

Purchasing Strategies

to Prevent Waste and Save Money

Published by the

Source Reduction Forum of the
National Recycling Coalition, Inc.



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The Source Reduction Forum of the National Recycling Coalition

A program of the National Recycling Coalition (NRC), the Source Reduction Forum's (The Forum) goal is to conserve resources and reduce waste by:

- encouraging the efficient use of materials,
- developing and promoting source reduction and reuse strategies, and
- integrating these strategies with recycling.

The Forum is coordinated by a steering committee composed of national source reduction experts from commercial, government, university and non-profit sectors. Staff support is provided by the NRC.

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National Recycling Coalition Mission Statement

The National Recycling Coalition is a not-for-profit organization dedicated to the advancement and improvement of recycling, and also source reduction, composting and reuse, by providing technical information, education, training, outreach and advocacy services to its members in order to conserve resources and benefit the environment.

About INFORM

INFORM is a national nonprofit organization that identifies practical ways of living and doing business that are environmentally sustainable. INFORM is supported by individual, foundation, government, and corporate contributions, and by book sales. All contributions are tax-deductible. A copy of INFORM's Annual Report may be obtained by contacting the Offices of Charities Registration, 162 Washington Avenue, Albany, NY 12231, or INFORM.

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Chapter 1

Introduction

The City of Tucson, Arizona, contracts with furniture refurbishers to repair, reupholster and repaint city owned furniture. Using refurbished furniture not only reduces waste, it saves the city 50-60 percent of the cost of purchasing new furniture.¹

As part of its toxics reduction program, the City of Santa Monica, California, buys custodial cleaning products that contain no known carcinogens, mutagens or corrosive substances. The city also asks vendors to ship these products in concentrated form and in containers that are both refillable and recyclable. Switching to less toxic cleaning products reduced worker exposure to toxic chemicals in 15 of 17 cleaning product categories. This change eliminated the purchase of 3,200 pounds of hazardous materials annually, improved the custodial staff's morale and reduced the amount spent on cleaning products by five percent.²

Xerox Corporation reduced its purchases of a wide variety of machine parts by reclaiming, refurbishing and reusing existing parts, saving several hundred million dollars in purchases each year.³

What do these businesses and government agencies have in common? They have all found creative ways to use their procurement processes to improve their bottom line while reducing waste and conserving resources. More and more, organizations are recognizing that source reduction, or waste prevention, is the optimal approach to dealing with waste. Limiting the amount of waste your organization generates saves money and

The Benefits of Source Reduction Procurement

Practicing source reduction procurement can yield the following economic and environmental benefits:

Economic Benefits

- Reduced costs for products and services.
- Improved operational efficiency.
- Reduced employee risk of exposure to hazardous materials.
- Reduced transportation costs.
- Reduced warehousing costs.
- Reduced losses from spoilage.
- Reduced waste storage and handling costs.
- Reduced waste disposal and facility management costs.

Environmental Benefits

- Reduced depletion of natural resources.
- Reduced waste generation.
- Reduced environmental impacts from solid and hazardous waste disposal.
- Reduced pollution from manufacturing processes.
- Reduced pollution from transporting products and materials.

reduces the environmental impacts of producing and consuming products and services, and collecting and disposing of wastes.

Buying high-quality equipment to manufacture products, for example, can decrease down-time for repairs or replacement and improve overall productivity. Similarly, reducing or eliminating the use of toxic chemicals improves worker safety and decreases employer liability for worker exposure to hazardous materials.

About this Guide

This guide provides information and examples of how the procurement process can be used to prevent waste, save money and improve your organization's efficiency. It is a tool that can be used by anyone who purchases products or services,

whether they are in a centralized purchasing department, scattered throughout an organization or part of a purchasing team. The term "purchasing agent" is used throughout this guide to represent these purchasers. Others in your organization who are responsible for activities such as operations, facility maintenance or waste management can benefit greatly from the ideas presented here as well.

This guide also can be used to inform senior management about the benefits of buying with source reduction in mind. Source reduction procurement initiatives will be most effective when senior management communicates its support for these efforts on a regular basis. Case studies of successful purchasing initiatives illustrate how other companies and organizations have profited economically and environmentally from implement-

Source Reduction and Reuse: A National Priority

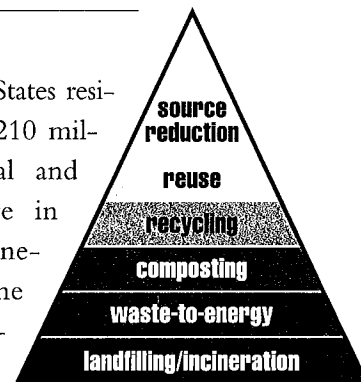
Source reduction and reuse are the first priorities in the solid waste management hierarchy endorsed by the U.S. Environmental Protection Agency (U.S. EPA) and adopted by many state and local governments. Because source reduction and reuse top the list of options—reduce and reuse, recycle, incinerate, landfill—they should be the first preference of every business or government procurement program.

The goal of source reduction is to prevent the generation of waste and conserve natural resources through improved resource efficiency. Practicing source reduction can help reduce the negative environmental impacts associated with material extraction and the production of goods and services. Negative impacts occur throughout the life-cycle of a product, from resource extraction, manufacturing, distribution and consumer use to final disposal.

Source reduction also can help mitigate environmental problems created through the genera-

tion of garbage. United States residents generated nearly 210 million tons of municipal and commercial solid waste in 1996.⁴ Approximately one-third of this waste came from businesses and institutions, such as government agencies, schools and hospitals. Most of this waste was disposed in landfills or incinerated.

Global warming is another important reason to reduce the amount of waste we generate. According to the U.S. EPA, if we cut the amount of waste we generate to 1990 levels, or just 2%, we can potentially reduce greenhouse gas (GHG) emissions by 15.3 million metric tons of carbon equivalent (MTCE, the basic unit of measure for GHG).⁵ This is almost 10% of the GHG emission reductions required by the Presidential Climate Change Action Plan.⁶



Resource and Solid Waste Management Hierarchy

The Power of Purchasing

Purchasing professionals play a crucial role in reducing waste, both by creating markets for goods and services that incorporate source reduction and by creating a new standard of excellence for your colleagues, peers and competitors to follow. The National Association of Purchasing Managers estimates that in the manufacturing sector alone, purchasing departments spend more than \$1 trillion a year.⁷ Federal, state and local government purchasing agents spend another \$1 trillion.⁸ In New York City, for instance, where procurement can total more than \$7 billion annually, contracts typically specify huge quantities of products such as 30,000 square yards of carpet, 500 50-gallon drums of motor oil, 196,000 tires, 4,000 indoor waste baskets, and over 13,000 cases of paper plates.⁹ Clearly, significant opportunities exist to impact products and their manufacturers through source reduction procurement.

ing source reduction procurement strategies.

Examples of source reduction procurement approaches that apply to both the private and public sectors are provided in this document. These strategies can be integrated into your current procurement practices so they become “second nature” to purchasing agents, product users or “end users” and vendors. In addition, each of the strategies can be tailored to meet your organization’s needs. You can begin by developing a comprehensive source reduction plan for your entire procurement operation. In organizations with decentralized purchasing, however, you may want to start out more slowly, incorporating individual source reduction procurement initiatives into your purchasing policies and practices.

Chapter 1 defines source reduction procure-

ment and identifies its bottom-line advantages. Chapter 2 addresses implementation options and strategies. Chapter 3 contains case studies illustrating innovative source reduction procurement applications implemented by businesses and government agencies throughout the nation. The case studies demonstrate how companies implemented source reduction procurement strategies and identified the associated costs and benefits. The Appendix at the end of the document provides further details on source reduction procurement and examples of initiatives you might consider implementing within your organization.

What is Source Reduction Procurement?

Source reduction procurement is buying and using products and services that help prevent the generation of waste and improve resource efficiency. This can be accomplished through a variety of strategies, including:

Source Reduction Strategies

1. **Reducing product use**, such as procuring copy machines to make quick, convenient double-sided photocopies;
2. **Renting or leasing products or equipment**, such as tools or scientific equipment; or contracting for services, such as photocopying or printing;
3. **Purchasing rebuilt, remanufactured or refurbished products**, such as remanufactured laser toner cartridges;
4. **Purchasing more durable products**, such as high quality tires;
5. **Purchasing products containing non-hazardous materials**, such as non-toxic cleaning products;
6. **Purchasing products that are reusable, refillable or returnable**, such as beverage dispensers and reusable glassware for use in cafeterias;

Getting Started: Questioning Your Purchasing Practices

Ask several critical questions to begin incorporating source reduction into your current purchasing practices. Work with the people in your organization who use specific products and services and the vendors who supply those products and services to help you answer the following questions:

- Can we reduce product use?
- Can we rent or lease products or equipment or contract for services?
- Can we purchase products that are rebuilt, remanufactured or refurbished?
- Can we purchase products that are more durable?
- Can we reduce or eliminate purchasing products containing potentially hazardous materials?
- Can we purchase products that are reusable, refillable or returnable?
- Can we purchase products in bulk?
- Can we purchase products with less packaging or reuse packaging?
- Can we share or reuse resources within our organization?

7. **Purchasing products in bulk**, such as buying products in 5 or 10 gallon bulk containers instead of in quart sizes;
8. **Purchasing products with less packaging or reusing packaging**, such as having products shipped in reusable containers on slip sheets;
9. **Sharing or reusing resources within the organization**, such as creating a laptop computer check-out system for computer use at home or while traveling, or routing a single subscription of a journal among co-workers.

These approaches to source reduction procurement are described in more detail in Chapter 2.

Source Reduction Procurement, Environmentally Preferable Procurement and "Buying Recycled"

Broadly defined, Environmentally Preferable Procurement (EPP) is purchasing products and services to minimize environmental impacts. It includes the purchase of products and packaging that have "a lesser or reduced effect on human health and the environment when compared with competing products that serve the same purpose."¹⁰ These comparisons might take into consideration the type of raw materials used to manufacture the product (including energy and water use), or the type of production, packaging or distribution method, as well as source reduction and reuse. Indeed, source reduction procurement strategies, such as purchasing items with less packaging, avoiding single-use products, buying remanufactured or other used goods and buying products that utilize less water and energy are all examples of EPP.

Buying products with recycled content that are themselves recyclable is another important EPP strategy. In the last five years, many businesses and government agencies have initiated aggressive "buy recycled" programs. There is still a great deal of potential, however, for these entities to expand

The Seven EPP Guiding Principles Proposed by the EPA

EPP has become a focal point for federal purchasing since the issuance of Presidential Executive Order (EO) 12873, and its subsequent replacement EO 13101. These EOs direct federal agencies to purchase products and services that have fewer environmental impacts. U.S. EPA has proposed EPP guiding principles for federal agencies to follow when procuring goods and services.

1. **Pollution Prevention:** Consideration of environmental preferability should begin early in the acquisition process and be rooted in the ethic of pollution prevention that strives to eliminate or reduce, up front, potential risks to human health and the environment.
2. **Multiple Attributes:** A product or service's environmental preferability is a function of multiple environmental attributes.
3. **Life-Cycle Perspective:** Environmental preferability should reflect life-cycle consideration of products and services to the extent feasible.
4. **Magnitude of Impact:** Environmental preferability should consider the scale (global versus local) and temporal aspects (reversibility) of the impacts.
5. **Local Conditions:** Environmental preferability should be tailored to local conditions where appropriate.
6. **Competition:** Environmental attributes of products or services should be an important factor or "subfactor" in competition among vendors, where appropriate.
7. **Product Attribute Claims:** Agencies need to examine product attribute claims carefully.¹¹

their purchases of recycled content products. Source reduction procurement and buy recycled are complementary activities. For example, a corrugated box may be ordered in a thinner ply, made with recycled content, reused several times and then recycled. To achieve even greater source reduction while maintaining recyclability, organizations with closed loop shipping systems might consider switching to reusable containers that also are made with recycled materials and are ultimately recyclable. (See *Additional Resources* section for information on NRC's transport packaging publications).

Source reduction procurement is, in effect, a subset of EPP. This guide focuses exclusively on source reduction procurement; it does not address buying products that use less water or energy to produce (worthy goals though they may be), nor does it discuss buying recycled products (See *Additional Resources* section for information on NRC's Buy Recycled Business Alliance). Source reduction procurement is a distinct method in which the purchasing agent asks, "How can my procurement practices be used to prevent waste?"

The economic and environmental benefits that result from source reduction are significant. By applying source reduction procurement strategies outlined in this guide, you can play a central role in garnering these benefits for your organization and the environment.

Chapter 2

Incorporating Source Reduction into Your Procurement Process

Purchasing agents typically attempt to locate the highest quality products or services at the best price that meet an end user's needs. Incorporating source reduction into this process may require higher initial capital outlays with a relatively short payback period and long-term savings.

Integrating source reduction procurement approaches into your current activities can occur on various levels. It can be as simple as recognizing and ordering an alternative product in a catalog, or as complex as analyzing and supporting a change in operational procedures. Clearly, some approaches can be readily implemented by a purchasing agent, while others will require the coordination and cooperation of end users, vendors and management. Some industries are already using a team-based approach to purchasing by including end user and vendor input at very early stages. Larger companies and government agencies may be in a position to work directly with manufacturers to accomplish product and packaging design changes.

The information provided in this chapter is organized to reflect these different scenarios. General activities that can be implemented by a procurement department or other purchasers in your organization are presented, followed by more specific examples illustrating the source reduction procurement process. These examples cover both public and private sector purchasing.

Public and Private Sector Purchasing Programs

While there are many similarities between government and private sector purchasing, there are some key differences that may have an impact on the way source reduction procurement strategies can be considered and implemented. By law, government purchasing agents work within the constraints of a very public and structured competitive bidding process.

Private sector purchasing agents, on the other hand, often use competitive bidding, but are not obligated to do so. Private sector purchasing agents, therefore, have much more freedom to pick and choose their vendors and to negotiate a business relationship based on factors other than price alone. Given these distinctions, you may find that some of the purchasing situations presented below will be more useful for your organization than others.

Key Strategies for Implementing Source Reduction Procurement

Purchasing agents are the link between end users, such as the college professor, office manager or manufacturing supervisor, and the vendor. Purchasing agents often perform a variety of

functions. Some may only place occasional orders through supply catalogs, while others may use a formal bidding process using specifications that carefully describe the product or service they wish to procure.

Many source reduction activities fall within the conventional role of a purchaser, while others, such as developing a comprehensive source reduction policy, require broader organizational involvement, including support from upper management.

Develop an Organization-Wide Source Reduction Policy

Having an organization-wide source reduction policy in place will support source reduction procurement activities. It is important that management makes the commitment to develop and implement a source reduction policy. Often, it is helpful to select one employee to coordinate the effort. Purchasing agents can play an active role in this process. To implement and design a source reduction policy use these basic strategies:

1. Obtain Management Support

Ongoing direction and support from top management are important for developing source reduction policies and goals, as well as program implementation.

2. Form a Source Reduction Team

The team should include representatives from a variety of departments, including purchasing, maintenance, clerical staff and an environmental coordinator, where applicable. Vendor and end user, or customer, input are often necessary for a source reduction team to be effective.

3. Educate Employees and Allow for Input

While the source reduction team will generate and evaluate ideas, some of the best suggestions will come from others. An educated and enthusiastic workforce will continuously generate and implement new ideas. Many source reduction

Examples of Organization-Wide Source Reduction Policies

The Walt Disney Company strives to make “Environmentalism” an explicit and integral part of its corporate business objectives and operating philosophy. The waste reduction portion of the Walt Disney Company’s Environmental Policy reads:

Minimize the creation of wastes in every facet of our operations and business activities. Dispose of all waste conscientiously and creatively by encouraging a ‘reduce/reuse/recycle’ mentality, and by developing programs and facilities that promote and facilitate this attitude.

Warner Bros. recognizes that their activities can have a profound effect on the environment, and they are committed to minimizing those impacts within their production activities. As part of their General Recycling Guidelines, Warner Bros. promotes source reduction as a priority:

The best option for managing waste is to prevent it in the first place by making double sided copies; re-using one sided pages for drafts and scratch paper, proofing documents on the computer before printing; using ceramic or other reusable cups instead of disposables; routing distributions instead of making multiple copies; eliminating unnecessary mailings; sharing newspapers and magazines; and reusing interoffice and other types of envelopes as much as possible.

ideas require behavioral changes (e.g., double-sided copying) that will benefit from continuous education and feedback. Results should be measured and shared with all employees to create the common focus required to continuously move to the next level of achievement.

Develop a Source Reduction Procurement Plan

A specific source reduction procurement plan can be developed to complement an organization-wide source reduction policy (See side-bar, p. 9) or it can stand alone. Below are several ideas for developing a source reduction procurement plan.

1. Review Purchasing Policies

- **Evaluate Purchasing Strategies** – Some strategies are more effective than others for incorporating source reduction options. A detailed description of bid development strategies and how they may be used to implement source reduction can be found in the Appendix. In general, performance specifications are an effective approach to: a) encourage source reduction product design changes by manufacturers; b) prove that used or rebuilt products will meet end users' needs; and c) quantify durability in order to buy a product that will last longer.
- **Assess Life-Cycle Costs** – For some purchases, particularly for products that are expected to have a long life, it is important to base a contract award on life-cycle costs. Life-cycle costing evaluates the total cost of ownership, including the cost of operation and maintenance, rather than just the initial cost of the product.¹² Use of life-cycle costing can lead to the purchase of products that have source reduction attributes such as greater durability.
- **Consider Competitive Bidding** – A competitive bidding process is the best way to specify a rebuilt product or a requirement for packaging reduction, although changes might also be negotiated at contract renewal time. Competitive bid proposals are also an effective way to evaluate options for returnable, reusable or refurbishable products when several very different options are available.
- **Review Standard or Existing Specifications and Boiler Plate Language** – Standard specifications, which are intended for repeated use, should be reviewed to ensure there are no product or packaging requirements that would limit source reduction options (e.g., all-or-none clauses). In addition to removing obstacles to source reduction, the standard specifications should be revised to include source reduction attributes, whenever appropriate (e.g., repairability). Categories for used or rebuilt products can be established within a bid request. Bids for each category can then be readily identified and compared with bids for new products. If a source reduction policy has been developed, it should be inserted into the bid request's standard boiler plate language.
- **Look for Opportunities to Share Resources and Manage Data** – Purchasing agents generally have the unique ability to see what various departments are purchasing. This perspective allows the purchasing office to identify opportunities for resource sharing within the organization (e.g., this could be anything from lab chemicals to laptop computers). Purchasing agents must work closely with end users and management to use this purchasing information more effectively. For example, a list of excess or used products could be made available to all employees prior to new items being purchased. Pooling various departments' needs could enable bulk purchasing and reduce delivery and transportation needs. In addition, purchasing agents could keep track of source reduction procurement ideas and information to assist others in their future source reduction efforts.

2. Work with Partners

- **Seek Information From Vendors** - Before issuing a bid request, issue a request for information asking vendors to suggest source reduction opportunities for a specific product or group of products. In the competitive bidding process it can be useful to award points or preference to bidders who offer source reduction options for either products or packaging (the purchasing agent would need to determine if such preferences are legally allowable under their procurement system). Also, ask vendors to suggest source reduction opportunities for possible inclusion in future bids. Allow for some flexibility in your bid requests, so that following the award, vendors can add source reduction options to the contract, pending your approval. This process will help to identify source reduction ideas without conducting in-house research and will make bidders aware of your interest in source reduction.
- **Discuss Source Reduction With End Users** - The purchasing agent can also influence an end user's choice by providing information on alternative products and services. The purchasing agent can introduce the end user to the concept of source reduction procurement and, more specifically, identify source reduction options and the benefits of these options that are relevant to the end user's needs. On the other hand, the end user may be the best source of information on how a product or package can be changed to meet the organization's source reduction goals. In such cases, the end user will be instrumental in helping to revise existing specifications or when meeting with vendors to discuss potential product or packaging changes.

3. Set an Example

- **Practice What You Preach** - Send out all bid requests electronically or double-sided and require all bid responses to be submitted electronically or double-sided, without extraneous

materials (such as plastic or paper dividers) for easy recycling. This not only sets an example for bidders and employees, it will also reduce storage needs in the purchasing office.

4. Set Goals and Timelines

- **Be Reasonable** - Remember change does not always occur overnight. Setting specific, yet realistic goals and timelines and sticking to them is essential. Be careful not to set yourself up for failure—setting goals too high can create the illusion that the program is ineffective. Also, remember that changes usually take longer than initially anticipated. Build in extra time for any unexpected problems that may arise.

5. Measure Results

- **Document the Performance of Products or Services** - Keep track of the products and services you purchase through various source reduction procurement strategies to ensure they are performing well (e.g., survey end users annually). Quality and performance should not have to be sacrificed for waste prevention or cost savings.
- **Assess and Document Economic Impact** - Most source reduction actions make sense from a budgetary standpoint. Buying with source reduction in mind saves money at the point of purchase and may result in indirect savings due to reduced storage requirements or waste management costs. These savings can add up quickly and impress management. For every strategy that is implemented, a measurement scheme and performance measures should be developed to assess its success. Management's commitment to the program will be strengthened by documented cost savings and waste reduction. Information such as procurement and disposal dollars saved, tons of waste prevented are effective measurement tools.

..... Specific Purchasing Strategies

Source reduction procurement strategies are identified below. Examples are also used to better illustrate the role of end users and purchasing agents in implementing these strategies. Each of the examples suggests the type of specifications, training and the level of facilitation necessary to implement the strategy. In organizations where purchasing is decentralized, the roles of the end user, purchasing agent and management may differ from what is listed below (e.g., the purchaser may be the end user), but the actions described are still applicable. Case studies in Chapter 3 provide “real world” examples of these strategies.

1. Reduce product use (i.e., implement practices that reduce demand or purchases of a product).

Activities: Make double-sided copies to purchase less paper; use e-mail and network systems to replace distributed memos and preprinted forms; print publications as they are needed or post them on a web site; store shared resources centrally; eliminate multiple or unwanted subscriptions; use routing slips to share journals or other periodicals; improve mailing lists; use computers to send and receive faxes; use fax notes instead of cover sheets and reduce toner use by keeping copier lid down when photocopying.

Example 1: Purchase duplexing copiers and printers.

Benefits: Making double-sided copies reduces paper use up to 50 percent. Saves money on paper and postage.

End User: Remember to copy and print documents double-sided.

Purchaser: Select copiers and printers where the default mode can be set to double-sided. Work with vendors to provide employee training.

Specifications: Require copiers and printers capable of making quick and convenient double-sided copies.

Training: At least one on-site employee training session will be necessary.

Management: In addition to scheduling employee training, offer trouble-shooting tips to end users and remind them to send large printing jobs to the copy center or print shop. Make sure that the copy center’s pricing structure encourages double-sided copying and that copies with user identification codes are set up to encourage double-sided copying.

Facilitation: Requires simple facilitation by the purchasing agent—purchasing or leasing a duplex copier is straightforward. Instituting double-sided copying among end users may be difficult, however, and generally will require several training sessions and reminders from management. Developing a double-sided copying policy will help. The time it takes to fully implement this change, including end user training, can be significant, but so can the savings in paper, storage and postage.

Example 2: Establish a print-on-demand system for publication and distribution of documents (e.g., reports, manuals, guides and fact sheets).

Benefits: Publishing documents only as they are needed reduces initial printing volumes, the need for warehouse space and the likelihood of discarding obsolete materials. This reduces costs.

End User: Estimate immediate and future quantities more carefully. Learn to prepare documents in electronic format compatible with the software used by printer (i.e., docutech machine or other printer).

- Purchaser:* Coordinate printer purchases with contract printer or in-house printing department.
- Specifications:* Contract a printing service to deal with printer specifications or work with the in-house printing department to purchase a software compatible printer.
- Training:* Train printing department to use new equipment and familiarize themselves with the new print-on-demand policy.
- Management:* Demonstrate support for the print-on-demand policy by budgeting for purchase of compatible hardware and software and developing a long-term plan for computer and software purchases.
- Facilitation:* Requires long-term strategic planning. Purchasing agents should work closely with the computer support staff when making large copier purchases or contracting lease agreements.

2. Rent or lease products or equipment or contract for services.

Activities: Renting or leasing products and equipment can avoid the accumulation of potentially obsolete technology. Lease more commonly used equipment (e.g., photocopiers). Consider contracting for services (e.g., printing, waste hauling or shipping services).

Example: Negotiate contract for tools, equipment and scientific instrument rental. Encourage employees to rent special tools whenever necessary.

- Benefits:* Renting is cost-effective for occasional tool use and reduces maintenance and storage requirements.
- End User:* Identify needs and judge whether renting makes more sense than purchasing; be able to schedule work effectively.

- Purchaser:* Make sure pick-up and delivery of equipment is as easy as possible; streamline paperwork; encourage renting for trial use.
- Specifications:* Rental agreements should be clear on time requirements, pick-up and delivery, training and condition of equipment upon receipt and return.
- Training:* Training will be necessary for any employee unfamiliar with the equipment. Training may be necessary for understanding the rental agreement regarding the required condition of the equipment upon receipt or return.
- Management:* Support renting and understand insurance and liability issues.
- Facilitation:* Simple facilitation for purchasing agent.

3. Purchase remanufactured, rebuilt or refurbishable products.

Activities: Specify rebuilt auto parts, remanufactured laser toner cartridges, reinked printer ribbons and refurbished office partitions, furniture and rebuilt machinery (e.g., copy machines).

Example: Purchase remanufactured laser toner cartridges.

- Benefits:* Remanufactured laser toner cartridges satisfy the same performance requirements at a lower cost and reduces waste.
- End User:* Consider using a rebuilt alternative.
- Purchaser:* Confirm quality and industry performance standards for the remanufactured product; ensure compatibility with in-house equipment; and identify cost savings. Consider running trials of several models to evaluate them.

Specifications: Establish different categories within the bid for new or used products and identify the lowest bid within each category. For long term contracts, do a comparison of essential features such as model, price, warranty and service and repair agreements.

Training: The rebuilt item should be an exact replacement, and require no additional training. Having equipment rebuilt or purchasing rebuilt items may require some sort of shipping back and forth. Procedures are necessary for communicating with the vendor and packaging the cartridges for shipping.

Facilitation: Moderate facilitation—requires some additional time and resources from purchasing agent. As long as remanufactured cartridges meet quality standards, this is a simple change for the end user. May need to overcome end user resistance based on previous negative experience with remanufactured cartridges. Time required to research and implement this change is moderate.

End User: Ensure proper tire maintenance (i.e., air pressure, tire rotation, vehicle maintenance) and keep accurate records in event of a warranty claim.

Purchaser: Consider costs over the life of your purchase. Manufacturers guarantee the life of your tires, and U.S. Department of Transportation (U.S. DOT) publishes tire tread life factors, so a simple way to determine life-cycle costs for tires would be:
Life-cycle cost = purchase price / U.S. DOT Tread Life Factor.

Specifications: In addition to usual tire specifications, make it clear that the award will be based on life-cycle costs rather than the low bid price. Clarify this process for price adjustments if tire fails to meet the performance standards.

Training: Training may be necessary to ensure accurate record keeping and to fulfill maintenance requirements.

Management: Public sector organizations will need to make sure life-cycle cost is a legitimate alternative to buying on low-bid.

Facilitation: Simple facilitation by purchasing agent because U.S. DOT tread factors are available.

4. Purchase more durable products.

Activities: Evaluate frequently replaced items (or frequently purchased repair parts) to determine if a more durable product makes sense; purchase a higher quality product; examine in-house repair schedules, maintenance agreements and extended warranties as methods to extend product life.

Example 1: Use life-cycle costing to identify the best quality tire for the best price.

Benefits: High quality tires need to be replaced less frequently, reducing long-term costs.

Example 2: Use life-cycle costing to evaluate the purchase of plastic lumber instead of wood.

Benefits: Plastic lumber lasts longer than wood and requires less maintenance; plastic lumber may be a good option particularly in aquatic environments or in remote areas (where maintenance and replacement of wood is difficult).

End User: Consider factors such as location for use to determine if plastic lumber is appropriate. Provide information to purchasing agent on maintenance requirements and average life span for both types of products.

Purchaser: Consider costs over the life of a purchase. Considerations include up-front costs, expected life spans, maintenance needs and costs and disposal costs. Use American Society for Testing and Materials standards for this material.

Specifications: Inform vendors that award will be based on life-cycle costs rather than the low bid price.

Training: Possible installation guidelines may vary. If so, inform end user.

Management: Make sure life-cycle costing is legitimate alternative to buying on low-bid.

Facilitation: Complex facilitation—purchasing agent must look at costs over the life of the product, identify new vendors and consider installation issues.

Specifications: Consider using the General Services Administration's (GSA) Biodegradable Cleaners and Degreasers Product Attribute Matrix (available from GSA/FSS, Paints and Chemicals Center (10FTI), 400 15th Street, SW, Auburn, WA 98001-6599, 800/241-7246). The matrix allows purchasing agents to compare cleaning products based on the most critical environmental attributes applicable to your location and the product's intended use.

Training: Custodians or contractors may need training if application, use or storage of new products differ from current practices.

Management: Support the decision to switch to green cleaners and provide input on the environmental attributes that are most important to the organization.

Facilitation: Complex facilitation—comparison of environmental attributes can be complex. Change is usually easy for end user.

5. Purchase products containing non-hazardous material.

Activities: Switch from oil-based paint to water-based paint; use non-solvent degreasers; reduce reliance on battery operated items (e.g., pencil sharpeners, staplers); use integrated pest management; use non-toxic cleaners.

Example: Consider using "green" cleaning products.

Benefits: Green cleaning products reduce impacts on human health and the environment when compared to traditional cleaning products.

End User: Consider using green cleaners. If concentrates are chosen, ensure a system is in place for proper mixing.

Purchaser: Work with end users and others to identify the environmental attributes and performance goals that are the most important to the end user and the community.

6. Purchase products that are returnable, reusable or refillable.

Activities: Use bulk beverage dispensers for milk, juice or soft drinks; use refillable bottles for milk or soft drinks; receive deliveries in reusable trays (e.g., bakery goods).

Example: Purchase refillable beverage dispensers and washable glasses for use in the cafeteria or employee lounge.

Benefits: Eliminates or reduces the use of throw-away beverage containers and reduces disposal costs.

End User: Food service management needs to develop refill and maintenance schedules and wash and store glasses.

Purchaser: Assist end user by providing information on equipment use and maintenance.

Specifications: Require high quality, energy-efficient equipment. Consider service contract options.

Training: Food service personnel will need training to use and maintain equipment.

Management: Encourage dispensers as an alternative to single-use throwaway containers; support any necessary remodeling for food service.

Facilitation: Purchasing is fairly simple, as long as food service personnel agree to service and maintain the equipment.

Specifications: Include preferred container size in the bid request. Allow for volume discounts and indicate your preference for refillable, returnable or recyclable bulk containers (if containers are necessary).

Training: If necessary, provide training on how to safely divide, dilute and store bulk products.

Management: Coordinate with custodians or contractors whenever necessary. Coordinate with risk management experts regarding potential safety issues and building management to resolve any storage problems.

Facilitation: Requires simple facilitation for purchaser and decision-making for end user. The time needed to implement this strategy is minimal.

7. Purchase products in bulk.

Activities: Buy in bulk containers, concentrates or reduce the type or quantity of protective packaging (be careful not to reduce the protective packaging to the point there would be an increase in product loss).

Example: Buy in bulk, such as 5 or 10 gallon containers instead of quarts.

Benefits: Eliminates use of small containers, reduces packaging waste and saves worker time opening and disposing of containers. Reduces labor, procurement and disposal costs.

End User: Consider volume use and storage and handling requirements. Ensure that a system is in place to provide for proper mixing ratios for concentrates.

Purchaser: Discuss purchasing commodities in bulk with end users. Make sure that ordering catalogs identify container size and price differences. Make sure that smaller refillable containers and spray bottles are accessible to end users.

8. Purchase products with less packaging or reuse packaging.

Activities: Buy products in concentrated form, with no packaging or without secondary packaging (i.e., if a product is packaged in a bottle and then in a box, the box is considered “secondary” packaging).

Example: Avoid products with secondary packaging.

Benefits: Decreases waste, reduces cost of labor and disposal and possibly transportation costs.

End User: Raise the issue of source reduced packaging options with the purchasing agent or team.

Purchaser: Seek information from vendors and work directly with them and end users to identify ways to reduce packaging.

Specifications: Include specific language requesting reductions in the use of secondary packaging.

Training: Training may be required if reduced packaging affects receiving or storage procedures.

Management: Support efforts to reduce packaging by promoting resulting waste reductions and cost savings.

Facilitation: Requires simple facilitation.

Specifications: Compare essential features such as price, warranty and service and repair agreements.

Training: Training may be needed for specialized equipment.

Management: Help assess organizational needs; make sure the system of sharing works; support decisions to purchase additional equipment if shared resources are inadequate; make a commitment to purchase high quality durable equipment.

Facilitation: Fairly simple for purchasing agent if decision-makers know what they want.

9. Share or reuse resources within the organization.

Activities: Share auto fleet; laptop computers for use at home or while traveling; audio visual equipment; training supplies; maintain library for reference material.

Example: Use check-out system for laptop computers.

Benefits: Reduces the number of computers that need to be purchased and disposed of in the future.

End User: Computer support departments must recognize the needs of the organization; employees must cooperate with the rules established for checking equipment in and out.

Purchaser: Purchase user-friendly equipment with service contracts and warranties. Consider the need for additional instruction manuals. Ensure compatibility with in-house equipment.

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Conclusion

Some of the examples described above may be familiar to readers. Ideas such as using e-mail and double-sided copying may be instituted because they save money and increase efficiency, apart from the benefits of reducing paper costs and waste. The fact that these strategies also benefit the environment is an added bonus.

Chapter 3

Case Studies

Strategy 1: Reduce Product Use

Legacy Health System

Portland, Oregon

Key Purchases

- Purchased modified, less wasteful “custom packs.”
- Purchased infrequently used surgical supplies individually.

Like many hospitals, Legacy Health System purchases “custom packs” of sterile supplies used for standard surgical procedures. Once a custom pack is opened, all of the contents become unsterile. Concern about the sterility of surgical equipment means that in many hospitals, surgical supplies are discarded once the custom pack is opened, even if some supplies are never used. Even if the supplies can be donated or re-sterilized, it represents a real cost to purchase sterile supplies and then not use them.

Over time, the contents of Legacy’s custom packs had grown to include some items which were used occasionally but not routinely. By eliminating some items from the custom packs and purchasing them for use on an individual, as-needed basis, Legacy saves both money and supplies.

Who Initiated the Change and Why?

Beginning in 1993, Legacy formed several committees to review the contents of the custom packs. Surgery and Purchasing staff from the five Legacy hospitals worked together to identify those items which are not used regularly enough to justify inclusion in the various packs. Purchasing staff attempted to streamline the purchasing system by standardizing the contents of each custom pack among all five hospitals. Further, the committees tried to maintain in the custom packs only those items which were used routinely enough to justify the cost of purchasing that item every time. However, since surgical procedures vary depending on the surgeon and the patient’s condition, the excluded items remain available on an individual basis.

Program Benefits

- **Cost Savings:** \$30,000 in procurement costs and savings on waste disposal per year for four types of custom packs (a total of thirty were eventually reviewed in this manner).
- **Waste Reduction:** 11,000 pounds of waste diverted from disposal annually.

Strategy 1: Reduce Product Use (cont.)

An easily overlooked benefit of custom packs is that sterilizing and packaging many items together reduces the need to individually package each item. This reduces packaging waste as well as surgical prep time spent unwrapping each item. Ordering multiple parts or components from a single supplier who pre-assembles and consolidates these parts to reduce individual packaging is a source reduction procurement strategy that can be used in many different industries. However, the unique nature of the surgical supplies in this example meant that reductions in packaging waste may have been outweighed by waste from unused supplies, until they were eliminated from the custom packs.

Additional Information

Revising custom packs is only one of 14 different source reduction strategies that saves Legacy's Portland hospitals more than \$279,000 per year. Other waste prevention initiatives include replacing disposable foam mattresses with reusables, consolidating admission kits, reducing photocopies by keeping originals on file, customizing the distribution of various reports and reducing duplication of forms. In addition, Legacy supports a multi-material recycling program run by the housekeeping staff and employing developmentally disabled adults to sort mixed plastics. The company's recycling specialist works directly with many of their vendors concerning products and packaging. Legacy Portland Hospitals' efforts have been recognized with a Businesses for an Environmentally Sustainable Tomorrow Award from the City of Portland.

Auburn Printers

Auburn, California

Key Purchases

- Purchased Personal Note Recorders (PNRs) (i.e., electronic notepads) for recording messages, notes, etc. to reduce paper use.

Who Initiated the Change and Why?

The co-owner of Auburn Printers discovered PNRs and determined they would work well in their office. PNRs work particularly well in offices that are too small to warrant a computer network and e-mail system. In the case of Auburn Printers, employees leave their PNRs on their desks so that other staff can leave messages in their absence. In addition, PNRs are excellent for self-notes and oral lists. The PNRs are small and can easily be carried in a pocket or attached to clothing or automobile sun-visor.

Program Benefits

- **Cost Savings:** Reduced paper purchases, increased efficiency and improved communication.

Additional Information

Auburn Printers is a full service commercial printer, specializing in short-run publications, catalogs, brochures and direct mailings. Auburn Printers company policy is to use recycled paper whenever possible. The company also donates unprinted scrap paper to nearby schools and day care centers, reducing their trash pick up by 25%.

Strategy 2: Rent or Lease Products and Equipment or Contract for Services

City of San Diego

San Diego, California

Key Purchases

- Lease agreement for carpeting.

In 1995, the City of San Diego contracted with a private company to lease carpeting for their Environmental Services Department. As part of this agreement, at the end of the life of the carpet, the company will remove the carpet and recycle the fibers and backing into a new product.

Who Initiated the Change and Why?

The City of San Diego's Sustainable Building Coordinator said the main reasons for choosing the carpet lease included the product's quality and durability, as well as the 12% recycled content material used to manufacture the product. The 18-inch carpet squares also allows for individual squares to be rotated from high- to low-traffic areas to avoid extended wear and tear.

Program Benefits

- **Cost Savings:** Avoided disposal costs. While the carpet is about 30% more expensive than traditional wall-to-wall carpeting, the longer-life and lower replacement and maintenance costs, provide savings over the life of the system.
- **Waste Reduction:** Avoided disposal of 250,000 pounds of carpeting.

Mentor Graphics Corporation

Wilsonville, Oregon

Key Purchases

- Contracted photocopying services to conduct activities in-house.
- Required double-sided copying in the contract for photocopying services.

In 1994, Mentor Graphics Corporation contracted with a private firm to operate a photocopying service on their corporate campus. Previously, the company had relied on a copying service located nearby. As part of the service contract, Mentor Graphics also required that all documents be copied double-sided. Single-sided copying was allowable on a case-by-case basis. At the same time, the firm received funding from Metro, the Portland area's regional government, to create a prototype, professionally-developed two-color cartoon poster to be placed over the smaller photocopiers on each floor to promote double-sided copying.

Who Initiated Change and Why?

The change from "contracting-out" to "contracting-in" duplication service was initiated by the company's administrative services group, which includes purchasing staff. The standard of double-sided copying policy was encouraged by Mentor Graphics volunteer Recycling Committee, which was working on ways to reduce paper use.

Program Benefits

- **Cost Savings:** \$15,500 per year in reduced purchases of copy paper and elimination of new copier purchases.

Strategy 2: Rent or Lease Products and Equipment or Contract for Services (cont.)

- **Waste Reduction:** 16 tons of paper annually.

Not included in the figures listed above are other savings resulting from the new contract for on-site copying services, such as eliminating the need to purchase equipment, different contract prices, reduced courier expenses and faster turn-around on copying requests.

Additional Information

Mentor Graphics Corporation creates electronic design automation software used by engineers and designers in high-technology industries around the world. With close to 1,000 employees in its Wilsonville, Oregon, headquarters Mentor Graphics is one of the Portland area's larger employers.

The contract for photocopying services and double-sided copying policy are only two of many waste prevention efforts initiated at the

company's headquarters. Other efforts to prevent waste include eliminating printed forms, establishing a supply re-use program, reducing unwanted mail received, improving the effectiveness and accuracy of promotional mailing lists and publishing software documentation on CD-ROMs in place of handbooks.

These waste prevention efforts save the company more than \$116,000 per year. A volunteer recycling Committee reminds employees to prevent waste and recycle, and has conducted numerous special events, including an employee suggestion contest and an on-campus "waste sort" which attracted positive media attention. Mentor Graphics' recycling program diverts from the landfill almost 50% of the waste which is not prevented. These efforts garnered Mentor Graphics a Businesses for an Environmentally Sustainable Tomorrow Award from the City of Portland.

Strategy 3: Purchase Remanufactured, Rebuilt or Refurbished Products

Cincinnati Gas and Electric

Cincinnati, Ohio

Key Purchases

- Remanufactured street lights.

Remanufactured street lights are used by the Cincinnati Gas and Electric Company. Street lights fail for a variety of reasons, including bulb or photocell failure, damage from lightning, vandals or breakdown of internal components. Street

lights are recycled or, more typically, thrown away in landfills by utility companies, municipalities or lighting and electric contractors if the failure requires extensive diagnostic work. Two types of rebuilt street lights generally are available. The first is a product in which only the defective components are replaced. The second type is a product in which only the shell of the fixture is reused and all the electronic components are new. Cincinnati Gas and Electric uses the second of these two products. The light can be remanufactured until the shell fails.

Strategy 3: Purchase Remanufactured, Rebuilt or Refurbished Products (cont.)

Who Initiated the Change and Why?

The vendor called the utility's marketing department and told them about their remanufactured lights. The vendor initially began refurbishing street lights for reuse at the request of a utility in Louisiana. The vendor determines the cause of the failure, remanufactures the components that are not working and recycles the remainder (i.e., glass, aluminum and ballast).

Program Benefits

- **Cost Savings:** Reduced cost of purchasing remanufactured street lights verse new street lights.
- **Waste Reduction:** 50% of waste generated, or 91 cubic yards diverted in 1996.

The amount of waste reduced and the cost savings vary based on the size of the streetlight used and the extent of remanufacturing.

Kalamazoo County

Kalamazoo, MI

Key Purchases

- Reupholstered chairs rather than purchasing new chairs.

Kalamazoo County Government's Board of Commissioners' Office decided that their meeting room chairs were beginning to look worn and they needed to be replaced. A potential replacement chair was found and employees were allowed to determine if the replacement was adequate for their needs.

Who Initiated the Change and Why?

When one of the County Commissioners tested the potential replacement chair, she discovered that the chair was equipped with a canister of compressed CO₂ to provide hydraulic lift. Upon further investigation, the Purchasing Director determined that the CO₂ canister could pose a danger to personnel because the chairs came with a Material Safety Data Sheet (MSDS). These MSDSs would need to be kept on file in the event of an accident. After long discussions about the new chairs and the CO₂ canisters, the county's Purchasing Director and the Board of Commissioners instead decided to reupholster their old meeting room chairs.

Program Benefits

- **Cost Savings:** \$7,155 on reupholstering verses the cost of purchasing new chairs, avoided cost of hazardous waste disposal and staff time to track the CO₂ canisters as potentially hazardous material.
- **Waste Reduction:** Eliminated the need to dispose of 54 old conference room chairs and new chairs containing a hazardous waste.

Strategy 4: Purchase More Durable Products

The Westin Hotel San Francisco Airport *San Francisco, California*

Key Purchases

- Long-life light bulbs and electronic ballast.

Who Initiated the Change and Why?

In 1995, the Westin Hotel San Francisco Airport developed a comprehensive Environmental Plan. Based on this plan and cost savings calculations, the Hotel's Facility Engineer initiated the purchase of long-life light bulbs and installation of electronic ballast. Although they cost more initially, long-life light bulbs use less energy, generate less waste and need to be replaced less frequently, thereby cutting labor costs. The electronic ballast were used to replace magnetic ballast, leading to increased lighting efficiency and reduced energy costs.

Program Benefits

- **Cost Savings:** 33% reduction in labor costs, lower energy bills and savings on light bulb purchases and disposal.
- **Waste Reduction:** Reduced disposal costs and volumes of light bulbs and ballast.

Mission Valley Center *San Diego, California*

Key Purchases

- Reusable construction barricades made of plastic.

Mission Valley Center is a regional shopping center with 100 retail and office storefronts. Throughout

the year, stores are remodeled for both current and new tenants. During this process, construction barricades are used to cover the storefront entrance and limit access to the area under renovation. The change to reusable construction barricades was initiated in 1995.

Who Initiated the Change and Why?

The management of Mission Valley Center wanted to find a construction barricade that was durable, attractive and most importantly, inexpensive. The standard practice was to use construction barricades made of plywood, metal or gypsum. This type of barricade was used once and disposed of along with other materials generated during renovation. The average cost of the single use barricades was \$45-50 per liner foot.

Program Benefits

- **Cost Savings:** 40% reduction in the amount spent on new barricades.
- **Waste Reduction:** 18 tons of solid waste diverted from disposal.

The mall management arranges with a company to install and remove reusable barricades. The cost of this service is recovered from the tenant or the tenant's contractor.

Additional Information

Mission Valley Center has been recognized by the City of San Diego for their waste reduction efforts. In addition, they received a waste reduction award through California Integrated Waste Management Board's Waste Reduction Awards Program.

Strategy 5: Purchase Products Containing Non-Hazardous Material

Westminster Police Department

Westminster, Colorado

Key Purchases

- Synthetic motor oil to replace petroleum-based motor oil.

Synthetic motor oil is an excellent alternative to petroleum-based motor oil because it has an extended life expectancy. Rather than every 3,000 miles, synthetic motor oil can extend the replacement period to 25,000 miles. The Westminster Police Department has been using a synthetic motor oil for more than 9 years.

Who Initiated the Change and Why?

The local distributor of the synthetic motor oil worked with the Westminster Police Department to conduct a trial run. The Police Department agreed to purchase the synthetic motor oil under a “specialty” contract because of the product’s high initial cost.

Program Benefits

- **Cost Savings:** 44% reduction in purchases of oil and filters and 75% reduction in servicing requirements, or savings of \$58,600.
- **Waste Reduction:** 82% reduction in disposal of waste oil.

Use of the synthetic motor oil extended the oil replacement schedule for vehicles from 2,000 to 22,000 miles. An unexpected, but added benefit, the program also increased the vehicles’ service life.

Wastewater Treatment Facilities Commission

Fitchburg, Massachusetts

Key Purchases

- Non-toxic vegetable enzyme spray.

The City of Fitchburg owns and operates an 8 million gallon per day advanced wastewater treatment facility. The treatment process includes screening, primary settling, two stage activated sludge, final settling and disinfection. Solids handling includes gravity thickening, dissolved air floatation, sludge dewatering and incineration. Typically two different products are used to eliminate odors from wastewater treatment facilities: chlorine bleach or an alcohol-based masking product.

Who Initiated the Change and Why?

The facility engineer learned of a non-toxic vegetable enzyme product through a trade publication and decided to try it in the sludge dewatering process. The treatment facility had received number of odor-related complaints from the community because traditional odor masking products were not eliminating the facility’s odor problems.

In fact, the masking products were themselves subject to complaints. Chlorine, in particular, is listed on the U.S. Environmental Protection Agency’s Extremely Hazardous Substances List. When in contact with humans, chlorine reacts with moisture to form acids that can irritate skin, eyes and mucus membranes. It is also moderately toxic to humans through inhalation.

Strategy 5: Purchase Products Containing Non-Hazardous Material (cont.)

Program Benefits

- **Costs Savings:** The price of the non-toxic vegetable enzyme product is comparable to traditional odor control systems. Reduction in hazardous waste disposal and documentation costs.
- **Waste Reduction:** Reductions in packaging due to use of a concentrate.
- **Worker Safety:** Decreases in employer liability from worker exposure to hazardous materials.

Additional Information

The treatment facility installed a fogger bar that was designed to deliver a controlled fog of the non-toxic vegetable enzyme product to the gravity section of the two belt process. Installation of this system has resulted in a dramatic reduction in sludge odor from the press room, improved working conditions and greatly reduced the potential for outside odor complaints. The facility engineer was especially pleased with the safety of the product. The product also comes in a concentrated form and is diluted on-site which reduces packaging.

Strategy 6: Purchase Products That Are Returnable, Reusable or Refillable

Stowe Elementary School

Duluth, Minnesota

Key Purchases

- Cloth napkins.
- Reusable serving ware (e.g., bowls and food trays) and cutlery (e.g., forks and knives).
- High efficiency dish washing machine.

Who Initiated the Change and Why?

Stowe Elementary School integrates environmental education into everyday practices. Students and staff examined the cafeteria's operations to identify opportunities to reduce waste and increase recycling. They evaluated food portions and switched to cloth napkins, trays and silverware.

Program Benefits

- **Cost Savings:** \$6,800 in purchases of disposable items annually.
- **Waste Reduction:** 84 tons or a 63% reduction in waste generation annually.

Additional Information

At the beginning of the project, students examined their waste stream by conducting waste audits. Using a grant from the University of Minnesota-Duluth, the school hired college students to educate the school's students about reducing waste. Information about the project was distributed to the teachers and staff through meetings, memos and staff development workshops. The principal and the school's waste coordinator informed the custodial staff of the program through informal conversations.

The school has also implemented a vermicomposting system for the cafeteria's food waste.

Strategy 6: Purchase Products That Are Returnable, Reusable or Refillable (cont.)

Leftover fruit and vegetable scraps from meal preparation and from students meals are fed to angleworms to create compost. In addition, leftover milk is given to the local dog pound.

The school district intends to expand this program to the junior and senior high schools and an additional elementary school. Stowe Elementary School was the recipient of the 1997 Governor's Award for Excellence in Waste and Pollution Prevention.

CH2M Hill

Vernadon, Virginia

Key Purchases

- Reusable nylon mailing envelopes.

The reusable envelopes are available in a wide range of sizes and are designed for quick return to the sender. Reversible address tags can be prepared in advance by the mailer with the "to" and "from" addresses. The tag can be easily slipped in and out of a clear vinyl pocket for addressing. The pocket is designed so that postage can be affixed to the address tag. It is estimated that the envelopes can be used 350-400 times, but 900 trips also is possible.

Who Initiated the Change and Why?

In 1990, CH2M Hill started a pilot program to determine the cost savings associated with reusable envelopes. The office manager saw an advertisement for reusable mail sacks and thought that it would be a more environmentally conscious and cost-effective way of delivering inter-office communications.

Program Benefits

- **Cost Savings:** \$125 in savings the first year, and \$1,000 per year in subsequent years.
- **Waste Reduction:** Up to approximately 500 pounds annually, depending on office size.

Additional Information

CH2M Hill has 60 offices around the country who employ anywhere from 5-500 people. The pilot program determined that reusable envelopes are economically and environmentally advantageous for use in daily communication between offices. The cost savings reported above are based on a medium sized office's use of 3,120 single-use envelopes a year versus reuse of only 312 reusable envelopes. After the payback period for the higher priced reusable envelopes, the savings will increase as the number of round trips increase. Postage savings is also possible, since the reusable envelope holds more mail.

Strategy 7: Purchase Products in Bulk

Stonyfield Farm Yogurt

Londonberry, New Hampshire

Key Purchases

- Fruit Preparations in bulk containers.

Fruit preparations are the jam-like fruit and sweetener mixture found at the bottom of yogurt containers. When Stonyfield Farm first started making fruit-on-the-bottom yogurt, they purchased fruits and flavors in five gallon plastic polyethylene (HDPE) buckets. Fruit preparations are now purchased in reusable stainless steel totes.

Who Initiated the Change and Why?

The purchasing department realized that they could eliminate using the HDPE buckets altogether, although they never had a problem finding a market for the used buckets. Instead, the processor prepares the fruit, packs it in the reusable totes and delivers it to Stonyfield's Yogurt Works. The totes weigh 2000 pounds, requiring that they be handled with a forklift during the production process. After the product is used, Stonyfield Farm cleans the totes as they did buckets. The next time the fruit processor makes a delivery, the totes are backhauled to the processing facility where they are sterilized and refilled. The totes are made from durable stainless steel and can be reused an unlimited number of times, or recycled if they are damaged.

Stonyfield's change to purchasing fruit preparations in bulk in reusable totes was largely a function of volume and usage. When their use of fruit preparation reached levels where the change became feasible, they worked closely with the fruit processor to ensure a smooth transition.

Program Benefits

- **Cost Savings:** Unit price savings on fruit purchased in totes vs. buckets.
- **Waste Reduction:** Elimination of a significant waste stream – plastic buckets, reducing amount of waste generated by 110 tons per year.
- **Worker Safety:** Reduced injuries from lifting the five gallon buckets.

In addition to the benefits listed above Stonyfield reports increased efficiency and worker productivity as a result of the change.

Additional Information

Stonyfield recommends answering the following questions before making a change to bulk purchasing:

- What is the capital outlay necessary to implement the change?
- Are there product quality considerations?
- Do workers need to be trained to manage the new delivery system?
- Is additional equipment needed to deliver the product to the production line?
- Is the bulk packaging less packaging than the per unit packaged product?
- Does the change simply mean the packaging waste is transferred back to the supplier?

Answering these questions will help clarify the benefits of bulk purchasing and whether it makes sense for other companies.

Strategy 8: Purchase Products with Less Packaging or Reuse Packaging

Bergen Brunswig Medical

Tigard, Oregon

Key Purchases

- Reuse of cardboard boxes lead to reduced purchases of new boxes.

Bergen Brunswig Medical is a medical supply distributor serving hospitals and medical offices. Many of the products sold by Bergen Brunswig Medical are manufactured by other companies which package supplies in bulk, such as 20 plastic bottles of iodine in a box. The vendors' use of bulk packaging means that employees in Bergen Brunswig's warehouse have to repackage customer orders, since many smaller customers order multiple products in small quantities. Previously, the Tigard warehouse purchased new boxes to repackage customer orders. In 1996, the company began saving boxes from suppliers to serve the same purpose. Empty boxes are stored in a pile near the product re-packing area for convenient reuse.

Who Initiated the Change and Why?

The change from buying boxes to reusing them was initiated by the shipping manager and the general manager, who are responsible for purchasing packaging materials. The change was made primarily to reduce operating costs.

Program Benefits

- **Cost Savings:** \$22,500 per year in purchase of new cardboard boxes.
- **Waste Reduction:** Savings on disposal of old cardboard boxes.

The purchase of new boxes has been reduced by about two-thirds. The box reuse program returns almost all boxes received from suppliers back into circulation, but does not totally eliminate the need to purchase new boxes. Other benefits include:

- Reduced staff time to flatten boxes for recycling (the need to recycle cardboard has been almost eliminated).
- Reduced staff time for assembling new boxes for customer shipments (reused boxes are already assembled).
- Reduced warehouse space needed for storage of new boxes and recyclables.

Additional Information

Bergen Brunswig Medical is a nation-wide distributor of medical supplies to the health care industry. The Tigard, Oregon office and warehouse has 40 employees and supplies more than 1,000 hospitals, clinics, nursing homes, veterinary clinics and physician offices in Oregon and Southwest Washington.

Bergen Brunswig Medical's Tigard warehouse also reuses pallets and uses shredded paper from the accounting office and newspaper supplied by employees, rather than purchasing polystyrene packing peanuts or rolls of paper dunnage. These efforts save an additional \$41,700 per year.

Strategy 8: Purchase Products with Less Packaging or Reuse Packaging (cont.)

Target Stores

St. Paul, Minnesota

Key Purchases

- Purchased “softline” (i.e., clothing, shoes, etc.) merchandise without excess packaging.

These products were previously wrapped in excess packaging including inner polybags, tissue, cardboard insets, pins, collar inserts, tape and clips.

Who Initiated the Change and Why?

Target’s top management assembled a team to study and identify packaging reduction opportunities. Top management appointed a team to determine if products they received contained excess packaging.

Management assembled a cross-functional team of 20 people was formed to study merchandise encasing (packaging) and its function for “soft-line” products. The team focused on the backrooms and stockrooms of the stores. They also worked closely with numerous vendors and discovered that products were packaged based on what the vendor believed Target wanted. The team and vendors worked together closely to establish new packaging specifications for vendors to follow when shipping products to Target.

The new specifications included using Target-approved reusable hangers, folding garments to eliminate pins, clips, cardboard inserts, etc. and packing multiple items in one polybag or box (rather than individually).

Program Benefits

- **Cost Savings:** \$4.5 million in reduced labor to unwrap merchandise and \$3 million in savings to vendors for reduced purchases of packaging material.
- **Waste Reduction:** Elimination of 1.5 billion pounds of excess packaging diverted from disposal.

Additional Information

Target’s packaging reduction program was the first of its kind in retail. Working with vendors and clearly communicating their packaging needs was critical to the success of the program. Some vendors initially resisted the changes, but Target conducted trials that addressed their concerns. To ensure compliance, Target has a letter of agreement with the vendors regarding their “less-packaging” specifications. As a result of this initiative, Target employees are able to spend more time helping customers, rather than unpacking goods.

Strategy 9: Share or Reuse Resources Within Your Organization

Walt Disney Studios

Burbank, California

Key Purchases

- Computer software program to track materials used to build television sets, allowing for internal reuse and reductions in purchases of a wide-range of products.

Who Initiated the Change and Why?

The tracking system was instituted in 1991, by two procurement officials within the company's Set Construction Group. Responsible for 90% of all the set materials purchased, they realized they could save money and reduce waste by reusing materials.

Program Benefits

- **Cost Savings:** \$528,000 in one season (July - April), and 60% of the cost of purchasing new set construction materials. While storage costs did increase, they were minimal compared to the savings associated with reusing materials.
- **Waste Reduction:** Avoided disposal costs for bulk wastes.

Additional Information

Each television set that is built is cataloged in a computerized tracking system. A digital camera inputs the data into the system and before new materials are purchased, the purchasing agent can refer to the system to determine if needed materials are already available. In addition, the artistic directors can view and manipulate the materials to aid in their design process.

Eastman Kodak Company

Rochester, NY

Key Purchases

- Computer software program to track inventory and allow for resource sharing or sale of surplus inventory outside the company.

Eastman Kodak Company established and implemented a formal Investment Recovery Program (IRP) more than 10 years ago. Reuse and recycling has been part of the company culture since its founding more than 105 years ago. IRP facilitates the reuse of materials within the company, including chemicals, equipment and supplies.

Who Initiated the Change and Why?

The change was initiated by the Purchasing Division in response to their concern for proper and efficient redeployment of excess inventory of purchased goods. Purchasing agents use a computer-based system to track what is available and where it is stored. The system is available to Kodak operations world-wide.

Program Benefits

- **Cost Savings:** \$2 million in avoided purchases.

Internally and externally, in 1996 Kodak redeployed 3 million pounds of surplus inventory and assets. In addition, Kodak sold \$3.8 million worth of materials outside of the company for use by others. This program translates into approximately 750 external transactions and over 1,900 internal transactions annually.

The key factors associated with the success of this program are space, avoided costs and the revenue-to-cost ratio. Space is an issue in terms of

Strategy 9: Share or Reuse Resources Within Your Organization (cont.)

how the inventory is managed. However, Kodak tries to keep the footprint of its operations as small as possible. Avoided purchasing and disposal costs are important to track to make sure redeployment of a particular item is worthwhile. Keeping the revenue in terms of actual cash and avoided costs greater than the cost of running the IRP operation is a continuing and critical process.

Additional Information

Eastman Kodak Company manufactures various imaging films, papers, chemicals, and equipment. It is a world leader in imaging with sales of \$16 billion in 1996 and world-wide employment of 94,800. Kodak's health, safety, and environmental vision is to be recognized as a world-class compa-

ny, and the leading imaging company, in protecting the quality of the environment and the health and safety of their employees, customers, and the communities in which they operate. This vision creates, among other things, an expectation that all employees will identify ways to reduce, reuse and recycle the resources they apply to their jobs. IRP is just one output of that expectation.

Kodak received two solid waste related awards in 1996. One award was from a regional chapter of the Water and Environment Federation for a project that reduced the amount of virgin solvent used to make motion picture film. The other award was from the New York State Department of Environmental Conservation for initiating a program to recover cellulose acetate from motion picture film.

Appendix

The Purchasing Process

This overview of specification development is intended to provide a framework for showing how source reduction purchasing can be integrated into normal purchasing functions and to emphasize how some processes are more suited to accomplishing change than others. Although many purchasing agents do not have to write formal specifications, or even have the luxury of so many choices, it is important to recognize which processes are most appropriate for source reduction. Basic purchasing definitions are included for the benefit of those who may be unfamiliar with the terms, and because purchasing agents from across the country may use different terminology. In general, these definitions are derived from *State and Local Government Purchasing, Principles & Practices, Vol. 1, 5th Edition*, published by the National Association of State Purchasing Officials.

- **Procurement** includes the entire process of obtaining goods and services, including planning, preparation, and processing of an end user's request through source selection, bid solicitation, evaluation, award, contract and delivery.
- **Purchasing** means buying an item or service from the most responsive and responsible vendor.
- **Responsive** means a vendor who supplies items that meet specifications at the lowest price.
- **Responsible** means a vendor who is capable of doing the desired work.
- **Purchasing specifications** are used to define an item by describing physical characteristics, performance requirements, or a combination of both. Specifications may define which vendors are considered capable of supplying the goods, and definitively spell out anticipated contractual arrangements for order processing, product delivery, and product support. For routine purchases, existing purchasing specifications are periodically revised or updated to reflect changes in the marketplace and changes in end users' needs.
- **Bid development** means revising an existing specification or originating a new one. Depending on the complexity of the item, purchasing specifications may rely on technical specifications written by a particular industry, standards organization, governing body, or an organization's engineering department.

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Initial Planning

In response to a request from an end user, a purchasing agent will first determine whether or not the desired purchase fits within existing contract arrangements, such as access to an office supply catalog. If the purchase is new, or if an existing contract is about to be rebid, these same five steps provide effective initial planning.

1. Understand the end users' request; send out a questionnaire to determine end users' satisfaction with the past contract and to assess new needs; convene a standards committee of end users if necessary.

Tip: This is the point where you should be able to identify opportunities to reduce product use.

2. Consider the availability of the requested item in the competitive marketplace; look for resources or research that may be available on the product and its performance, such as national standards or specifications from other organizations.

Tip: Consult "green" catalogues and directories.

3. Determine the level of performance necessary for the end users' needs.

Tip: This is the point to consider product durability or whether rebuilt equipment is acceptable.

4. Consider laws or policies that affect the purchase; meeting various environmental regulations is one example; if the contract is for several years, try to anticipate a regulatory timetable.

Tip: Source reduction options that reduce toxicity may assist in complying with existing or anticipated law or regulation, or they may be a matter of choice by end users.

5. Determine how much work is necessary to rewrite or draft specifications, and estimate how much intra-organization cooperation is necessary. In order to have a realistic timetable; outside help may be necessary.

Tip: Assemble a team of key players to help draft and implement new specifications.

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Choice of Purchasing Process

Based on these preliminary results, purchasing agents then check back with the end user or end users to confirm the bid development plan. End users often provide the necessary technical resources, but purchasing agents need to make several procedural decisions.

The choice of purchasing method has a tremendous impact on whether and how specifications are written:

- **Competitive sealed bid** - written specifications describe in detail the commodity or service to be purchased. Potential vendors submit written responses which are then evaluated, and with certain exceptions an award (or contract) is made to the lowest bidder. Every effort is made to ensure maximum competition.

Tip: Source reduction alternatives can reduce the number of competitors.

- **Competitive sealed proposals** - specifications describe a desired outcome, but ask vendors to propose in detail their product or service solution. Proposals are evaluated on both cost and technical features of the proposal.

Tip: This is the best method to evaluate the source reduction option, if they include several similar, but varied ways of handling and retrieving reusable packaging, for example.

- **Sole-source or non-competitive negotiation** - a contract is negotiated without competition, usually because it is believed that only one supplier can provide the required commodity or service (government) or a particular supplier is preferred (business).

Tip: Large businesses can use their purchasing power to effectively negotiate and insist on source reduction alternatives.

Sole source purchasing is extremely unlikely for government source reduction procurement because of the commitment to competitive bidding.

- **Small purchases** - most organizations encourage purchasing agents to use their best judgment for small dollar purchases. Within reason, purchasing agents try to get what the end user wants at a good price, perhaps by calling for at least three verbal quotes.

Tip: Many source reduction options may be pursued directly by end users as informal small purchases, or may be ordered directly using contracts that were awarded through competitive bidding.

Communication to end users of preferred source reduction options is essential because the people placing these small orders have many options.

The following process descriptions will generally be in the context of bid development, because that is the most common use of formal, written specifications. Most of the discussion could apply as well to requests for proposals, non-competitive purchasing, and small purchases.

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Bid Specification Development

Specifications are considered “standard specifications” if they are intended for repeated use. A “non-standard specification” is developed for one-time use. Existing standard specifications are normally revised and updated during bid development. This is an excellent time to review existing specifications from a source reduction perspective for possible product design or packaging restrictions that might preclude source reduction, sometimes indirectly. Questions raised can then be addressed through the user questionnaires or vendor conferences described below.

There are four common types of specifications:

1. A detailed *design specification* describes the desired product by physical attributes, such as size and weight.
2. A functional or *performance requirement* defines the required performance level.
3. A *qualified products list (QPL)* is sometimes developed to list which brands have been deemed acceptable and for which bids will be accepted.
4. A *brand name or equal* specification identifies a brand name item that was suitable in the past. Bids are expected for the identified brand, and a vendor would have to prove that another product was in fact equal in quality to the named brand.

Purchasing specifications often combine several of these approaches. Performance specifications are the first choice because they encourage the most competition, tend to encourage innovation, and because they are focused on the end users’ performance requirements. Performance specifications are often combined with design specifications to state a particular crucial dimension or minimum capacity.

Tip: Performance specifications are crucial to encouraging product design source reduction options that reduce the quantity of materials used, reduce the amount of consumables required in operation or increase the item's repairability or reusability.

Some organizations will test products according to specified performance criteria, and then issue an approved list of products that passed. This approach limits competition to predictable performers, and can be a useful strategy for reducing the risk of untried products. Developing test methods and maintaining a QPL can be quite costly both for vendors and for the organization handling the list.

Purchasing standards represent an accepted norm for product quality and performance. Standards may be mandatory, such as federal law that may dictate product safety or environmental compliance. Standards may be voluntary consensus standards, such as those developed by the American Society for Testing and Materials (ASTM). ASTM standards generally reference detailed test methods and appropriate performance levels for a wide range of commodities. Government standards are sometimes accompanied by a QPL, such as the General Services Administration's specification and QPL for retread tires. Voluntary standards organizations may include some sort of licensing program to show which products meet the standards, such as the American Petroleum Institute's program for engine oil.

Tip: Performance standards are essential for clearly determining whether or not new, used, or rebuilt products can meet end users' requirements. Referencing established performance standards is the most effective way to write performance specifications.

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End User Questionnaires and Pre-bid Vendor Conferences

Given the choices made on a particular purchase, purchasing agents then write a draft specification. Communication with end users is essential. Some organizations send out written survey questionnaires to get input; others may informally call a few key end users on the phone; still others may convene a series of committee meetings to discuss the purchase.

Communication with potential vendors is equally important, especially if the purchasing agent is experimenting with new requirements. Purchasing agents often schedule pre-bid vendors conferences in order to consider draft specifications and learn of the industry perspective. This is a great opportunity to find out the impact of proposed alternatives on competition. It is also a chance to learn of any new developments in an industry. If desired products are not available, vendors will often offer to talk to manufacturers about the potential for product change. This step doesn't necessarily accomplish change, but it does communicate needs to the manufacturer and usually yields a good industry contact person with whom to pursue the discussion.

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Issuing the Bid

After the bid has been written, it is sent or distributed electronically to vendors on a bidders list. The same bidders list would have been used to invite vendors to a pre-bid conference. It is important to make sure that a proposed alternative is available from the regular list of bidders, or that new vendors be added if necessary.

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Contract Administration

After awards have been made, a contract is usually written to confirm the purchase. Contracts may be for definite quantities for a definite time period, or they may be for indefinite quantities for an indefinite time period. One year contracts often have provisions for additional one-year renewals, and may have an upper limit on the total term on the contract, such as three or five years.

Tip: Contract renewal time is the ideal time to negotiate relatively minor contract issues, such as source reduction packaging options.

Ordering details are distributed to end users in some sort of purchasing bulletin or published catalog. Many contracts will rely on distribution of the vendor's entire product catalog.

Tip: Contracts for indefinite quantities are more likely to have a variety of packaging options. If some options are more

or less preferable from a source reduction standpoint, purchasing agents need to communicate that to end users.

Viewing the purchasing process from initial planning to contract administration, you can see that there are many opportunities for incorporating source reduction alternatives. As usual, communication with vendors and end users is crucial to making effective product choices.

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Setting and Reporting Goals

The State of Massachusetts has developed Environmentally Preferable Purchasing Goals and reports on accomplishments in meeting those goals. The following was excerpted from The Commonwealth of Massachusetts Recycled and Environmentally Preferable Product Procurement Annual Report for fiscal year (FY) 1997 to provide an example of a comprehensive environmentally preferable purchasing program.¹³

Summary of Massachusetts FY '97 Purchasing Goals and Highlights Related to Source Reduction Procurement	
<ul style="list-style-type: none"> ■ Improve Tracking of Recycled Purchases/Expand Types of Measurement Used 	<ul style="list-style-type: none"> ■ OSD and EOEA succeeded in obtaining data for FY'97 department purchases through the state's new database program, information Warehouse. However, OSD was only marginally successful in obtaining non-executive purchases from some state contract vendors.
<ul style="list-style-type: none"> ■ Expand Use of Other Environmental Criteria Beyond Recycled Content 	<ul style="list-style-type: none"> ■ The two state print shops, Central Reprographics and Mass. Correctional Industries, participated in a federally sponsored pilot program to use low VOC (volatile organic compound) inks and press wash. Central Reprographics was so pleased with the program, it continued to purchase these materials even after the test was concluded. ■ An Inter-department team developed draft specifications for environmentally preferable cleaners and solicited comments from the vendor community. Final specifications will be issued during FY 1998. ■ The Food & Groceries PMT required its Prime Grocer vendor to submit an environmental plan which outlined the vendor's intent to reduce packaging waste.

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Endnotes

- ¹ R. W. Beck and Associates and Markets for Recycled Products, A Model for a Comprehensive Waste Reduction Procurement Program, City of Tucson, April, 1994, p. 2-30.
- ² Brian J. Johnson and Deborah O. Raphael, City of Santa Monica Toxics Use Reduction Program Summary, City of Santa Monica, CA, 1994, p. 2. Also, Deborah Raphael, Environmental Analyst, Environmental Programs Division, City of Santa Monica, CA, personal communication to John Winter, INFORM, Inc., February 3, 1998.
- ³ Gary Davis, et al. Extended Product Responsibility: A New Principle for Product-Oriented Pollution Prevention, Knoxville, TN: University of Tennessee, Center for Clean Products and Clean Technologies, June 1997, p. 7-5.
- ⁴ Characterization of Municipal Solid Waste in the United States: 1997 Update. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, EPA530-R-98-007, May 1998, p. 4.
- ⁵ Climate Change and Waste: Reducing Waste Can Make a Difference. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, EPA230-K-97-001, September 1998, p. 3.
- ⁶ Greenhouse Gas Emissions from Management of Selected Materials in Municipal Solid Waste. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, EPA530-R-98-013, September, 1998.
- ⁷ Claudia Deutsch, "Taking Penny-Pinching to the Next Level," The New York Times, November 6, 1996, p. D1.
- ⁸ Bette K. Fishbein and Caroline Gelb, Making Less Garbage: A Planning Guide for Communities, INFORM, Inc., 1992, p. 49.
- ⁹ City of New York, Procurement Policy Board Rules, Revised January 1, 1996, p. ii, and City of New York Department of General Services, various contract documentation, August 1996.
- ¹⁰ Model Recycled Product Procurement Policy for Environmentally Preferable Products. King County Recycled Product Procurement Program Implementation Guide. March, 1997.
- ¹¹ Selling Environmental Products to the Federal Government. U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, EPA 742-K-97-002, May, 1997.
- ¹² Dobler, D.W.; Burt, D.N.; and Lee, L. Purchasing and Materials Management: Text and Cases, 5th Edition. McGraw-Hill, 1990, p. 327-328.
- ¹³ The Commonwealth of Massachusetts Recycled and Environmentally Preferable Product Procurement Annual Report for Fiscal Year 1997, Massachusetts Operational Services Division in Conjunction with the Executive Office of Administration and Finance, Executive Office of Environmental Affairs and Department of Environmental Protection, November 18, 1997.

Additional Resources

Publications

Directory of Source Reduced and Reusable Transport Packaging Manufacturers; Transport Packaging Savings: Strategies to Source Reduce and Reuse Transport Packaging; and Case Studies in Source Reduced and Reusable Transport Packaging; National Recycling Coalition's Source Reduction Forum.

Order by phone: 703/683-9025 ext. 405,
fax: 703/683-9026, or
e-mail: KimA@nrc-recycle.org
web site: www.nrc-recycle.org

The Environmental Guidebook for Motor Vehicle/Equipment Maintenance & Refueling Operations; Environmental Development Corp. (EDC).

Order by phone: 419/433-1200,
fax: 419/422-1832, or
e-mail: environline@aol.com

Resourceful Purchasing: A Hands-On Buyers Manual with How-To-Do-It Guidance for Source Reduction and Recycled Products; The Alameda County Source Reduction and Recycling Board.

Order by phone: 510/614-1699,
fax: 510/614-1698, or
web site: www.stopwaste.org/fsfreere.html

Web Sites

Federal Government

General Services Administration, Federal Supply Service - Environmental Purchasing: The site provides information on the Federal Supply Service's environmental programs and services including information on how to order environmentally preferable products, news, upcoming events and links to other procurement related sites. www.fss.gsa.gov/environ/index.html

Office of the Federal Environmental Executive: This site provides information and resources regarding implementation of Federal Executive Orders 12873 and 13101, and links to the Defense Supply Center, General Service Administration and Department of Defense. www.ofee.gov/

U.S. Environmental Protection Agency

Comprehensive Procurement Guidelines (CPG): U.S. EPA's guidelines list products that are available with recycled content and suggest minimum content levels for certain products. The site includes links to information about CPG, U.S. EPA's Recovery Materials Advisory Notices, Product Fact Sheets and other related sites. www.epa.gov/epaoswer/non-hw/procure.htm

Environmentally Preferable Procurement (EPP) Program: This site links to the EPP Decision Wizard for U.S. EPA's Cleaning Products Pilot Program. www.epa.gov/opptintr/epp

Waste Wise Program: A voluntary partnership program for government and business to reduce and recycle wastes, Waste Wise partners have implemented a number of source reduction goals and activities, many of which involve purchasing changes. www.epa.gov/wastewise

Additional Resources

State and Local Governments

California

Alameda County: Visitors can use this site's search engine to locate resources and information specific to source reduction procurement and EPP. www.stopwaste.org/

California Integrated Waste Management Board: Visitors can use this site's search engine to locate resources and information specific to source reduction procurement and EPP. www.ciwmb.ca.gov/

City of Santa Monica Procurement: The site provides information and resources regarding the City's environmental purchasing policies, ordinances, programs, services and bid specifications. www.ci.santa-monica.ca.us/environment/policy/purchasing/

Massachusetts

Environmentally Preferable Procurement: The site provides information and resources on the State's environmental procurement activities, including a link to their annual procurement report. www.magnet.state.ma.us/osd/enviro/reports.htm

Minnesota

Minnesota Department of Administration: The site provides information on the State's environmental procurement policies, and links to their Cooperative Purchasing Venture and Environmentally Responsible Products and Services List. www.mmd.admin.state.mn.us/envir.htm

Washington State

King County Department of Finance, Procurement Services Division, Recycled and Environmentally Preferable Procurement Program: The site provides information on the County's procurement programs, policies, resources, model policy, product information and contract language, and links to other relevant sites. www.metrokc.gov/procure/green/

Other National and Private Sector

Green Seal Green Products Database: An independent, nonprofit organization, Green Seal evaluates products according to environmental standards and awards a "green seal" of approval for those products with the least environmental impact. This web site provides information on Green Seal certification, projects, partners and products. www.greenseal.org

National Association of Counties (NACo), Environmentally Preferable Purchasing (EPP): Users can find out more about NACo's EPP program, order an EPP "starter-kit" or register EPP demonstration project information. www.naco.org/programs/environ/purchase.cfm

National Association of State Procurement Officials (NASPO): This site provides general information about NASPO and its publications and educational programs. In addition, the site provides links to vendor information, recycled commodities and procurement reform information. www.iglai.com/naspo/

National Recycling Coalition (NRC), Source Reduction Forum and Buy Recycled Business Alliance: NRC's site provides information on the Source Reduction Forum, including links to additional publications and fact sheets. The site also links to other NRC programs including their Buy Recycled Business Alliance. www.nrc-recycle.org

Additional Resources

Hotlines

U.S. Environmental Protection Agency

Resource Recovery Act (RCRA) Hotline:

The Hotline provides fax-on-demand and mail order services for citizens to obtain all EPA publications related to solid waste management issues. 800/424-9346 or within the Washington D.C. metropolitan area 703/412-9810

WasteWise Hotline: The Hotline provides information and publications related to business and local government source reduction programs and initiatives. 800/EPA-WISE (372-9473)

Other

Earth's 911: The Hotline provides information on Reuse and Buying Recycled products. 800/CLEANUP. *www.1800cleanup.org*

Listserv

The Northeast Recycling Council - Environmentally Preferable Products Procurement Listserv (EPPnet): This listserv links to federal, state, local and private procurement and environmental professionals charged with purchasing environmentally preferable products and developing policies for procurement of products. You must be approved to become a member of the listserv. For more information, contact Ellen Pratt: ep Pratt@sover.net



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