Training County staff who will participate in implementing the program and public outreach campaign.
- Implementing the PAYT program in phases over several years. A component of implementation will include monitoring and evaluation of program results and participation.

3. **Expand the current reuse program.** One of the most popular existing waste reduction programs among County stakeholders is the operation of reuse facilities where unwanted products that are still useful can be made available to others rather than discarded. Several recommendations relating to expanding the current reuse program include the following:
   - Expand reuse facilities, including improving and expanding services at the existing facilities located at Kea`au, Lapahoehoe, and Keauhou, and construction of new reuse facilities at other recycling and transfer stations.
   - Develop public-private partnerships with NGOs (such as Goodwill Industries) to develop reuse centers at existing outlets within the County.
4. **Expand and improve public education and awareness programs.** Stakeholders agreed that education was a key element of implementing source reduction programs within the County. The following are recommendations regarding development of educational programs:
   - Develop a business waste audit and education program to foster source reduction within the local business community.
   - Develop a visitor industry waste reduction education program that includes promotional events or advertisements targeting specific sectors of the visitor industry.
   - Develop a reuse education, outreach, and public awareness campaign to encourage public participation and use of the reuse centers.

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