

DRAFT REPORT OF THE SOURCE REDUCTION SUBCOMMITTEE

3 JUNE 2003

What is Source Reduction/Waste Prevention

Source reduction refers to efforts to eliminate or reduce the amount or toxicity of materials that will become waste, before they enter the solid waste stream. To make this concept clearer, the Source Reduction Subcommittee encourages the use of the term “waste prevention” to describe these efforts. The concept is simple -- not creating waste in the first place.

Waste Prevention is the most environmentally preferable and, potentially, the least costly alternative to recycling and landfilling

Waste prevention may occur at any stage in the life of a product, from raw material extraction through design, manufacture, transportation, purchase, use and, finally, disposal. Waste prevention includes efforts to change consumption habits as well as alternative approaches to waste management. To reduce waste generation and disposal, for example, Rhode Island residents, institutions and businesses may be encouraged to purchase:

- products and materials that are durable, reusable and/or repairable;
- items with minimal packaging; and
- products that are less toxic.

Rhode Islanders also may be encouraged to participate in alternatives to disposal, such as donation of useful items or management of food waste via a garbage disposal unit or backyard composting.

Benefits of Waste Prevention

The environmental benefits of waste prevention include conservation of natural resources and energy and reducing air, land, and water pollution through all stages of product life. These benefits of waste prevention are externalities, typically not accounted for because they are difficult to quantify. The problem is that waste prevention is not applied to an existing waste stream. Recycling, composting, incineration, and landfilling all are waste management techniques with known costs and environmental impacts. Waste prevention, on the other hand, eliminates (or minimizes) the amount of waste requiring “management.” The purpose of waste prevention is to reduce solid waste, by preventing (or significantly delaying) material(s) from becoming part of the solid waste stream. Thus, waste prevention reduces the cost and the environmental impacts of solid waste management because there is less waste requiring collection, processing, recycling or disposal.

Waste Prevention Mandated in Rhode Island

The United States Environmental Protection Agency (USEPA) prioritizes options for managing waste in descending order of preference. The USEPA waste management hierarchy encourages those approaches that minimize the generation of solid and hazardous wastes and other environmental releases. Waste prevention is assigned the highest priority because it emphasizes elimination or reduction of waste at the point of generation.

- USEPA Hierarchy**
- **Prevention**
 - **Reuse/Recycling**
 - **Treatment**
 - **Disposal**

Rhode Island has adopted this hierarchy. In fact, **RI General Law § 23-19-3 (11) recognizes source reduction as the state’s highest waste management priority.**

Neither the Rhode Island Resource Recovery Corporation (RIRRC) nor the Department of Environmental Management (DEM) has promoted waste prevention in recent years. Both agencies have focused their efforts on the state’s recycling programs; however, separating materials for recycling is not considered waste prevention because, although the separated materials will be used to make new products, waste still

was generated. Rhode Island's recycling programs divert waste materials from disposal to beneficial reuse, thus reducing the amount of waste that ends up in the Central Landfill. However, recycling requires an extensive and expensive infrastructure for collection, transportation and processing of designated materials. Recycling does not prevent the generation of waste nor reduce the economic and environmental impacts of managing that waste.

Waste prevention is the most environmentally preferable and, potentially, the least costly alternative to recycling and landfilling. Because waste prevention reduces the quantity of waste, it also can reduce the cost to our municipalities of collecting and transporting waste, as well as the costs associated with recycling, municipal composting, and landfilling. Waste prevention can extend the life of the Central Landfill by reducing the volume of waste requiring disposal. Since Rhode Island law establishes source reduction/waste prevention as our highest waste management priority, the following recommendations constitute the initial components of a long-term waste prevention strategy for Rhode Island.

Recommendations of the Source Reduction Subcommittee

1. Establish a Waste Prevention Task Force

In the early 1990's, the Source Reduction Task Force provided a forum where representatives of diverse viewpoints and interests could consider waste prevention policy and programs in an atmosphere of cooperation. RIRRC and DEM should contract for the services of a consultant/facilitator, expert in waste prevention, to convene a new Waste Prevention Task Force. The Waste Prevention Task Force will provide expertise and guidance to efforts to develop waste prevention legislation and implement innovative waste prevention programs. Funding for the consultant services will be the responsibility of RIRRC. The Task Force should include representatives from local business and industry, environmental organizations, educational institutions, appropriate state agencies, local government, the legislature, and the general public. RIRRC and DEM should assign staff to support the work of the Waste Prevention Task Force.

2. Set Waste Prevention Goals

To encourage continual progress in reducing waste generation and disposal, the Waste Prevention Task Force should establish one, five and ten-year waste prevention goals for the State. The Task Force should propose legislation that would require the RIRRC to track annual progress toward achieving those goals, and to produce and publicize an annual report on the state's progress in waste prevention. The Task Force, assisted by the consultant/facilitator and appropriate staff from RIRRC and DEM, should review current federal and state government efforts to measure waste prevention and adopt an appropriate methodology to track Rhode Island's progress in waste prevention. Progress in waste prevention can be tracked both qualitatively and quantitatively.

Measuring the quantity of waste prevented has been discouraged in the past because of the perception that it is difficult -- even impossible -- to quantify what is no longer there. However, in the past few years, USEPA and our neighboring states of Connecticut and Massachusetts have adopted measurement methodologies that link waste prevention to economic growth. Using gross national or state product as a driver, the difference between the quantity of waste anticipated, based on the driver, and the actual amount of waste generated provides the percentage of waste prevented.

3. Establish a State Waste Prevention Program

Recognizing that human and economic resources will be necessary to initiate and maintain long-term, statewide efforts to enhance waste prevention, Rhode Island should establish stable funding for a Waste

Prevention Program, directed by a full-time Waste Prevention Program Manager. The obvious source of funding for a full-time staff position and the waste prevention programs is the RIRRC. Alternative funding sources might include a landfill tipping fee surcharge, packaging fees or taxes, or user fees/taxes on single-use and/or hazardous products for which there are accepted durable, less hazardous alternatives. A model job description for the Waste Prevention Program Manager is found in Appendix A.

4. Establish an Environmentally Preferable Purchasing Program

Environmentally Preferable Purchasing (EPP) refers to the practice of purchasing products or services that have a reduced impact on human health and/or the environment. Such products or services may include those that minimize waste, conserve energy or water, reduce toxicity and/or contain recycled content. Successful EPP programs add environmental and health specifications to the standard evaluation criteria (price, performance, durability) normally used in procurement.

State and local governments are buying environmentally preferable products based on a variety of criteria including: durability, toxicity, recycled content, recyclability, energy efficiency, and reduced packaging. In 2002, Massachusetts spent \$86 million on environmentally preferable products. Based on the current state environmental purchasing requirements including §37-2-76 State purchase of recycled products and § 23-24.9-15 State Procurement preferences for low or non-mercury added products, the Department of Administration's Division of Purchases should work with DEM to implement a State Environmentally Preferable Purchasing Policy through enforceable regulations. The requirements may include:

- The Department of Administration in conjunction with the Department of Environmental Management shall annually establish comprehensive technical specifications based on research by the Department of Environmental Management for the environmentally preferable products, materials and supplies to be purchased by the state. The state shall, through its purchasing policy and practice, affirmatively promote the use of environmentally preferable products. The Department of Administration in conjunction with the Department of Environmental Management shall, through regulations, establish a time table requiring increased utilization by the state of environmentally preferable products. In January of each year, the Department of Administration shall report to the General Assembly the State's progress in purchasing environmentally preferable products materials and supplies for the preceding twelve (12) months.

Appendix B includes specific recommendations and technical resources to support the implementation of an Environmentally Preferable Purchasing Program.

5. Fund Implementation of and Provide Incentives for Municipalities to Implement Pay as You Throw (PAYT) Programs

The large majority of Rhode Island communities (33 of the State's 39 communities) provide unlimited solid waste service to their residents, financed through property taxes or a flat rate sticker fee. Neither approach sends a clear signal to residents regarding the economic and environmental costs of disposing of the solid waste they produce. Moreover, since residents never receive a bill specifically for solid waste services, they receive no signal that it costs anything to remove and dispose of their garbage every week. Thus, there is no incentive to reduce waste or to recycle. Residents who produce a small amount of waste subsidize those who generate larger amounts.

**Rhode Island
Communities with
PAYT Programs:**
Westerly
Hopkinton
Richmond
New Shoreham
North Kingstown
South Kingstown

As an alternative, municipalities nationwide have implemented pay-as-you-throw systems that provide incentives to maximize reduction and recycling. PAYT -- also known as user fee, variable-rate pricing and pay-by-the bag -- requires residents to pay for municipal waste based on the amount of trash they place at the curb or drop off at disposal facilities. USEPA estimates that PAYT programs are in place in more than 4,000 communities nationwide.

PAYT supports the waste management hierarchy defined by RIGL 23-19 by providing a reminder of the cost of waste management and creating an economic incentive to reduce waste, recycle and/or compost before disposal. Some communities with user-fee programs report reductions of 25 to 45 percent in the amount of waste shipped to disposal facilities; in addition, recycling programs divert eight to 13 percent more waste by weight.¹ PAYT provides a more equitable waste management fee structure since residents are charged for the waste services that they use and have greater control over the amount that they pay.

PAYT systems can be assessed on weight, volume, or some combination of the two. The table below shows the specific types:

System Type	Features
Variable can	Customers are billed for the number and/or size of cans subscribed or set out
Prepaid bag	Customers buy special garbage bags with logos;
Prepaid tag or sticker	Customers purchase tags or stickers that are attached to the waste containers set out for collection and disposal
Hybrid	The base level of can or bag/tag service is funded through taxes or fixed fees, with increments to that service paid through a variable rate system such as bag or tag/sticker systems
Weight-based	Households are charged per pound waste disposed.

Common concerns regarding PAYT include the potential incentive for increased illegal dumping and the potential hardship for residents with low or fixed incomes. A number of communities that have implemented PAYT indicate that increased illegal dumping has been either a temporary problem that the community was able to handle, or was not a problem at all. All communities noted that they had illegal dumping before the program and they still have illegal dumping afterwards. If increased illegal dumping does occur, it can be reduced through a public education campaign and an enforcement strategy with significant penalties.

PAYT can be structured to provide assistance to avoid hardship for residents with low or fixed incomes. Communities can reduce the charges by a set amount, offer a percentage discount, or offer a certain number of free bags or stickers to low-income residents. Assistance also can be offered through existing low-income programs.

PAYT has been studied and promoted extensively in Rhode Island over the past decade. In 1990, DEM commissioned a Brown University study that recommended that each resident and business pay the full cost of managing solid waste through a user-fee program. The recommendation to implement a user-fee program was reiterated by the Governor's Select Commission on the Future of Solid Waste Management in Rhode Island in 1992. DEM, with some EPA funding, conducted PAYT workshops for municipal officials and provided small grants to some communities to implement or to explore the feasibility of PAYT.

¹ United States Environmental Protection Agency, Pay-As-You-Throw: Lessons Learned About Unit Pricing, April 1994, p.3

In 1999, DEM conducted focus groups representing the general public and municipal officials.² Although both groups support PAYT, the state's solid waste management cost structure offers few incentives to encourage its adoption. Community officials do not view solid waste as a major problem, due to the artificially low tipping fee for municipal solid waste disposal in Rhode Island³ and the perception that there is adequate long-term disposal capacity. Also, solid waste management costs make up only a small portion of many municipal budgets and a PAYT program would not produce enough revenue to significantly reduce the tax rate or to shift large amounts of funding to other programs. Community officials stated that grant support would be the only factor that may encourage them to adopt a PAYT program at the present time. Both residents and community officials indicated that they would be more likely to support PAYT if at least one successful curbside PAYT program existed in Rhode Island.

The focus groups also confirmed that the general public is unaware of solid waste costs. Residents may view it as a free service. This increases resistance to PAYT, since residents think that they are going to be charged for a service that they have been receiving at no cost. Extensive citizen education is critical to successful implementation of PAYT. The education program should highlight the costs and benefits of the program and increase awareness of waste reduction and recycling options to reduce costs. Particular emphasis should be placed on waste reduction as focus group participants could not identify many methods for reducing waste. If implementing PAYT, communities also should be clear about the cost benefits and explain what the savings in tax revenue will be used for.

[Information on the status of PAYT in RI communities and case studies of successful PAYT programs in Massachusetts to be added.]

6. Provide Funding to Study Resource Management Contracting

Traditionally, fees for waste collection and disposal services are based on waste volume and/or the number of pick-ups. These arrangements provide haulers with an incentive to maximize both volume and the number of pick-ups to increase profits. There are no incentives for the waste hauling service providers to encourage waste prevention. Alternatively, Resource Management Contracting (RM) incorporates a profit incentive for contractors to reduce and recycle, ultimately benefiting themselves, their customers, and the environment. RM contracts might cap garbage hauling and disposal compensation, for example, and include a profit-sharing arrangement for waste minimization innovations initiated by the contractor. In this way, the contract shifts focus from increasing disposal volumes to improving waste management efficiency (resource management) at the customer's facility. The table below shows specific differences between traditional contracts and RM contracts.

² Pay as You Throw Focus Group Study, Rhode Island Department of Environmental Management, February 1999

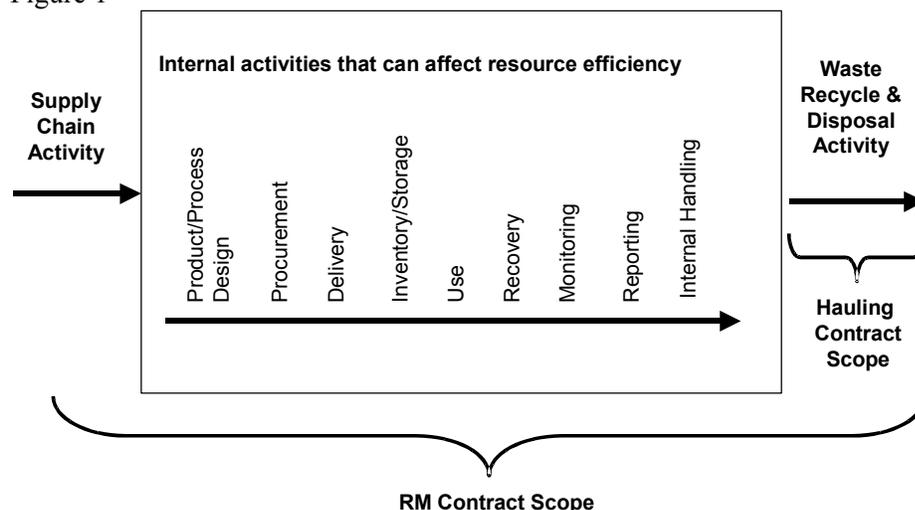
³ The estimated life of the Central Landfill is projected to be 2012 (per the long term landfill planning capacity subcommittee report, pending permit approval of Phase V). The municipal tip fee is \$32.00 per ton compared to a \$60.00 per ton rate for non-contract commercial waste. The tipping fee is set by the Rhode Island General Assembly.

Features	Traditional Hauling and Disposal Contracts	RM Contracts
Contractor Compensation	Unit price based on waste volume or number of pick-ups.	Capped fee for waste hauling/disposal service. Performance bonuses (or liquidated damages) based on value of resource efficiency savings.
Incentive Structure	Contractor has a profit incentive to maximize waste service and volume.	Contractor seeks profitable resource efficiency innovations.
Waste Generator-Contractor Relationship	Minimal generator-contractor interface.	Strategic alliance: waste generator and contractor work together to derive value from resource efficiency.
Scope of Service	Container rental and maintenance, hauling, and disposal or processing. Contractor responsibilities begin at the dumpster and end at landfill or processing site.	Services addressed in traditional hauling & disposal contracts plus services that inform/influence waste generation. ¹

RM makes more demands on waste generators and their contractors. The RM contractor must work with a broad range of stakeholders who can help raise or lower the amount of waste generated -- such as custodial staff, environmental engineers, procurement personnel, process and design engineers, and other contractors. Thus, the relationship between the generator and the RM contractor is more like a strategic alliance in which all parties strive to identify and implement resource efficiency strategies.

A RM contractor might address both external waste management activities and internal activities that affect waste generation (Figure 1). Initially, the scope of a RM contract might focus on optimizing external handling, monitoring/reporting, or recovery services (i.e., the “waste recycle and disposal activities” shown at the far right of Figure 1). However, the longer RM contracting is in place, the greater the profit incentive for the RM contractor to create resource efficiency strategies that will influence internal activities. Thus, in more advanced forms, RM can lead to more efficient material use, storage, and ordering; reduced purchase costs; or ultimately more resource-efficient product or process design.

Figure 1



Studies show that RM contracting typically reduces non-residential (commercial) waste generation by up to twenty (20) percent, and increases the recycling rate by up to fourteen (14) percent. However, the concept is fairly new and requires further examination, especially in the municipal sector. Proposed tasks might include:

- A review of Rhode Island files and experience relevant to implementing PAYT and/or RM, including interviewing key state staff.
- Meetings with private haulers to gauge their interest in or opposition to RM, and to some extent, PAYT. These meetings would be a combination of presentations on RM and the potential role of haulers as RM contractors, and listening sessions to solicit haulers' reactions.
- Input from key staff at DEM and RIRRC as to overall feasibility and the key issues and obstacles that need to be addressed in considering implementation of PAYT and RM.
- Detailed analyses of the feasibility of PAYT and RM in 3-5 key RI communities, including Providence. This would entail collecting municipal-specific data on current waste management practices and contracts, the costs associated with waste management, and the institutional and political obstacles faced in each of the communities considered. These case examples will serve to identify the types of issues likely to be encountered in trying to implement PAYT and/or RM throughout RI.
- Summarize the results of this feasibility assessment in a brief report.

Additional funding should also be made available to support both commercial and residential pilot programs.

7. Establish Product Stewardship Policy and Programs

“Product Stewardship” is a principle that encourages manufacturers, retailers, consumers and government to take responsibility for the health and environmental impacts of the production, use and disposal of products and packaging. The Product Stewardship approach provides incentives to manufacturers to consider the entire life-cycle impacts of a product and its packaging – energy and materials consumption, air and water emissions, the amount of toxics in the product, worker safety and waste disposal – in product design and to take increasing responsibility for the end-of-life management of the products they produce.⁴ Since waste disposal impacts and associated costs have been the basis for engaging manufacturers, attention has initially focused on waste management problems and solutions. However, the challenge of product stewardship is to move beyond disposal to facilitate a paradigm shift toward “zero waste” and “sustainable production.”⁵

Product stewardship initiatives create a role for manufacturers and retailers in the collection and recycling of used products or packaging or in the financing of these endeavors. The members of the European Union, Asian countries including Japan, Taiwan and South Korea and, more recently, the Canadian provinces of Quebec and Ontario have imposed fees on manufacturers, importers and distributors to cover the cost of collection and recycling or disposal of electronics and packaging. The fee structure is material-based, with lower fees associated with those materials that are most readily recycled. Creating a role for manufacturers and retailers in the post-consumer management of waste materials they have introduced to the marketplace has resulted in changes in product and packaging design that reduce waste. In addition, the fee revenues support recycling collection, transportation and processing.

⁴ Product Stewardship Institute. www.ProductStewardshipInstitute.org

⁵ Ibid.

- One of the initial tasks of the Waste Prevention Task Force should be to develop a Rhode Island product stewardship policy statement. This policy statement can be developed based on the Product Stewardship Menu of Options (Appendix C-1) developed by the Product Stewardship Institute (PSI) at the University of Massachusetts Lowell, as well as existing policies of the Northeast Recycling Council (NERC) and the National Recycling Coalition (NRC). NERC, a coalition of the ten northeastern states, of which Rhode Island is a voting member, is in the process of developing a draft product stewardship policy statement for the benefit of its member states which can endorse the NERC policy statement in lieu of developing their own Product Steward Policy statements (Appendix C-2). NRC also is in the process of developing a product stewardship policy (Appendix C-3).
- The Waste Prevention Task Force should actively participate in efforts to develop and implement regional approaches to product stewardship.
- The Waste Prevention Program Manager should prepare an analysis of current electronics and packaging legislation and regulations in the United States, Canada, Europe and Asia and present this information to the Waste Prevention Task Force. The Task Force should give serious consideration to the potential for the State to establish fees to transfer some of the burden of paying for waste management to the manufacturers and distributors of products and packaging materials that become that waste. Precedent exists in the General Laws at § 44-44 Taxation of Beverage Containers, Hard-To-Dispose Material and Litter Control Participation Permittee.
- The State has moved forward on legislation and product stewardship initiatives for the control of mercury and mercury-added products. With this initial effort as a model, the Waste Prevention Task Force should design product stewardship legislation and initiatives for
 - Electronics
 - Paint
 - Pesticides
 - Carpet
 - Packaging

Appendix C-4 provides additional details on Product Stewardship initiatives for each of these categories.

8. Establish/Expand Reuse Programs

Reuse programs that divert materials from the waste stream and make them available to those who will continue to use them offer significant waste prevention opportunities. Over the last decade, there has been a considerable increase in the number of programs and organizations engaged in reuse initiatives in North America. The Waste Prevention Task Force and the Waste Prevention Program Manager should seek to establish and/or expand opportunities for reuse in Rhode Island. Specific programs may include: recovery of building materials from construction sites and construction and demolition debris; consumer materials exchange for household goods including appliances, furniture, clothing etc.; business and industry materials exchange; business and industry donation programs such as Recycling for Rhode Island Education; school supply collection and redistribution programs; college and university end-of-year collection programs, food recovery and redistribution programs, and shopping bag reuse at retail outlets.

The Waste Prevention Task Force should consider establishing a technical assistance program to encourage local business and industry to explore the possibility of using waste materials as feedstock for existing or new manufacturing programs. Technical assistance in developing business plans; evaluating technologies; material testing; and marketing could promote reuse of materials currently managed as

waste, as well as economic development and jobs creation. The King County WA LinkUp program is a model that should be evaluated.

See Appendix D for a detailed discussion of LinkUp and other current and potential reuse programs.

9. Expand Pollution Prevention Programs

To protect the health and safety of Rhode Island residents, the State should establish stable funding and staffing for DEM's Pollution Prevention Technical Assistance program and reinstate the cooperative agreement with the University of Rhode Island that provided access to technical expertise and assistance. The P2 Section was created in 1987 in response to legislation designed to assist business and industry in their efforts to eliminate or reduce their use of toxic and hazardous materials. § 23-19.10-6 of the General Laws requires the Department of Environmental Management to establish a hazardous waste technology, research, development, and demonstration program, contracting with, and providing grants to, universities, governmental agencies, and private organizations for the research and development of hazardous waste reduction, recycling, or treatment technologies. Every generator of hazardous waste in the State is required to report to DEM on the changes in volume and toxicity of waste achieved through waste reduction every two years.

The P2 Program matured into an interdisciplinary program providing technical assistance to business and industry, supported by scientists, engineers and planners from a network of institutions including the Center for Pollution Prevention at the University of Rhode Island (URI), the Narragansett Bay Commission's Pollution Prevention Program, the USEPA (EPA New England) and the National and Northeast States Pollution Prevention Roundtables. The Pollution Prevention Program increased awareness of waste prevention opportunities for the business community and implemented programs that reduced the use of hazardous materials and the generation of hazardous waste

DEM's P2 Program was a non-regulatory business assistance program that offered free technical assistance to Rhode Island companies interested in incorporating pollution prevention into their processes. Technical assistance ranged from answering a simple waste-related question to conducting a detailed on-site pollution prevention assessment of an industrial facility. In addition to conducting on-site pollution prevention assessments, program staff conducted pilot scale testing of P2 equipment, performed laboratory analyses, performed economic analyses, provided vendor information, conducted technical research, and much more. All these services were available to Rhode Island businesses free of charge. Staffing and funding for the P2 Program should be restored to ensure continuing progress in reducing the use of hazardous materials and the generation of hazardous wastes.

The Waste Prevention Task Force should assist state agencies in their efforts to reduce or eliminate hazardous materials from Rhode Island schools. DEM participates in a Healthy Schools program with the Department of Education and the Department of Labor and Training. This program seeks funding for a one-time cleanout of toxics from science, art and maintenance storage areas and a long-term program to ban more than 800 toxic substances from Rhode Island schools. The Waste Prevention Task Force and the Waste Prevention Program Manager may wish to play an active role in this process.

10. Mandate Paper Waste Prevention Programs

The Waste Prevention Program Manager should design a model Paper Waste Prevention Program. This program should be implemented in all State offices and the offices of each Municipality. Paper purchasing reductions and cost savings can be documented and publicized. Based on successes in state and local government offices, the program can be promoted to other paper intensive operations such as law firms, insurance and investment companies, schools and universities. At a minimum, the Paper Waste Prevention Program should address:

- A Statewide paper waste prevention policy

- Duplex copying and printing equipment and training
- Letterhead and forms on-line
- Directories and guides on-line
- Single-sided paper reuse options
- Catalogs/magazines/journals
- Telephone books
- Electronic communication
- Reuse Room for office supplies

11. Identify Opportunities to Revise, Enforce and Publicize Existing Laws and Regulations

The State of Rhode Island has a number of existing laws and regulations which, if modified, publicized and/or enforced, could contribute to reductions in the quantity and toxicity of the waste stream. The Waste Prevention Task Force should make every effort to use these laws to promote waste prevention:

- **§ 23-18.11-3 Prohibited practices.** – No retail establishment located and doing business within the state shall sell or convey goods, food, or goods which have been the subject matter of the rendering of personal services thereon, directly to the ultimate consumers within the state in plastic bags, unless the retailer makes available to each consumer a paper bag as an option at no greater charge than the plastic bag. The retailer must advertise clearly the availability of this option. Any retailer who chooses to transfer purchases in paper bags only, need not make other optional bags available.
- **§ 23-18.11-3.1 Recycling containers for plastic bags.** – Every retail food market that sells or conveys goods or food in excess of eight million dollars (\$8,000,000) annually, directly to the ultimate consumer within the state, shall provide within the retail food market, at a location convenient for its customers, receptacles in which customers may place any used plastic bags for recycling. The retail food market, at its own expense, shall be responsible for the cost, maintenance, and emptying of these receptacles and the delivery of the bags collected to a suitable recycling facility, or to an intermediary company or vendor whose business includes the recycling of plastics
- **§ 23-19.10-10 Research grants.** – (a) The department may issue grants to, and enter into contracts with, universities, governmental agencies, and private organizations to research and develop hazardous waste reduction, recycling, or treatment technology. (b) These grants may be applied to personnel, equipment, and administrative costs and shall, to the extent possible, be used to augment other sources of research and development funding, including federal and private funds.

12. Increase Education, Outreach, and Technical Assistance

To encourage and achieve sustainability of a new behavior, incompatible, existing behaviors must change. Since the value and importance of waste prevention remains relatively unknown to the public at large, educational outreach is essential. Stand-alone informational campaigns, however, are rarely sufficient to actually change and sustain behavior over time. For educational outreach to be successful, it must be coupled with strategies and “hands-on” programs designed to reinforce behavioral change.

The Waste Prevention Task Force and the Waste Prevention Program Manager should identify key topics for waste prevention education. Preliminary topics might include:

- Retail packaging

- Household toxics, with particular attention to mercury and lead
- Electronics

The Waste Prevention Task Force and the Waste Prevention Program Manager should evaluate the benefits of Community Based Social Marketing (see description below) through a pilot program to test the effectiveness of this approach for a waste prevention outreach campaign on a key topic.

The Waste Prevention Task Force and appropriate staff from RIRRC and DEM should work together to fund, design, implement and evaluate outreach and technical assistance programs and to publicize the waste prevention impacts of these efforts.

Environmental partnerships should be undertaken between RIRRC and community groups, businesses, Chambers of Commerce, environmental organizations etc. These partnerships would enable the RIRRC to reach out to its target audiences more effectively using the environmental organizations' member and volunteer base. Outside organizations are immune to State budget fluctuations and may be able to provide more stability for these educational efforts.

DEM and the Department of Education should identify opportunities to promote waste prevention in the classroom. Staff should evaluate existing, Rhode Island-specific curriculum materials. These materials may be updated and promoted, as appropriate. Alternatively, new waste prevention modules for use in elementary and secondary schools should be developed in cooperation with the Department of Education to ensure their successful introduction into the curriculum.

The Waste Prevention Program Manager should ensure that Rhode Island is an active participant in regional and national waste prevention education programs such as the recent thermometer exchanges to reduce mercury in the environment.

Traditionally, marketing, technical assistance, and outreach efforts have focused primarily upon the consumer. Waste prevention programs employed informational campaigns designed to increase public awareness and instigate participation in waste preventing activities. However, consumer behavior is dependent upon and driven by the products available for purchase and the resources available for waste prevention. The consumer represents only one step in the waste cycle and, as a result, it is difficult to achieve and sustain waste preventing behaviors through consumer education alone, while ignoring the roles of manufacturers and retailers.

Retailers serve an integral part in the product lifecycle as the intermediary between the manufacturer and the consumer. Outreach efforts to the commercial sector involve both education relative to successful waste prevention initiatives and information on how retailers can effectuate change through their role as the primary link to the manufacturer. Large retailers such as Walmart, Home Depot, and CompUSA, have the resources and influence to dictate product specifications and packaging requirements to the manufacturer. Retailers are the logical location for take-back programs for electronics, batteries and other hard to dispose of wastes. Retailers also can participate actively in packaging reduction programs. For example, in the past, some RI retailers offered a discount when consumers provided their own bags. Large retailers can serve as models for smaller retailers and can send a message to manufacturers concerning their expectations and the economic and environmental benefits of waste prevention.

Historically, methodologies to inform consumers and retailers have depended on government-produced brochures and guides, newsletters, press releases, editorials, advertisements, and public service announcements in local newspapers, radio, and television. Schools also have provided some elements of environmental education using Rhode Island-specific curricula developed by DEM. The specific strategies incorporated for the two groups are similar. The informational content relative to waste prevention, however, differs for each group. The message for residential waste prevention has focused on

such topics as household hazardous materials, composting, and recovery of clothing and other household items for re-use. Waste prevention in the business sector has emphasized paper waste reduction, packaging reduction strategies, and materials exchanges.

Community Based Social Marketing

Community Based Social Marketing (CBSM) is a viable alternative to conventional methods for promoting behavioral change. CBSM incorporates a social psychology approach and theorizes that “behavior change is most effectively achieved through initiatives delivered at the community level which focus on removing barriers to an activity while simultaneously enhancing the activity’s benefits”⁶

Four primary steps are involved in this behavioral change methodology:

1. Identify the barriers and benefits to an activity;
2. Develop a strategy using demonstrated tools designed to change behavior successfully.
3. Implement a “pilot” program incorporating the strategy
4. Evaluate the pilot strategy subsequent to community-wide implementation.

The identification of barriers to sustainable behavior is critical to implementing a successful and sustainable program. Strategies such as focus groups, observational studies of specific behaviors, and surveys are incorporated to identify and prioritize barriers to change. Knowing the relative importance of specific barriers to sustainable behavior permits the use of limited resources to their greatest benefit.

CBSM employs performance modification tools - commitment, prompts, norms, communication, and incentives – to promote measurable behavioral changes. Programs are designed to incorporate beneficial behaviors identified by these tools and strive to reduce, if not eliminate, the prioritized barriers to sustainability. Typically, CBSM activities are implemented as small group pilot programs, assessed, and re-designed as necessary before being extended to the community at-large. As a result, CBSM modeled programs have had significant success achieving sustainable behavioral changes.

Many of the more recent successful waste prevention programs incorporate elements of the traditional approaches with the newer technology and communications available in conjunction with various elements of CBSM. Success stories are evident from a wide range of sources. The framework for successful waste prevention outreach program implementation includes:

- understanding of behavioral change methodologies through CBSM;
- incorporation of traditional information and education campaigns;
- inclusion of innovative strategies incorporating 21st century communications and technologies, including the Internet and Worldwide Web;
- use of partnerships and networking strategies;
- participation of a variety of groups from all sectors of society.

Appendix E provides information on resources for waste prevention education and examples of successful programs in other jurisdictions.

Conclusion

Rhode Island’s efforts to recognize waste prevention as a legislatively mandated priority and to promote a waste prevention agenda have been dormant for more than a decade. To preserve disposal capacity at the Central Landfill, Rhode Island residents should take responsibility for the waste they generate. It is time

to restore the Task Force and create an aggressive, sustainable waste prevention program. It is time to establish PAYT programs in Rhode Island communities. It is time for the waste industry, including waste haulers serving Rhode Island residents and commercial enterprises, to partner with the State to support their customers' efforts to enhance waste prevention and diversion for recycling. An individual can make a difference. The collective efforts of many individuals can effect significant change, resulting in very real reductions in Rhode Island's waste stream.

¹ "Community-Based Social Marketing", Doug McKenzie-Mohr, Ph.D. www.cbsm.com.

Current Status of Pay-As-You Throw Systems in Rhode Island

(Updated May 6, 2003)

Six communities in Rhode Island currently have some type of pay-as-you-throw system in place for solid waste management. These include:

- **Westerly/Hopkinton**: Westerly started a pay-by-the-bag program in July 1994 contingent on approval of the voters in a November 1994 referendum. The referendum passed by a three-to-one margin. Residents are required to purchase special orange bags for trash disposal. Two sizes of bags are available: a 15-gallon bag for \$.60 or a 30-gallon bag for \$1.20, as of July 1, 2003. Town officials estimated that recycling increased by 13 percent and that solid waste decreased by 11 percent during the first six months of the program.
- **Richmond**: Residents' trash is weighed at the transfer station which is operated by a private contractor. The fee is based on a sliding scale from \$.3.50 for amounts ranging up to 50 pounds to \$4.50 for amounts ranging from 50 to 100 lbs. Recyclables are accepted free of charge. In 1993, the Richmond recycling program, although voluntary, diverted 21.5 percent of solid waste from landfilling.
- **New Shoreham**: Residents are required to pay 9 cents per pound for solid waste brought to the transfer station, recyclables are accepted free of charge. The transfer station is operated by a private contractor. In 2002, the transfer station accepted 2,157 tons of solid waste and 487 tons of recyclables, for a recycling rate of 22.6 %.
- **South Kingstown/Narragansett**: Implemented in 1994. Residents are required to purchase special adhesive tags at \$1.30 each (as of July 1, 2003) to deposit bags of trash up to 33 gallons/35 lb. limit at the transfer station. The towns also require residents to purchase yard waste bags at \$.90 each for composting. In 1991, a new recycling program was introduced at Rose Hill based on the "maximum recycling" program, using green bins for paper products and blue bins for other recyclables. Recyclables are accepted at no charge at the Rose Hill Regional Transfer Station. A private contractor operates the facility. In October, November and December 1994, the towns diverted 33 percent of solid waste from landfilling. In the 2001-2002 year (FY'02) period, residents dropped off 1,487 tons of tagged solid waste at Rose Hill, and 1,756 tons of recyclables, all which was sent to the RI Resource Recovery Corporation.
- **North Kingstown**: Implemented in 1999. Residents are required to purchase tags to deposit bags of trash at the transfer station, priced at \$1.20 per bag, for bag sizes up to 33 gallons in size. The town offers curbside pickup of recyclables only, with drop-off at the transfer station for solid waste. Prior to implementation of PAYT, noted recyclables co-mingled with solid waste, had an increase in requests for recycling bins from residents after implementation. Solid waste volume decreased from 12,000 tons per year before PAYT to 9,000 tons now, with a small amount of the decrease due to the increased disposal fee for commercial solid waste and the decision by some sources to ship directed to RIRRC rather than use the transfer station. The diversion rate increased from 15% before PAYT to 30% now.

APPENDIX A

The following model is provided as a guide on which to base a job description for a Waste Prevention Program Manager:

Job Title: Waste Prevention Program Manager

Job Brief: To reduce the volume and toxicity of waste disposed in the state-operated landfill, the Waste Prevention Program Manager will be responsible for the design, development, implementation and promotion of policies and programs to promote waste prevention among residential, institutional and commercial waste generators. The Waste Prevention Program Manager will design and implement a variety of waste prevention education and outreach programs including seminars, public presentations, technical assistance and targeted publications. The Waste Prevention Program Manager will work in cooperation with staff of state agencies, municipalities, business and industry, trade associations, environmental organizations and the public.

Essential Duties:

- Design, develop, implement, and promote waste prevention programs and projects that can serve as models for state and local government, institutions, commercial entities and residents.
- Conduct waste prevention opportunity assessments of state agencies, municipalities, institutions and businesses.
- Provide technical assistance in waste prevention implementation to state agencies, municipalities, institutions and businesses including implementation of cooperative waste prevention and recycling programs.
- Work with the Department of Administration, Division of Purchases and the Department of Environmental Management to implement an Environmentally Preferable Purchasing program. This effort may include product research, staff training and cooperative efforts with other state and regional organizations.
- Manage RIRRC's Business and Residential Materials Exchanges;
- Participate in waste prevention education and outreach efforts, including conducting public presentations, booths at events (involves evenings and weekends).
- Participate in national and regional programs that encourage cost effective approaches to waste prevention.

Job Requirements:

- BA/BS in environmental, science or social science; MA/MS preferred
- Experience working in environmental, governmental, public education/outreach or related area. Thorough knowledge of the principles and practices of waste prevention, pollution prevention, commercial recycling and composting.
- Aptitude with computer software specifically Microsoft Office applications, including: Word, Excel, PowerPoint and Access.
- Exceptional interpersonal skills required. Evidence of ability to work cooperatively and professionally with diverse individuals, including state and local government officials, business leaders, residents, haulers, brokers, and operational staff.
- Excellent speaking skills and comfort speaking extemporaneously to large groups.
- Excellent writing and organizational skills.
- Evidence of commitment to environmental conservation and public service.

APPENDIX B

ENVIRONMENTALLY PREFERABLE PURCHASING

- *Adopt specifications for environmentally preferable products*

In 2002, state and local governments in the United States spent more than \$400 billion on goods and services. Recognizing the enormous environmental impacts resulting from their purchasing decisions, a growing number of state and local governments have reexamined their traditional purchases and switched to more environmentally preferable alternatives. In addition to improved environmental performance, these jurisdictions have discovered that "environmentally friendly" products work as well or better than traditional products and can even save money. USEPA and a number of state and local governments have established procurement specifications for environmentally preferable products in multiple categories including: paper and paper products, office supplies and equipment, automotive products, park and recreation equipment and other categories of products and materials purchased by State government. The Commonwealth of Massachusetts, State of Minnesota, King County, Washington and other government organizations can provide access to their research and testing as well as procurement specifications for environmentally preferable products that can be adopted by the State of Rhode Island.

City of Santa Monica

www.ci.santa-monica.ca.us/environment/policy

Learn about Santa Monica's innovative Sustainable City Program. This site includes the City's policies, program descriptions, environmental purchasing criteria for janitorial products, and their integrated pest management system.

Commonwealth of Massachusetts Environmentally Preferable Purchasing Program

www.state.ma.us/osd/enviro.htm

www.magnet.state.ma.us/osd/enviro/products.htm

Includes state contracts for environmental products, reports on state agency pilot projects with various environmentally preferable and recycled products, and a description of Massachusetts' efforts to increase the purchase of environmentally preferable products through training and outreach.

Janitorial Products Pollution Prevention Project

www.westp2net.org/Janitorial/jp4.htm

Information, fact sheets, product sample kits, purchasing specifications, other outreach materials to advise users on the health, safety, and environmental consequences of their janitorial product choices.

King County, Washington

www.metrokc.gov/procure/green/

Resources from King County, Washington's Green Purchasing program include a policy statement, bid and contract specifications for recycled and waste preventing products and descriptions of staff experiences in using these products. Specifications, products and vendors for green construction projects, including paints, are available at <http://dnr.metrokc.gov/market/map/index.htm>

State of Minnesota

www.moea.state.mn.us/lc/purchasing/index.cfm

Minnesota's EPP site includes advice on establishing environmental criteria and examples of model programs as well as access to *The Environmentally Preferable Purchasing Guide*, an easy-to-use reference tool for 30 "green" products including less toxic cleaners,

Green Order

<http://greenorder.com>

A directory of product manufacturers and distributors tailored to the needs of institutional purchasers, especially government buyers. Offers recycled content, energy efficient, biobased and environmentally preferable products.

Green Seal

www.greenseal.org

Non-profit organization that provides independent certification of the environmental attributes of various product categories. This website includes search capability for their products database and allows access to the product standards used for certification.

- ***Adopt institutional cleaning products standards***

Many institutional cleaning products traditionally contain chemicals associated with cancer, reproductive disorders, respiratory ailments, eye or skin irritation, and other human health issues. They also can include toxic materials that adversely affect water quality, plant and animal life, and accumulate in the environment with potentially harmful consequences. According to the Bureau of Labor Statistics, 127 janitors died between 1993 and 2001 as a result of the cleaning products they were using and growing numbers of human health and environmental hazards are linked with traditional cleaning products.

With funding provided by USEPA, a working group of supply managers and industry experts from across the country developed human health and environmental criteria for institutional cleaning products. The new consensus-based criteria define safer products that perform just as well as, if not better than, traditional products. The criteria include: Toxicity, Carcinogens and Reproductive Toxins, Skin and Eye Irritation, Skin Sensitization, Combustability, Smog, Ozone, and Indoor Air Quality, Aquatic Toxicity, Eutrophication, Aquatic Biodegradability, Concentrates, Fragrances, Prohibited Substances, Training, Packaging, and Labeling. Massachusetts is the first working group member to issue an RFR based on the criteria. The RFR is available at http://www.comm-pass.com/Comm-PASS/Scripts/xdoc_view.idc?doc_id=013694&dept

Environmentally preferable cleaning products are not necessarily more expensive. The city of Santa Monica, California is benefiting from a 5 percent price savings after switching to more environmentally preferable products. Other organizations, including Nike, Ben & Jerry's, the Department of Interior (including several national parks), and the state governments of Massachusetts, Minnesota, and Vermont, report that the "green" cleaners are extremely price competitive with traditional products. Several supply managers believe additional savings could be demonstrated if it were easier to quantify increased worker safety, superior performance, higher worker morale and productivity, and improved indoor air quality.⁷

- **Adopt Least Toxic Pest Management Policy**

Rhode Island should adopt a Least Toxic Pest Management Policy that prohibits the use of synthetic chemical pesticides and emphasizes prevention as our first line of defense followed by the use of biorational pesticides for successful control.

⁷ Case, Scot. "Cleaning Up the Supply Chain" *Inside Supply Management*, Vol. 14, No. 4, p. 6.

APPENDIX C-1

*Product Stewardship Institute
December 6, 2000*

PRODUCT STEWARDSHIP POLICY

MENU OF OPTIONS

OPTIONS FOR MAKING RESOLUTIONS ON PRODUCT STEWARDSHIP

- Agency Planning Document (e.g., Solid Waste Master Plan)
- Policy
- Executive Order
- Legislation

SECTION 1: POLICY STATEMENT

(Making Connections to Other State and Local Initiatives)

- Agency policy to promote waste prevention and resource efficiency through Product Stewardship (OR DEQ)
- Product stewardship is one of many tools to achieve waste prevention/reduction
- Tie to Executive Order (e.g., OR DEQ: Sustainability)
- Tie to legislation (e.g., MOEA: state goal to conserve resources and protect public health and the environment)

SECTION 2: PRINCIPLES OF PRODUCT STEWARDSHIP

- RESPONSIBILITY:** Industry bears primary responsibility for product impacts.
- “Joint Responsibility:” Industry and Government (and product users?)
- “Industry Responsibility:” Designers, Producers, Sellers of product or product components
- “Producer Responsibility:” Product Manufacturers
- DEGREE OF RESPONSIBILITY:** The greater the ability to influence a product’s life-cycle impacts, the greater the degree of responsibility for addressing those impacts.
- FLEXIBLE MANAGEMENT STRATEGIES:** Government should allow for flexibility in allowing those responsible to reduce product impacts.
- INCENTIVE FOR CLEANER PRODUCTS:** Policies should create an incentive for the manufacturer to design cleaner products.
- LIFE CYCLE:** Policies should reduce impacts along the entire life cycle of the product.
- INTERNALIZE COSTS:** The costs of recovering resources and managing products at the end of life are internalized into the costs of producing and selling products, so that those costs are not paid for by government.
- GOVERNMENT ROLE:** Government has a leadership role in promoting product stewardship:
 - Procurement of Products and Services
 - Capital investments in buildings and infrastructure

- Research (e.g., market development)
- Reduce regulatory barriers to lower product management costs
- Work together regionally and nationally to reduce costs, simplify regulatory issues, and clarify relationships with industry partners.

SECTION 3: PRODUCT STEWARDSHIP GOALS

- REDUCE PRODUCT TOXICITY:** Reduce or eliminate toxic and hazardous constituents of products and components.
- REDUCE EMISSIONS:** Reduce the toxicity and amount of waste that results from the manufacture, use and disposal of products.
- Redesign products to avoid future waste management problems.
- Increase product reuse and recycling.
- PROPER WASTE DISPOSAL:** Dispose of remaining wastes in an environmentally sound manner.
- MATERIALS, ENERGY, WATER USE:** Use materials, energy, and water efficiently at every stage of the product's life, including manufacture, distribution, sale, use, and recovery.

SECTION 4: PRIORITY PRODUCTS

ESTABLISH LIST OF PRIORITY PRODUCTS

Electronics

- CRTs, CPUs, VCRs, cell phones (OR DEQ)
- CRTs (MOEA)

Products Containing Mercury

- Thermometers, Thermostats, Electrical Switches (including automotive)
- Fluorescent lamps
- Button cell batteries
- Products with trace mercury (e.g., soaps, cleaners, shampoos)

Pesticides

- Household
- Commercial/Institutional
- Agricultural

Paint

- Latex
- Oil-based
- Paint Products (e.g., thinners)

Carpet

Other Products/Materials

- Tires
- Packaging (e.g., plastics)

Appliances

Furniture

Apparel

Food Waste

SET PROCESS FOR LISTING PRIORITY PRODUCTS

DATE AND TIMEFRAME: Establish a beginning date and subsequent timeframe for adding/removing products from the list.

LEAD AGENCY: Establish which agency has the authority to add/remove products from list (e.g., lead agency).

CONSULTATION GROUP: Establish who the lead agency must consult with to establish the list.

MECHANISM FOR CHANGING PRIORITIES: Determine the mechanism for adding/removing products (e.g., policy, regulation, legislation).

ESTABLISH CRITERIA FOR LISTING PRIORITY PRODUCTS

Contain toxic or hazardous substances (e.g., reference substance lists developed by agency)

Are banned from disposal

Pose a threat to the safe or efficient operation of a solid waste facility or the solid waste system.

Place significant economic burdens on the state or local government for end-of-life management because:

- There is a significant amount of the product in the waste stream (e.g., carpet)
- The nature of the product makes it difficult to manage in the existing system (e.g., electronics, pesticides)
- Possess significant potential for increased reuse and recycling.

SECTION 5: PRIORITY PRODUCT TARGETS

ESTABLISH TARGETS: State that numerical targets should be established for each priority target:

- Waste Prevention
- Reuse
- Toxicity Reduction
- Recycling
- Recovery
- Market Development

ESTABLISH TIMEFRAME: State that a timeframe will need to be established for meeting the targets based on the following:

- Current and potential opportunities for reduction, reuse, re-manufacturing, and recycling;
- Existing and needed infrastructure for managing the product;
- Availability of alternative products.

ESTABLISHING AGREEMENTS

Who: List those who will be included in the negotiated agreements.

How: State how an agreement shall be developed (e.g., informal MOU, formal hearing process) and what constitutes an agreement.

! **“Product Group:”** creates action plans with targets, timelines, processes, consequences for each product (OR DEQ).

REPORTING ON PROGRESS

Industry Reporting: Establish how often and on what topics those responsible for product management report to the lead agency on progress made toward meeting targets (e.g., annually, every 2 years, etc.).

Agency Reporting: Determine how often, to whom, by which mechanism (e.g., Planning Document, Report to Legislature), and on what topics the lead agency reports on progress made.

CONSEQUENCES OF NOT MEETING TARGETS: State that logical consequences will result if targets are not met. Agency reserves the right to make recommendations for achieving targets if adequate progress is not made through voluntary agreements.

SECTION 6: OPTIONS TO REACH TARGETS (OR DEQ)

Eliminate Toxins

Reduce Resource Consumption

Leasing

Deposit/Refund

Product Take Back

Use Requirement (meet recovery/recycling targets for own product)

Promote Repair/Durability

SECTION 7: INDUSTRY (MANUFACTURER) RESPONSIBILITIES (MOEA)

Progress: Ensure targets are met (or “sufficient progress” made)

Costs: Costs not borne by government and internalized into product price.

Education: Educate purchasers or product users about product management options.

SECTION 8: GOVERNMENT AGENCY ASSISTANCE AVAILABLE

“May Provide...”

“In conjunction with manufacturers...”

Consumer Education

Reduce Regulatory Barriers

Develop Statewide Collection Contracts

Promote Product Purchases

Create Market Development Plan (for each priority product)

Develop Research Agenda (and fund or conduct research)

Provide Grant Funds (e.g., pilot collection projects)

APPENDIX C-2

Northeast Recycling Council, Inc.
PRODUCT STEWARDSHIP POLICY STATEMENT
April 28, 2003
Document Submitted to Board of Directors for Vote
Preamble

Product stewardship means that, whoever designs, makes, sells, uses or disposes of a product is responsible for minimizing its environmental impact. This responsibility spans the product's entire life cycle.

The goals of product stewardship are to:

- Encourage manufacturers to design products with fewer toxics and virgin materials,
- Encourage source reduction,
- Make products more durable, reusable, and recyclable,
- Increase use of recycled materials in product manufacture, and
- Educate consumers about the environmental impacts of their purchases and encourage them to consider these impacts when making purchasing and disposal decisions.

The need is to change thinking and behavior from a consumption and use perspective towards waste minimization and sustainable production. Product stewardship balances the responsibility for end-of-life management between the public sector (government and taxpayers) and the private sector (manufacturers, retailers and the consumers).

End-of-life management places a priority upon source reduction, reuse, recycling and strategies other than disposal.

Background

The Northeast Recycling Council, Inc. (NERC) is a ten-state non-profit organization dedicated to recycling market development. NERC has been actively involved in product stewardship initiatives since the early '90s. It worked directly with Northeast newspaper publishers to negotiate a commitment to use more recycled newsprint, and working with the Direct Marketing Association and Yellow Pages Publishers to use recycled content paper and improve the recyclability of the Yellow pages. In addition, NERC was an active stakeholder in the national carpet recycling product stewardship initiative, and is a signatory to the national agreement, and NERC is an active stakeholder in the National Electronics Product Stewardship (NEPSI) Dialogue. It also adopted the first used electronics market development policy in the United States, which embraces principles of shared responsibility.

Purpose

The purpose of this Product Stewardship Policy Statement is to articulate guiding principles for NERC to use as it works with policy makers, manufacturers, retailers, consumers, regulators, legislators, waste managers and others to develop programs that more safely, cost-effectively and appropriately manage products during the design, distribution, use, and at the end-of-life. Because NERC's mission focuses on solid waste minimization and recycling market development, NERC's priority focuses upon those products that due to the materials that they contain or other characteristics require special collection, handling, recycling or disposal practices, or products that represent large percentages of the solid waste stream.

POLICY STATEMENT

NERC believes that it is in the best interest of the public welfare to reduce the adverse health, financial, environmental, and other impacts associated with the life cycle of consumer products. NERC endorses a product stewardship strategy that includes market incentives as an effective and significant strategy to achieve this result.

Responsibility: The responsibility for reducing product impacts should be shared among industry, retailers, government, and consumers. NERC believes that the greater the capacity and efficiency an entity or interest group has to minimize a product's life cycle impacts, the greater is its degree of responsibility and opportunity for addressing those impacts.

Life Cycle Costs: The environmental costs of product manufacture, use, and disposal should be minimized to the greatest extent possible. These costs should be shared among the product manufacturers, retailers and consumers. Market competition, sustainable natural resource use, consumer preference, and efficiencies should provide financial incentives for manufacturers to reduce these life cycle costs.

Incentives for Cleaner Products & Sustainable Management Practices:

Government can and should provide incentives to manufacturers. Such incentives may include procurement policies and practices, and grant and loan programs.

Multi-Stakeholder Cooperation: It is through regional and multi-stakeholder dialogue and cooperation that product stewardship strategies will be most effectively developed and implemented.

NERC Action Guidelines

To implement this Product Stewardship policy NERC will pursue actions such as:

1. Instigating, participating in or facilitating multi-stakeholder dialogue and regional cooperation to establish negotiated product stewardship agreements that
 - a) Promote the redesign and manufacture of products to minimize environmental and economic life cycle impacts and facilitate source reduction, reuse, and recycling, and decrease the use of toxic and virgin components.
 - b) Include measurable performance goals.
2. Working with government to develop and establish policies and programs that encourage product stewardship. This may include developing model procurement standards, policies and practices.

Acknowledgements

NERC acknowledges the product stewardship policy statements developed by the Northwest Product Stewardship Council, the Product Stewardship Institute, and the Solid Waste Association of North America, all of which influenced the development and language of this document.

APPENDIX C-3

Framework for Evaluating Product Stewardship Policies and Initiatives

*Adopted by the National Recycling Coalition
Board of Directors, March 2003*

Background

While still in its nascent stages of development, the movement for increased product stewardship by manufacturers is beginning to take hold in the U.S. Several initiatives and negotiations are underway that are assessing various approaches to shift more responsibility for the management of used products and packages to manufacturers. Whether referred to as product stewardship, manufacturer responsibility, or extended product responsibility, at their core, these initiatives call for a more fair and effective means for managing discarded products and packaging, and a shared role for consumers, government, retailers, and manufacturers in funding and implementing management systems.

In representing a diverse coalition of stakeholders in the issue, the NRC has a vital role to play in shaping the debate and driving the future of product stewardship policy in the U.S. To provide its members an overview of the issues driving the movement to product stewardship, in November 2001 NRC published a white paper on manufacturer responsibility.

The white paper defines the concept and provides several examples of initiatives in the U.S. and Europe under which manufacturers are assuming a greater role in managing their products at the end-of-life and designing their products based on environmental considerations.

Purpose and Application

NRC has identified several key principles of effective and equitable product stewardship policies. Together these principles constitute an evaluative framework that NRC will apply to analyze and assess the strength of product stewardship policies and initiatives. NRC may take formal positions on product stewardship policies based on the adherence of such initiatives to the principles below.

Key Principles:

- Encourages practices that follow the solid waste management hierarchy - reduce, reuse, and recycle first, dispose last.
- Establishes goals that will result in the design of products that maximize reuse and recyclability and minimize environmental impacts throughout the life cycle of the product.
- Defines clear, achievable, and measurable goals and establishes mutually agreed upon timelines within which key environmental and production milestones will be met.
- Ensures that all parties that design, produce, sell, or use a product have a financial and physical responsibility for minimizing the product's environmental impact throughout all stages of the product's life cycle.
- Establishes a shared level of responsibility for end-of-life management commensurate with the ability of parties to influence the life-cycle impacts of the product.
- Internalizes the costs of recovering and managing products at the end of life into the costs of producing, selling and using products, so that those costs are not solely borne by government.

- Formally binds parties to achieving goals through signed covenants, agreements, legislation, regulation, or other types of public commitment statements that ensure accountability if goals are unmet.
- Ensures that legacy waste (products discarded prior to an effective date of take-back requirements) and orphan waste (products from companies no longer in existence) will be managed in accordance with, and as an integral element of, the product stewardship policy.
- Requires that all information necessary to determine total system costs, compliance with signed agreements, and achievement of environmental goals is made publicly available.
- Provides incentives and disincentives to encourage compliance.
- Grants flexibility to parties responsible for addressing environmental impacts of products in determining how to best address those impacts.
- Creates reuse and recycling options that are convenient and cost-effective for consumers and businesses.
- Protects against socially and environmentally unsound and/or illegal management methods.

APPENDIX C-4

PRODUCT STEWARDSHIP INITIATIVES FOR SPECIFIC PRODUCTS

ELECTRONICS

Electronic products have been identified as a priority focus of product stewardship initiatives because they are one of the fastest growing segments of the waste stream. Electronics can contain hazardous substances, which require special management, as well as potentially recyclable materials, such as plastics, metals, and glass. Given these challenges, the cost of end-of-life management for electronic products is a significant concern for local and state governments.

National Electronics Product Stewardship Initiative (NEPSI)

At the December 2000 Product Stewardship Forum sponsored by the Product Stewardship Institute, the Draft Product Stewardship Action Plan for Discarded Electronics was used as a starting point for discussions among government officials. Following momentum generated at the Forum, as well as efforts of individual state and regional organizations, the NEPSI dialogue emerged.

The NEPSI dialogue was initiated in April 2000 and includes 45 participants and over 30 observers, including all levels of government, manufacturers, environmental groups, recyclers, and retailers. PSI's role is coordinating the more than 20 state agencies and several local agencies that are taking part in the dialogue. The Institute is also communicating information about the dialogue regularly to another 5-10 state agencies through its listserv and other communication means. The goal of the dialogue is to develop a written agreement that addresses issues of collection, reuse, recycling, financing, regulation, market development, procurement, and design. The products being addressed in the dialogue are TVs, computer monitors, CPUs, and computer peripherals such as printers and scanners.

The NEPSI dialogue is facilitated by the Center for Clean Products and Clean Technologies at the University of Tennessee.¹ NEPSI Interim Agreement ([linked](#))

Government Contributions to National Electronics Recovery System

This Government Contributions Document was developed by government representatives in NEPSI to communicate the contributions that state and local governments could make to a national electronics recovery system. Some of these efforts are already being performed, while others would be additions to their current functions. These contributions are expected to be virtually identical under either of the two financing options currently being discussed by the NEPSI Financing Subgroup. These options include: (1) Visible fee at point of purchase, and (2) Fee paid by manufacturers into a fund with the fee being reimbursed in full or in part through retail sale. We believe that we need more information to determine the additional government efforts that would be required to implement one or the other of these financing options.

The NEPSI government group has no illusions that this document is fully comprehensive. Rather, it is intended as a tool to begin a dialogue with NEPSI stakeholders as to what state and local governments would contribute to a system in which responsibility is shared. Government sees its responsibility as being a strong part of the "infrastructure" for making this overall system successful.

The government group hopes that this document provides information needed to better understand government's role. Government officials, in turn, look forward to gaining clarity on the roles and responsibilities that manufacturers' and retailers would assume under each of the financing systems currently being considered.

PAINT

Paint is a key product for product stewardship initiatives based on its volume in the waste stream, subsequent costs to manage, and high potential for increased recovery, reuse and recycling. The toxicity of paint is also a concern since it can contain volatile organic compounds, fungicides and heavy metals.

Pilot Projects

Benjamin Moore Paint Take Back Program³

PSI, Benjamin Moore and the Massachusetts Department of Environmental Protection have teamed up to start a pilot take back of surplus Benjamin Moore latex paint at permanent paint collection sites in five municipalities with populations ranging from 26,000 to 83,000 residents. The pilot program began in Spring of 2001 and ended in September 2001. The results of the pilot project are being evaluated and should be available in late November.

The five collection sites, which had all previously received sheds to store the paint as part of a DEP grant, are open for paint collection either once/month, once every two months, or available for drop off anytime. The paint is collected in two ways. For communities with space, paint is loaded into stiff wire-mesh totes (with plastic liners) capable of carrying 270 gallons of paint. In communities where space is an issue (more urban), 55-gallon open top drums are used to store up to 45-50 gallons of paint. Once the totes or drums are full, the communities call Benjamin Moore to schedule a pickup after delivering new paint to retail stores in the area.

MA Paint Shed Program Evaluation - A Study of Surplus Paint Management in 15 Massachusetts Communities

Since 1994, the Commonwealth of Massachusetts has been supporting community efforts to manage surplus paint by providing paint storage sheds, training, printed educational materials, and other resources. This report summarizes an evaluation of one part of the state's effort – the Paint Shed Program. Fifteen communities were interviewed for the study to understand the aspects of the program that are working well and those that are not working well, and to estimate the volumes, costs, paint types collected, and management methods for dealing with surplus paint.

The research for the report was conducted by Greiner Environmental, Inc. for the Product Stewardship Institute. Funding for this project was provided by the Massachusetts Department of Environmental Protection.

MERCURY

Mercury, a bio-accumulative neurotoxin, is used in numerous household and commercial products. Collection systems have been developed to remove these mercury-containing products from the waste stream. However, the collection systems currently in place are typically maintained by the state and local governments who are limited by a lack of funding.

The State of Rhode Island has instituted two laws related to mercury: § 23: 24.8 of the General Laws prohibits the sale of mercury fever thermometers. The Mercury Reduction and Education Act (§23: 24.9 of the General Laws) authorizes DEM to participate in establishing and implementing a regional, multi-state clearinghouse to oversee the labeling of products containing mercury and the phase out of those products. The law bans the disposal of mercury-added products, with the exception of button batteries, lamps and cosmetic or pharmaceutical products regulated by the Food and Drug Administration, other than by recycling or disposal as hazardous waste. DEM is directed to coordinate the development of a public education, outreach and assistance program for a wide range of audiences. In addition, the Department of Administration is directed to give preference to the purchase of non-mercury added

products. State employees insurance must cover non-mercury dental fillings at no additional expense to the employee.

DEM has established a State Mercury Workgroup, as authorized, and has coordinated thermometer exchanges with local drug stores.

Product Stewardship Action Plan

Under a Product Stewardship approach, manufacturers, distributors, retailers and consumers assume greater responsibility for managing products containing mercury. The following Draft Action Plan was developed through consensus by a group of state and local government officials for presentation and discussion at the Product Stewardship Forum coordinated by PSI in December 2000. PSI and its Coalition Members will use this Draft Action Plan in developing and implementing product stewardship initiatives for products containing mercury.

Draft Product Stewardship Action Plan for Products Containing Mercury

PESTICIDES

Pesticides can pose risks to human health and the environment and they are used and disposed of in significant quantities. Currently, there is a lack of collection programs due to the high costs of collection and the lack of funding. There are numerous opportunities for pesticide manufacturers, retailers, and other industry stakeholders to join with government to reduce the impacts from pesticide manufacture, use, storage, and disposal.

Product Stewardship Action Plan

The following Draft Action Plan was developed through consensus by a group of state and local government officials for presentation and discussion at the Product Stewardship Forum coordinated by PSI in December 2000. PSI and its Coalition Members will use this Draft Action Plan in developing and implementing product stewardship initiatives for pesticides.

Draft Product Stewardship Action Plan for Pesticides

CARPET

Carpet is identified as a candidate for product stewardship for two reasons. First, while carpet does not pose a toxicity hazard, it is a bulky item that represents a cost to generators for handling and disposal. Second, certain carpet manufacturers have already adopted product stewardship as an operating principle, offering take-back programs and recycled content products.

Multi-Stakeholder Carpet Agreements

The National Carpet Recycling Agreement was signed by a consortium of industry representatives including carpet and fiber manufacturers, the Carpet and Rug Institute, fifteen state and local governments, nongovernmental organizations and the U.S. Environmental Protection Agency. The agreement's initial ten-year plan has set a nationwide goal of 40 percent for diverting carpet from landfills. The agreement also establishes the roles and responsibilities for Carpet America Recovery Effort (CARE), an industry-led, third party organization that will assist in the development of a carpet collection and recycling infrastructure, and identify viable markets for post consumer carpet. Starting in 2003, CARE will publish an annual report outlining the results of its efforts. By increasing the availability of recycled carpet fiber, manufacturers can expect an abundant source of feedstock, increasing the amount of recycled-content carpeting in the marketplace.

Product Stewardship Action Plan

The following Draft Action Plan was developed through consensus by a group of state and local government officials for presentation and discussion at the Product Stewardship Forum coordinated by

PSI in December 2000. PSI will not work directly on this issue as a carpet dialogue with manufacturers is already underway. This dialogue is being coordinated by the Minnesota Office of Environmental Assistance with funding from the U.S. Environmental Protection Agency and facilitation assistance from the Center for Clean Products and Clean Technologies at the University of Tennessee.

Draft Product Stewardship Action Plan for Carpet

¹ For more information on the national electronics dialogue, go to www.nepsi.org.

² Additional information Electronics Product stewardship initiatives can be found at: <http://www.productstewardshipinstitute.org/Electronics.htm>

³ *Paint Product Stewardship: A Background Report for the National Dialogue on Paint Product Stewardship (Draft)* Note: a password is required to view this draft report.

APPENDIX D

REUSE INITIATIVES

Building Materials in the Waste Stream (Overview)

Millions and millions of tons of construction & Demolition (C&D) debris are created every year in the United States. Despite the considerable volume of relatively homogeneous material being generated by builders around the country, most of the material still goes to landfills. Compared with demolition material, construction debris represents a fraction of the estimated 136 million tons of so-called construction and demolition debris material created each year.

A 1998 study by the U.S. Environmental Protection Agency -- still viewed as the best available information despite its age -- estimates that demolitions account for 48 percent of the C&D debris waste stream, or 65 million tons per year. Renovations cover another 44 percent, or 60 million tons per year. Waste from new construction totals 8 percent of the waste stream, or 11 million tons per year.

In the residential sector, new construction actually accounts for a higher percentage of the overall C&D debris waste stream, 11 percent. New construction in the nonresidential sector makes up 6 percent of the total C&D waste stream. On a per capita rate, the study put the overall C&D debris generation rate at 2.8 pounds per person per day. That is comparable with the 4.5 pounds per day per capita average for municipal solid waste. And that number does not include a sizable segment of the C&D market. The EPA work focused on building-related C&D debris and did not make an attempt to quantify the amount of debris generated by road and bridge work.

C&D experts have estimated that including road and bridge work, between 250 and 350 million tons of debris is generated per year. That is more than the amount of municipal solid waste generated annually. (The 2000 EPA Waste Characterization estimate puts municipal solid waste generation at 232 million tons).

As homes become larger and larger, it only stands to reason that more and more construction waste is being created. New homes averaged 2,100 square feet by 1995, the EPA said, up from 1,600 square feet just 20 years before. According to the EPA study, scrap from residential construction sites typically represents between 6 and 8 percent of the total weight of the building material delivered to the site, excluding the foundation, concrete floors, driveways and patios. Also, there is typically very little waste concrete to dispose of from residential construction projects, the study states.

According to a study conducted by the National Association of Home Builders Research Center of 93 residential units constructed between 1992 and 1997, an average of 4.38 pounds of construction waste was generated per square foot of construction. The study also examined nonresidential new construction for the same period and found that the average amount of C&D waste generated per square foot of nonresidential construction was 3.89 pounds per square foot. The EPA's 1998 report, using these estimates, states that annual residential construction debris was 6.56 million tons across the nation, and nonresidential construction waste was 4.27 million tons, for a total of almost 11 million tons. 1

Building Materials - Recovery for Reuse

The number of organizations involved in recovering and re-marketing used building materials in North America continues to increase. A large number of organizations have initiatives related to the recovery and resale of used building materials. Given the large portion of the waste stream comprised by

Construction and Demolition debris (C&D), this offers the opportunity to divert significant amounts of material from disposal in the waste stream.

There are numerous successful examples of recovery and resale of salvaged construction materials from stripped or “deconstructed” buildings. The State of Vermont has been aggressively promoting the recovery of C&D debris for reuse and is studying the costs associated with deconstruction.²

The following are links to some examples:

The ReStore in Springfield MA operated by the Center for Environmental Technology.
<http://www.cetonline.org/Home/Restore.htm#Intro>

The ReStore3 in Bellingham WA, operated by Re Sources for Sustainable Communities:
<http://www.re-sources.org/restore/index.htm>

Urban Ore, Berkeley CA, one of the first and most successful building materials reuse operations
<http://www.e-tip.org/english/level1/wastenots/wn205.htm>
<http://www.libertynet.org/macredo/csurbore.htm>

A number of such organizations are affiliated with the Used Building Materials Association (UBMA). UBMA is a non-profit, membership based organization that represents companies and organizations involved in the acquisition and/or redistribution of used building materials.
<http://bcn.boulder.co.us/environment/ubma/index.html>

The State of Connecticut (DEP) is working on launching the State’s first a building materials reuse operation, to be called the ReCONNstruction Center. The operation will be a warehouse with a retail environment that will accept donations of and acquire unwanted building materials and make them available at below retail prices to the public. It will be a partnership with a non-profit organization, support the local economy.⁴

Materials Exchanges

Material Exchanges are networks (“services”) that help to redirect unwanted equipment, overruns, rejects, and other materials from businesses to other businesses, not-for-profits, schools, community groups, and others that need the materials. The ubiquity of the Internet has facilitated the proliferation of Materials Exchanges. Materials Exchanges usually have a catalog or computer listing of materials wanted and materials available and often have a staff available to help facilitate the exchange of materials. This term is often used synonymously with “waste exchange.”⁵

Materials Exchanges serve as a resource to broker information to assist businesses that have unwanted materials to connect with other businesses or not-for-profits looking for the same type of material. Most exchanges have listings of “materials available” or “materials wanted” that are provided either in newsletters, catalogs or on-line. For the most part, exchanges do not directly handle the material but serve as a contact point or a broker. The fee structure for each exchange varies from no fee, a voluntary donation, or a percentage of the net value of the material. Material exchanges function to reuse materials and to keep materials out of the solid waste stream.⁶

Web-based exchanges geared toward consumers

RI Resource Recovery (RIRRC) is currently planning to issue an RFP for a Web-based reuse exchange targeting residents, similar to the two listed below:

City of Napa CA Materials Exchange

<http://www.napamax.org/>

Minneapolis/St. Paul MN “FreeMarket” Materials Exchange:

<http://twincitiesfreemarket.webovation.net/index.cfm>

Web-based exchanges geared toward businesses

Until 2002, RIRRC had been operating a business-oriented Waste Exchange, called the Southern New England Materials Exchange (SNEME) on its web site www.rirrc.org. SNEME has been taken off-line due to functionality problems with the software and an outdated database of materials listings.

RIRRC is currently evaluating a grant proposal from The RI Export Assistance Center at Bryant College to develop, operate, administer and promote a new Rhode Island web-based business materials exchange. (A decision on whether to proceed with this initiative will have been made on May 13th, 2003).

Examples of regional web-based business material exchanges:

Massachusetts Materials Exchange

<http://www.materialsexchange.org/>

New Hampshire/Waste Cap Materials Exchange

<http://www.wastecapnh.org/>

Vermont Business Exchange

<http://www.vbmex.net/>

Maine Materials Exchange

<http://home.gwi.net/%7Em2x/home.htm>

*The Northeast Recycling Council (NERC)7 web site has a fairly comprehensive directory of links to Waste Exchanges in the Northeast:

<http://www.nerc.org/documents/Exchanges1100.html>

NY Department of Conservation list of US Waste Exchanges

<http://www.dec.state.ny.us/website/dshm/redrecy/materials.htm>

Washington State Department of Ecology used or surplus building materials exchange.

<http://www.rbme.com/>

Reuse Guides

Reuse Guides promote reuse over traditional solid waste disposal for materials that are still usable. These guides can be designed for individuals or for businesses, institutions, governments who deal with off-spec production or asset management, and potentially others who repeatedly need to dispose of items that still may have “use.” Some guides also include businesses that rent, repair or sell used goods, with the goal of promoting these businesses.

During the mid 1990’s RIRRC issued two editions of “Use It Again RI”, a reuse guide that listed businesses that rented, repaired or sold used goods. The guides were extremely popular particularly

among senior citizens. Research and updating information for the guide was extremely labor intensive, and the project was discontinued in 1997 primarily due to staffing constraints at RIRRC.

EPA Reuse Guide Web Site

<http://www.epa.gov/ne/assistance/reuse/index.html>

Additional Examples of Reuse Activities

- Recycling for Rhode Island Education
Recycling for RI Education is a non-profit educational and environmental organization that diverts clean, non-toxic reusable excess inventory from the business community to educators and community organizations.
www.riie.com
- Thrift stores and charitable drop-off centers;
- “Drop & swap” stations at transfer stations and local landfills;
- Used equipment stores and salvage yards;

King County’s LinkUp Program

When the state of Washington decided to cease funding its recycling market development program some years ago, King County decided to step up to the plate with its own recycling program for expanding recycling-based manufacturing. The result was the launch in April 2000 of the LinkUp program, sponsored by the County's Solid Waste Division of the Department of Natural Resources and Parks.

LinkUp provides customized technical and marketing assistance to manufacturers in the Puget Sound region to help them use more recycled materials in their products and to help expand markets for recycled materials. Unlike traditional loan and grant programs, LinkUp provides a broad range of customized services through teams of specialists under contract with the County. These services include developing business plans; evaluating technologies and markets for recycled products; material testing assistance; locating reliable suppliers of recycled materials; providing entree to government purchasing departments; creating marketing materials and developing media plans.

LinkUp is a new chapter in King County's nationally recognized sustainability and recycling efforts. In the past, the County focused on getting consumers and businesses to recycle and to buy recycled products. LinkUp takes this concept one step further by partnering with manufacturers to use more recycled materials in the products they make.

Program objectives were developed based on substantial business community research. In 1998, King County surveyed nearly 700 local manufacturers. Of that number, 42 percent reported they already used some recycled content in their products, and many of those were interested in using more. Another 51 percent said they did not presently use recycled materials, but wanted to learn more about them or how to market products containing recycled materials. A separate assessment of markets for King County recyclable materials identified four priority materials in need of marketing support: mixed glass cullet, mixed residential waste paper, urban wood and food waste. The LinkUp program would target manufacturers, whenever possible, who had the potential use these priority materials.

That the program is truly regional in scope is one of the main reasons for its success. King County is the most populated county in the state of Washington, with 29 percent of the state's residents, and has the largest concentration of manufacturing businesses in the five-state Pacific Northwest region.

Markets for our recycled materials extend beyond King County's borders. If we were to concentrate on only one small geographic area, we would not reach our full potential. By involving manufacturers beyond the county, we can develop regional markets that have a much greater capacity for recycled materials.

When the program began, its first year goal was to attract 6-12 manufacturers. By the end of the first year, six businesses signed up along with a financial partner, the City of Seattle, which is located in the county but operates its own recycling and solid waste programs. Now, as LinkUp enters its fourth year, 18 manufacturers actively participate. They manufacture a wide variety of products, but they all use recycled material from King County.

Following are brief profiles of LinkUp partner companies:

L&S Tire Company

Last year L&S collected about 1.5 million scrap tires from waster transfer stations, landfills, tire retailers and wrecking yards in Washington, Idaho and parts of Oregon. The company, launched in 1999 and headquartered in Spokane with a south Puget Sound facility, is the state's largest scrap tire recycler. As part of the LinkUp program, the company receives assistance in researching technology grant opportunities, updating the company's business plan and evaluating the feasibility of entering two new, higher-value markets. One is manufacturing smaller tire chips better suited for civil engineering applications and tire-derived fuel. The other is producing "crumb rubber" for use in recycled rubber products. If data reveal that a viable crumb rubber market exists, it may lead to the establishment of the first crumb rubber manufacturing operation in the state.

Quarry Tile Company

One of Quarry Tile's newest products is Eco-Tile, a ceramic tile made of about 70 percent recycled materials. Eco-Tile combines recycled glass, recycled grinding paste from the computer disk industry and recycled soil/rock waste from the premixed concrete industry. The product also contains reprocessed glaze waste from the company's other manufacturing operations. Located in Spokane, the company uses mixed color glass cullet, designated a priority material by King County. Quarry Tile gets the glass cullet from the TriVetro Corp. in Kent, WA., another LinkUp partner. TriVetro's scrap makes up 25 percent of the recycled content used in Eco-Tile, and its use saves TriVetro about \$20,000 a year in disposal costs. The LinkUp team will help Quarry Tile find new markets for Eco-Tile as well as material testing services.

Recycled Plastics Marketing, Inc. (RPM)

RPM takes recycled plastic items, such as milk jugs and soft drink containers, and creates products such as plastic lumber, outdoor furniture and landscape materials. In early 2000, the company opened the first plastic lumber manufacturing facility in Tacoma.

Renton Concrete Recyclers

This company, located on 13 acres south of Seattle, crushes some 1500 tons of construction debris each day, including concrete, ceramic, marble, brick, stone and asphalt. The recycled aggregate, available in three grades, is sold for roadbed material as well as fill for sidewalks, driveways and paths. Studies show that properly applied recycled aggregate fulfills construction or road-building requirements as well or better than virgin materials while it saves money. The use of recycled materials for large construction projects such as roads can significantly reduce the amount of virgin material extracted from local gravel pits.

Schuyler Rubber Company

Founded in 1950, this company is the country's largest laminated rubber manufacturer, producing

primarily custom marine fenders for docks, tugs, barges and workboats. The products, made from recycled truck tires, are cost-effective, durable and reliable. SRC recycles about 500 truck tires daily, reusing 100 percent of the steel-belted tires and about 90 percent of the bias-ply tires. Unused tire scraps are sent to another local manufacturer where they are turned into crumb rubber. Unlike virgin rubber products, which are sold in standard sizes and cost extra to modify, SRC custom manufactures its products to fit the complex shapes and angles of marine vessels and docks.

Expanding the market for scrap tires is a priority for King County. Each year, 5-6 million scrap tires are generated in the state but the number of tires that are recycled has dropped by two-thirds from 1995-2001. The LinkUp team will help Schuyler Rubber Co. identify and target government agencies that might be potential customers and will provide product testing services.

Urban Hardwoods

This firm is owned and operated by master furniture craftsman Jim Newsom. This specialty wood-milling business provides wood to furniture makers, hobbyists, cabinetmakers and others. To do so, Newsom collects and mills urban hardwood trees, such as maple, chestnut, oak and beech, that are cut down by Puget Sound-area tree service companies, utility crews and building contractors. He removes those felled trees at no cost to the tree service or utility company and recycles the wood into quality products with very high resale value. Newsom transforms 90 percent of the reclaimed trees into fine cabinets, tabletops and desks; the remaining 10 percent is sold to hobbyists and other furniture makers.

Building new markets for wood waste is a priority for King County because a high volume of urban trees end up as low-value products, such as boiler fuel and landscape mulch.

American Plastic Manufacturing, Inc.

Last year, APM used more than 300,000 pounds of recycled plastic to make plastic bags for area retailers. That adds up to about 1.5 million plastic milk jugs taken out of the waste stream. Since 1995, the company has recycled over 10 million plastic milk jugs, collected through curbside programs in Washington, Oregon and British Columbia.

Allied Floors

This innovative 60-year-old company recently created a new product called Spectacular Floors, which mixes recycled glass in a custom-colored cement base to produce one-of-a-kind floor designs. It can be installed quickly and easily and dries in a few hours. A colored tint and recycled glass pieces can be added to the base to create a custom design. After it dries, the floor is ground with a diamond grinder to reveal the distinctive glass and cement pattern. Allied buys recycled glass pieces from TriVitro, another LinkUp partner. Allied has received marketing support, including assistance with logo design and brochure.

Brandrud Furniture

For the past six years, this company has reduced the amount of hardwood used in the interior framing of its chairs and sofas by substituting wheatboard, an agricultural by-product made from the straw portion of the wheat stalk. The company also uses Dakota Burl, made from sunflower seed shells, in its shelving and tabletops. LinkUp is helping Brandrud identify new ways to incorporate more recycled materials into its products.

MetaMorf, Inc.

This ecodesign firm creates durable and functional chairs, benches, tables and other products from common household items, such as milk jugs and shampoo bottles. Recently, the company adapted a plastic molding process that uses 100 percent recycled post-consumer plastic. LinkUp has helped MetaMorf create a business plan to expand its use of this molding process.

TriVitro Corporation

This company specializes in diverting postconsumer glass to use as an alternative sandblasting medium. The result is a product that has numerous environmental, safety and health benefits. In spring 2000, King County organized a demonstration event that allowed construction project managers, engineers, procurement staff and others to see how a crushed glass-blasting medium performs under actual working conditions. The resulting word-of-mouth and media publicity, along with a second promotional campaign that focused on TriVitro's recycled tumbled glass line, helped the company secure new customers.

Recovery One, Inc.

This construction, demolition and land-clearing recycling facility is one of the few in the country that can manage mixed debris shipments. In its multimillion dollar facility at the Port of Tacoma, the company recycles over 99 percent of incoming debris materials into marketable products, making its operation a more affordable alternative to trucking that same "waste" to the landfill. In early 2001, the LinkUp team helped Recovery One create a marketing campaign using a series of direct-mail postcards. The company added 25 new customers and increased its debris handling to 500 tons a day - a 30 percent increase from the previous year. LinkUp is helping the company develop a market for recycled scrap carpet - the first program of its kind in the Northwest for this problem waste.

Recycled Plastic Products

RPP collects trash carts and recycling bins that are broken or no longer in use and recycles them to make heavy-duty trash cart wheels. The company, based in Bluffdale, Utah, uses a thermo-kinetic manufacturing process, which allows it to use waste plastic with higher-than-usual levels of contamination. RPP is working to introduce its wheels to trash haulers, solid waste utilities and waste bin manufacturers in the Northwest. The LinkUp team is helping them identify potential government customers.

For more information contact: Erv Sandlin, the LinkUp project manager for King County, Washington Department of Natural Resources in Seattle erv.sandlin@metrokc.gov

<http://dnr.metrokc.gov/swd/bizprog/LinkUp/>

Reuse Case Studies

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CASE STUDY: City of Santa Fe Materials Exchange

Partnership between the City of Santa Fe and The New Mexican Newspaper

The City of Santa Fe has developed a unique and easy way of making reuse happen. The New Mexican, the local daily newspaper, provides space one day each week, for free, to the city to list various household items available for reuse. The program is easy and low-cost, and requires very little labor. Here is how the City of Santa Fe developed this successful program.

1. *Identify who will be responsible for managing the list. Responsibilities include:*

- Taking calls from the public
- Updating the list (adding and removing listings)
- Keeping track of the weight exchanged (material diverted) through the program
- Delivering the updated list to the newspaper

2. *Identify how the listings will be distributed.*

Some options include: local daily paper; weekly paper; the internet

3. *Develop a name for your program.*

4. *Develop the specifics for how the program will work, the format of the listing, etc.*

5. *Contact the local newspaper inviting them to participate in the program.*

6. *Identify at least a dozen initial exchanges.*

After the first listing, the Santa Fe program grew steadily on its own. Suggestions for the first listing:

Wanted Materials:

- **Polystyrene Peanuts** – pack, ship & mail Centers
- **Appliances** – used appliance dealers and large appliance repair businesses (these groups often seek appliances to refurbish and resell).
- **Art Supplies** – bottle caps, wine corks, miscellaneous small plastic parts (schools and other art programs, and children's museums often seek a variety of materials for creative programs).

Available Materials:

- **Pallets** – any warehouse
- **Industry Waste** – examine the industry in your community, and seek materials that may be of use to someone else (such as fabric scraps, sawdust, paint)
- **Ask Friends, Relatives, Colleagues and others** – list a variety of items to help others in the community understand the different types, sizes and quantities of materials that could be listed in the exchange.

7. *Facilitate an exchange that can be reported in the paper to introduce the program.*

8. *Continually advertise and provide feedback on how the program is working.*

Some examples of ways Santa Fe promoted the program included: newspaper advertisements, signage on trash trucks, recycling hotline, and brochures. The city also attributes a great deal of the program's success to "word of mouth" advertising from participating residents.

CASE STUDY: Reuse Guide

Many Communities Connect the Reuse Community Through Joint Promotion

From Los Angeles to Berkeley to Baltimore County to Philadelphia, communities are finding that creating and distributing a local guide helps companies, agencies, and individuals know where to donate or acquire still useful items. The guide also helps tie the local reuse community together and helps raise the overall awareness of reuse in a community. To create a reuse guide:

1. Determine the geographic area that the directory will serve.
2. Obtain resources that list the area's reuse oriented businesses.
3. Solicit input from "known" reuse advocates.
4. Compile "draft" list of prospective businesses and organizations.
5. Call businesses and organizations to:
 - Confirm the business' willingness to be listed.
 - Verify their operational information.
 - Confirm the type of materials they handle.
 - Determine their policy for accepting items.
 - Ask if items sold (for profit) or distributed free.
 - Ask if they would consider distributing directory.
6. Once all information is confirmed, organize listings by type of materials handled.
7. Make sure to include special notations to readers that you are providing the guide for informational purposes only and do not endorse the individual organizations listed in the guide.
8. Include general information on reuse if space allows.
9. Consider various types of layout / print formats.
10. Consider possible cooperative projects/partnerships.

List prepared by ReDO Member Melinda Seader, Worldwide Automotive, Inc.

CASE STUDY: Second Chance Week

California Promotes Reuse Programs During One Full Week of October

Second Chance Week was started in California in 1997 by the Local Government Commission (LGC) of Sacramento, with funding from the U.S. Environmental Protection Agency. Second Chance Week is a grass-roots public awareness campaign held in October to promote reuse, repair, resale and donation opportunities. During Second Chance Week, reuse businesses, local governments, non-profits, schools, and others work together to hold activities that help give used items that might otherwise be thrown away a "second chance." As a result of the campaign, new life is given to tons of reusable goods and materials, such as clothing, toys, furniture, computers, and building supplies. It's still going strong in California.

For more information, check out the website at: www.choose2reuse.org There you will find FREE tools and resources for effectively coordinating local reuse promotions and other activities during Second Chance Week and year-round. Below, find some examples of events held or programs promoted during California's Second Chance Week:

In Oakland, city officials worked with the local reuse community to develop a comprehensive directory to local reuse opportunities, listing over 200 local businesses and non-profit organizations where residents can buy, sell, consign, trade, rent, repair, and donate reusable goods. Over 50,000 directories were distributed during Second Chance Week in the Oakland Tribune.

Escalon held its eighth annual citywide yard sale in October 2000. To hold a sale, families (and a few organizations) pay a \$5 fee to the City to cover the cost of regional advertising, producing maps with all sale locations, and the rental of portable toilets for visitors. Visitors are encouraged to stop by City Hall, where the Chamber of Commerce sells donuts and coffee, to pick up free maps, sale directories, lists of local eateries, and information about other city events.

Sacramento's KXTV, in cooperation with The Salvation Army, Gottschalks Department Stores, Swansons Cleaners and Cal Expo, incorporates reuse and community outreach by annually holding a "Coats For Kids' Sake" winter coat drive. Used coats are collected, cleaned, then organized and prepared for distribution throughout the Central Valley. In eight years, more than 100,000 coats have been collected and dispersed.

Humboldt County creates four hundred identical handmade puzzles, and distributes the 3,600 pieces between fourteen local reuse/repair shops and the local recycling center/materials exchange program. Visitors to the stores and center choose a random puzzle piece each time they visit. Once they collect a complete puzzle, they win a small prize. At the end of the promotion period, a grand prize drawing is awarded from among the earlier winners.

C.U.R.A. is a community-based residential alcohol and drug rehabilitation program in Fremont, California. C.U.R.A. works with BFI to precede the waste hauling truck on bulky item pick up days throughout the city. C.U.R.A.'s truck goes before the waste hauler and collects items that it wants and delivers them to the store front operation where they are repaired (if necessary) and resold.

The Youth Employment Partnership is doing providing youth education to the economically disadvantaged through deconstruction. They harvest reusable materials from former naval warehouses slated for demolition by the Port of Oakland. In a recent project it helped divert an estimated 800 tons of demolition wastes from landfill, including over 800,000 board feet of construction grade lumber for sale and use by Youth Employment Partnership for low and very low income housing construction and rehabilitation in Oakland.

Troy Liggins, a San Geronio High School teacher works with his students to obtain donations of used furniture which they refurbish and then redistribute to needy area families. Students experience the joy of helping others, and furniture that is unwanted but repairable gets a second chance in an appreciative home.

CASE STUDY: Monroe County Solid Waste Management District, Indiana

Community Adds Reuse Programs to Landfill, Transfer Station and Recycling Center

Since 1990, MCSWMD has implemented recycling programs, household hazardous waste collection programs, and operates the county landfill. The mainly rural district has been successful in implementing a wide variety of waste management programs, and offers an example of how local governments can add reuse components to existing solid waste management programming.

Building Materials Reuse: MCSWMD looked at the amount of still usable building materials that were being dumped at the county landfill, and found an alternative. They created the **Used Building Material Exchange Barn** at the county landfill to provide local contractors and do-it-yourselfers a place to drop off still usable construction materials. The materials are still subject to the landfill tipping fee, however many contractors would just as soon take materials to the dedicated, 3-sided pole barn than to throw them away. The district makes this area available to anyone who wants to shop and pick up items to use in their own construction projects. Materials range from lumber to bathroom fixtures, doors to windows. The district estimates the annual diversion from this single program at 40 tons of material.

Rural Reuse Programs: The district also operates four Recycling & Solid Waste Stations across the country to reach the rural communities. The stations act as a recycling center, transfer station, and household hazardous waste drop-off facility. Each station also has a **Rural Trading Post** where residents can drop off still useful items, such as books, children's toys, and small appliances. Anyone in the county is free to take items from the Rural Trading Post when visiting the stations. They are open and staffed three days each week by district personnel, and provide an example of how limited staff and resources still make reuse possible in rural areas.

Art Materials Reuse Program: MCSWMD also operates an art materials area that has grown in popularity with local teachers and artists. The center began when district staff began pulling items from the recycling center picking station that seemed to have some creative value. Though this program began small, in 1996 the program expanded significantly, and the district dedicated an entire section of their recycling facility for shelves and bins to house the would-be art materials. The materials available range from paper to paint to bottles and jars, and even odd and end plastics components. The center has become so popular that the district estimates annual diversion to be almost one ton a month from the art materials reuse program alone.

Hazardous Materials Reuse: As part of the Monroe County Household Hazardous Waste program, the district offers residents the opportunity to drop off still usable paint, cleaning products, and lawn care products free of charge at the **Haz Bin Room**. The Haz Bin Room has shelves of still usable household items that are available, free, to residents in the market for such products. The materials in the Haz Bin Room are regularly used by local artists, schools, community development agencies and individual homeowners. Reuse of household hazardous waste materials, instead of disposal, can be beneficial in reducing risk to public health and the environment.

Sidewalk Sale: The district provides a public area at the recycling center where residents can exchange a variety of household items, from books to magazines to canning jars. Items are left at the **Sidewalk Exchange** when people are dropping materials off at the recycling center as a means of diverting still useful items. Other residents peruse the carts, shelves and sidewalk area to find "treasures" to take home.

Reuse Bulletin Board: Items too large for the sidewalk exchange can be posted on the district's bulletin board. The board provides an area for "items wanted" and "items available". Items such as furniture and lawn equipment could be posted on the board to find a local resident interested in reuse.

Reuse Guide: Monroe County also helps promote the many not-for-profit and for-profit reuse operations in their local community through the **Reuse Resources: A Directory of Reuse Oriented Businesses in Monroe County**. This guide explores the many organizations that are providing reuse and repair services, thrift and retail stores. In addition, the guide provides tips on how to plan local reuse activities, such as garage sales and auctions.

CASE STUDY: Seattle Goodwill

Partnership between the King County Solid Waste Division and Seattle Goodwill

They said it couldn't be done. Various managers and staff at the King County Solid Waste Division had always said it wasn't feasible to recover reusable items at our older transfer stations, due to logistics and other reasons. But the transfer station crewmembers said they saw a lot of good stuff going into the garbage, and they wondered if there was something the Division could do. So they gave it a shot.

They came up with, as a start, a pilot project at one of the King County transfer stations, in partnership with Seattle Goodwill. It started Fall 1998 and in the first five months they collected more than five tons of reusable items. They had hoped to get even more, but it began in the slow season (winter), and they experienced an all time record rainfall in Seattle over that same winter.

Here's how the pilot project works: King County put out a request for proposals for the pilot and received three proposals, all from non-profit organizations. The County selected Goodwill. Under the contract, Goodwill provides a 20-foot, "roll-off" container at the station where customers can place reusable items. Goodwill may keep all recovered items to sell at its thrift stores to fund its education and training programs. Goodwill submits excellent, detailed reports on the tonnages collected and the quality of the materials. In the pilot, no money changes hands between Goodwill and King County.

The reusables collection trailer is not staffed by Goodwill. The trailer is located after the scalehouse, and just in front of the building that houses the disposal tipping floor. Transfer station crewmembers keep the reusables collection area clean and direct customers to the area if necessary. The crewmembers also bring some reusable items from the tipping floor to the Goodwill trailer.

Customers pay the regular disposal rate for all items. For some customers, this is a standard minimum fee. The regular rate is charged for the reusable items to help the county cover its costs for the project. Some of the cashiers are not happy with this system, since they do not want to have to explain it to customers. However, relatively few customers have complained about this. Most seem happy just to know their reusable items will be used again and will help fund Goodwill's programs, instead of being buried in the landfill. Customers who would prefer to donate their reusable items at no charge and receive a receipt or given a list of nearby charity collection sites. However, customers usually opt for the convenience of leaving their materials at the transfer station trailer.

Not all of the items collected are in good enough condition for Goodwill to sell or donate. Some of the clothing has been of lower quality than they get at their attended collection stations. But the transfer station site gets more furniture -- such as bookshelves, dressers, chairs and beds -- than their other sites. Goodwill can sell these items easily, and the high percentage of household furnishings is one of the things Goodwill likes best about our project. In addition to furniture, there have been a lot of vacuum cleaners, plus bunches of skis and exercise machines. They have also gotten plenty of books, toys and games. Overall, the materials recovered in this project have been valued by Goodwill at more than \$3,500 (that's based on the price Goodwill puts on the items in its stores).

The County is thrilled that they can support Goodwill's excellent social programs in this way, while at the

same time rescuing reusable items from the landfill. They hope to continue this program and expand it to other King County transfer stations. A permanent program would call for a new request for proposals.

The pilot project has been well received by the public and by county elected officials. They appreciate the efforts of our transfer station staff and Goodwill to make this work. For more information, contact: Tom Watson, King County SWD at 206/296-4481 or by e-mail at tom.watson@metrokc.gov.

CASE STUDY: Leveritt, Massachusetts

Rural Community Finds Environmental and Societal Benefit from Reuse Operation

Swap shops are being promoted primarily as a means of reducing landfill tonnage, but their real value may far exceed waste diversion. In fact, if one is looking at swap shops only as a means of waste diversion, they may not pay for themselves, but, when viewed in terms of their benefit to the community, they can be a virtual gold mine.

Several years ago the concept of a "Societal Screening Tool" was developed by Richard Drury, solid waste manager for the City of Leveritt, Massachusetts, as a way to evaluate something by looking at its overall cost and benefit to "Society". At first glance, it would seem difficult to quantify the value of reuse. But, if one starts with some observations and approximate values, we may be surprised at how much a reuse program can benefit a community. The following example is taken from our reuse program estimated over the course of a year. What is not discussed is how "reuse" facilitates "reduce" the purchase of new materials.

Item	Worth/per	Units/Wk	Wks/Yr	Worth
Swap Shop				
Shirts/Sweaters	\$5.00	15	52	\$3,900
Coats	\$7.00	3	26	\$546
Pants	\$5.00	7.5	52	\$1,950
Dresses	\$5.00	06	52	\$1,560
Shoes	\$5.00	03	52	\$780
Toys/games etc.	\$2.00	12	52	\$1,248
Kitchen ware	\$1.00	8	52	\$416
Small Appliances	\$7.00	3	52	\$1,092
	\$25.00	0.5	52	\$650
	\$10.	9	52	<u>\$4,860</u>
Value of Swap Shop				\$17,002
Other Reuse Programs				
		Units or Units/Wk	Units or Wks/Yr	
Used Motor Oil	\$0.75	55 Gallon Drum	440	\$330
Packing Pellets	\$14.50	4 cu. ft/bag	110	\$1,595
Egg Crates	\$0.23	100	52	\$1,196
Paper Bags	\$0.03	17	52	\$27
Books	\$1.50	35	52	\$2,730
Planting Pots	\$0.10	125	40	\$500
Large Item Swap	\$60.00	7	6	<u>\$2,520</u>
Value of additional programs				\$8,898
Waste diversion		7.5 tons/ tipping@ \$65/ton		\$450
Shipping	1 trip	@ \$65 haul		<u>\$65</u>
Value of waste diversion				<u>\$515</u>
Total Value				\$26,415
Cost to maintain and run program				
Labor = 1/4 of Assistant \$660; 1/8 of Supervisor, \$396; 1/8 of Admin \$375, DPW, \$400 =				\$1,831
Capital= used existing structures; expected annualized maintenance & improvements =				\$250
Value of volunteer help=				<u>\$150</u>
Total Cost (+ estimated value of volunteer help)				\$2,231

Total value \$26,415
Net value \$24,184 (total value minus cost)

What is immediately apparent from the above is that reuse offers enormous societal value, even though it may be difficult to justify monetarily as a means of waste diversion. The waste diversion savings via reuse are proportionately small; in this case about 2% of the total value. At a societal value of \$26,400, every dollar spent returns about \$11.84. The sheer cost/benefit ratio of these numbers suggest that local swap shops can provide real benefits to larger communities as well. For more information, contact Richard Drury at 413/367-9683 or rcsenrgy@javanet.com

CASE STUDY: TriState Reuse Center

Community Supports Rural Building Materials Reuse

When the Executive Director of The Loading Dock in Baltimore retired and moved to rural Maryland, she saw more than a quiet way of life and a beautiful landscape. She also saw a great deal of poverty and realized how Hancock could benefit from a building materials reuse center.

The Tri-State Reuse Center took one year to plan and implement by a local board and one local champion. The doors of this building materials reuse center opened in Hancock, Maryland, in 1997. Today the center is open four days a week serving the population in Washington and surrounding counties.

The center started up with the same ideas and philosophies that drove The Loading Dock in Baltimore, Maryland. Its mission is to create decent, affordable housing, to conserve natural resources, and to encourage self empowerment through advocating self sufficiency. The goal is support both environmental and social efforts in the community.

The Community: There are 1,725 people in Hancock, with a total of 132,000 people living in Washington County. Hancock is nestled at the foothills of the Appalachian Mountains of Western Maryland along the banks of the Potomac River, and just minutes away from the borders of Pennsylvania and West Virginia

Important Partnerships: The only other social service organization in the community is the food pantry. TriState has developed a working relationship with the food pantry for helping identify low-income eligible clients. Another important partner is the Maryland Department of Natural Resources, who provides land and a building to the center.

Budget/Revenues: TriState Reuse Center's annual budget is \$52,000. They take in handling fees of approximately \$40,000 annually. They make up for the shortfall through a grant from the Catholic Campaign for Human Development, and by raising funds in local fundraising events. However, the organization took no grants at start-up and limits its grant dependency. The goal of the organization is to be self-sufficient. Those who shop at the center must purchase an annual membership (\$7 for needy families or \$20 for a standard membership).

Facility: TriState Reuse Center is located on a 1 1/2 acres plot of land owned by the Department of Natural Resources. The land contains a 1,200 square foot heated warehouse, which holds the center's weather sensitive items, such as glues and paints. In addition to this building, the center consists of two mobile homes that have been gutted, one housing doors, the other housing windows. TriState has also erected a 20' x 60' pole barn and there they house racks for molding, appliances, stair parts and other items. In addition, they have one tractor trailer box that is used exclusively for storage. Finally, since the building is located on the river and has a bridge, TriState also stores some items that are not heat sensitive

but need to be under shelter under the bridge. The organization paid rent to the state for 1 1/2 years, but when hard times fell on the center after September 11, the state began waiving the rent. DNR felt that it was better to have someone occupying the space and deterring vandals than not.

Personnel: Until a year ago, TriState was all volunteer operated. Today, a full-time executive director does draw a modest salary. The rest of the work, whether loading or unloading trucks, moving inventory, or whatever else needs to be done, is accomplished by a network of volunteers. All members of the center must work one hour per month in order to be allowed to shop at the center. In 2001, 93 regular volunteers donated 3,000 hours of time. The center also utilizes labor from the court system, and has other community volunteers participate in special events or programs. Three local volunteers take in computers from the center, rebuilds them and gets them to low-income families in Hancock.

Materials Handled: TriState focuses almost exclusively on building materials, such as doors, windows, bathroom fixtures, paint, roofing materials and so on. The organization does handle a few computers that can be refurbished.

Vehicle/Pick Up: TriState Reuse Center does not own or lease a vehicle, and relies on volunteers with trucks who can pick up materials, or asks the donors to ship or deliver materials. The center does receive some donations in nearby cities, such as Philadelphia, Pittsburgh, Baltimore and Washington DC, and does, on occasion hire a professional freight company to transport materials to the TriState facility.

Clientele: TriState was developed to primarily serve low-income families and non-profit organization. However, the center's dual social and environmental missions mean that the organization also serves the general public as a means of diverting more material from disposal. As a result of the local demographics, the center does service the under-served more often than not. Census data for Hancock shows that 51% of the population is considered low-income, and 52% of the population are senior citizens.

Marketing: TriState Reuse Center serves not only as a building materials reuse center, but it also serves as a community center of sorts. The organization holds workshops to help clients learn how to do home repairs and simple installations. In addition, the center hosts art courses in the summertime. Last year a group of high school students made an art car, a vehicle covered completely of mosaic of broken floor and wall tile. The car was taken to Baltimore for their art car parade.

Greatest Challenges: Since the beginning, getting the center started up has been a challenge. However, TriState's greatest challenges have occurred since September 11, 2001, and the economic downturn. Businesses have tightened their belts and are donating less material to the center.

Overcoming Challenges: Hitting the pavement to reach more donors on a constant basis is the only way to combat slowing donations and reduced inventories.

CASE STUDY: Reuse Industries

Rural Community Starts Reuse Center on with Volunteers

The Community Came Together: In 1993, ReUse Industries was incorporated with the purpose of creating jobs, using waste and discarded materials, for low-income individuals. The founding members were comprised of representatives from four grassroots, community-based organizations: Appalachian Ohio Public Interest Campaign (now Rural Action), Appalachian Peoples Action Coalition, Southeast Ohio Recycling Terminal, and Athens County Department of Human Services' Adult Basic Literacy & Education Program.

In its first year, the board, staff, consultants, and community volunteers engaged in pre-development planning for the non-profit business created to collect surplus, damaged, and discarded materials and use these as supply resources to provide job training and job opportunities for low-income residents of the region. These efforts were supported, in part, by a national CHD feasibility grant of \$10,000.

Start-up: In September, 1994, with 100% financing from the local bank, the board purchased a 60-acre abandoned farm near Athens, Ohio, for \$53,000, a price well below market value. In the following months, more than 500 community volunteers joined 15 low-income core participants to renovate the facility, begin to collect inventory and open the business.

In 1995, while continuing to renovate the facility, project successfully collected 250,000 pounds of "waste;" generated \$17,000 in sales revenue; and provided low cost materials to more than 1,200 households and businesses in the community.

Today, ReUse Industries is still a vital, community-owned, non-profit 501(c)(3) tax exempt organization that saves reusables from the land fill to support a sustainable economy, protect the environment, and create jobs. ReUse Industries receives donations from organizations and individuals in bulk quantities as well as small quantities. Items donated to ReUse Industries are cleaned, stored, repaired, and sold to businesses, agencies, and the public for reuse.

The Community: Under 700 people live in Albany, Ohio, located in the Southeastern side of Ohio, near the West Virginia border. It is located in the Appalachian Region identified for a high percentage of under-served people. Of the 700 in Albany, 16% of the people are living in poverty. 20,000 people live in Athens, Ohio, the location of the store front thrift store. In Athens, 36% of the population is living in poverty. There is an 8.4% unemployment rate in Athens.

Important Partnerships: ReUse Industries owes its success to the partnerships with community development organizations, social service agencies, the state, the Americorp program, and many others. In addition to all the important funding and volunteer partners, ReUse Industries has found an important partner in Ohio University and the City of Athens. Upon move-out of students, ReUse cooperates with the city to collect reusable furniture, household, and other items.

Budget/Revenues: ReUse Industries continues to be supported, in part, by grants and community volunteers. Some grants received come from USDA, EPA, the Appalachian Regional Commission, and the Sisters of St. Joseph of West Virginia. In 2002, program income (\$195,000) comprises approximately 46% of ReUse's operating budget (\$424,000). There was an increase in sales of 15% between 2001 and 2002.

Facility: ReUse Industries still resides on the original 60-acre site and they actively utilize about 10 acres. They have converted several barns and outbuildings into sales spaces. Today, they have eight buildings in all in Albany, plus a 4,000 square foot storefront thrift store in Athens.

Personnel: ReUse Industries has 12 full-time staff, 2-5 Americorp*VISTA volunteers, and 450 active volunteers. They also benefit from the assistance of 13 trainees from the Department of Jobs and Family Services, and 24 community service workers. To date, more than 2,100 community volunteers have devoted more than 13,000 hours to ReUse Industries, representing more than \$78,000 of "sweat equity" for the organization. Additionally, 25 Americorp*VISTA participants have contributed more than 50,000 hours to the project to date.

Materials Handled: In Albany, ReUse Industries handles primarily building materials and lumber, hardware, appliances, furniture, and computers. At the Athens thrift store, they handle primarily clothing, household items and knick-knacks.

Vehicle/Pick Up: ReUse Industries picks up, free of charge, appliances, computers, furnishings, and other reusables in Athens, Albany, McArthur, Hamden, Wellston, and the Plains, Ohio, city limits. They also offer a fee-based service for pick-ups in other locations.

Clientele: While Reuse Industries is open to the general public, they estimate that 80% of their clientele is low-income.

PCs To The People!: ReUse Industries has completed Phase One of a new program called PCs To The People, a joint effort between ReUse Industries, the Athens County Department of Job and Family Services and Hocking College. The organizations united to provide low-income residents of Athens County with access to computers and the Internet. PCs To The People solicits donations of used computers, and computer parts, which they repair and offer for sale at a reduced price at their main facility in Albany, Ohio. In the first phase 200 computers were refurbished and redistributed in the community. Now, in Phase Two, ReUse Industries is offering used computers for sale to the public, and an additional 25% discount to low-income individuals and families in the area. They anticipate redistributing 400 computers this year.

Trying Out Deconstruction: In 2002, ReUse Industries had their first introduction to deconstruction. Working with the Ohio Department of Natural Resources, the organization was able to salvage a variety of items, such as flagstone, sandstone, light fixtures, woodwork, bathroom fixtures, solid wood doors, and a wood burning stove, from two 50-year-old state-owned buildings. While the two projects to date, the organization merely "cherry picked" reusable items, they are slated to deconstruct a facility down to the foundation this year.

Annual Diversion: Reuse Industries has diverted over four million pounds of material to date.

CASE STUDY: ERC Community Warehouse

Nonprofit Partners with Solid Waste Authority for Successful Reuse Operation

In 1995, the Eastern Rensselaer County Solid Waste Authority, decided that they wanted to create an outlet for the reusable items which were still perfectly good, but currently being landfilled. From the beginning, they also saw an opportunity to provide low-cost items to the low-to-moderate income residents of their rural community. Through a grant from the New York State Energy Research and Development Authority, and a partnership with an organization already operating a reuse center in Albany, the solid waste authority started up Barnraisers. While the initial years were plagued with challenges, the authority was able to establish a reuse center that spun off in 1997 as a separate non-profit organization, and changed the center name to the ERC Community Warehouse.

The Community: The ERC Community Warehouse is located in Hoosick Falls, New York, a town with a population base of 3,400 people. The solid waste authority oversees the waste management of three towns and four villages. Total population in the authority is 22,680. While the warehouse primarily serves the same area served by the authority, they also draw from larger, outlying communities, such as Bennington, Vermont, Albany, New York, and Williamstown, Massachusetts.

Important Partnerships: While the ERC Community Warehouse is a separate 501c3 non-profit organization, part of the success of the program is its continued partnership with the Eastern Rensselaer Solid Waste Authority. The organizations have separate boards and separate financial accounting, but share office space, share personnel, share vehicles and share some services.

Another important partner is found in the universities and colleges located near the center. The community warehouse works closely with Rensselaer Polytechnic Institute, Williams College, and Southern Vermont College. The center gets materials from students at the end of the school year, but also markets heavily to the student population for low-cost furniture, office furniture and household items. One time, they even took a truckload of items out to the campus and sold items to students.

Budget/Revenues: The ERC Community Warehouse annual budget is approximately \$140,000 a year. This is made up of key categories, including: Mortgage & Loans - \$8,500; Payroll - \$70,000; Advertising - \$10,000; Vehicle lease/purchase/maintenance - \$10,000; Insurance - \$9,000; Utilities - \$8,000. In 2002, sales were \$147,000. Sales have increased an average of 4% per year since 1998. The initial building was paid one half by a grant from New York's Office of Recycling Market Development and one half from a bank loan. While the original mortgage was recently paid off, the center will be taking out a new bank loan to pay for roof, siding and door repairs to their facilities.

Facility: ERC Community Warehouse consists of one main 10,000 square foot building and two outbuildings/barns which add up to another 10,000 square foot.

Personnel: Three full-time staff (warehouse/operations manager, 2 driver/laborers), 1 part-time staff (sales/cashier), plus two shared part-time solid waste authority personnel.

Materials Handled: ERC Community Warehouse accepts donations of: home and office furniture, appliances, building materials, computers and electronics, sporting and exercise equipment, books, records and furnishings. They also accept clothing, but divert those materials directly to the local Salvation Army. Items that move quickly include filing cabinets, good couches, dressers and appliances. They avoid old computers, and require computers to have a CD drive and modem. They also avoid taking single pane windows, phone systems and console televisions and stereos. ERC does quick checks on all appliances and electronics to be certain the item is in working condition, but does no repair. Pricing of materials based on market rate, experience or research, and generally, items run 1/3 to 1/2 of retail. Large items are tagged with prices, but not smaller items. While they try to discourage price negotiation, most customers try to dicker and get a lower price.

Vehicle/Pick Up: ERC has purchased a 16' box truck. Used to lease the vehicle, but became a greater value to center to own truck. One advantage of the 16' truck is that it does not require a commercial drivers license (CDL) to operate. There is no charge to pick up materials. Items are screened for condition and appropriateness over the phone, but driver has final discretion in taking item at the time of pick-up.

Clientele: ERC Community Warehouse is open to the general public. A significant percentage of their customers shop there because they cannot afford to purchase items new. They sell a lot of items to students, landlords, and the elderly.

Marketing: ERC uses two taglines: "10,000 square feet of pre-owned treasures", and "It's not just a store, It's an adventure". They spend nearly \$10,000 a year in advertising in the local paper, yellow pages, and doing direct marketing flyers to the colleges and universities.

In addition, ERC Community Warehouse hosts the annual Earth Day event at the warehouse, and also gives tours of the facility to school children as part of their recycling and reuse education.

Greatest Challenges: Good people, good stuff, and the growing competition of new thrift stores in surrounding communities.

Overcoming Challenges: Distinguish the community warehouse from other programs, such as offering pick-up services. Also ERC has created a niche in office furniture which no one else in the community fills.

Annual Diversion: It is estimated that the ERC Community Warehouse diverts 150 tons of reusable materials per year.

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¹ Paraphrased from: <http://www.wastenews.com/features2.html?cat=12&subname=Construction&id=1049468358&special=1> (Contact Carolyn Grodinsky for information).

² <http://www.anr.state.vt.us/dec/wastediv/recycling/c&d.htm>

³ <http://www.re-sources.org/restore/index.htm>

⁴ Contact KC Alexander for more information.

⁵ <http://www.epa.gov/ne/assistance/reuse/def.html>

⁶ <http://www.epa.gov/ne/assistance/reuse/index.html>,

⁷ <http://www.nerc.org/>

APPENDIX E

EDUCATION AND OUTREACH RESOURCES AND PROGRAM EXAMPLES

Successful Program Strategies

An element that appears to be common to many successful programs involves targeting a specific behavior to be promoted or changed and requiring some form of action and involvement on the part of the participants that relates to that behavior. Targeting specific groups, forming partnerships, teams, coalitions, and networking have proven very supportive to program success. Ongoing public education is also a critical component. Incentives in the form of social or personal recognition and/or monetary rewards have been incorporated as well.

Within the public sector, some states, including California, Wisconsin, Oregon, and Massachusetts, have been viewed as role models for waste prevention. In addition to establishing programs promoting waste prevention and “encouraging” successes through waste prevention legislative mandates, they offer incentives for innovative program design and implementation by way of grants and loans to other government entities, businesses, and organizations. Award recognition programs are offered as well. Various tools, guides, and technical assistance for developing successful programs, setting objectives, and measuring accomplishments are available to provide program implementation assistance. Extensive information is also provided on Web sites by each of these States; links to other resources and successful programs are also identified.

On a smaller scale, numerous counties, municipalities, and government-sponsored regional organizations have implemented highly successful waste prevention programs. While the state agencies offer a tremendous amount of technical assistance, the involvement at this level is actual program implementation. Waste prevention involves the grass-roots participation of government groups, civic organizations, local businesses, and the public at-large. These activities represent the pilot programs and models which benefit from the behavioral change tools of CBSM. Success at this level determines whether the waste prevention strategies implemented are sustainable.

The national-level EPA-sponsored WasteWise Program assists government agencies, businesses, and organizations with implementing comprehensive waste reduction programs by way of informational sharing, networks, and prevention tools and strategies. Partnerships are formed between WasteWise and the individual participating organizations. To join, partners must agree to establish and achieve to accomplish at least three waste prevention goals. Annual recognition awards are bestowed on organizations illustrating successful waste prevention strategies and programs.

Numerous groups have also formed that promote waste prevention initiatives. Each of these groups provides varying degrees of technical information and services, education, networking and collaboration resources, and program implementation assistance. Research efforts performed through these groups identify and highlight successful waste prevention programs throughout the country that can serve as models to other organizations, private and public. Each group maintains a Web site which provides information such as available resources, links, and case study summaries. A few of the more prominent groups include the following: Source Reduction Forum of the National Recycling Coalition (NRC); INFORM, Inc.; National Waste Prevention Coalition (NWPC); Northeast Recycling Council (NERC); and, The Alliance for Environmental Innovation.

"Waste-Free NYC" Projects

INFORM, Inc., a national environmental research organization based in New York City awarded contracts totaling \$630,000 to eight community-based organizations in New York City. The organizations will staff and implement community-based waste prevention education and outreach projects as part of the Waste Prevention Community Coordinators Program. The activities are being funded for one year and will serve as pilot projects that could be replicated in other neighborhoods if proven effective in reducing the residential waste stream. Funding for the project was provided by the New York City Department of Sanitation, Bureau of Waste Prevention, Reuse and Recycling. INFORM also offers "Making Less Garbage, A Planning Guide for Communities" and "Rethinking Resources, New Ideas for Community Waste Prevention" by INFORM, a national non-profit organization that identifies practical ways of living and doing business that are environmentally sustainable at: www.informinc.org.

Master Gardener/Composter Programs

The University of Rhode Island's Cooperative Extension Education Center offers community education programs focused on waste reduction and resource conservation. Programs include "Greenshare" training for employees of lawn and garden retail centers and both Master Gardener and Master Composter certification programs. Participants receive 40 hours of free training on waste prevention, recycling, composting, and nontoxic/low-toxic alternatives to household products that contain hazardous materials. Participants can also construct their own composting bin at reduced cost. In return, they are required to share their knowledge through 40 hours of community outreach. For example, these "master recycler/composters" staff booths at community fairs, provide compost education through demonstrations at nurseries, and teach children in schools about waste reduction and recycling. www.edc.uri.edu

Shop Smart, San Francisco, California

In 1996, the San Francisco Recycling Program held a three-week regional campaign to bring the message of waste prevention to consumers through displays in 225 supermarkets. Educational materials included shelf tags, posters, and display units with informational literature. In addition, 780 television ads, 1600 radio ads, and numerous full-page newspaper ads stressed, among other things, the importance of purchasing products with less packaging, buying in bulk, and bringing reusable bags to the market. Exit polls conducted both during and after the campaign showed that over one million shoppers remembered one or more elements from the campaign and 30 percent had altered their buying habits as a result of the educational materials. The project's total cost, provided by a number of public entities, was roughly \$350,000. Since 1996, the campaign -- now called Shop Smart: Save Money and the Environment Too -- has been held each year with similar success. <http://www.sfrecycles.org/>.

Waste Authority Mini Grants, Alameda County, California

Since 1998, the Alameda County Waste Management Authority has offered mini-grants to help fund projects focused on waste prevention. The program is budgeted for \$50,000 per fiscal year, with a maximum grant of \$5,000 per applicant. The grants are intended to supplement projects with additional funding sources. In a recent project, a nonprofit group collected used athletic equipment, refurbished the gear when necessary, and distributed it to low-income residents and school children. At one sporting goods drive held by the grant recipient, 7,000 Nike hats, among numerous other items, were diverted from the waste stream.

For more information, go to <http://www.stopwaste.org/fsfunding.html>.

Waste Prevention Online

State and local governments have established interesting and innovative websites to offer information on waste prevention activities to their constituents. Some of the best include:

New York City

www.nycwasteless.com

State of Minnesota

<http://www.moea.state.mn.us/campaign/index.html>

King County WA

<http://dnr.metrokc.gov/swd/resrecy/wasteprevention/wasteprevention.shtml>

Center for the New American Dream, Helping People Consume Responsibly for Our Families and the Planet. Phone: 301-891-3683

www.newdream.org.

EPA's "Reduce, Reuse and Recycle Waste" website

www.epa.gov/epaoswer/osw/rrr.htm.

"The ULS Report" (ULS = Use Less Stuff) by Partners for Environmental Progress

www.use-less-stuff.com.

Government Agency Waste Prevention Project

As owner and operator of over 350 separate facilities, the City of Seattle is one of the largest employers in its jurisdiction. To ensure that the city itself sets an example in waste prevention, the Environmental Management Program establishes goals and procedures for all city departments to reduce solid waste and increase recycling consistent with Seattle's waste management plan. In fiscal year 2000, with a budget of \$572,000, the program provided city employees with technical assistance and training in waste reduction conducted by Seattle Public Utilities, the department responsible for the city's sanitation services. Under the program, each city department must designate a coordinator to promote waste reduction and recycling, and all city buildings must establish recycling collection services. Data on waste generation, reduction, and recycling rates are collected to measure the program's success. For more information, go to <http://www.cityofseattle.net/environment/default.htm>

Botanical Gardens Compost Program, New York, New York

Established in 1993, this citywide outreach, education, and technical assistance program, implemented through the city's four botanical gardens, aims to reduce organic food and yard waste. Together, these materials account for more than one-fifth of the city's waste stream. The \$750,000 program targets schools, city agencies, residents with access to community gardens or backyards, and those interested in indoor worm composting of organic kitchen scraps ("vermicomposting"). Each botanical garden hosts four "Give Back" events each year where residents can purchase backyard composting bins (at subsidized cost) and take up to 30 gallons of free, fresh compost made by the city. Over 7,000 bins have been sold citywide since 1999. In addition, program staff run a "Leave it on the Lawn" mowing program, mainly in conjunction with the New York City Housing Authority, the city's largest landowner. In a 30-week growing period, an acre of lawn can generate 6 tons of clippings. According to a 1997 survey, grasscycling keeps approximately 1,300 tons of grass clippings from Housing Authority sites out of the

waste stream each year. For more information, go to http://www.nyc.gov/html/dos/html/bw_comp/index.html

Backyard Composting and Natural Soil Building Program, Seattle, Washington

Seattle Tilth, a local nonprofit, has held the contract to operate Seattle's composting program since 1985. Focused on composting education, this is a popular program comprising a variety of initiatives. The Master Composter program (similar to the Master Recycler/Composter Program in nearby King County) provides local volunteers with 40 hours of composting training in return for educational outreach to the community. An average of 25 new Master Composters enter the program each year. Seattle Tilth also manages the Compost Hotline, which was recently expanded to promote the benefits of using compost as a natural soil-builder. The organization also hosts an annual two-day compost bin distribution event, plus several smaller workshops and distribution events at which staff are available to answer questions and give advice on organic waste prevention. In 2000, the city distributed 4,300 compost bins at these events. In spring 2001, Seattle Tilth initiated a pilot project in which groups of neighbors can request their woody waste to be chipped free of charge by tree care professionals and used on-site as mulch. The project is expected to assist 100 groups of six families each. In 1999, 46 percent of all single-family households in Seattle (accounting for roughly 60 percent of the total population) diverted 12,000 tons of organic waste through the Backyard Composting and Natural Soil Building Program. Seattle Tilth recently received a \$650,000 contract to run the program for another two years.

For more information, go to <http://www.seattletilth.org/>.

Waste Prevention Programs in the Private Sector

Materials for the Arts, New York, New York

For 20 years, the city-run Materials for the Arts (MFA) program has served as a reuse and redistribution center for schools and arts organizations. The program takes donations of art and office supplies, furniture, and art equipment from businesses, individuals, and cultural and municipal sources and stores them for reuse. Donors receive a tax deduction for the fair market value of the material. Materials for the Arts receives approximately \$2.3 million worth of donations and diverts about 450 tons of materials from disposal each year. Over 2,000 organizations and schools are active recipients of materials made available through this award-winning program.

For more information, go to <http://www.nyc.gov/html/dcla/html/profile.html#services> and scroll down to Materials for the Arts.

Wa\$teMatch, New York, New York

Established by the Long Island Business Development Corp. and the Industrial Technology Assistance Corp. in 1997 and funded by the City of New York, Wa\$teMatch is a materials exchange service for city businesses. The program maintains a database of materials, both wanted and available, and acts as a middleman between businesses looking to find and donate items ranging from scrap metal to shipping containers to day-old bread. In addition to reducing their waste disposal costs, businesses donating unwanted materials can sometimes claim tax deductions. Businesses able to locate free or low-cost materials save on raw materials. The program currently has an annual budget of \$200,000 and works with an average 85 different businesses a year. The 255 transactions Wa\$teMatch facilitates annually are responsible for the diversion of almost 1,800 tons of materials from disposal and savings to participating businesses of over \$100,000 a year in disposal and materials costs.

For more information, go to <http://www.wastematch.org/>.

Recycling Market Development Zones, State of California

The goal of the Recycling Market Development Zone (RMDZ) program is to provide incentives that further the manufacture of waste-reducing products and the creation of reuse, remanufacturing, and recycling businesses. It was established in 1993 by local governments and the California Integrated Waste Management Board, a division of the state's Environmental Protection Agency comprising six members responsible for managing California's solid waste. Companies located in each of the program's 40 zones are eligible for low-interest loans, streamlined permitting and tax breaks, and assistance from the Recycling Business Assistance Team on market development, funding options, and other issues. To date, \$25.5 million has been awarded through the loan program and led to the creation of 690 jobs. For example, Parks Optimal Inc., a high-end telescope manufacturer, developed a product that uses recycled plastic components rather than metal and other materials. The new product line has prevented the disposal of 430 tons of plastic and created 35 new jobs. Each year, RMDZ program diverts approximately 1.6 million tons of materials from disposal.

For more information, go to <http://www.ciwmb.ca.gov/RMDZ>.

Environmental Management Investment Group, State of New York

Operated by the Empire State Development Corp., a public agency, the Environmental Management Investment Group (EMIG) provides grants for research, development, and demonstration of reuse, remanufacturing, recycling, and other pollution and waste prevention projects. A nationally recognized grant program, EMIG has been responsible for developing new recycling technologies and new markets for products made from reusable materials in New York State. Between 1998 and 1999, EMIG financed 120 projects costing a total of \$29.7 million and resulting in the prevention of more than 1 million tons of waste. Since 1992, for example, one grant recipient has been collecting unused medical supplies and used medical equipment for redistribution to underserved medical clinics in the US and abroad. In 2000, this project diverted an average of 4,000 pounds a week from disposal and saved participating facilities \$240,000 in disposal costs.

Waste Prevention Measurement and Goal-Setting

Pay As You Throw, San Jose, California

In 1993, San Jose switched from a flat-fee system for weekly garbage collection to one that charges residents according to the amount of waste they generate. The city provides four sizes of garbage container. The smallest, a 32-gallon cart, costs \$14.95 a month; the cost doubles with each additional 32 gallons. Residents who have more garbage than their cart holds can buy tags that are placed with the excess amount at the curb. A survey conducted in 1997 revealed that 87 percent of residents used the smallest container. This system constrains the generation of waste for disposal, but allows residents to place an unlimited amount of recyclables at the curb for collection. In the first four years of the program, the city saved over \$4 million annually. Residents seem to have adjusted well to the system and plans are in place to offer a 20-gallon cart, bearing out the connection between a unit pricing structure and waste reduction.

For more information, go to <http://www.recycleplus.org/recgarb.htm>.

Product Stewardship Initiative, State of Minnesota

In 1999, the Minnesota Office of Environmental Assistance launched its Product Stewardship Initiative with the goal of reducing the volume and toxicity of the waste stream by making manufacturers, rather than government, responsible for their products at end of life. Initially focused on three priority waste streams -- paint, carpet, and electronics containing cathode-ray tubes (CRTs) -- the program sets broad recovery goals, timelines for specific products, and charges manufacturers with finding the mechanisms

needed to meet them. One result of the initiative is a five-year agreement by Sony to take back its products for recycling, an expansion of a three-month pilot project that diverted 600 tons of used electronic equipment from disposal. A \$500,000 competitive matching grant pool is also available that awards up to \$100,000 per applicant for consumer-oriented waste education and pilot product stewardship projects.

The following programs are excerpted from the Source Reduction Forum of the National Recycling Coalition (NRC) Web Site.

In-House Source Reduction, Dunn County, Wisconsin (pop. 35,909)

Dunn County, Wisconsin set a goal to reduce the quantity of waste generated by government offices by 15% over a one-year period, and to reduce county-wide waste generation by 5%. The county met all of its goals, thanks to the success of offices like the County Health Care Center which reduced its waste generation by 18% and saved thousands of dollars in the process.

Business Assistance Programs, Austin, Texas (pop. 500,000)

Austin, Texas established a Waste Reduction Assistance Program (WRAP) that provides local businesses with technical assistance to achieve reductions in the quantity and toxicity of waste generated. The program uses on-site assessments, materials exchanges and a business information clearinghouse to accomplish this goal. Since 1995, WRAP staff has helped prevent and divert more than 1,350 tons and saved Austin small businesses more than \$472,000.

Economic Incentive or Policy Ordinance, Tompkins County, New York (pop. 94,000)

Tompkins County, New York instituted a “trash-tag,” or “pay-as-you-throw” program that requires residents to purchase a tag for each container of garbage set out. The program creates an economic incentive for residents to reduce their household waste, and adopt alternatives such as recycling and backyard composting. Soon after the program was implemented, the county noted an increase in residential recycling, and some Tompkins County municipalities reported up to 50% less trash set out at the curb.

“Grasscycling” and Backyard Composting, Montgomery County, Maryland (pop. 810,000)

Montgomery County, Maryland utilizes a wide range of media and outreach tools to educate the community about grasscycling and at-home composting. Outreach strategies include videos, paid and unpaid television and radio public service advertisements, press conferences, newspaper inserts, movie theater ads, direct mail, transit advertising and volunteer demonstration lawns. The county diverted 53,000 tons of grass clippings and yard trimmings from the solid waste collection system in 1995.

Manufacturing and Industry

The following provides a brief listing of some of the Waste Prevention Achievements of some WasteWise partnership programs (verbatim excerpts from WasteWise Web Site):

Reduce

- **Allergan, Inc.** achieved a 32 percent reduction in cardboard and plastic waste by improving process efficiency. This effort conserved more than 544,000 pounds of these materials combined and saved more than \$43,000.

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- **Calgene, LLC** conserved 400 pounds of paper, styrofoam, and plastic by switching from disposable to reusable cafeteria supplies.
 - **Lucent Technologies** eliminated more than 475,000 pounds of paper by increasing the use of electronic commerce and reducing hard copy communications, saving more than \$200,000.
 - **Herman Miller** reduced fabric waste by more than 165,000 pounds by streamlining the manufacturing process, saving the company more than \$498,800. The furniture manufacturer also reduced leather use and further decreased manufacturing waste by 8,800 pounds.

Reuse

- **Allchem Services, Inc.** reused 200 pounds of plastic packaging material as filler for outgoing shipments, saving \$500.
- **Eastern Illinois University** reused more than 9,000 pounds of computer equipment and 25,000 pounds of coated paper office supplies through an internal employee exchange, saving nearly \$7,000.
- **Guardian Industries** laundered and reused gloves and wiping cloths, which reduced waste by more than 12,000 pounds and saved the company almost \$30,000.

Donate/Exchange

- **The Walt Disney World Company** donated more than 350,000 pounds of building materials to local nonprofit organizations and affordable housing projects and nearly 3,000 pounds of office supplies to a local program called "A Gift for Teaching."
- **Polk County, Iowa**, reused 10,500 pounds of furniture and saved \$50,000 through auctions and an equipment sharing program. The county also created an equipment sharing catalog for all county agencies and departments to encourage sharing equipment by departments to fill anticipated, intermittent, and short term needs.
- **Accent Construction** saved \$35,000 by donating more than 12,000 pounds of excess building materials.
- **Battelle Memorial Institute** donated or resold more than 286,600 pounds of used equipment to local organizations. Additionally, Battelle gave scrap print shop supplies to an artists' organization and used computer equipment, office furniture, and books to local schools and nonprofits. Combined, these actions saved Battelle more than \$674,500.

Employee Education

- **The Grand Traverse Band of Ottawa and Chippewa Indians** developed an office recycling procedures packet for the human resources department to distribute to new Tribal employees. Other employee education activities included adding recycling and buying recycled messages to pay stubs, sending out recycling reminders to all employees, and including environmental articles in the monthly newsletters that are distributed to all Tribal members and office.
- **The U.S. Postal Service**—Alabama District developed a team of recycling coordinators to train employees on recycling practices prior to implementing recycling programs in district post offices. Training continues to be an ongoing process as new technologies are introduced and new employees join the postal service.

Transport Packaging WasteWise Challenge

Forty-seven WasteWise partners pledged to seek methods to reduce the amount of waste generated by transport packaging. Selected goals of Challenge participants included eliminating unnecessary transport packaging, switching to reusable transport packaging, and reusing incoming packaging for outgoing shipments. The most common goal of Challenge participants was to work with suppliers to reduce transport packaging, reflecting the importance of building partnerships to reduce waste.

- WasteWise recognized **SST Trucking, LLC** as **Challenge Partner of the Year at the 2000 Awards Program**. The company saved more than \$55,000 and reduced packaging by nearly 180 tons through initiatives adopted as part of the Challenge.

Buy/Manufacture Recycled WasteWise Challenge

Buying recycled means purchasing products made with recovered materials. A necessary precedent to buying recycled is that manufacturers purchase recovered materials and use them in lieu of virgin materials in the manufacture of new products. WasteWise partners commit to increasing overall recycled content in the products they purchase, either by purchasing recycled products in lieu of virgin products or by increasing the recycled content in those recycled products they already buy. Manufacturers have the additional option to increase the percentage of postconsumer content in the products they produce. Sample goals set by WasteWise partners in this area include:

- Purchasing recycled-content products and supplies for the cafeteria and office areas, as well as for maintenance and janitorial operations.
- Revising purchasing specifications to allow greater purchase of recycled-content materials, and purchase at least one new product with recycled content each year, starting with office supplies.
- Increasing the postconsumer recycled content in all product lines by 5 percent each year.
- Reviewing the bid list to identify all products with recycled content and instituting a preferred purchase policy for products with recycled content.

WasteWise partners purchased more than 962,000 tons of recycled-content products in 1999, spending \$4.9 billion. Some of the recycled-content products most frequently purchased by WasteWise partners include copier paper, paper towels, and toilet paper. Many organizations also manufactured new products with recycled content or increased the percentage of recycled content in existing manufactured products, diverting 223,000 tons of waste, and promoting wise use of materials. Listed below are some examples of WasteWise partner achievements in buying recycled.

- **Bell Atlantic Corp.** spent \$70 million on recycled-content products, including 220 million pounds of telephone books with an average 40 percent postconsumer content.
- **Ford Motor Company** used more than 60 million 2-liter plastic soda bottles in the manufacturing of grille reinforcements, window frames, engine covers, and trunk carpets. In 1999, this effort accounted for 7.5 million pounds of plastic.
- **Sandia National Labs** spent nearly \$1.5 million on recycled-content products including 1,846 pounds of fiberglass insulation with an average 20 percent postconsumer glass cullet, 60,000 pounds of copier paper with an average 30 percent postconsumer content, and 80,000 pounds of paper bathroom supplies and tissue with 100 percent postconsumer content.
- **Bethlehem Steel** used more than 73 million pounds of recycled steel and non-ferrous metals in the manufacturing process. This action saved the company more than \$1.8 million in 1999.
- **King County, Washington**, furnished the recently constructed King Street Center with recycled-content building materials to measure product performance. The building included concrete lobby tiles made with chips of 100 percent recycled glass from beer bottles, and lobby walls painted with recycled-content paint.

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