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Section 1

ESTABLISHING A SUCCESSFUL RECYCLING PROGRAM



Whether you're starting from scratch or looking to expand your shopping center's recycling efforts, there are ten critical steps to success in recycling at the commercial level. This section briefly describes each step.

1. Obtain management support, determine legal requirements, and identify other incentives or disincentives.
2. Identify a recycling coordinator.
3. Form a "green team."
4. Assess your waste stream.
5. Identify materials to be collected.
6. Select a recycling service provider/work with your existing contractors.
7. Determine collection program logistics.
8. Implement and manage your recycling program.
9. Reap the public relations benefits.
10. Monitor, evaluate, and refine the program.

STEP #1:

Obtain management support, determine legal requirements, and identify other incentives or disincentives.

If you are considering a new or expanded recycling program for your mall or shopping center, several key planning steps should be addressed *before* getting started. These include obtaining the support of upper management, researching legal requirements that might drive or shape your program,

and identifying incentives or disincentives for recycling.

Management support. Obtaining the support of corporate management is critical—not only because a recycling program will require an initial investment of time and money, but also because the new program will lead to changes (e.g., new job responsibilities for some staff, or new procedures for shopping center employees and tenants). If corporate management is fully behind the recycling program, employees will be more likely to take the same outlook. For shopping

center managers seeking to justify recycling to upper management or recycling coordinators trying to encourage it, this guide provides numerous examples of leading shopping center recycling programs that are generating significant savings for the property management companies implementing them.

Legal requirements. Several states have passed mandates that require commercial recycling (these include Connecticut, Maine, New Jersey, Pennsylvania, and Rhode Island); others have laws that encourage local governments to set such man-



dates. Before you begin planning your program, check with your state, county, and municipal waste management agencies to determine the status of regulations that will affect your shopping center. Regulations that set waste diversion requirements or call for recycling of certain commodities not only serve as a powerful incentive for program development, but they can drive your program's structure and timeframe. (Visit <www.earth911.org> to find your local recycling coordinator).

Identify incentives/disincentives. Finally, conduct research to identify other factors that might influence the development of your program. These might include:

- **High waste disposal costs.** Some parts of the country, such as the Northeast and mid-Atlantic states, have higher landfill tipping fees, which can drive up waste disposal costs for businesses. In these regions, malls and shopping centers have a special incentive to recycle, due to increased potential for significant cost savings. Recycling diverts waste from disposal, thereby reducing disposal costs.
- **Adequacy of local recycling infrastructure.** Shopping centers located in regions where recycling processors and markets are few or non-existent will likely have a harder time developing a cost-effective recycling program. At this early planning stage, initial research with your state recycling office may help to ensure markets are available for your materials.
- **Tenant recycling policies.** Many leading retail chains have corporate policies that promote recycling in their stores. Some retailers, when

negotiating leases, try to add provisions that require property management to provide recycling services. A shopping center's desire to attract and retain these leading retailers as tenants can provide an added incentive for launching a shopping center-wide recycling program.

- **Opportunities to collaborate.** Look for opportunities to partner with a neighboring retail, office, or institutional property. Adding on to an existing recycling collection program could reduce handling fees and increase the marketability of recyclables, since more materials will be collected in a consolidated program.



STEP #2:

Identify a recycling coordinator.

Once you have completed the up-front research and are planning to pursue a new or expanded recycling program, the next step is to name a recycling coordinator who will plan and manage the program. The recycling coordinator should be an enthusiastic person with strong communication and organizational skills. This person should have good rapport with a broad range of employees within different parts of your company (e.g., landscaping, housekeeping, transportation, procurement), as well as with tenants, recycling service providers, and the general public. Shopping centers often look within facility management to find their recycling coordinator, who should be someone who knows the operation inside and out.

ARE CONDITIONS CONDUCTIVE TO SUCCESS?

With persistence and determination, it may be possible to develop an effective recycling program under almost any condition. However, your chances of success rise significantly if at least three of the following five conditions are in place for your facility:

- ✓ Management support
- ✓ Regulatory incentives to recycle
- ✓ High waste disposal costs/potential for significant savings
- ✓ Adequate local infrastructure
- ✓ Tenants interested in recycling



ESTABLISHING A CORPORATE RECYCLING POLICY

Property management companies should consider establishing a corporate policy that requires recycling at all malls and shopping centers. Corporate management should communicate the policy to facility managers and waste management contractors and establish performance expectations. By making recycling a standard practice at all facilities, a property management company can create a corporate culture where environmentally sustainable business practices are valued and where recycling leadership and innovation is rewarded.



At Bloomington, Minnesota's Mall of America, the largest mall in the country, the job of recycling supervisor is a full-time position. At most other malls and shopping centers, however, the responsibilities of the recycling coordinator require much less time. The coordinator might spend anywhere from a few days a week to all of his or her time for a short period making arrangements to get the program started, but once it is running smoothly, the responsibilities may drop to several hours each week or month. For this reason, many malls and shopping centers assign the role of recycling coordinator to an employee such as the facility manager or grounds manager. For example, at the VF Outlet Shopping Village in Reading, Pennsylvania, the recycling program is managed by the facility's maintenance foreman. At Lakeforest Mall in Gaithersburg, Maryland, the general manager personally oversees the recycling program.

The specific responsibilities of the recycling coordinator differ from facility to facility. These tasks are discussed in more detail below but typically include:

- Conducting a waste audit to evaluate the recycling opportunities at your shopping center. Visually inspect the types of materials being discarded and talk with your current waste hauler about the types and amounts of materials being generated by your facility on a regular basis. Determine which materials are recyclable in your area. See Step #4 below for more information on waste audits and [Appendix A](#) for a list of items typically found in a shopping center's waste stream.
- Selecting the recycling contractor(s).
- Determining the logistics of the collection program.
- Communicating with and educating shopping center staff and tenants.
- Keeping records and evaluating program success.



STEP #3:

Form a "green team."

Many companies have found that forming a recycling and waste prevention team (or "green team") helps to ensure a successful program. Together with the recycling coordinator, this group will plan, implement, and manage the program. Team members can also assist with tenant education and program evaluation activities.

The green team should include employees from many parts of the organization, including certain key employees. For example, housekeeping staff should be integrally involved in creating the collection system, since they are involved in waste management and will likely be

relied on to implement important aspects of the program. Grounds staff also should be included.

Depending on the size and scope of your program, you also might consider inviting the following people to contribute to the team:

- **Tenants.** Tenants' input can be valuable when selecting materials for recycling and designing the collection system. For your program to be successful, collection logistics must be convenient, and tenants are in the best position to comment on this issue. If you invite tenants to participate in the team, consider including a cross-section of individuals—for example, representatives of both small shops and major chains, along with one or two representatives from the food court. These individuals are likely to have different perspectives.
- **A recycling service provider.** Once you have selected a vendor (see Step #6 below), you might want to invite that company's representative to provide input to your team. As you plan program logistics (e.g., where to store recyclables, how often to schedule pick-ups), your vendor's input will be critical.
- **A recycling or public works official from your state, municipal, or county government.** Environmental officials often have a wealth of experience to offer. They understand the regulations in your jurisdiction, and they are familiar with local recycling service providers. These officials can also be helpful in identifying markets for your materials or pilot programs to help you launch new aspects of your recycling program.

**STEP #4:****Assess your waste stream.**

Before you can decide which materials to collect or add to your recycling program, you first have to find out what is in your trash. You can do this by conducting a waste audit for your mall or shopping center. A waste audit is a formal, structured process used to quantify the amount and types of waste being generated by a business or facility. A waste audit can help you:

- Determine which wastes your shopping center generates in greatest volume.
- Understand the recycling opportunities at your shopping center and help predict revenues from the sale of recyclables.
- Evaluate the effectiveness of any existing recycling efforts at your facility.
- Identify opportunities for waste prevention and potential savings from reduced disposal fees.
- Establish baseline data for measuring the future effectiveness of any new recycling or waste prevention program that you put in place.

There are a number of different ways to conduct a waste audit. Some malls and shopping centers might choose to hire a waste management company or contractor to perform the audit. Others might conduct the audit using in-house staff. Assessing your waste stream will probably not require sorting through your refuse containers, but it may call for interviewing or surveying a representative sample of tenants. See the [Resources Section](#) on page 33 for sources of information on waste assessments, including audit forms and procedures.

Appendix A outlines the typical items found in a shopping center's solid waste stream, as well as the factors affecting their recyclability. The appendix provides basic information about recycling markets for each material, along with a brief summary of typical collection logistics.

**STEP #5:****Identify materials to be collected.**

Once you know what is in your trash, you will probably have some initial ideas about what materials should be collected for recycling. Common sense says that it is best to focus on those materials that appear in your waste stream in greatest volume. This is, in fact, a good rule of thumb. But before leaping to any conclusions, ask yourself the following questions:

- **Are there regulations in your city or state that require recycling of certain materials?** If so, you will need to include these materials in your recycling collection program.
- **Do markets exist for the materials you propose to collect?** Markets for recyclables vary from region to region, community to community. In deciding which materials to collect for recycling, check to see if there are developed markets for that commodity. Talk to your local waste hauler, recycling service providers, and municipal or state recycling officials. If no market is readily apparent, you may be able to identify a home for some products through a waste exchange (see the [Resources Section](#) on page 33).

LAKEFOREST MALL: ENLISTING LOCAL GOVERNMENT AS A RECYCLING PARTNER

Montgomery County, Maryland, where Lakeforest Mall is located, has been active in commercial recycling since 1993, when county officials voted to make recycling mandatory for all businesses. Since then, the management at Lakeforest has worked closely with the county to develop a model recycling program for its 164 tenants. The program is designed to help the tenants meet their recycling obligations, but it also has saved mall management thousand of dollars in solid waste disposal fees.

The close working relationship between mall management and county recycling officials has been key to Lakeforest's success. The county has provided recycling bins for tenants and educated tenants about recycling regulations. Lakeforest's general manager personally visits tenants and writes periodic memos to remind them of their responsibilities and educates them about the mall's recycling procedures.

Not all markets will pay for recyclables. Some will require you to pay a small fee. However, you may still find this to be more cost-effective than paying for disposal of the material.

- **Does your facility generate the materials in sufficient quantity and quality to make recycling viable?** Recycling transporters and recovered materials buyers care about both the quantity and quality of your recyclables. These factors will influence the price the market will pay. Aggregating sufficient



STARTING SMART... WITH OCC

Shopping center recycling programs tend to have one thing in common: an initial focus on old corrugated cardboard (OCC). OCC typically contributes 30 to 40 percent of a shopping center's waste stream. Clean, dry OCC is relatively easy to recycle, and there are numerous mills across the country that use it, so OCC can generate consistent revenues. By starting small, with a focus on OCC from stores, a shopping center recycling program can make an immediate and measurable impact on the facility's waste stream and disposal costs, work out any obstacles in recycling logistics, then gradually begin to grow to include other recyclables. In fact, the revenues generated by OCC are often used to fund the program's expansion.

Pete Homrich, the recycling coordinator at Reading, Pennsylvania's VF Outlet Shopping Village, launched the program with a focus on OCC recycling, then slowly expanded it over a number of years to include other materials. Today, VF Outlet Shopping Village recycles mixed paper, plastic bottles and films, glass, aluminum and other metals, and yard waste; yet OCC still accounts for over 97 percent of the material recycled, by weight, and it also accounts for virtually all of the cost savings and revenues generated. In essence, OCC recycling pays for the facility's collection program and allows the shopping center to recycle other materials.

quantities of recyclables is important, because haulers cannot always afford to handle and transport small amounts of material. You will also have to meet the vendor's quality requirements, which dictate the extent to which the materials must be clean, consistent, and contaminant-free. Your program should stress the importance of minimizing contamination and collecting high-quality recyclables. The vendors you ultimately contract with will provide specific quality requirements and explain how the material must be sorted and prepared. Make sure you take into account how much space you will need to amass the quantities they require.

- **How do the costs and benefits of collecting the material for recycling compare with the**

cost of disposal? To answer this question, you will need to think about the logistics for collecting and storing different materials. Some materials are harder than others to collect and prepare for recycling.

STEP #6:

Select a recycling service provider.

Now that you know what materials you would like to recycle, you need to find someone who will handle your materials at a competitive price. Recycling service providers are one or more vendors that will pick up your recyclables; sort them and remove contaminants; prepare the materials for sale (this might include shredding, crushing, baling, or compacting); transport them; and sell them for use as feedstock in the

SERVING "GREEN" AT THE STATUE OF LIBERTY

Shopping Center food courts can find inspiration for "greening" their operations by learning from the contractor that runs the food service concession and gift shop at the Statue of Liberty for the National Park Service. In three years (2000 through 2003) it has reduced solid waste disposal from 123 cubic yards per 100,000 visitors to 53 cubic yards. The concession is recycling glass, foam, plastics, aluminum, oil, cardboard, and coffee grounds. Innovative practices to reduce waste include:

- Replacing wax paper used to line food baskets with EarthShell® compostable packaging. This eliminated 100,000 sheets of waxed paper from the landfill in 2003.
- Replacing individual relish portion control packets with bulk dispensers. Bulk purchasing also reduced condiment costs.
- Recapturing trays and baskets.
- Working with the ferry company that transports visitors to Liberty Island to replace paper coffee cups with recyclable foam cups, and paper soda cups with recyclable #1 PET plastic cups.





manufacture of recycled-content products.

There are a number of different types of companies and organizations that might provide these services:

- **Waste haulers** often handle recyclables as well as trash. Your first stop might be to check with your current waste hauler to see if the company provides separate recycling collection, and if you generate enough recyclable material to make it economical. If so, the hauler should be able to offer a billing structure that will reduce your monthly waste removal costs. For example, some haulers might charge for hauling both refuse and recyclables, but credit you a portion of the current market value of the recyclables.
- **Specialty recycling firms** will pick up your recyclables and find markets for them, either on a regular basis or as enough quantities amass to justify the trip. These companies offer a variety of arrangements for billing and crediting customers. Some may offer “no charge, no pay” arrangements, where they do not charge for hauling but also do not pay for your recyclables. Others may pay you, and still others may charge you a fee for pickup and hauling.
- **Scrap dealers** may be willing to pick up (and perhaps pay you for) a variety of materials, including scrap metals.
- **Reuse organizations** will often pick up donated items such as used building materials, fixtures, and furniture from store remodeling.

In many areas of the country, you should be able to find recycling service providers listed in the phone

book. In some cases, more research might be required. Your local, county, or state government recycling office, the local Chamber of Commerce, or a local or regional recycling organization might be able to help you find vendors or develop markets for materials you intend to collect. See also the [Resources Section](#) at the end of this guide for national organizations and commercial recycling networks.

Selecting a vendor. Once you have identified potential vendors, how do you decide which one is right for you? Essentially, you are looking for the best service at the best price. When assessing pricing, keep in mind that prices paid for recyclables vary with the type of material and can fluctuate dramatically over time. In practice, your company will probably realize the greatest economic benefit from recycling in the form of reduced disposal costs. Once you select a vendor and reach an agreement, make sure you capture the agreement in a written contract. See the *Resource Management* heading in the [Resources Section](#) of this guide for links to Web sites with information on contracting for recycling and solid waste services.

As your recycling program expands, you may find that a single vendor may not provide all of the services you need, especially if you are collecting materials for which recycling markets are not well established. Westfield Shoppingtown Mission Valley in San Diego, California, for example, uses three vendors (a hauler/recycler, a specialty recycler, and a reuse organization) for a recycling and waste prevention program that diverts 63 percent of the facility's waste stream.



STEP #7:

Determine collection program logistics

Once you have decided what materials to collect and you have located a vendor, then it is time to design a collection system that suits the specific needs of your facility. As the case studies at the end of this guide illustrate, there is no one “right” way of designing a collection program—different shopping centers incorporate various program aspects with equal success. For example:

- Minnesota's Mall of America uses a system of built-in chutes and rolling carts to move recyclables (and trash) through the interior of the mall to the loading dock.
- At Westfield Shoppingtown Mission Valley, an outdoor mall in San Diego, housekeeping staff use motorized carts to pick up OCC and other recyclables from the rear of retail spaces and transport the materials to staging areas for storage or baling.
- Tenants at VF Outlet Shopping Village in Reading, Pennsylvania, collect recyclables from their retail operations and self-haul these materials to one of eight consolidation areas within the shopping center (both loading docks and closets). The facility's maintenance and grounds staff pick up recyclables from the consolidation areas daily, using a box truck.



“Shopping center recycling programs with the highest rates of tenant participation are characterized by ease of participation.”

—Benchmark Report: Retail Recycling Project, Business for Social Responsibility, August 2002.

In determining collection logistics, try to make the system as simple and convenient as possible for your tenants and—if relevant—the public. Inconsistent participation or failure to follow recycling procedures will affect the yields of your program—both in terms of the quantity of the recyclables recovered and their quality (the degree to which the recovered material is contaminated with non-recyclable items). Seek input as you design the collection system. Talk to the heads of the housekeeping and grounds staffs. Ask your recycling service provider for assistance. [Appendix A](#) also provides information on typical collection logistics for common recyclables.

To simplify the process of designing the system, break it down into three components: the collection bins, the central storage or staging areas, and the process used to transport the recyclables from the collection bins to the storage/staging areas.

Collection bins. Depending on what materials you will be recycling, you will probably want to collect recyclables from two main sources at

your shopping center: shoppers and tenants. You can place clearly marked receptacles in public areas of the facility (halls and the food court) to collect recyclables from visitors (for example, plastic and glass bottles and aluminum cans). Make sure these receptacles are in convenient, heavily frequented locations. Choose receptacles that look distinctly different from your shopping center's regular trash containers, but consider placing a trash container next to each recycling receptacle. Based on your waste audit, order large enough receptacles so that they do not overflow and so that housekeeping staff do not need to constantly empty them.

You should also distribute collection bins to each tenant (retail tenants and restaurants in the food court). Tenants can keep these bins behind the scenes in locations that are most convenient to their employees. Depending on how many materials you will be recycling and whether or not they can be commingled, you may need to provide each tenant with more than one bin. Contact your local, county, and/or state gov-

ernment recycling offices to ask whether they can provide bins for commercial recycling.

Storage and staging areas. These are the central locations where you will consolidate recyclables from throughout your facility and where your recycling service provider will pick them up. You should work closely with your vendor and your building or facility manager to identify the best location(s). Many shopping centers consolidate their recyclables in large storage bins located on loading docks, where the vendor's trucks will have easy access for pickups. Ask your vendor to provide these large storage bins.

If you plan to recycle OCC in large volumes (as many shopping centers do), you will probably need one or more balers or compactors. In some cases, vendors may automatically provide balers to clients who collect OCC at high volumes; ask your vendor about this when you are negotiating your recycling contract. In other cases, shopping centers may have to purchase or rent the equipment. A baler or compactor should be placed in a convenient, easily accessible location with an appropriate power supply. If you choose to use a baler, you may also need to install a trailer or shed for storing the OCC bales until pickup.

Transporting recyclables from collection bins to storage/staging areas. There are numerous ways to transport the materials from the collection points to the pickup spots. One efficient approach is to incorporate recycling collection into your existing trash collection system. Housekeeping staff who empty the shopping center's trash containers can empty the recycling receptacles simultaneously into separated bins (if you have placed the two types of containers side by side). If house-





keeping staff pick up waste from each tenant's space at the end of the day, they can pick up recyclables as well and transport them to the storage area. On the other hand, if tenants self-haul waste from their stores to trash compactors or receptacles, they can probably be expected to self-haul their recyclables.

You can explain to shopping center staff and tenants that they are still handling the same amount of material, only now they are putting trash and recyclables into separate containers. The key is to keep recyclables separate from other trash to avoid contamination. In the case of OCC, recycled paper mills accept clean, dry cardboard, but they will reject a bale that has been contaminated with a large amount of other material, such as food waste. For OCC from restaurant tenants, make sure the employees understand that food-contaminated cardboard is not acceptable; shopping center staff may still be required to inspect OCC for contamination in the staging area.

If your shopping center uses a contractor for custodial services, involve the contractor in the design of your collection system. They can contribute valuable information since they probably have a general idea of the amount and type of trash being generated by your shopping center, the amount of time it takes for a custodial crew to clean a specified area, the maximum weight of a collection container that a custodian can lift and dump, seasonal fluctuations in the generation of trash and recyclables, and other programmatic considerations. They can also help with logistical suggestions for aggregating recyclables at the loading dock since they already remove trash from that location. Ask whether the contractor's staff are trained for recycling, and if not, make plans for training sessions. You may need to renegotiate

your cleaning services contract to include recycling services.

STEP #8:

Implement your recycling and management program.

No matter how much work you put into recycling planning and logistics, the success of your program will depend in large part on your ability to motivate tenants, and in some cases, the public, to participate. Before you launch the program, you will need to spend some time promoting your recycling effort, educating tenants and shopping center staff about recycling procedures. Once the program has begun, you'll also need to find ways to reinforce good habits and keep tenants and staff interested in the program.

Choose a "launch date." Once the pieces of your program are all in place and you are ready to begin recycling, choose a date on which to officially launch the program. Plan at least a few weeks ahead of time, and alert tenants and shopping center staff about the program well in advance. Prepare and disseminate a press release to appropriate media outlets.

Promote the program. Send a kickoff memo from shopping center management to tenants, announcing the program and requesting participation. If your program is driven partly by state or local recycling requirements, use the memo to explain tenants' obligations. Make the memo brief and upbeat. Highlight the benefits of the recycling program, explain the recycling procedures, and let tenants know that you will be providing them with more information before the official launch date.

PLANNING FOR RECYCLING DURING CONSTRUCTION OF NEW SHOPPING CENTERS

The best time to think about recycling is when a shopping center is being built. Architects who plan for recycling can include space for recyclables storage, space and appropriate electrical service for balers or compactors, and easy access for vendors. In some cities, new shopping centers are covered by building codes that mandate space for recycling bins in commercial spaces.

Minnesota's Mall of America is an example of a facility designed with recycling in mind. The innovative chute and cart system that moves trash and recyclables through the mall was designed before construction began. Mall officials estimate that it saves \$200,000 per year in labor costs.

Also, consider a launch event to generate some enthusiasm for the program. While many retail employees may be too busy to participate, you could ask one representative from each tenant to come to a breakfast or lunch meeting. Provide stickers that sales staff can wear on their name badges announcing "I recycle." If the shoppers are involved in recycling collection, you can pass out store coupons in the food court or hold other in-mall events to draw public attention. Consider advertising onscreen in movie theaters located in or near the center. Involve local community business and government leaders with a ribbon-cutting ceremony.



Educate shopping center staff.

Organize training sessions and/or prepare special communication pieces for housekeepers and other shopping center staff who will be involved with implementing the collection program. Make sure they understand their role in the program, and ask for feedback on ways to improve the program. You may have to prepare recycling instructions in languages other than English.

Educate tenants. Shopping center recycling coordinators report that educating and motivating tenants is one of the greatest challenges to a successful program. Yet, these activities are critical to recycling success. Therefore, you will have to teach tenants and their employees how to properly participate in recycling by providing simple and concise information on what to do. You can deliver this information in different ways:

- **Conduct face-to-face visits.** Coordinators of many leading shopping center recycling programs report that they have had the greatest success by visiting tenants face-to-face to explain

recycling procedures. At Lakeforest Mall, in Montgomery County, Maryland, the general manager personally visits tenants to explain procedures and remind them of their obligations under the county's recycling law. County recycling officials also stop by the mall periodically to check on tenants and may give violations to those not recycling.

In the weeks before the official launch of your recycling program, consider paying a visit to each tenant in your facility. This can be a big job—especially in a shopping center with 100 or more tenants—but the effort will pay off in the long run. Use the visit to deliver a recycling bin to the tenant, demonstrate procedures (such as how to break down boxes or separate recyclables), and answer questions. Enlist members of your green team to help with the visits.

- **Develop a recycling handbook, pamphlet, or poster.** Some shopping centers have developed brochures or handbooks that explain their recycling procedures. A handbook or pamphlet provides tenants with official recycling instructions that can be referenced again and again. In practice, however, the document may end up buried in a desk drawer. For this reason, it is probably best to use a handbook or pamphlet in combination with another educational approach, such as face-to-face visits. At VF Outlet Shopping Village in Reading, Pennsylvania, the recycling manager personally delivers a handbook to each new tenant and demonstrates the recycling

procedures, then checks in on tenants from time to time to answer questions.

Developing a recycling poster can be another way to remind tenants and their staffs about the “do’s and don’ts” of recycling. For example, a poster might list materials that can and can’t be recycled through your facility’s collection program. Distribute the posters to tenants and ask them to put them on the walls near their collection bins.

Anticipate and overcome barriers.

As the launch date for your program draws near, think about some of the possible obstacles you may face and prepare solutions in advance:

- **Attitudinal barriers.** If your shopping center is located in a state or county where commercial recycling is mandated, you have a head start, as your tenants are effectively obligated by law to participate. Your local county or city recycling coordinator can be a valuable resource and ally. But even if you are not based in such a state, there are ways to overcome tenant disinterest. For example, you can:
 - Include a provision in the leases that tenants sign requiring participation. (See the publication entitled *WasteWise Resource Management: Innovative Solid Waste Contracting Methods* at <http://www.epa.gov/waste-wise>, select “Waste Reduction Resources” from the left-hand navigation bar, and then select “Resource Management” and scroll down to find the publication.)



- Audit tenants' waste disposal and recycling performance and provide feedback to tenants on how they can improve.
- Require non-participants to contract for their own waste hauling services.
- **Economic barriers.** In its 2002 report on retail recycling, Business for Social Responsibility noted that the economics of shopping center recycling programs often do not provide tenants with an incentive to reduce waste. For example, the Common Area Management (CAM) fees charged to tenants to cover waste management services are often based on their square footage rather than on their waste generation, giving them no reason to increase recycling. In general, the economic benefits of recycling, in the form of revenues from recyclables and decreased waste disposal costs, are realized by property management, and are not necessarily passed on to tenants. Shopping centers seeking special means to motivate tenant recycling, however, can allow tenants to realize some economic benefit from their recycling efforts. For instance, as a facility's waste disposal costs drop due to increased recycling, property management could agree to pass on those savings to tenants in the form of reduced CAM fees.
- **Logistical barriers.** Logistical problems can arise in even the best-planned systems, and you should be prepared to address problems as they emerge. For example, some retailers may report that they do not have enough space in their backrooms to accumulate recyclables

such as OCC throughout the course of the day—especially on days when large deliveries arrive. Depending on the structure of your program, you might be able to solve this problem by allowing retailers to call house-keeping staff to schedule extra pickups on busy days.

Reinforce good habits. As tenants grow accustomed to recycling and the procedures you have implemented, you need to reinforce the good habits they are developing. Monitor the progress of your program (see Step #9 below) and report back to tenants about their recycling accomplishments. For example, you might want to send out a quarterly memo listing the quantity of recyclables collected over the past several months, total waste diverted, revenues from commodities, and dollars saved. The recycling manager at VF Outlet Shopping Village, for example, posts recycling results at each of the eight storage areas where tenants drop off recyclables.

Continue to pay occasional visits to retailers to remind them of program procedures. Retailers tend to have high turnover among employees, so the work of educating tenants and their staff is ongoing.

STEP #9:

Reap the public relations benefits.

Environmental stewardship is one of the key benefits of a recycling program, and your shoppers should know what you are doing to benefit their community and the environment. Additionally, your recycling effort may depend on the participation of shoppers to reduce contamination of the recyclables and ensure the success of the program.



Make clear signage: If you are recycling bottles and cans in a food court, for example, make it perfectly clear where recyclables should be placed. Make recycling easy for shoppers. For example, place a distinctive recycling bin (preferably with a round hole in the lid to prevent contamination) right next to a trash bin, but make the lettering large and unobstructed to avoid trash being dumped into recyclables. If your community includes a large foreign-speaking population, make sure to include signs in alternate languages. This may also be necessary/useful for custodial staff.

Promote your results: Compare your baseline waste and recycling streams determined during your waste assessment with your recycling rate after implementing your recycling program. Your hauler and/or recycling contractor should be able to provide these figures. (See Step #10 for more information.) In addition, your municipal or county recycling office may be able to help you establish a simple but reliable accounting system to monitor your recycling program.

Make it mean something: If you are posting a sign, distributing a brochure, or writing a press release, do not just talk about how many tons were recycled—translate that figure into something the average



person can understand (e.g., how many stores that waste would otherwise fill up in the shopping center on an annual basis). You can tell them that almost every corrugated box collected is recycled—typically about two-thirds are recycled back into corrugated boxes and the rest are used to make other types of recycled paperboard products.

Sponsor Shopper Events: Make recycling more real to your shoppers by inviting them to join in the effort and offering incentives, such as coupons or gift certificates for the stores in your shopping center, to those that participate or recycle large quantities. One way to increase foot traffic at your shopping center is to create a recycling or reuse event. The following are just a few ideas that have been used successfully or could be implemented on a pilot basis:

BRING 'EM BACK AFTER THE HOLIDAYS

“Boxing Days” sponsored by the Corrugated Packaging Council (CPC) can encourage consumers to come back to the shopping center after the holidays and bring in their corrugated boxes from home for recycling. CPC provides a kit with an instruction manual, video, and promotional materials. If you’re already recycling corrugated with a baler at your facility, this pre-packaged event might be an easy one to implement. See the **Resources Section** for more information.

- **Christmas tree recycling:** This popular event, which brings people back after the holiday rush, involves giving up some parking lot space and partnering with a local municipality or garden center to provide mulching equipment.

THE BEVERLY CENTER KNOWS HOW *To Dress for Success*

On July 25, 2004, the Beverly Center—Los Angeles’ most trendsetting shopping destination for tourists and locals—hosted “Shop Fun In The Summertime: A Pool-Side Star-Studded Event.” The private shopping event celebrated summer by donating 100 percent of proceeds to *Dress for Success* Los Angeles.

This premier shopping center rolled out the red carpet to raise money for the not-for-profit organization that helps low-income women transition into the workforce. Live music, appetizers, and cocktails were available while guests enjoyed one-night only discounts and plenty of product giveaways. General admission to the event was \$25. For \$100, guests received “VIP” treatment at the rooftop terrace cocktail reception and a film screening.

Dress for Success provides a viable way to reuse old clothes in communities across America and overseas. The organization relies heavily on financial contributions to assist in their efforts. “Shop Fun In The Summertime” not only raised funds through ticket and merchandise sales, but also encouraged shoppers to donate their worn clothes, thereby benefitting the environment as well as women in need.

- **Plug-In To eCycling.** EPA’s electronics take-back campaign with the National Recycling Coalition encourages local events in conjunction with electronics retailers to return used electronic equipment for reuse and recycling. See the **Resources Section**.
- **Dress for Success.** This national not-for-profit organization helps low-income women transition into the workforce. It collects

and distributes used women’s business suits to wear on job interviews. The program has helped over 45,000 women in 75 cities across America. Hold a special event with your women’s apparel retailers, asking customers to bring in a good but used business outfit and then shop for a new one at a discount. Visit www.dressforsuccess.org for complete information.





- **Fashion shows:** Shopping centers are great venues for fashion shows. You can include apparel and accessories made from recycled materials, such as fleece jackets and vests made from plastic soda bottles.
- **Donation Events:** Some retailers have sponsored coat drives. In the Fall, for example, a women's apparel retailer held a "Donate One/Buy One At a Discount" coat sale, where customers who brought in a used winter coat as a charitable donation were eligible for a discount upon purchasing a new winter coat.

STEP #10:

Monitor, evaluate, and refine the program.

Once your recycling program is up and running, you should monitor and evaluate it on a regular basis. Request that your recycling service provider send you a monthly tonnage report stating the amounts of recyclables collected, by material. Trucks hauling recyclables from your facility are weighed upon entering and leaving. Landfills also typically use this weighted system, so see if your hauler can provide disposal data (usually in tons or cubic yards) before and after your program started to gauge results. See below for more ways to calculate and promote results. Other factors to monitor and evaluate include:

- **Percentage of waste diverted by the recycling program.** Compare the tonnage of recyclables collected to the tonnage of waste generated by your facility. Set recycling goals and monitor progress toward those goals. Generally, recycling rates are calculated as follows:

$$\text{Recycling rate} = \frac{\text{Total solid waste recycled}}{\text{Total solid waste disposed} + \text{Total solid waste recycled}}$$

- **Dollars saved.** Maintain accurate and up-to-date records regarding the total price your facility pays for hauling waste and recyclables. These figures should be easily accessible from your trash and recycling vendors. Calculate the amount saved each month in the form of reduced disposal costs.
- **Revenues from commodities.** Keep track of the prices paid to you for commodities. Check from time to time to determine if your vendor's rates are competitive with those offered by other service providers in the area. Your state or county solid waste authority can suggest resources that track this information on a local or regional basis.
- **Participation rates.** If shopping center staff collect recyclables from tenants, ask them for a monthly or quarterly report on which tenants are participating

in the recycling program. Set participation goals.

- **Contamination levels.** Your vendor may report to you on the level of contamination in your recyclables. If not, perform routine visual inspections of recyclables to determine the extent of contamination.

You should use all of this information, as well as feedback from tenants and housekeeping and shopping center staff, to evaluate your program and make changes as needed. If contamination levels are high, provide educational materials to let tenants know what is and is not recyclable (e.g., recycling posters or large signs on collection containers). If your recycling program is thriving, and your facility is generating significantly less waste, you may be able to renegotiate your waste services contract to receive lower rates. This may also be a time to consider adding new materials to your program.

SOLID WASTE VOLUME-TO-WEIGHT CONVERSION FACTORS

Waste and recycling data are usually expressed in terms of weight. If you know the volume of materials disposed of and recycled, however, you can convert this data to weight using conversion factors published by EPA in the *Business Guide for Reducing Solid Waste*, EPA530-K-92-004, November 1993. A detailed, material-specific guide, the *Standard Volume-to-Weight Conversion Factor* table is also accessible online at <www.epa.gov/epaoswer/non-hw/recycle/recmeas/docs/guide_b.pdf>. The following table provides general waste conversion factors:

Type of Waste	Tons/Cubic Yards
Uncompacted Waste	0.143
Compacted Waste	0.250
Construction/Demolition Debris	1.000



RECYCLING MATERIALS FROM SHOPPING CENTER CONSTRUCTION AND RENOVATION PROJECTS

If you are expanding or renovating a shopping mall, you will be managing wastes known as construction and demolition (C&D) debris. C&D debris is a large and varied waste stream. It is not generally regulated at the federal level, except insofar as solid waste landfills must follow a few basic standards outlined in Federal regulations. Various states, however, define and regulate the management of C&D debris. While each state's definition differs, C&D debris is generally considered to be waste produced when structures, buildings, and roads are built, renovated, or demolished.

Depending on your state's specific definition, C&D debris can include the following discarded materials:

- Concrete, cinder blocks, drywall (sheetrock, gypsum, or plaster), masonry, asphalt and wood shingles, slate, and plaster.
- Forming and framing lumber, plywood, wood laminates, wood scraps, and pallets.
- Steel, stainless steel, pipes, rebar, flashing, aluminum, copper and brass, framing, structural steel, and steel utility poles.
- Brick and decorative blocks.
- Doors and windows.
- Plumbing fixtures.
- Electrical wiring.
- Non-asbestos insulation.
- Wood, sawdust, brush, trees, stumps, earth, fill, rock, and granular materials.

The following are several options for reducing the amount of C&D debris requiring disposal:

Deconstruction: Deconstruction means the selective disassembly of buildings to facilitate the reuse or recycling of valuable materials. As opposed to demolition, this practice can involve the recovery of materials such as wood, structural brick, and highly functional finished components like windows, doors, and decorative trim. While traditional demolition is highly mechanized, capital-intensive, and waste-generating, deconstruction is labor-intensive, low-tech, and environmentally sound. When combined with demolition or used entirely as an alternative, deconstruction can produce environmental, economic, and social benefits. Materials salvaged from buildings can then be sold, exchanged for other useful materials, or donated for reuse or recycling.

Reuse/Refurbish: Functional building or architectural components, in addition to scrap materials, can often be reused or refurbished. Some items could be reusable in a renovation project and many items can be sold to used building materials stores, high-end salvaged architectural materials exchanges, salvaged wood distributors, scrap recyclers, individual home-

owners, waste exchanges, or other outlets. Consider placing an ad in the local newspaper for excess salvage materials.

Examples of items you might be able to sell for reuse include:

- Shelving, doors, plumbing, lighting fixtures, tile, carpeting, door hinges, wall paneling, mirrors, stairway bannisters, construction-grade lumber, ornamental wood trim, clay tiles and bricks, metals such as copper and aluminum electrical hardware or wire, and some plumbing hardware.
- Aluminum and steel scrap, which is usually accepted at fabricator's shops or as raw material for other industries.
- Clean, uncontaminated concrete waste which is used in some municipalities as aggregate for soil stabilization or reprocessed for use in roads, foundation stone, and other projects. Check with your local licensed landfill operator, earthmovers, or road construction personnel.

Some items can be reused on the same job site, including the following examples:

- Joist cut-offs can be cut up and used as stakes for forming or for headers around openings in the floor.
- Leftover rigid insulation can be used as ventilation baffles.
- Asphalt can be reused on site by heating pavement, injecting petroleum distillates, grinding, mixing, and re-rolling.
- Wood scraps can be used as bridging, splicers, wall components, filler, scabs, and spacers.

Recycle or Exchange: Some materials, such as the following examples, can be sold to scrap recycling businesses or through material exchanges:

- Metal scrap recycling businesses often take old aluminum or copper wiring, other wiring fixtures, conduit, iron, copper, brass, steel, lead piping, and appliances.
- Uncontaminated scrap lumber or pallets can be recycled into furniture or chipped and used for landscape mulch compost, animal bedding, boiler fuel, or engineered building products. Treated wood should not be used as mulch. Sometimes pallets can be returned to the vendors for reuse.
- Gypsum scraps can be recycled in some locations.
- Rubble (concrete, bricks, cinder block, and certain types of tile) can be crushed and sieved for use as an aggregate.
- Glass can be recycled into fiberglass or used in place of sand in paving material.
- Asphalt shingles can be used in asphalt highway and road paving and pothole repair.

Be sure your construction contractors sort materials as they are generated and prevent hazardous contamination to maximize their recyclability and reuse. This practice is becoming increasingly cost-efficient as processing and disposal costs rise.