

NYC Waste Le\$\$

A program sponsored by the City of New York Department of Sanitation, the New York State Energy Research and Development Authority, and the U.S. Environmental Protection Agency Region II

Manufacturing

What Is Waste Prevention?

There are more than 12,000 manufacturers in New York City, employing approximately 300,000 people. The variety of products manufactured is enormous and the competition is intense. And yet, resourceful owners and managers are finding practical ways to improve manufacturer profit margins in New York City — without raising prices, without cutting salaries, and without compromising product quality.

Their secret is found in a common message: "All waste is lost profit." In the City's manu-

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Leasing equipment eliminates piles of outdated equipment destined for disposal.

Bringing Businesses Together in New York City



Businesses across the city are reusing items that were once discarded. These plastic barrels have found a second life as behind-the-scenes recycling bins.

Reuse is a large part of preventing waste, but it often takes more than one business to do it right. One business or organization may have materials that it can no longer use but that another business or organization can use. The key is linking

the two together. In New York City, numerous organizations exist to help facilitate reuse efforts.

One such program, NY WaSteMatch, is sponsored by the New York City Department of Sanitation through contracts with the City University of New York (CUNY), the Industrial Technology Assistance Corporation (ITAC), and the Long Island City Business Development Corporation (LICBDC). The program maintains a web site (www.wastematch.org) and a database of materials available and materials wanted. LICBDC does the vast majority of floor brokering for the NY WaSteMatch program.

With the assistance of LICBDC, Krinos Foods, a manufacturer and distributor of food products was discarding 55-gallon containers used to import olives from Greece. Because the barrels were from another country and were slightly different than the standard barrels in the U.S., most refurbishers did not want them. United Pickle, a Bronx producer and distributor of pickled food products, learned of the barrels and now picks up about 80 barrels every month, cleans them, and stores and distributes pickles in

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Stop, Look and Calculate: It May Be Time to Rebid

You may find money hidden in your trash compactor or dumpster if you have not reviewed your waste carting invoices recently. Although exorbitant waste carting costs were reduced and capped when the New York City Trade Waste Commission (TWC) established the "Carting Customer's Bill of Rights," there may be opportunities for you to reduce your costs further, says Eugene DiToro, an Inspector with the TWC.

Simply analyzing your invoices and observing occasional pick-ups may highlight the fact that you are paying more than necessary to have your

waste collected. By ensuring that you are charged only for the quantity of waste and recyclables that you put out for collection, waste prevention efforts that decrease the quantity of materials generated will pay off by reducing your carting costs.

During a NYC WasteLe\$\$ seminar, Inspector DiToro offered manufacturers tips for working with their waste carters. He stressed that the key to successful waste management is to review your waste carting contract to ensure that your trash is being collected in the most economical way to best suit your

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Spotlight On: Waste Prevention

The New Bottom Line: Leading the Nation to a New Sustainable Growth Economy

What do DuPont, Texas Industries, Interface Carpets, Intel, the George Washington University Business School, Anheuser-Busch, and Baxter International have in common? These organizations are part of a rapidly growing global movement, attracting large and small businesses of all types, that not only recognizes but races in hot pursuit of a new bottom line. That new bottom line measures the sustainability of business enterprise; sustainability achieved through direct and deliberate efforts to minimize waste. Proponents of this movement are searching for new and better ways to eliminate practices that waste natural resources and human capital. In so doing they are enhancing their stature in both the business and consumer communities, and they are increasing their profits in the process.

This new and growing breed of business leaders recognizes environmental, social, and financial efficiency as factors influencing profit, and as inroads to strengthened consumer confidence and growth in market share. As Craig Barrett, CEO and president of Intel, stated recently, "Business is on the 'front line' in making sustainable development a reality. Companies need to take a hard look at how they make their products and deliver their services." This new hard look is what will ultimately determine which businesses will prosper in the new economy; an economy that increasingly recognizes the ultimate limits of our natural and human resources and values and conserves them accordingly. This way of thinking has thus given rise to a new set of metrics that reflects the new bottom line.

Nowhere are the potential gains of conservation, reuse, and waste prevention more evident than in densely populated urban centers, such as New York City. Here, in a city of eight million, the gains to be realized by even modest behavioral changes are enormous simply because of the population scale. Here business leaders have enormous potential to initiate and fuel trends that can spur literally millions of other enterprises, as well as consumers, to adopt sustainable growth practices such as waste prevention.

Across the country, industry leaders are adopting the new sustainable growth paradigm. DuPont's sulfur products business minimizes chemical waste and reduces worker and consumer hazard through their acid handling and recovery services. Though this service, customers are freed from having to own or handle the chemical substances, and the acids can be treated for reuse by DuPont when the customers' needs are met. Meanwhile Texas Industries is conserving natural resources by producing steel from recycled scrap and cement from steel mill slag, thereby eliminating two waste streams and at the same time conserving virgin materials. In the area of carpet products, Interface Carpet is enjoying enormous public recognition and customer loyalty based on their strategy of leasing of flooring systems to customers, thereby eliminating consumer disposal of end-of-life carpet. Rather, Interface collects the used carpet for reprocessing and reuse.

Intel has adopted a corporate policy mandating a design-for-the-environment strategy to achieve 50 percent reduction in volatile organic compound emissions per product unit, a substantial achievement against their new bottom line accounting. In the academic arena, more and more colleges and universities are developing curricula to train their students in the new math of the bottom line. For example, The George Washington University Business School encourages emerging business leaders to think and plan in terms of the sustainable growth metrics, as conveyed through courses in International Environmental Policy and Management, Environmental Ethics, Environmental Policy, and Environmental Values and Strategies. Students also can sign up for a course on eco-tourism to study the business cross-roads of the natural environment and the tourist economy.

Such thinking also is valuable to business leaders trading in products as wide ranging as computer hardware to beer and pretzels. For example, Compaq has reduced waste and packaging costs dramatically through their recent introduction of a reusable shipping container that can be reused for as

many as fifty round trips. Anheuser-Busch, also mindful of the costs and wastes generated by packaging material, has formed an alliance with a local mail service to divert packaging waste from disposal to reuse. Baxter International, a manufacturer of medical products found that by reducing packaging by one million pounds they could reduce costs by \$1.3 million. The company is now en route to realizing its corporate goal of 20 percent packaging reduction over ten years, by 2005.

The efforts of these companies and scores of other manufacturers, service enterprises, schools, stores, and consumer groups are raising the bar for waste prevention. They are the leaders of today and charting the way for the economy of the future. These businesses will enjoy a powerful competitive advantage as waste carting costs are likely to rise in the future.

You as a business leader have a choice. You can plan for, and capitalize on opportunities to lead by example, charting the way for constructive change ... or you can wait until the quantities of waste and the costs of waste management force your hand. ■

What is Waste Prevention?

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facturing industry, the potential for savings is tremendous, especially considering that New York's manufacturers generate about one million tons of waste each year. That is almost 45 percent of the total quantity of commercial and industrial waste generated in the City each year.

So what is waste prevention in the context of operating and managing a manufacturing facility? In this business, waste prevention means reviewing and changing those practices that result in wasted feedstock, wasted supplies, discarded off-spec product, and excess packaging. It means implementing systems that eliminate waste cardboard, wood, food, metal, textiles; conserve energy; and reduce toxicity.

"One of the best parts about getting involved in the Department of Sanitation's *NYC WasteLe\$\$* program was the opportunity to see what wastes we generate," says Lenore Neier, Corporate Communications Coordinator for Eagle Electric Manufacturing Company, based in Long Island City. "Based on the waste assessment conducted at our facility, we were able to rethink some of our waste management practices. We saw where waste reduction would benefit us and we rebid our waste carting contract to take advantage of the savings. We saved \$30,000 in carting costs the first year of the new contract."

In many cases, wastes can be eliminated by finding other businesses that can use waste materials.

Local waste exchanges can help facilitate this process (see *Bringing Businesses Together in New York City*, page 1, for more information about waste exchanges.) Your scrap material may be another company's feedstock. Changing processes on the manufacturing floor also can reduce waste. Other methods include using reusable shipping containers for receiving raw materials and for shipping out finished products, reevaluating cleaning and maintenance procedures, and streamlining purchasing.

Waste prevention is as much about what you buy as it is about what you throw away. It also is about when you buy, and how you use what you buy. Keep an eye on what fills your dumpster each day or over a week, and ask yourself if ... and how ... that wasted material could have been prevented. You also can review the type and amount of packaging waste that you pay to dispose each month, and ask yourself if you could specify alternative packaging that would help you to reduce waste and therefore lower your trash bill.

Essentially, waste prevention is inventorying the waste in your operation and taking deliberate steps to eliminate it. In this issue of *NYC WasteLe\$\$*, we present strategies and success stories of waste prevention; reducing waste at its source, before it is even generated. Preventing waste saves money, saves time, and conserves resources. It makes good business sense. ■

Toxicity Reduction Prevents Waste

Some cleaning products and degreasers commonly used in machine maintenance operations and routine cleaning operations can pose health hazards to your staff, and to those who handle your waste after it is removed. Paints and paint thinners also can contain harmful substances. When compared to traditional products that serve the same purpose, environmentally preferable cleaning, degreasing, and painting products have a reduced impact on human health and the environment.

Take a close look at the products used in your operations and maintenance shops to identify opportunities to consider testing and switching to alternative products. Look on your shelves, review material safety data sheets (MSDSs), and talk to staff. You may be surprised at what you find. For example, the machine degreaser you are purchasing may contain toluene, CFCs, petroleum distillates and aromatic solvents.

Are Your Employees Informed?

Material safety data sheets (MSDSs) are mandatory information sheets that accompany all potentially toxic products and materials. The Occupational Safety and Health Administration (OSHA) requires that MSDSs be readily available to all staff using or handling the materials. Each MSDS contains pertinent information about the material's or product's ingredients, its harmful characteristics, and how to respond to spills, accidental contact, and other exposure. An MSDS can provide life-saving information, as well as data about using the product safely and most effectively.

These products can be replaced by alternatives that offer the same performance standards. One such replacement product is Enviro Solutions Heavy Duty Degreaser. This degreaser is biodegradable and essentially non-toxic according to Workplace Hazardous Materials Information System regulations. Don't stop after you look at the more obvious mechanical activities at your facility. For example, look at the products used to clean the employee common areas.

When considering switching to a reduced-toxicity cleaner, degreaser, or paint, check the labels of your current products to see whether they contain any of the chemicals listed in the adjoining box, *Targeting Toxics*. This list is not comprehensive, but includes some of the more common, toxic chemicals found in cleaning products and degreasers.

When environmentally preferable products were first introduced, as with any new product, some

were not as effective as the products they were meant to replace. However, based on approximately thirty years of research, many environmentally preferable cleaning and maintenance products now meet all of the same standards as traditional products. In addition, most vendors will ship samples so that you can test the effectiveness of the product before making a purchasing decision.

While you may not be able to find environmentally preferable cleaning and maintenance supplies for all your needs, alternatives to traditional cleaning and maintenance supplies are available. Every day, new products are introduced to the market that have eliminated constituents of concern such as 1,1,1-trichloroethane, toluene, and methyl ethyl ketone.

CLEANING GREEN

Environmental Attributes To Consider When Selecting Products

- Irritation potential
- Chronic health risks
- Time to ultimate biodegradation
- Bioconcentration factor
- Percentage of volatile organic compounds
- Presence of ozone depleters
- Potential exposure to the concentrated cleaning solution
- Flammability
- Presence of cosmetic additives
- Energy needs
- Amount of product packaging

Source: Cleaning Products Pilot Project, U.S. EPA, 1997

Consider the following benefits of using environmentally preferable cleaning, degreasing, and maintenance products:

- May be less expensive than traditional supplies.
- May help reduce worker exposure to harmful chemicals, reduce the number of sick days taken by workers, increase worker productivity, reduce workers' compensation claims, and improve compliance with OSHA regulations.
- May reduce the quantity of toxins going down your drain, which may help you to comply with wastewater treatment permit requirements.
- May help reduce customer exposure to certain chemicals, thus reducing the potential for adverse reactions and associated liability.

Many web sites highlight environmentally preferable cleaning supplies, with product descriptions and information on the environmentally preferable substitute for particular hazardous chemicals. ■

TARGETING TOXICS

Common Toxic Chemicals Found in Cleaning Products and Degreasers Targeted by the U.S. EPA for Reduction or Elimination

- | | | |
|-------------------------|------------------------|--------------------------|
| ● Acetone | ● Aluminum oxide | ● Ammonia |
| ● Benzene | ● Carbon Tetrachloride | ● Chloroform |
| ● 1,2-Dichloroethane | ● Ethyl benzene | ● Ethylene glycol |
| ● Freon 113 | ● Glycol ethers | ● Hydrochloric acid |
| ● Lye | ● Methyl ethyl ketone | ● Methyl isobutyl ketone |
| ● Methanol | ● Methylene chloride | ● Naphtha |
| ● Phenol | ● Sodium hydroxide | ● Sulfuric acid |
| ● Tetrachloroethylene | ● Toluene | ● Trichloroethylene |
| ● 1,1,1-trichloroethane | ● Xylene | |



Low-VOC paints are available from several major manufacturers.



FOR MORE INFORMATION:

- Defense Logistics Agency
www.dscr.dla.mil/products/epa/eppcat.htm
Although the DLA site was designed for military customers, its information is valuable and accessible to the commercial sector, as well. You can request a hard copy of the list of product substitutes by calling (800) 345-6333.
- Joint Service Pollution Prevention Technical Library
<http://enviro.nfesc.navy.mil/p2library>
This site offers anyone information about less toxic alternative products and services.
- New York State Department of Environmental Conservation, Pollution Prevention Unit
Environmental Compliance and Pollution Prevention Guide for Small Quantity Generators
This guide offers a straightforward summary of regulations for air, water, and hazardous waste. Call (800) 462-6553 or visit www.dec.state.ny.us.
- U.S. General Services Administration
Commercial Cleaning Supplies
This catalog lists hundreds of commercially available, environmentally preferable cleaning supplies. Call (800) 241-7246.

Green Seal, an independent, nonprofit organization that promotes the manufacture and sale of environmentally responsible consumer products, sets environmental standards and awards a "Green Seal of Approval" to products that cause less harm to the environment than other similar products.

Green Seal-recommended "green cleaners" must satisfy the following criteria: non-toxic to humans and aquatic life; pass specific aquatic toxicity tests; phosphate and phosphonate concentrations must be less than 0.5% by weight; biodegradable; work optimally when diluted with cold water; and packaged as a concentrate in recyclable/refillable containers with post-consumer recycled content. For more information, visit Green Seal's web site at www.greenseal.org, or call (202) 872-6400.

Preventing Waste with the Systems Approach

By Robert B. Pojasek, Ph.D., Pojasek & Associates

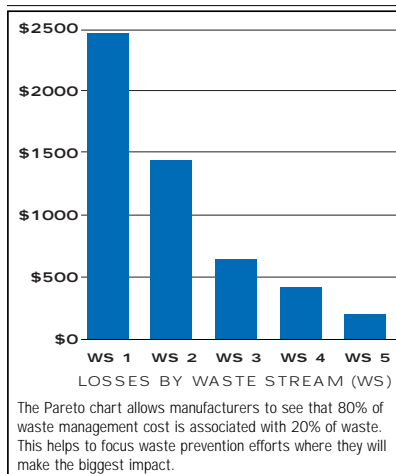
Did you know that competitive manufacturing operations tolerate up to 60,000 defects per million operations? Leading edge companies are now seeking a new level of efficiency using a systems approach called "Six Sigma," which can lead to only 3.4 defects per million operations. This seems like an incredible jump, and the process does take about six years to implement, but it will improve operating efficiency and reduce wasteful practices.

The spotlight in the past has been on how to improve organizational performance by reducing targeted wastes in the form of non value-added activities. Now more organizations are using the same tools to apply a systems approach to reducing solid and hazardous wastes.

The systems approach employs a sequence of widely used quality improvement tools, as described below. Adoption of a systems approach to process improvement enables you to incorporate waste prevention into your core business practices, thereby reducing the amount of material you need to dispose and reinforcing the efficiency of your material usage. If you approach environmental performance with the same problem-solving attitude that drives your production performance efforts, you can achieve greater material use and handling efficiency, and that can lead to lower operating costs.

The systems approach is best implemented within a formal planning framework that enlists an oversight committee and allows worker teams to participate in problem solving and decision-making. This process begins with a step known as "process mapping" that helps identify ALL of the wastes from your operations. These wastes are then rank-ordered using an activity-based costing index and a Pareto chart. This visual depiction will demonstrate that 80 percent of the waste management cost in your overhead burden comes from only 20 percent of the wastes.

PARETO ANALYSIS



Problem Solving

After identifying the priority wastes, the problem-solving team can investigate the root cause of the waste. Why is the waste generated? Using a cause-and-effect diagram, the team can determine how materials, technology, methods, and people contribute to the

problem. This analysis will help lead to strategies to eliminate the waste or conserve the use of the regulated material.

Now you need to look at ways to eliminate the waste. The systems approach incorporates a written brainstorming tool known as "brain writing." This exercise typically generates more than 20 possibilities in a 15 to 20 minute period. The only way to promote constructive, practical innovation is to generate many ideas and to compare and refine them until they enable you to optimize your operation. You want to avoid the "right answer" syndrome to pursue optimization.

Decision-Making

The team, in considering which alternative to implement, uses a tool known as "Bubble-up/Bubble-down" to pair choices to determine which is "best" in terms of effectiveness, ability to implement, and cost. Typically, the alternatives that are inexpensive and easy to implement will "bubble up" to the top of the list. These alternatives comprise those solutions referred to as the "quick wins."

The alternatives to consider are those that may, in fact be more effective in eliminating the wastes, but they may require more time to implement and they may be more costly. Alternatives, such as these second tier choices, may also require additional research or design work to optimize their use in specific applications. By examining and researching longer-range options, calculating pay-back periods, and making the necessary investments in technologies and process improvements, you can lead your business to a sustainable pattern of improved efficiency. Such planning is essential if you truly want to improve your overall performance.

You can then prepare an action plan for each alternative you choose to implement. Many facilities maintain ten to fifteen active action plans every year. They audit the plans at the end of the year and use the results to develop enhanced action plans for the subsequent year. By monitoring progress, for example on a quarterly basis, the oversight committee can work to make sure the program stays on track.

Applicability

All size firms can use this approach. The author has prepared a manual entitled "Nothing to Waste: Incorporating Pollution Prevention into Small Businesses," with funding from the U.S. Environmental Protection Agency (U.S. EPA). It is aimed at very small businesses that seek to use this systems approach. Larger firms may already have adopted these or similar tools in support of quality improvement programs. The U.S. EPA is currently revising its popular facility pollution prevention guide to incorporate the use of these problem-solving and decision-making tools. All types of firms can use these tools not only to deal with environmental wastes, but to also solve other business problems as well.

Extensive information on the systems approach can be found on Dr. Robert Pojasek's Web site at www.PollutionPrevention.com. He can be reached at (781) 641-2422 or rpojasek@sprynet.com. "Nothing to Waste: Incorporating Pollution Prevention into Small Businesses" can be found on the Web site. ■

Donate Your Way to Cost Savings

Businesses throughout the City effectively reduce the cost to manage and dispose of unneeded items by donating usable material to receiving organizations. Donors also are eligible for tax deductions when donating items to not-for-profit organizations.

Each year, many non-profit organizations in the City facilitate the exchange of usable, high-quality items between manufacturers and receiving organizations. According to Susan Glass, Director of Materials for the Arts (MFA), 514 tons of materials, worth an estimated \$3 million, were donated through the organization during New York City's fiscal year 1999. MFA, a program sponsored by the New York City Department of Cultural Affairs in partnership with the Department of Sanitation and the Board of Education, makes the items available to a variety of groups. These include New York City-based, non-profit cultural organizations; health, social and community service organizations; schools; and City agencies.

The next time you are about to discard potentially usable material goods, consider contacting one of the many nonprofit organizations throughout the City. Many organizations offer guidelines and tax advantages. Save money while helping others. ■



FOR MORE INFORMATION:

Materials Donations:

- Good Will Industries of Greater New York, Inc. - (718) 728- 5400, accepts clothing furniture, and furnishings.
- Helping Hand Community Center - (212) 722-0400, accepts anything and will pick up.
- Materials for the Arts - (212) 255-5924, accepts almost anything in usable condition with at least one week notice, and provides pickup service.
- New York WaSteMatch - (212) 240-6920, helps identify potential donors and users of waste materials.
- NYC Stuff Exchange (contact the Sanitation Action Center at (212) 219-8090 for more information), toll-free telephone system with listings of reuse outlets in the City.
- Salvation Army - (212) 337-7200, accepts clothing, furniture, furnishings.
- St. Vincent de Paul Society - (718) 292-9090, accepts clothing, furniture, furnishings.
- United Way of New York City - (212) 973-3800, accepts office furnishings and equipment.
- Wilson Major Morris Community Center - (212) 234-4661, Accepts almost anything and has limited collection service.

For additional organizations and ideas, contact the Sanitation Action Center at (212) 219-8090 request a copy of *Reuse It, Repair It, Rent It - But Don't Throw It Away!*

Manufacturers Find “Solutions”

Manufacturers are finding creative ways to incorporate feedstock from recycling streams as a raw material into their production processes for new and existing products. As a result, manufacturers reduce feedstock costs, new businesses emerge, and the range of products containing secondary material continues to grow. For example, existing manufacturers serving the automotive industry are using reclaimed carpets and other materials to make molded plastic and rubber parts for cars and trucks.

Some manufacturers, such as Trex Company LLC, located in Virginia, have based their operations around using recycled materials. Trex makes a recycled-plastic lumber line. While many manufacturers reprocess secondary materials for use in their production processes, other manufacturers find new uses for recovered materials with little reprocessing. These innovative manufacturers see new uses for the materials. Rubber from used tires and inner tubes is patterned into backpacks, old sailcloth is sewn into outerwear garments, and jewelry is made from discarded computer memory boards.

Safe Solutions is one of these innovative manufacturers, designing and producing fine furniture made from recycled shipping pallets. The Colorado company specializes in the design, manufacture, and sale of coffee tables, end tables, night tables, desks, and dressers, and also will create custom furniture. Safe Solutions' manufacturing facility includes a hydraulic separating machine designed by the company's president, Stuart Dimson. The hydraulic machine separates deck boards from runner boards, the two parts that comprise wooden pallets.

Runner boards are typically thicker and of superior quality, and are used as the primary wood in the furniture. Deck boards go into the underside, or paneling systems of the pieces. Approximately one third of collected pallets are oak, with the remainder being maple, cherry, ash, poplar, beech, and tropical hardwoods. The furniture is made from different combinations of hardwoods.

Company Vice President Dean Mullen says that each piece typically requires between two and four pallets. According to Mullen, Safe Solutions has made 250 pieces of furniture from approximately 900 pallets in 1999 — up from the two dozen pieces made in 1997, the company's first year in operation. Leftover wood scraps are burned to provide heat and hot water for the manufacturing space. About the company's growth, Mullen stated, “Stuart started out with a smaller custom production operation. We've really transformed the shop into a streamlined manufacturing facility which is more efficiently and ergonomically designed.”

Mullen reflected on a recent *InBusiness* magazine article about Safe Solutions, which estimated the number of pallets used in the United States each year at 1.9 billion and reported that 96 percent of users recycle or reuse pallets. “But, he added, “so many places don't want to deal with pallets — all kinds of businesses call us. We're happy to take the pallets and to be able to continue to make our living as woodworkers and address a world-wide environmental issue at the same time.”

As recycling collection systems are pushed to accommodate greater quantities of material in existing recycling streams and the addition of new recycling streams, manufacturers will be called upon to meet the challenge of using these materials. Creative manufac-

turers will continue to be a part of the solution by recognizing the value in the recovered materials, the savings in raw material purchases, and the unique marketing opportunities offered by products manufactured from recycled materials. ■

Time to Rebid continued from page 1

operation. If you are paying a flat fee, take a look at the number of pick-ups and determine if a “per pull” system might be more economical.

If you are currently charged on a per pull basis, check to see that you are not paying for compactors and containers to be removed when they are less than full. Your waste prevention efforts will only pay off financially if you reduce the cost of waste disposal by reducing the number of pulls you pay for.

Six Simple Steps That Can Save You Money

- Ensure that your compactor is operational, has working gauges, and that staff checks gauges prior to pulls to make sure compactors and dumpsters are full.
- Confirm that your trash bills comply with the TWC's maximum legal rates for removal of waste.
- Request a waste stream survey by your carter to help you establish a baseline waste generation rate.
- Monitor your containers to ensure that recyclables are not being discarded with general trash.
- Reduce the frequency of pick-ups as recycling and waste prevention activities reduce the quantity of waste discarded.
- Ensure that your carter has not incorrectly classified your open dumpsters as construction and demolition (C&D) debris, for which there are no maximum rates. Waste from normal daily activities should not be considered C&D waste.

If you have a trash compactor, you are paying the higher rate charged for compacted waste. Consider what type of waste you discard in your compactor. Is it waste that can be compacted? For some materials that can be compacted significantly, a compactor may be much more economical than a dumpster, but many businesses find that they are paying for a compaction ratio that is not possible to achieve. For example, food waste is not easily compacted. Therefore, collecting food waste in a dumpster instead of a compactor may be less expensive. However, you also must consider the odor and vector problems caused by food waste and weigh the advantages and disadvantages of collecting in an open container versus a sealed compactor.

One New York City business switched from a flat fee to a “per pull” system and discovered that its carter was billing based on loose waste prices.

However, the business had both compactors and open-top dumpsters. To make the billing uniform, the carter elected to charge the loose waste price by converting the compacted waste volumes to a loose waste volume using a conversion ratio.

Not only did these converted volumes create a higher price, but the carter used conversion ratios that were unreasonable (2:1 or 3:1 are standard), making the volumes — and the price — even higher. Using the business's waste volumes and TWC's maximum prices as an example, the business estimated that they were being overcharged almost \$10,000 per month — a significant cost to the company. ■

TRADE WASTE COMMISSION MAXIMUM RATES

Rate	Service
\$30.19	per cubic yard for compacted trash
\$12.20	per cubic yard for loose trash
\$2.66	for 55-gallon trash bags > 80% full
\$1.45	for 30-gallon trash bags > 80% full



FOR MORE
INFORMATION:

- For more information, contact the New York City Trade Waste Commission at (212) 676-6275.



What would your waste carter charge you for this container of waste?

Waste Prevention in Your Office

Look around you. Are there opportunities to reduce the waste in your offices? It is likely that there are opportunities for waste prevention in every office of every business in the City of New York. Waste prevention measures take many forms, involve staff from every level of an organization, and can be initiated within all operational area offices.

It is no longer newsworthy to discuss the cost-saving, waste prevention initiatives that most offices already have in place, such as using reusable mugs and double siding photocopies. These initiatives are considered the "low hanging fruit." They are easy to implement and do not require extensive training or significant resources. The easy-to-implement initiatives offer an almost immediate payback to your organization.

Implementing the more innovative waste prevention programs in your office may require coordination among various parts of the organization. However, implementing waste preventing practices beyond double-sided photocopying will result in savings through both reduced purchasing costs and avoided disposal costs. Consider the following when developing a waste prevention plan that meets the needs of staff in all offices of your operation.

- **Lease office furniture and equipment.** Leasing office furniture, rather than purchasing and discarding it every few years, reduces the significant cost of disposing of bulk items. Leasing also reduces the cost of acquiring updated equipment on a regular basis. Ever-changing technologies make it more efficient to lease equipment, such as photocopiers, printers, and fax machines, rather than discarding old models to get the newest features in a new model. In addition, if a new look for your office is part of the plan, consider refurbishing and recovering existing furniture or donating used furniture to a non-profit organization as an alternative to discarding it.

Did you know that at current New York City maximum carting rates, it costs about \$12 to throw away an office chair and \$24 to throw away a desk? How about file cabinets and bookcases at \$6 each? That's almost \$50 for the discard of one employee work station. Consider donating office furniture and equipment to avoid these disposal costs.

- **Get off mailing lists.** Request to be removed from mailing lists to eliminate unwanted advertising mail by contacting the Direct Marketing Association at the following address:

**Mail Preference Service (MPS)
Direct Marketing Association
P. O. Box 9008
Farmingdale, NY 11735-9008**

You also can visit the Direct Marketing Association's web site at www.the-dma.org to obtain an electronic form requesting to be removed from mailing lists.

Remember, not all companies use MPS to purge their mailing lists; therefore, you may continue to receive some companies' promotions. In this

instance, contact the company directly and ask to be placed on the company's do-not-mail list.

- **Buy products in the largest size you can use.** Purchasing supplies in the largest size you can use cuts down on packaging waste and your waste stream. Consider consolidating purchases so that you are getting larger shipments once a month or quarterly instead of smaller ones daily or weekly. If your supplier is delivering single items in larger shipping boxes, ask that they wait until they have your full order ready before sending the shipment. You can help your supplier by coordinating orders so that you are requesting multiple items for each shipment. This will reduce the amount of transport packaging, such as cardboard, plastic film, and strapping, that must be managed or discarded.
- **Reuse packaging.** Consider reusing scrap paper, packaging materials, pallets, bags, containers, and mail supplies for shipping products and other materials. Collecting shipping materials and reusing them eliminates the cost of disposal of often bulky materials, and also eliminates the purchase of new materials such as plastic bubble wrap, new pallets, and other costly shipping materials.
- **Start a Reuse Room.** You can set aside a supply cabinet, a corner of your supply room, or an entire room dedicated solely to reusable equipment and supplies. By establishing an area where reusable items, such as file folders, disks, binders, staplers, and notebooks, can be "brought and borrowed" staff will use new supplies at a much slower rate. Ask staff to check the Reuse Room before visiting the supply room for new items.
- **Donate or sell useable waste materials.** Several nonprofit organizations and waste exchanges are featured in this newsletter. You will find that there are users for an astounding array of left over goods. You can donate computers and office furniture, as well as smaller items like desk accessories, white boards, and paper products.
- **Make your building environmentally smart.** If you are considering any refurbishing, remodeling or construction projects, contact Eco Smart Healthy Properties, LLC, in Manhattan. Eco Smart's Building Center showcases environmentally and technologically advanced building and office products, such as furniture, textiles, lighting, and carpeting, by more than 300 manufacturers. Contact them at (212) 430-4000.
- **Start a subscription library.** Often several people in an office receive the same magazines and journals. To cut down on paper waste, reduce the number of subscriptions and create a central library area so that all staff have access to magazines, catalogs, journals, and daily newspapers.
- **Survey your vendors.** Your vendors and suppliers may be more willing to make changes than you think. They also may have some creative and practical ideas about reducing waste. Distribute a simple survey asking for their ideas and gauging their willingness to make changes and improvements to the distribution system already in place. You may be able to work with them to implement a packaging takeback program, using reusable shipping containers, and many other ideas.

- **Go paperless.** Businesses have made tremendous progress in reducing the amount of paper needed to operate successfully. Manufacturers keep equipment maintenance schedules updated using computers rather than paper printouts. Linking terminals using a network system allows everyone to view the same documents. Numerous other businesses have put necessary forms on-line to be printed as needed or not printed at all. Records are stored electronically instead of in warehouses full of boxes of paper. Shipping to and from wholesalers and retailers is tracked using computerized scanning systems. Consider these and other paperless strategies in your business to cut down on paper purchases, and storage and disposal costs.
- **Buy recycled.** Ask your office supplies sales representatives to provide a list of all of the items carried by their company that have recycled content. If the stores or companies with whom you do business do not have such a list, consider switching suppliers. Make every effort to purchase office supplies that are made of recycled-content materials. Office paper, file folders, desk accessories, trash and recycling bins, and laser toner cartridges all are widely available at competitive prices with recycled content. (See *Advances Continue in the Recycled Product Market* on page 7 in this issue for more about recycled products). ■

Did You Know?

Closed Loop Packaging: Waste Prevention Opportunity for Manufacturers

American Recycling & Manufacturing Co. (ARM) of Rochester, New York, offers manufacturers in the Northeast its CLOSED LOOP program, an innovative packaging system that reduces costs, increases efficiency, and contributes to a sustainable environment. ARM helps the manufacturer work with the company's distributors and customers to procure less wasteful packaging. Reusable packaging components, such as plastic trays, slip sheets, totes, boxes, and pallets, are designed for the manufacturer, or standard components can be used if applicable. ARM recovers the packaging components from the manufacturer's distributor or customer, at their sites, at no cost to the distributor or customer. The packaging materials are then either returned to the manufacturer for reuse, or are sold to other firms for reuse. The original manufacturer realizes the profits from the sale. ARM also will design packaging components to be used by both the manufacturers and the customer. Any components that can not be reused are recycled. John Baker, manager of ARM's CLOSED LOOP division, says, "The advantages to the manufacturer are obvious. The company can meet its environmental goals, save on disposal costs, and may even be able to make some money back, all while performing in an environmentally responsible manner."

Contact ARM at (800) 694-5351, or visit their web site at www.armfg.com.

Advances Continue in the Recycled Product Market

In addition to preventing waste at the source of generation, guaranteeing that reused and recycled products are incorporated into business practices is a key component in improving efficiencies in business. Comparing the original Official Recycled Products Guide, published only a decade ago by American Recycling Market, Inc., to the myriad publications and on-line resources offering recycled products today, one can quickly see the advances achieved in the recycled-products industry.

Innovative manufacturers and product engineers have improved recycled-material processing technologies and developed new systems to create products from an expanding variety of recyclable materials. Traditionally, consumers tend to think of paper when they think of recycled-content products. But in the past decade, entire industries have sprung up around manufacturing products from recycled materials.

Manufacturers can promote the use of recovered-content materials by incorporating post-consumer and industrial waste materials into their processes as feedstock, as well as by purchasing and using recycled-content items.

Additional products that manufacturers may consider specifying with recycled content include:

Construction & Facilities

Maintenance Products

- Trash bags
- Carpeting
- Latex paint
- Insulation
- Wallboard
- Marble floor tiles
- Bench seating & tables

Landscaping Products

- Planters
- Concrete
- Garden & soaker hoses

Today, there are a wide variety of high-quality, cost competitive products made from recycled materials. For example, if you are replacing the floor covering inside your offices or plant, consider installing Dodge-Regupol ECOSurfaces rubber flooring made from recycled rubber. According to Laura Dodge, Marketing Director of the Lancaster, Pennsylvania-based company, "ECOSurfaces comprising five new flooring lines with a total of 38 refreshing color patterns is made from a combination of recycled SBR tire rubber and reprocessed post-production EPDM colored rubber."

When replacing crumbling parking stops in lots and garages, consider recycled-plastic parking stops, made from old carpet fibers. Several new Rubbermaid recycled plastic trash and recycling receptacles are made with post-consumer recycled-content material. Even the clothing your employees wear can be made with recycled materials. You may want to consider fleece pullover jackets, sweatshirts, and T-shirts made from recycled PET soda bottles, when purchasing new uniforms. ■



The New York State Aquarium installed EConights™ recycled rubber flooring.

Photo courtesy of Dodge-Regupol, Inc.

American Rubbertech, Inc., located in Forest Hills, New York, manufactures a variety of products, all of which are made from recycled tires. American Rubbertech makes safety surfaces, and curbing, parking stops, recreational and playground equipment, and handicapped access components. According to company president Frank Congemi, "New and innovative uses for recycled rubber are always being developed." In the works are two projects: 1) safer bike lanes along Cross Bay Boulevard using rubber curbing and lane bumpers and 2) a system of rubber stacking retaining walls to replace sandbags in flood prone areas of the country.

Source: Frank Congemi, President, American Rubbertech, Inc.



FOR MORE INFORMATION:

For additional information on sources of recycled-content products, specification criteria, and product evaluations check the following:

- Buy Recycled Alliance of New York
(518) 292-5340
- Association of New Jersey Recyclers
www.anjr.com/resources/buyrecycled
(908) 772-7575
View the New Jersey Business Guide to Recycled Products.
- U.S. EPA's Comprehensive Procurement Guidelines
www.epa.gov/epaoswer/non-hw/procure/index.htm
RCRA Hotline (800) 424-9346
- U.S. General Services Administration
www.pub.fss.gsa.gov/enviro/
(817) 334-5215
- California Integrated Waste Management Board
www.ciwmb.ca.gov/rcp/rcpdbint.htm —
California's Recycled-Content Product Database
(916) 255-2708
- Commonwealth of Massachusetts Environmentally Preferable Products Procurement Program
www.state.ma.us/osd/enviro/enviro.htm
(617) 720-3351
- King County Department of Natural Resources, Solid Waste Division
www.metrokc.gov/procure/green
- King County's Environmental Purchasing Program
www.metrokc.gov/greenworks/products.pdf —
a recycled-content building materials resource
(206) 296-6542
- Green Building Resource Guide — a database for purchase of more than 600 building materials and products with recycled-content material.
www.greenguide.com
Fax request for guide to (650) 364-5116
- U.S. Green Buildings Council — a non-profit coalition providing green building information.
www.greenguide.com

Joining EPA's WasteWise Program

The U.S. Environmental Protection Agency's WasteWise program can provide a framework for your waste prevention program and other waste reduction efforts. WasteWise is a free, voluntary partnership program that encourages organizations to reduce waste through waste prevention, recycling, and buying or manufacturing products with recycled content. WasteWise provides partners with technical assistance, publications, and public recognition opportunities. WasteWise partners saved an estimated \$26 million in avoided disposal costs in 1997, and avoided paper purchasing costs for all the program's partners in 1997 could be as high as \$60 million, according to the Fourth Year WasteWise Progress Report, published by U.S. EPA in September 1998.

For more information, visit the WasteWise Web site at www.epa.gov/wastewise or call the WasteWise helpline at (800) 372-9473 for a free information packet. ■



Lorraine Graves, an Environmental Specialist with the U.S. Environmental Protection Agency, Region II, explains the benefits of the WasteWise program at a NYC WasteLeSS seminar.

Bringing Businesses Together continued from page 1

them. The arrangement saves Krinos Foods about \$2,880 per year in avoided disposal costs and saves United Pickle about \$7,680 per year in purchasing costs.

LICBDC also brought together Automatic Tubing, a brass tubing fabricator, and Nestor Shipping Services, a packing, crating, and shipping company. Nestor Shipping picks up wood planking from Automatic Tubing as part of its monthly raw material purchasing route. The planking is from shipping containers that would have been discarded if Nestor was not able to make new crates from it. Automatic Tubing saves \$3,600 per year in avoided disposal costs, and Nestor Shipping reduced purchasing costs by \$1,200 per year.

John Okun, Director of Waste Prevention and Recycling for the LICBDC, says, "Participating in these waste exchanges gives companies a relatively easy-to-implement initiative that puts money in their pockets."

Beyond the cost savings realized by both material generators and users, companies see numerous other benefits from participating in NY WaSteMatch and similar programs. "A successful experience through the waste exchange," says Okun, "is just a starting point for many businesses. It shows them that the waste they usually discard has an economic value and it encourages them to develop more substantial waste reduction and productivity enhancing programs. They see there is more they can do."

One local manufacturer even points out that participating in a reuse program benefits him when it comes to the environmental requirements that are

becoming more and more common when doing business. "We now have contracts with customers that stipulate environmental programs. The reuse program helps us in the marketplace by helping to fulfill certain requirements," says Johnny Chew, Vice President of Operations at Salant Accessories, Inc.

Okun believes that, beyond saving money for local businesses, reuse programs and waste exchanges "create a web of local relationships that strengthens the eco-industrial base in the area." Businesses in Long Island City have proven this to be true. ■

The Reuse Development Organization, Inc., is a national organization developed in 1995 "to promote reuse as an environmentally sound, socially beneficial, and economical means for managing surplus and discarded materials." The Board of Directors includes national leaders in the area of reuse who have operated model reuse efforts that have recovered thousands of tons of building materials, equipment, furniture, food, and industrial materials in both rural and urban settings.

Reuse Development Organization, Inc.
Indianapolis, IN
(317) 631-5395
email: info@redo.org
www.redo.org



FOR MORE INFORMATION:

Local Programs:

- New York WaSteMatch
Industrial Technology Assistance Corporation (ITAC)
(212) 240-6920
email: wstmatch@tecnnet.org
- Industrial Waste Recycling & Prevention (INWRAP) program
Long Island City Business Development Corporation
(718) 786-5300;
email: inwrap@hotmail.com
- South Brooklyn Local Development Corporation
(718) 625-8624
- Waste Assessment and Reduction Program (WARP)
East Williamsburg Valley Industrial Development Corporation
(718) 388-7287
- Waste Technical Assistance Program
Bathgate Industrial Park Local Development Corporation
(718) 901-1977
- Greater Jamaica Development Corporation
(718) 291-0282

Regional Waste Exchanges:

- Hudson Valley Materials Exchange
New Paltz, NY
(914) 255-3749
- The Millennium Exchange, Ltd.
Northeast Industrial Waste Exchange
Annapolis, MD
(410) 280-2080
www.mmex.com

FEEDBACK... Tell Us What's On Your Mind. We would like to hear from you. Please take a few minutes to let us know: (1) if you find the information provided in *NYC WasteLe\$\$* useful (2) what waste prevention, recycling, and energy efficiency topics you would like to learn more about and (3) any other thoughts and comments, including your own waste prevention, recycling, and energy conservation success stories. Simply write to us at *NYC WasteLe\$\$*, NYC Department of Sanitation, 44 Beaver Street, 6th Floor, New York, NY 10004, or you may fax information and comments to us at (212) 837-8255 (attention: *NYC WasteLe\$\$*). Thank you for your input.

NYC WasteLe\$\$ Program
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