

“Viable recycling programs in Ohio’s workplace reflect an organization’s commitment to sound environmental operations and practices”

George V. Voinovich, Governor

Contents

- Chapter 1 Getting Started**
- Chapter 2 Evaluating Recycling Options**
- Chapter 3 Designing the Collection System**
- Chapter 4 Implementing the Program**
- Chapter 5 Maintaining and Improving the Program**
- Chapter 6 Buying Recycled-content Products**
- Chapter 7 Reducing Waste and Reusing Materials**

Appendices

- A Sample Checklist and Action Timeline**
- B Using Industry Averages**
- C Volume-to-Weight Conversion Table**
- D Examining Facility Records/
 Conducting a Facility Walk-Through**
- E Conducting A Waste Sort**
- F Selected Resources**

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F o r e w o r d

“Reduce, reuse, recycle” is more than just a slogan in today’s business environment. These three R’s of recycling, plus the wisdom of purchasing recycled-content products, have established their credibility as cost-effective and environmentally responsible strategies. When combined with a strong commitment from business leaders and continuing employee education, these elements provide the foundation for productive waste management policies.

The Ohio Department of Natural Resources, Division of Recycling and Litter Prevention is pleased to provide you and your employees with the Coordinator’s Guide to Workplace Recycling. This guide offers detailed information and assistance to recycling coordinators who are responsible for establishing, expanding or maintaining workplace recycling programs. The step-by-step process for designing a practical recycling program is relatively simple to implement. Information on preventing waste, reusing materials and buying recycled is also included. Resources for the development of the guide included business leaders, recycling coordinators, employees and waste management professionals.

The third in a series of recycling-related guides, the Coordinator’s Guide to Workplace Recycling is the most recent component of Recycle, Ohio!, a program initiated by Governor George V. Voinovich. We hope that you will accept it with our compliments, adapt it to your particular circumstances, share it throughout your business environment, and know that we sincerely appreciate your commitment to Ohio’s environmental excellence.



1 Getting Started

Why Recycle?

Recycling offers the following benefits:

- **Provision of resources to industry for manufacturing new products.**
- **Conservation of natural resources, landfill space and energy.**
- **Potential to reduce waste disposal costs and generate income.**

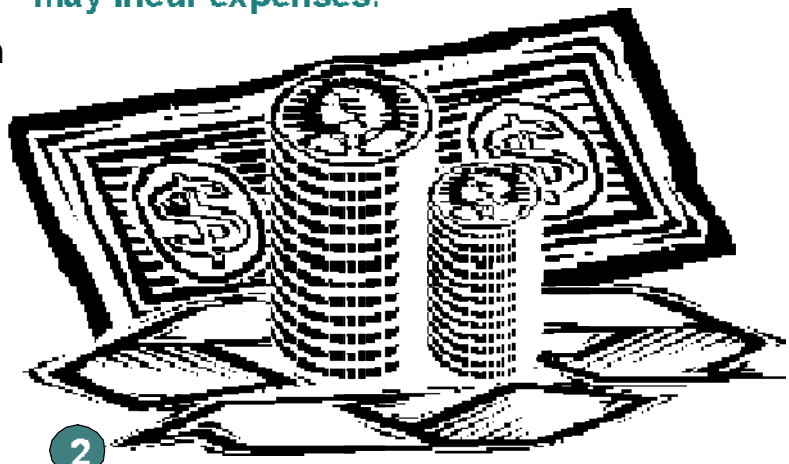
A recycling program and waste disposal contract, when managed with diligence, can reduce disposal costs. In most cases, a 50% reduction in your waste stream is a realistic potential result. Recycling may also generate revenue if an organization or building has significant amounts of a valued recyclable such as computer or white ledger paper. Waste composition information in appendix B will help in your understanding of workplace wastes and potential recyclables.

Environmental benefits, potential savings and possible revenue are factors that may encourage top management to approve evaluation of the feasibility of a recycling program.

Keys to Success

- Support and endorsement of the chief executive and top management.
- An enthusiastic, capable recycling coordinator and/or a recycling team involved in all phases of the program.
- Thorough evaluation of all aspects before and during the program's life.
- Information about the recyclables in your organization's waste stream.
- A recycling service provider and a market for the recyclables.
- A simple, efficient collection system and prompt resolution of problems.
- Ongoing education and promotion programs for participants.
- Documentation of program results and regular reports to management

The support of top management is a necessity because the process of planning and implementing a successful recycling program requires time and may incur expenses.



The Recycling Coordinator

Establishing leadership is an important step. Management may designate one person as the recycling coordinator, or responsibility can be shared by several people. The ideal coordinator has leadership skills, enthusiasm, excellent communication and organizational skills. Contract negotiation experience is also helpful.

The coordinator is accountable for all phases of the program. Planning and implementing a recycling program may take a few weeks or months, depending upon the type of program and the number of people served. Coordination may require full time work during the planning process, however once the program is in operation, ongoing monitoring takes a minimal amount of time.

The Recycling Coordinator's duties may include, but are not limited to, the following:

- Leadership of the recycling team and coordination with management, custodial staff, employees, etc.
- Determination of program feasibility.
- Design and organization of the collection program.
- Educational materials development and participant training.
- Program promotion and publicity.
- Evaluation of progress, program status reports and maintenance of records.
- Maintaining familiarity with recycling and waste reduction innovations, and the recycled-content products market.

Once the top management approves evaluation of the feasibility of recycling, the coordinator may inform employees of the upcoming evaluation, or wait until the process is complete. Appendix A offers an overview of primary activities required to establish and maintain a workplace recycling program.

The Recycling Team

In some organizations, the coordinator is assisted by recycling team members representing each department, floor, or tenant. This option is most often used in large, complex programs or if high employee involvement is preferred. The team may assist in planning, implementation, monitoring, and evaluation of the program. Early involvement of recycling team members contributes to success of the program and ongoing operations.

Team members may have the following responsibilities:

- Assisting with setting program goals.
- Gathering and analyzing information.
- Communicating information to employees and planning special events.
- Monitoring the recycling containers for contaminants and other problems.
- Notifying the coordinator of special needs or problems.
- Assisting with or conducting orientation sessions for employees.



2 Evaluating Recycling Options Your Recycling Potential

After the coordinator and/or team is selected, the next step is to determine your recycling potential through assessment of the amount and type of material in your waste stream.

This process serves two basic purposes:

1. Identification of recyclable materials in your waste stream and,
2. Establishment of a starting point for documenting the impact of your recycling program.

Using Industry Averages

The least expensive and quickest method of obtaining a rough estimate of your waste stream and recycling potential is to use industry averages. Appendix B elaborates on this method.

Examining Facility Records

Purchase, inventory, and service records help identify the amounts and types of waste generated in your workplace. Waste disposal records may provide information on waste volume and removal costs. Appendices C and D are helpful when using this method.

The use of industry averages and records examinations can approximate the amount of waste and recyclables. Conduct a facility walk-through to verify your estimates. Be aware that you may discover

unique operational details that could affect the amount of recyclables.

Conducting a Facility Walk-Through

A walk-through involves a tour of the facility and grounds, observation of activities in different work areas, and talking with employees about activities and equipment that produce waste.

Prior to conducting a walk-through, schedule appointments with key staff members. Inform each contact person of the type of information you will need so that it may be readily available at the scheduled appointment time. Refer to appendix D for details.

Remember that a facility walk-through provides useful information but it may not identify all waste or be a representative sample. A thorough estimate of recycling potential is made by performing a more detailed analysis called a waste sort.

Performing a Waste Sort

The goal of a waste sort is to physically collect, sort and weigh a representative sample of the waste generated. This requires an on- or off-site staging area, a team of volunteers, a scale and appropriate safety equipment. For details, refer to appendix E. This method requires a significant amount of time and effort, however, it provides the most accurate estimate of your recycling potential.

Using the Results

After completion of one or more evaluations, you will have

Methods for Determining Recycling Potential

- Using industry averages
- Examining facility records
- Conducting a facility walk-through
- Performing a waste sort

Identification of the amount of recyclables in your waste stream may require one or more of these methods. This depends on the program goals, waste stream complexity and availability of resources to implement the recycling program.

identified the materials that are the largest components of your waste stream. The amount of potential recyclables is one of the most important factors in evaluating the feasibility of a recycling program. Other important factors include the availability of recyclers, program costs versus benefits, the nature of employee duties, the availability of custodial staff or volunteer assistance and space limitations. Information on these topics is included in subsequent segments of this guide.

Locating a Recycler **The following is a guide for discussion with potential service providers:**

Try to recycle the materials that make up the largest portion of your waste stream. Also focus on items which may be a small part of overall waste but have a high value, such as aluminum cans. In this chapter, the segment titled "Determining Container Requirements," page 8, provides information on grades or categories of common recyclables. Investigate potential recyclers in your community and inquire as to whether your current waste hauler also provides recycling services. Entries in your local telephone directory may be listed under Recycling or Waste Disposal.

MATERIALS

What recyclable items are accepted? Is there a minimum quantity? If you don't meet the minimum quantity, you may be able to combine your recyclables with other nearby organizations or arrange for drop-off service. Many recyclers can estimate the amount if they know the number of employees. Ask about handling of confidential materials.

CONTAMINATION

What are the contamination limits for each material? Is the material evaluated on- or off site? Is feedback given after evaluation? What is the procedure for rejected materials? How must materials be prepared for collection?

SERVICE

Is the service scheduled or handled through on-call pick-ups? Are there any service charges?

PAYMENT

Is there payment for recyclables? What are the current rates?

CONTAINERS

Are indoor or outdoor containers available? If so, at what cost?

RECORDS

Will the recycler provide receipts and accurate weight information?

CONTRACT

Will the recycler enter into a written service agreement? Does it contain an escape clause?

SUPPORT

Are educational and/or promotional materials available?

REFERENCES

As for references from similar businesses.

"Select" the Recycler

After data-gathering is complete, compare services, rates and reputations, and check references. Unofficially "select" the recycler and structure the recycling plan to meet their specifications. Once the collection system is designed, assuming management gives approval to proceed, you're ready to negotiate a recycling agreement and/or modify your waste contract.

Your management team may require a written contract defining the services to be provided, associated costs and/or revenues, steps for problem resolution and termination of service. You may be revising an existing waste removal contract to include recycling. If possible, modify the existing waste contract to allow reduction in the frequency of waste pick-ups as recycling reduces the volume of trash. If you have a large quantity of a

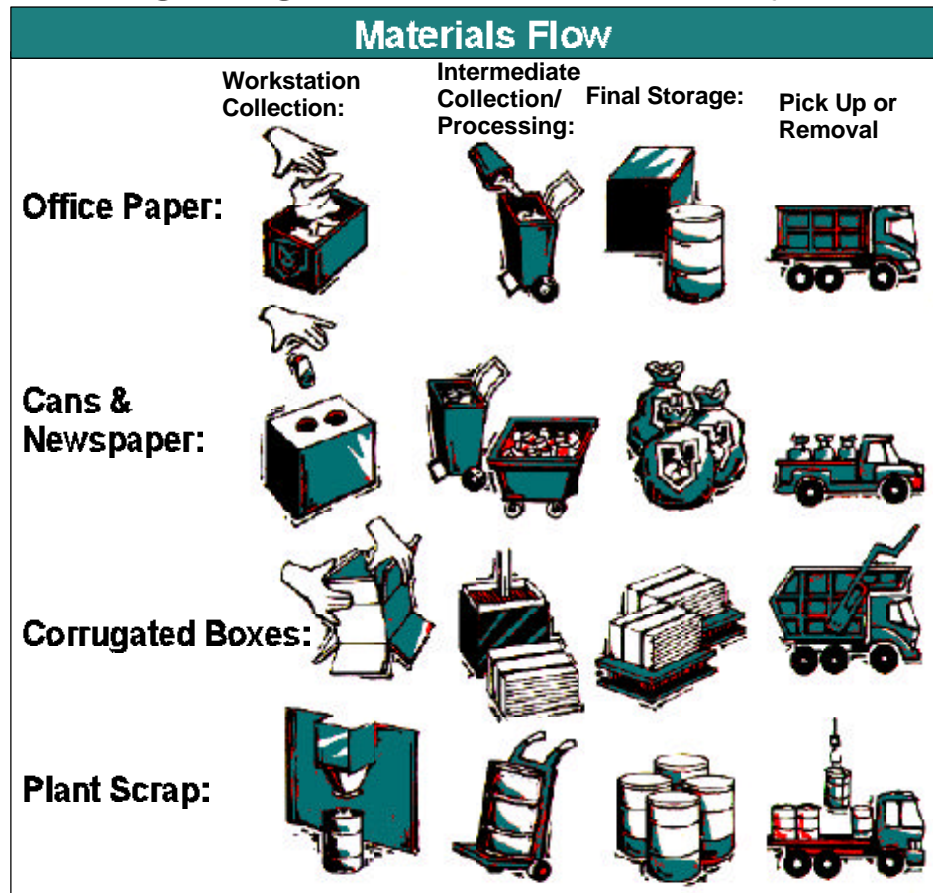
material that is not accepted by recyclers, your county offices can help you contact your area Solid Waste Management District for assistance. Consider contacting the manufacturer of these materials about recycling options. Some materials may be appropriate for donation to schools, churches or arts groups. Waste exchanges are helpful in locating companies that might reuse specialized materials.



3 Designing the Collection System

Now that you have an idea of what recyclables you can collect, find out how the custodial staff and building management can assist with the collection system. Consider your knowledge of the operational aspects of each work area. Incorporate information about employees' work habits and attitudes about recycling, and consider employee convenience and safety. Combine the information gathered to this point and you are ready to design your collection system.

The collection system has two major parts:
♦Materials flow and storage
♦Containers



Overview of Materials Flow and Storage

In most recycling programs, the **desk or workstation is the primary collection point.** All employees should have workstation collection containers. For example, provide every employee in an office with a small container for saving paper at their desk. In a furniture manufacturing plant, place a large scrap collection container at the point where the material is cut from the pattern. In a hospital kitchen, place a medium-sized, sturdy container where employees open metal, plastic or glass containers. These desktop and/or workstation containers can be emptied into larger, intermediate containers by employees or custodial staff. If employees are to empty their own containers, the intermediate containers are

best located conveniently throughout the work area for every 10-40 employees. Good sites include service elevator areas, copiers and break rooms.

Break rooms are also good locations for collecting aluminum cans and newspapers. Computer, copier, print rooms and other mass generation points may require separate, larger containers.

As **intermediate** containers become full, the maintenance staff, custodial staff, or employees take the material to processing or storage areas. In some cases, the custodial staff removes the intermediate containers on a

regular basis. In other cases, the building maintenance staff removes containers based on a phone request from recycling representatives.

If shredding, compacting or baling is required, inquire as to whether the building or custodial staff is equipped for such activity. The material is then placed in its **final storage location.** From this state, the recycler arrives on a designated day and **removes the materials.**

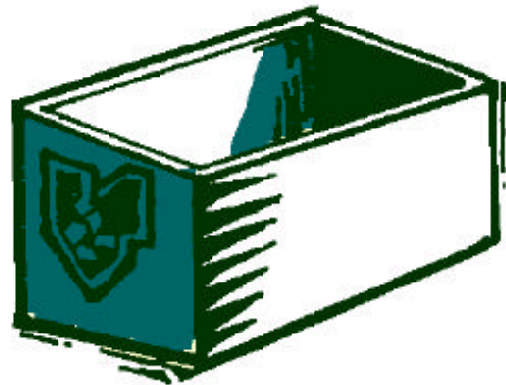
Overview of Containers

Workstation Containers

Workstation containers are small and large, round and square, solid and open. They can be located on top of the desk or work area, or be on the floor next to the waste basket or the machinery producing the waste. Generally, the most significant factors in container selection are the type and amount of material accumulated during your collecting period. For example, avoid one gallon boxes if employees generate two gallons of recyclables per day. Keep in mind what is offered by the recycler. If funds are limited, consider using available corrugated boxes or other suitable containers with an adhesive logo and label. Containers may include your organization's recycling logo, slogan and a description of the material being collected.



DESKTOP CONTAINERS



FLOOR CONTAINERS



WHEELED CONTAINERS

CARTS

Intermediate Containers

Intermediate containers require clear markings and appropriate placement throughout work areas, near service elevators and in mass generation locations. Intermediate containers can become very heavy, so it may be desirable to use those with wheels. Consider what the custodial or building management staff can easily move through the facility. If funds are limited, consider using available barrels or large containers. These too should have the organization's recycling logo.

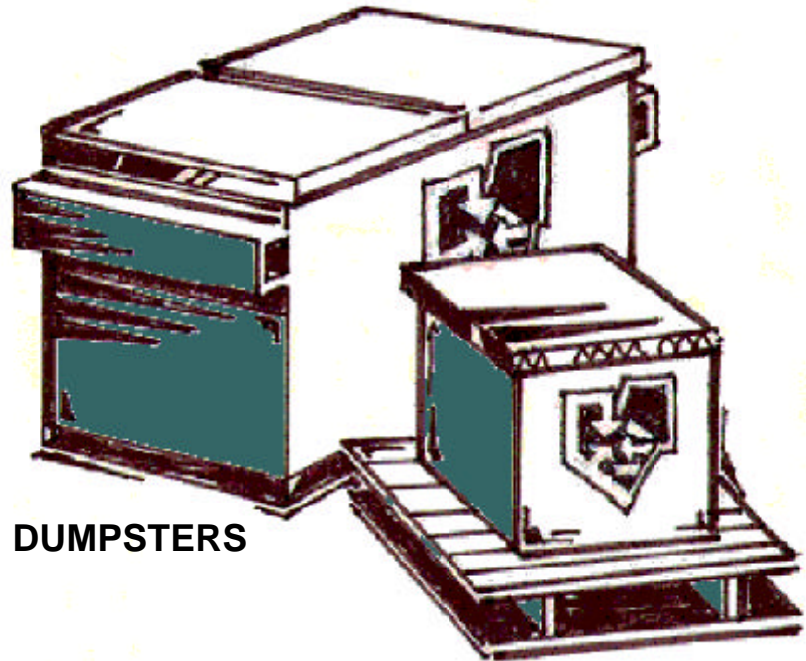


Final Storage Containers

Recyclables are stored inside and outside, depending on the type and volume of materials. Indoor storage areas must be secure and easily accessible for pick-up.

Check your local fire codes to determine which containers are acceptable for storing various materials.

Most fire codes require that intermediate storage containers have lids. Paper and small amounts of recyclables are usually stored indoors. Outdoor storage areas and containers may require locks to discourage illegal dumping and to protect materials from adverse weather conditions.



DUMPSTERS

GAYLORDS OR LARGE COVERED CONTAINERS

Determining Container Requirements

Internal Containers

Review the facility walk-through information and the duties of the various employees to decide the number of containers needed. Knowledge of safety and fire regulations, and information from the custodial and/or maintenance staff contributes to an appropriate choice of containers. Finally, consider convenience, size, and suitability for your office decor

and budget. A second walk-through of the work areas may confirm the type and/or amount of your selections. Consult management and employees as necessary.

External Containers

The volume and type of material collected, available space, and the recycler's pick-up requirements determine the number and size of external containers. Discuss your

needs with the recycler and building manager.

KNOW YOUR SAFETY AND FIRE REGULATIONS

Preparation and Storage Guidelines

Use the following as a general guideline, then check with your recycler for specific requirements.

Preparation and Storage Guidelines

<p>Paper</p>	<p>Office paper is usually separated and collected according to specific grades:</p> <p>High grades <i>computer printout (CPO)</i> - plain or bar-striped continuous bond paper, fan-folded and uncoated. Some recyclers exclude laser printed computer paper.</p> <p>white ledger - white, uncoated bond office paper such as letterhead, copier paper, white notebook paper and other white papers. Can include computer paper.</p> <p>Medium grades</p> <p><i>white ledger or CPO with laser print</i> - Some recyclers consider laser printed papers a medium or low grade.</p> <p>colored ledger - colored bond office papers. White and colored ledger can be mixed.</p>	<p>Low grades</p> <p><i>mixed paper</i> - various office papers including file folders, envelopes, white and colored papers. May or may not include magazines, newspapers and cardboard.</p> <p><i>newspaper</i> - some recyclers ask that glossy inserts and advertising brochures be removed. Newspaper-like computer paper (contains ground wood) is a similar grade.</p> <p>Paper is often stored separately from other recyclables in order to keep it clean and dry. Paper is usually stored indoors, in containers or heavy plastic bags. Some recyclers accept different grades of office paper commingled.</p>
<p>Corrugated Cardboard</p>	<p>Recyclers usually provide a separate outdoor container for corrugated cardboard. To conserve space, boxes are flattened. Some recyclers require</p>	<p>baling as a condition of accepting corrugated cardboard.</p>
<p>Aluminum/Metal</p>	<p>Cans are emptied and stored in a closed container or large plastic bags. Use of a small can crusher saves storage space.</p>	
<p>Glass</p>	<p>Bottles and jars are emptied and rinsed by employees. Lids and caps may require removal. Glass is usually stored in a sturdy container or a</p>	<p>dumpster. Recyclers may charge a glass pick-up fee and usually request that different colors of glass be separated.</p>
<p>Plastic</p>	<p>Polyethylene terphthalate (PETE #1) and high-density polyethylene (HDPE #2) are primarily found in businesses as beverage containers or bottles. Plain and colored are usually acceptable. Remove lids, rinse and flatten bottles. Containers</p>	<p>are often stored in large plastic bags. Vinyl (V #3), low-density polystyrene (LDPE #4), polypropylene (PP #5), polystyrene (PS #6), and (Other #7), have varying processing and storage requirements; check with your recycler.</p>
<p>Steel and Other Metals</p>	<p>Metal recyclers may be interested in precious metals, machine parts, metal printing plates, or clean food cans, lids and foils. Get storage instructions from the recycler or dealer.</p>	
<p>Confidential Materials</p>	<p>(usually paper or microfiche) Sometimes confidential paper records must be shredded before they are recycled. Many recyclers provide bonded handling and shredding services if</p>	<p>your company does not have the equipment. Security of records en route to the processing mill is sometimes acceptable in lieu of shredding or destruction.</p>



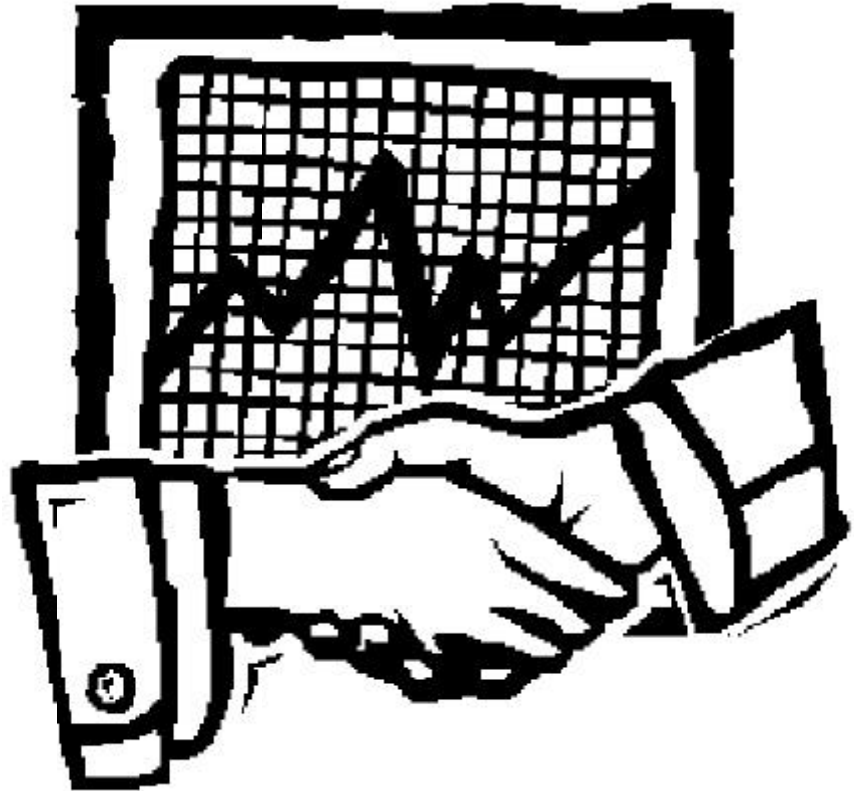
4 Implementing the Program

Cost/Benefit Analysis and Management Approval

If it appears that a recycling program is feasible, present the proposed program to top management for approval. You may include a cost/benefit analysis in your presentation. Begin by identifying your organization's preferred cost/benefit format. If no such format exists, use the sample form on page 11 to periodically evaluate your program's cost effectiveness.

Verify the type, size and number of containers provided, frequency and cost of pick-up, and contract expiration date from your current waste disposal service. Use this information to estimate any annual waste disposal savings that may be achieved by removal of recyclables from the waste stream.

Estimate recycling service charges, anticipated revenue for valued recyclable materials, and miscellaneous program costs, such as promotional and orientation expenses.



It may appear that conditions are favorable for a recycling program and that the program will have meaningful benefits without undertaking a thorough analysis. Even in this case, it is recommended that costs and benefits are documented for future evaluations and comparisons.

If your analysis indicates your organization will not achieve any short-term waste disposal savings, project the long-term savings and identify the necessary conditions for savings to be realized.

Benefits also include intangibles such as compliance with state and local waste reduction goals, and enhancement of the organization's environmental image to customers, employees and the public.

After approval is received, finalize all details with the custodial supervisor, the recycler and the recycling team members. Determine a start date for the program and ask management if issuance of a memo to employees announcing the program's inception is appropriate.

Sample Cost/Benefit Analysis

Costs

Start-Up

Equipment/Materials (collection, processing, storage)	\$ _____
Promotional Materials	\$ _____
Labor	\$ _____
Initial Service/Installation Fees	\$ _____
Total Start-Up Costs (A)	\$ _____

Annual Recycling Program Costs

Equipment Operation/Repair	\$ _____
Additional Janitorial or Building Expense (labor, supplies, etc.)	\$ _____
Recycling Service Charges ¹	\$ _____
Coordinator's Time	\$ _____
Promotional Materials	\$ _____
Total Annual Recycling Program Costs	\$ _____
Total Costs	\$ _____

Benefits

Annual Recycling Program Benefits

Estimated Recycling Revenue ²	\$ _____
Estimated Waste Disposal Savings ³	\$ _____
Total Gross Annual Benefits	\$ _____

Other Benefits (list)

Program Cost/Benefit

Total Annual Benefits	\$ _____
Less Total Annual Costs	\$ _____
Total Net Annual Benefits (B)	\$ _____

Payback Period

Total Start-Up Costs (A) divided by Total Net Annual Benefits (B)	\$ _____
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1. Recycling Service Charges: Contact the proposed recycling service provider for information to develop an estimate of annual costs. Include pick-up service charges and any applicable dumpster or container rental charges.

2. Recycling Revenue: For highly valued recyclables, determine the Current Rate Paid for each material. For materials with a low market value, the revenue is often factored into the service fee and no revenue is paid directly to you. Calculation: Annual Amount of Each Valued Recyclable Material X Current Rate Paid = Total Revenue. For estimate of annual weight (in pounds) for each waste material, see Appendix B, D or E. For conversion from yards to pounds, see Appendix C.

3. Waste Disposal Savings (or Avoided Waste Disposal Fees): Calculation: Annual Amount of Recyclable Materials (cubic yards) X Waste Disposal Savings
Notes: See Appendix B, D or E for the type and amount of each recyclable material to be collected. Convert each material amount to cubic yards using Appendix C. Add the cubic yard amounts for all materials to find the Annual Amount of Recyclable Materials; use the result in the Waste Disposal Savings calculation.

Example:

*12,600 lbs White Ledger = 39 cubic yards (12,600 lbs/325 lbs, from Appendix C)

5,000 lbs Corrugated Cardboard = 50 cubic yards (5,000 lbs/100 lbs, from Appendix C)

Annual Amount of Recyclable Material = 89 cubic yards

* Waste Disposal Fee per cubic yard: \$11.50 (6 cubic yards= \$69.00)

* Waste Disposal Savings= \$1023.50 (89 cubic yards x 11.50 per cubic yard)



Orienting Participants

The goal of employee orientation is to provide information to participants so they understand the basics of the recycling program and their personal role in it. An effective orientation program increases participation and decreases the frequency and degree of contamination in collected materials.

Once the program is approved and operational details are in place, hold a brief meeting with recycling representatives to present this information. Encourage representatives to assist in planning and conducting any required orientation sessions for employees and custodial staff.

Remember the following when planning orientation sessions:

- Obtain approval for employee attendance.
- Schedule sessions with adequate notice and flexibility for maximum participation.
- Collection of recyclables should be ready to begin.
- Conduct brief sessions; preferably less than 30 minutes.

The following is a sample agenda for a 15-20 minute orientation. Modify the agenda to fit your specific program.

Employee Orientation Agenda

Introduction and Program Overview

Explain the purpose of the meeting.

Explain importance of recycling in general and in relation to your organization.

Discuss specific materials to be collected and give examples.

Identify contaminants and give examples.

Announce the program start date. It is recommended that the program begin immediately after orientation.

Collection System Operation and Employee Responsibilities

Inform employees of containers (workstation and intermediate) to be used and their location.

Inform employees of those responsible for transferring recyclables from workstations to intermediate collection points.

Display the various containers. Make available the name and phone number of a contact person should they have questions.

Building Management and Custodial Responsibilities

Briefly describe the flow of materials from the workstation to the dock.

Recycler's Responsibilities

Inform employees of the name of the recycler and the pick-up schedule.

Closing the Loop

Explain how the process of collection and sale of recyclables to companies who use recyclables to make new products and the purchase of products made with recycled content are related.

Question and Answer Period

Distribute Materials

As employees exit, distribute collection containers, orientation leaflet, etc.

New Employee Orientation

Make sure to distribute orientation information and containers to new employees as soon as possible. If your organization provides new employee orientation packets, include recycling program information.

Program Promotion

The initial goal of your promotion plan is to fuel the enthusiasm of all employees for recycling quality materials. The long-term goal of recycling program promotion is to increase and maintain a high level of participation in recycling. Keep in mind that you're trying to change established habits of employees. Frequent reminders of program goals and positive reinforcement for employee recycling efforts is recommended.

In designing promotional materials, remember the following considerations: Make your message clear and develop it with the audience in mind. Keep it simple and repeat the message in different ways.

Below are some general suggestions for promoting your program.

- Design a recycling logo and/or slogan for your program. Use it on your materials when possible.
- Plan an incentive program that recognizes and rewards participation.
- Announce to customers and the public that the organization is recycling.

■ Develop and distribute recycling materials which may include the following:

-an orientation brochure or leaflet (procedures, "do's & don'ts", contacts)

-support letter from management

-newsletter or recycling update in an existing employee newsletter

-posters, decals, labels, table tents

■ Regularly report the program results and concerns to participants and management.

There are three general phases of a successful promotional program: pre-program, kick-off and ongoing.

A suggestion for pre-program promotion is a memo from top management naming the recycling coordinator and giving support to the program. Employee orientation sessions, program leaflets and signage at the intermediate collection points all assist in program promotion. Posters outlining information on the potential environmental benefits are helpful reminders.

A kick-off promotion could include a brief assembly (10 minutes or less) before lunch, held in the building's lobby or other gathering area. Ask the management to attend, to lend enthusiasm and support. Prepare a display highlighting the program goals and benefits and perhaps hand out small recycling promotion items (magnets, buttons, etc.). Investigate the possibility of an appearance by a local recycling program mascot if there is one in your area. Issuance of a news release lets the public know of your efforts.

Ongoing promotion provides regular feedback to all participants on the program's achievements and concerns. This may include reminder posters displayed in prominent areas, special recycling communications or activities at appropriate times (such as Recycle, Ohio! Month or Earth Day), survey or meeting results and a recycling newsletter.

For more information about promotional materials, contact:

Ohio Department of Natural Resources

Division of Recycling and Litter Prevention

1889 Fountain Square Court
Building F-2

Columbus, OH 43224-1331

(614) 265-6333

5 Maintaining and Improving the Program

Common Program Issues

The success of your program is heightened if you give regular attention to the following activities:

- Identify and act upon program issues.
- Obtain feedback from participants and modify the program accordingly.
- Evaluate, report results and maintain records.
- Improve and expand the program.

Recycling representatives are a tremendous asset. They may monitor the collection system and act as leaders for participants in their assigned area.

Three of the most common program issues in a workplace recycling program and suggested responses and actions are detailed below:

Increasing or Maintaining Volumes

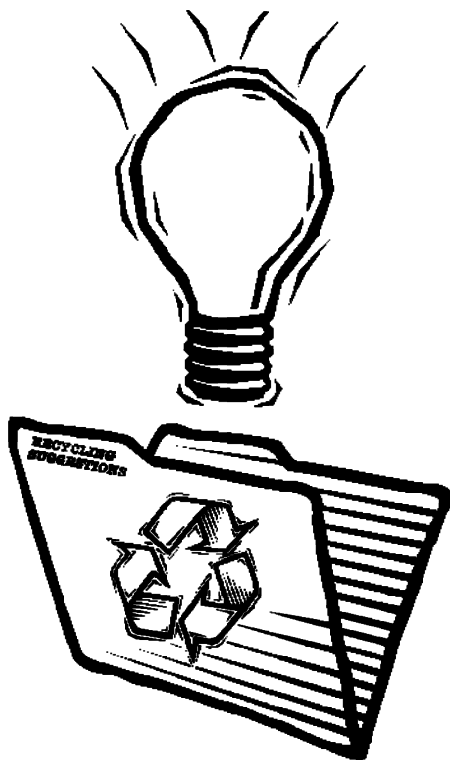
- Provide frequent, visible reminders to recycle.
- Make certain all new participants receive orientation, containers and a follow-up contact.
- Review intermediate container placement, signage and pick-up schedule.
- Determine if organizational changes or seasonal fluctuations occur that alter the type or volume of collected materials. If volumes decrease immediately after the first collection, it may be the result of employees having stockpiled materials over time in anticipation of the program kick-off.

Keeping Materials Free of Contamination

- Provide frequent reminders, a “refresher” meeting or memo on contamination.
- Ensure adequate waste receptacle availability and ease of distinguishing between recycling and waste containers.

Encouraging Positive Attitudes about Recycling

- Review the first three points in “Increasing or Maintaining Volumes.”
- Plan new promotional materials, program success reports and activities to renew or maintain enthusiasm.
- Interview employees about their attitudes toward the recycling program. Use this insight to “fine-tune” the program and to increase the interest and participation of employees.



In communication with management and employees about issues of concern, avoid placing blame. Emphasis on possible solutions and improvements are more constructive methods for problem resolution.

Participant Feedback and Program Modifications

When questions or problems arise, respond as quickly as possible. Be prepared to resolve issues as they are brought to your attention. Recycling representatives are a communication link between you and the employees in their area. Custodial staff and recycler involvement may aid in resolving some problems.

An annual survey is one method of identifying program issues, areas for possible expansion and participant attitudes. A written survey provides the opportunity to inquire about specific issues, ask open-ended questions and request feedback. Additionally, periodic meetings with recycling representatives and custodial staff may provide valuable insight into program operations. Solicit the opinions of management and the recycler to maintain support and efficiency of the program.

Evaluating, Reporting Results and Record Keeping

Frequent communication with management and participants is an important element in a successful recycling program. Two to four weeks after the program begins, issue a memo or bulletin board flyer to share the good news of the program results. An annual summary of program statistics for employees and management is recommended. Report results to management in clear and concise terms regarding issues of significance to them, such as financial benefits, public relations value, environmental benefits and employee morale.

Maintenance of the following information assists in program review, problem-solving and report-writing:

- A list of program contacts, including the recycler.
- A copy of the recycling service contract, specifications and contaminants for each category of recyclable materials.
- Annual records of recyclable material collected, costs and revenue.
- Annual waste disposal volumes and costs.
- Program start date, number of employees participating on that date, pre-program waste disposal volumes and costs, estimated collection amount of each recyclable material, program start-up expenses and estimated annual net cost/benefit of program.
- A list of problems or concerns with the recycler.
- A list of problems or concerns with the internal collection system involving custodial staff, participants, representatives, storage, etc.
- A list of periodic price check inquiries made to other recycling service providers.

Improving and Expanding the Program

Once your program is established, consider the following options:

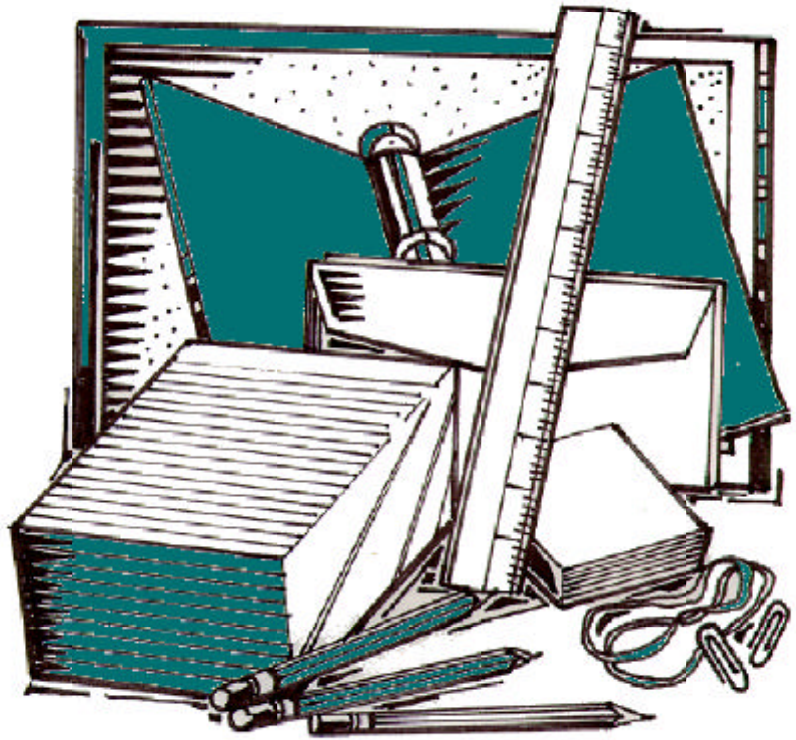
- Expansion of the types of materials collected.
- Initiation or expansion of waste prevention or reuse programs.
- Implementation of a “buy-recycled” program with the assistance of the purchasing manager.



6 Buying Recycled-Content Products

An important step in completing the recycling loop is the purchase of recycled-content products. Purchasing recycled-content products supports the markets for the materials collected in your program. The primary steps to establish a “buy recycled” program in your organization are as follows:

- Obtain a commitment from management to buy recycled-content products.
- Identify possible purchases of recycled-content products.
- Modify bid specifications and purchasing policies to include recycled-content products.
- Inform vendors of policy changes.



Product Availability

After your organization agrees to buy recycled products, purchasing agents will find office, transportation, construction and maintenance products readily available. **The Directory of Ohio Vendors of Recycled Products** is available from the Ohio Department of Natural Resources – Division of Recycling and Litter Prevention. Assistance is also available in locating vendors outside of Ohio.

Evaluating and Implementing Changes

When modifying bid specifications and purchasing policies, the following steps may be appropriate:

- Review the current purchases and select major product lines for first consideration.
- Locate sources and establish costs of equivalent items made with recycled-content materials.
- Review existing specifications as they relate to actual usage conditions and current performance expectations.
- Look for terms such as “virgin only” and “recycled materials prohibited”, and find out if these qualifiers can be eliminated.
- Eliminate “all” or “nothing” clauses to allow recycled-content product suppliers to bid.
- Eliminate “matching” clauses that refer bidders to previously purchased virgin content products. Substitute wording that states as “close as possible” or give the specific characteristics desired.
- Review current industry standards for recycled content. The U.S. Environmental Protection Agency has developed minimum recycled-content standards and established purchasing standards for a wide variety of recycled-content products.
- Conduct a comparison test of virgin and recycled-content products. Evaluate any problems encountered.
- Modify purchasing policies as appropriate.

Costs

Many factors affect the cost of recycled-content products. Sometimes recycled-content products cost more than an equivalent product made from raw materials. Some organizations establish “price preferences” or “set aside programs” for recycled-content products.

Cooperative purchasing is one option for keeping costs low. Associations and other groups can form their own purchasing cooperatives. Local governments, municipal corporations and schools may take advantage of the State of Ohio Cooperative Purchasing Program, which allows public agencies and local governments to purchase goods and services at state-negotiated, large volume prices.

For more information about Ohio’s program, contact:

The Ohio Department
of Administrative Services
Office of State Purchasing,
Cooperative Purchasing
Program
4200 Surface Road
Columbus, Ohio 43228-1395
(614) 752-0003



7 Reducing Waste and Reusing Materials

Waste reduction and materials reuse are waste management options that merit consideration. The concept is simple. If waste is not created, disposal is not an issue. The person(s) responsible for purchasing materials and equipment should be directly involved in setting waste reduction policy. Use the following suggestions to get started and adapt the ideas to fit your organization.

Select products and services with waste reduction in mind.

- Purchase and ship supplies in bulk and with the least packaging when feasible.
- Use your purchasing power and ask suppliers to reduce excess packaging used to ship the products you order.
- Switch from disposables to reusables. For example, use ceramic mugs instead of polystyrene coffee cups.
- Choose reusable shipping containers and pallets if possible.
- Avoid information that dates brochures and promotional material.
- Choose recyclable packaging with the smallest number of different materials.
- Buy equipment with easily replaceable parts. Train employees in equipment maintenance and repair equipment whenever feasible.

Reduce unnecessary paper and mail.

- Make double-sided copies.
- Use electronic mail when possible.
- Store documents on computer disks instead of hard file copies.
- Use an adhesive transmittal slip rather than a full facsimile cover page.
- Look for reusable products to replace paper, such as undated erasable calendars.
- Use a central file and route documents.
- Review your mailing list for outdated accounts and delete as appropriate. This reduces paper usage and packaging.
- Eliminate duplicate or unwanted mail by requesting removal from lists. Make requests by writing to:

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

Reuse materials when possible.

- Purchase reusable plastic pallets and shipping cartons.
- Use refilled/rebuilt toner cartridges, refillable pens and reusable air filters.
- Donate usable items such as office furniture or safe, edible food instead of discarding.
- Consider a waste exchange. One business' waste may be another's raw material.

Sample Checklist and Action Timeline

APPENDIX A

Actions/Tasks for Week #	1	2	3	4	5	6	7	8	9	10	11	12
Obtain management approval and name coordinator												
Consider sending memo from Chief Executive Officer (CEO) naming coordinator, requesting cooperation												
Obtain waste disposal information, conduct walk-through and estimate potential recyclables												
Contact recyclers to get service information and consider which materials to collect												
Meet w/custodial supervisor to discuss collection, storage, recycler pick-up and custodial staff training												
Design collection system, decide equipment/materials/labor required and determine costs												
Develop logo/slogan, educational and promotional plan and materials; determine costs												
Do cost/benefit analysis and present financial data and plan for CEO approval												
Finalize details w/recycler and custodial supervisor; order any materials needed and set start date												
Plan kick-off and send memo from CEO announcing program												
Begin promoting and publicizing program; meet w/representatives and plan training												
Follow up on equipment and materials to confirm delivery or completion date												
Announce orientation and kick-off												
Confirm collection system in place and materials delivered												
Conduct orientation and kick-off												

Immediately after start:

Resolve any problems
Obtain feedback from participant

As soon as possible:

Issue a report on the positive results management and participants

On a regular basis:

Orient new employees
Give progress reports
Plan recycling-related special events

Obtain annual feedback from participants
Evaluate program
Resolve problems

Using Industry Averages

When considering a recycling program, you can use industry averages to provide baseline data for determining potential recovery rates for recyclables generated in the workplace. Follow the procedures below and refer to the tables and figures when completing the calculations for your organization.

Determine amount of waste

If you can obtain records giving the total amount of waste removed from your organization within a 12 month period, you may use it in Figure 1. If you don't have this data, determine the number of employees, select the sector from Table 2 that most accurately represents your company, and estimate your annual waste using the information.

Estimate your recovery rate for recyclable materials

From Table 1, select the sector which most accurately represents your organization. Review Table 3 for information on which potentially recyclable materials may be present in large amounts in your organization. Select a major category (Metals) or component (Aluminum Cans) from Table 1 or 3 and develop estimates of recyclables using Figure 1. Repeat for all significant waste categories and/or components.

It is reasonable to estimate the percent recoverable as less than 100%. Some material may be contaminated with food, manufacturing debris, etc. All employees may not participate. The recovery rate may vary depending upon the material.

Note that the paper category results were slightly lower in Table 1. The reason for this may be that some paper was removed from the waste stream during the study period. For a comparison, review Table 4. It provides ranges for major waste categories.

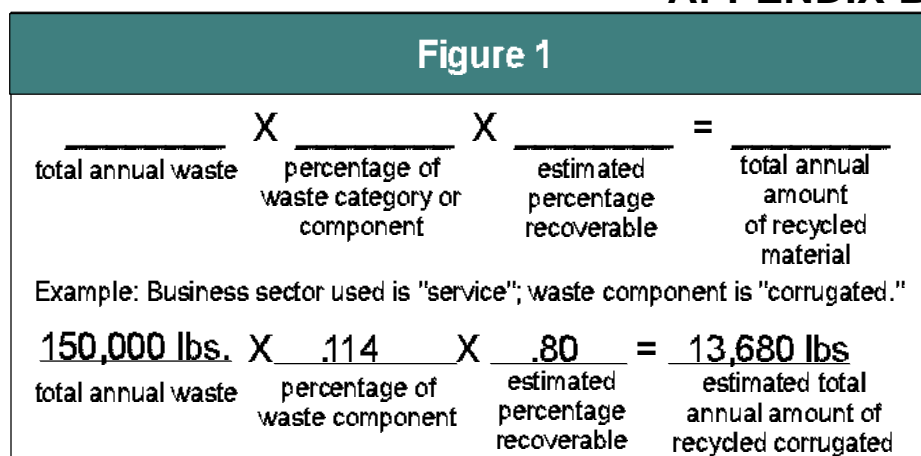


Table 1*
Waste composition by business sector¹

Sector	Office ²	Wholesale/ Retail ³	Food/ Entertainment ⁴	Service ⁵	Manufacturing ⁶
Paper					
Newspaper	6.8	3.0	4.9	4.0	0.7
Corrugated	8.3	19.1	10.5	11.4	4.6
High grade ledger	3.2	0.5	3.6	2.7	1.2
Mixed	26.7	4.9	8.9	13.6	20.3
Contaminated	13.0	9.2	13.2	13.8	1.0
Subtotal	58.0	36.7	41.1	45.5	27.8
Plastics					
PETE containers	0.0	0.0	0.0	0.1	0.0
HDPE containers	0.2	0.1	0.2	0.4	0.1
Film	2.5	6.6	3.6	2.0	0.8
Polystyrene	1.8	1.4	0.4	0.7	0.3
Other	2.1	2.7	1.4	3.7	2.9
Subtotal	6.6	10.8	5.6	6.9	4.1
Glass					
Container glass	2.7	2.0	4.1	1.4	0.4
Other	0.2	0.0	0.0	0.5	3.2
Subtotal	2.9	2.0	4.1	1.9	3.6
Metals					
Aluminum cans	0.2	0.2	0.1	0.1	0.1
Steel cans/containers	0.5	0.3	0.7	0.6	0.5
White goods	2.2	0.5	1.5	2.7	0.5
Other	0.5	1.0	0.2	1.9	0.8
Subtotal	3.4	2.0	2.5	5.3	1.9
Yard Waste					
Subtotal	2.7	1.1	1.3	3.6	0.5
Non-paper organics					
Food	3.0	20.9	38.1	7.4	5.0
Wood	6.6	4.1	1.4	4.2	40.0
Textiles	4.2	7.5	0.0	1.9	1.2
Other	2.1	3.5	2.7	11.5	5.9
Subtotal	15.9	36.0	42.2	25.0	52.1
Other Waste					
Asphalt & concrete	0.9	1.1	0.0	0.0	0.0
Hshld hzrds waste	1.8	1.0	0.5	1.4	1.0
Fines	6.9	5.3	2.4	6.8	5.6
Miscellaneous	0.9	3.9	0.1	3.7	2.6
Subtotal	10.5	11.3	3.0	11.9	10.1
Total	100.0	100.0	100.0	100.0	100.0

Table 1 footnotes:

¹ Percent by weight

² SIC codes included in this sector: 401-4939; 4961; 4971; 601-6799 7352-8999, 911-9721.

³ SIC codes included in this sector: 171; 501-5999.

⁴ SIC codes included in this sector: 7011-7041; 7832; 7833; 7911-7999

⁵ SIC codes included in this sector: 701-8748.

⁶ SIC codes included in this sector: 2011-3299.

Table 3 features those materials most likely to be present in large amounts within a sector. It also lists materials likely to be valued by a recycling service, such as high grade paper. The information is derived from Table 1.

Table 3* Significant waste components by sector		
Sector	Targeted Material	Percent of Waste
Office	High Grade paper	3.2
	Mixed paper	26.7
	Newspaper	6.8
	Corrugated containers	8.3
Wholesale/Retail	Corrugated containers	19.1
	Film plastics	6.6
	Food wastes	20.9
Food/Entertainment	Newspaper	4.9
	High Grade paper	3.6
	Corrugated containers	10.5
	Mixed paper	8.9
	Food wastes	38.1
Service	Corrugated containers	11.4
	Mixed paper	13.6
	Wood waste	4.2
	Tires and rubber	3.6
	Household hazardous wastes	1.4
Manufacturing	Mixed paper	20.3
	Corrugated containers	4.6
	Other plastics	2.9
	Wood waste	40.0
	Household hazardous waste	1.9

Table 2* Business waste generation rates	
Sector	Pounds per employee per day
Office	1.3 - 2.7
Wholesale/Retail	1.6 - 2.7
Food/Entertainment ¹	1.9 - 12.49
Service	2.0 - 2.1
Manufacturing	1.0 - 17.4

Table 4*
Waste composition for commercial/industrial business sector, percent by weight¹

	Office		Wholesale/Retail		Food/Entertainment		Manufacturing	
	This Study	Other Studies	This Study	Other Studies	This Study	Other Studies	This Study	Other Studies
Paper	57.9	64.2-84.4	36.8	20.2-68.0	41.1	31.3-51.6	27.8	27.9
Plastic	6.6	4.3-8.6	10.8	5.1-12.0	5.6	6.9-13.7	4.1	15.4
Metal	3.4	1.7-3.3	2.0	2.0-20.5	2.5	2.4-5.6	1.9	10.6
Glass	2.9	2.1-3.9	2.0	1.1-5.3	4.1	2.2-27.9	3.6	12.6
Food	3.0	1.7-6.7	20.9	4.1-30.6	38.1	13.4-51.4	5.0	0.1
Yard Waste/ Wood	9.3	2.9-15.5	5.2	0.0-42.5	2.7	0.0-1.7	40.5	12.0
Other	16.9	5.0-13.9	22.3	0.3-3.5	5.9	0.3-3.5	17.1	21.4
	100.0		100.0		100.0		100.0	100.0

*Tables 1,2,3 and 4 adapted from Jane Hinshaw and Ivan Braun, "Targeting commercial businesses for recycling," Resource Recycling, Nov. 1991, Nov. 1991, pp. 27-32.




¹ Information for Service group not available. "This Study" percentages are based on field data. Other studies included only restaurants or hotels and restaurants in their Food/Entertainment category.

APPENDIX C

Volume-to-Weight Conversion Table for Recyclable Materials

Material	Volume	Est.Wt. *	Source
PAPER			
Computer Printout (CPO)			
Uncompacted, stacked	1 cubic yard	655	1
Compacted, baled	1 cubic yard	1310	1
1 case	2800 sheets	42	1
White Ledger, Colored Ledger			
Loose			
(collected in bins, drums)	1 cubic yard	250-40	2.3
Compacted, baled	1 cubic yard	700-925	3.1
Ream of #20 bond; 8 1/2 x 11	1 ream = 500 sheets	5	1
Ream of 20# bond; 8 1/2 x 14	1 ream = 500 sheets	6.4	1
Mixed Office			
Loose	1 cubic yard	110-380	1
Compacted, baled	1 cubic yard	610-755	1
Newspaper			
Loose	1 cubic yard	360-505	1
Compacted, baled	1 cubic yard	720-1000	1
12" stack	.04 cubic yard	35	4.1
Corrugated Cardboard			
Loose	1 cubic yard	100	1
Compacted	1 cubic yard	400	1
Baled	1 cubic yard	900	1
Miscellaneous			
Paper pads	1 case = 72 pads	38	1
Message pads	1 carton = 144 pads	22	1

* Weight given in pounds is either a range, average or midpoint of a range.

Material	Volume	Est. Wt. *	Source
PETE 			
Whole bottles	1 cubic yard	35	1
Whole bottles	1 cubic yard	515	1
Compacted, baled			
Whole bottles	gaylord	46.5	1
Baled	30" x 62"	525	1
2-liter bottles	8 bottles	1	1
HDPE 			
Whole	1 cubic yard	24	1
Whole, compacted	1 cubic yard	270	1
Baled, dairy	32" x 60"	450	1
Baled, mixed	32" x 60"	900	1
Other Plastics 			
Loose	1 cubic yard	50	1
Compacted, baled	1 cubic yard	550	1
Glass			
Bottles			
Whole	1 cubic yard	600	1
Semi-crushed	1 cubic yard	1400	1
Semi-crushed (manually broken)	1 cubic yard	1040	3
Crushed (mechanically)	1 cubic yard	2250	1
Uncrushed (manually broken)	55-gallon drum	300	1

APPENDIX C

Material	Volume	Est. Wt. *	Source
Metals			
Aluminum/Bi-Metal Cans			
Whole	1 cubic yard	62.5	1
Flattened	1 cubic yard	193	3
Compacted (manually)	1 cubic yard	340	1
Baled	1 cubic yard	445	3
Densified	1 cubic yard	1080	3
Loose	1 full grocery bag	1.5	1
	1 case = 24 cans	0.9	1
Ferrous (tin-coated steel cans)			
Whole	1 cubic yard	150	1
Flattened	1 cubic yard	375	3
Baled	1 cubic yard	850	3
Organics			
Yard Trimmings			
Leaves, loose	1 cubic yard	225	1
Grass clippings, loose	1 cubic yard	400	1
Brush, loose	1 cubic yard	300	3
Scrap Wood			
Pallets	one	40	1
Food Waste			
Solid/liquid fats	55-gallon drum	405	1
Kitchen waste	1 cubic yard	850	3

Material	Volume	Est. Wt. *	Source
Construction + Demolition			
Concrete, brick & block	1 cubic yard	4000	3
Wood waste (other than pallets)	1 cubic yard	364	3
Dimensional lumber, loose	1 cubic yard	244	3
Other Materials			
Textiles, loose	1 cubic yard	240	3
Textiles, baled	1 cubic yard	480	3
Car tire	1 tire	12-20	1
Truck tire	1 tire	60	3
Oil (used motor oil)	1 gallon	7	1
Battery, motor vehicle	1 battery	33	3
General			
Bale 30" x 48" x 60"	1.85 cubic yards 50 cubic feet		4
Bale 30" x 48" x 72"	2.22 cubic yards 60 cubic feet		4
55 gallon drum or container	approx. 1/4 cubic yard (.278)		4
90 gallon drum or container	approx. 1/2 cubic yard		5
Business Waste: Typical uncompacting dumpster	1 cubic yard	240†	6
Business Waste:	1 cubic yard	700†	6
†If your waste has a large percentage of food wastes, metals, glass or other wet and/or heavy materials, use 360 lbs for uncompact waste and 1050 for compacted waste. (6)			

* Weight given in pounds is either a range, average or midpoint of a range.

SOURCES

1. U.S. Environmental Protection Agency (EPA), Business Guide for Recycling Solid Waste, November, 1993.
2. Ohio Environmental Protection Agency (OEPA) Conversion Chart, October 1989.
3. Adapted from Resource Recycling, "Volume-to-Weight Factors: Recycling's Manifest Destiny," November 1991. Table 1, p.70, Table 2, p.71
- 4.
- 5.
- 6.

Adapted from Resource Recycling, "Volume-to-Weight Factors: Recycling's Manifest Destiny," November 1991. Table 3, page 73.
ODNR Staff calculations
King County Solid Waste Division, Seattle, WA,
Business Waste Reduction and Recycling Handbook, January 1991.

Examining Facility Records/Conducting a Facility Walk-Through

Use the chart on the next page when examining facility records and/or conducting a facility walk-through to determine your waste composition and recycling potential.

Waste Disposal Services Data

Waste Disposal Company: _____ Contact _____

Address _____ Phone _____ Fax _____

Number of Containers: _____ Size (cubic yards): _____ Cost (per pick-up/rental): _____

Frequency of Pick-Up: _____ Can frequency of pick-up or container size be changed? Yes No

Written Contract: Yes No Expiration Date: _____ Total estimated weight of waste generated annually: _____

Estimate of Waste Composition and Recycling Potential

Below are examples of the type of information needed and the methods used to estimate the recycling potential of significant waste components. Also included are examples of how to calculate waste disposal savings, and record suggestions and required resources. These procedures are applicable to other waste reduction values.

	Department/ Material	Waste Materials Produced Weekly/Annually (lbs)	Annual Amount of Waste Material Converted to Cubic Yards	Percent Recyclable	Annual Waste Disposal Cost Savings	Suggestions for Workplace Recycling/ Resources Needed
Record Review	Purchasing Office/ Corrugated Cardboard	Corrugated Cardboard: Approx. 30 boxes (.5 lbs each) & 10 boxes (1.25 lbs each) discarded per week. Waste Generated Weekly: 27.5 lbs (30 x .5 lbs + 10 x 1.25 lbs) Waste Generated Annually: 1430 lbs (27.5 lbs x 52 weeks)	Conversion: If 100 lbs loose corrugated cardboard equals 1 cu. yd. (See Appendix C), then 1430 lbs of corrugated cardboard would equal approx. 14.3 cu. yds. (1430 ÷ 100)	Percent Recyclable: Assume 70% recovery rate. Therefore, 10 cu. yds. will be recovered.	Annual Waste Disposal Cost Savings: \$115.50 Calculation: If a dumpster holds 30 cu. yds., then 10 cu. yds. would occupy approx 33% of the dumpster (10 cu. yds ÷ 30 cu. yds). If the disposal of a 30 cu. yd. dumpster costs \$350 per "pick- up," then the annual disposal cost savings would be \$115.50 (\$350 x 33%).	Suggestions: <ul style="list-style-type: none"> • Employees establish collection area on each floor and break down boxes. • Building maintenance moves and stores boxes in a special dumpster on the dock. Resources Needed: <ul style="list-style-type: none"> • dock storage space • signage • building manager's assistance
Facility Walk-Through	Credit Department/ Discarded Paper	White Ledger: Approx. 30 reams (5 lbs each) discarded per week. Waste Generated Weekly: 150 lbs (30 reams x 5 lbs) Waste generated Annually: 7800 lbs (150 lbs x 52 weeks)	Conversion: If 325 lbs of loose white ledger equals 1 cu. yd. (See Appendix C), then 7800 lbs of white ledger would equal approx. 24 cu. yds. (7800 ÷ 325).	Percent Recyclable: Assume 80% recovery rate. Therefore, 19.2 cu yds. will be recovered.	Annual Waste Disposal Cost Savings: \$224.00 Calculation: If a dumpster holds 30 cu. yds., 19.2 cu. yds. of white ledger would occupy approx. 64% of the dumpster (19.2 cu. yds. ÷ 30 cu. yds.). If the disposal of a 30 cu. yd dumpster costs \$350 per "pick-up," then the annual disposal cost savings would be \$224.00 (\$350 x 64%).	Suggestions: <ul style="list-style-type: none"> • Collect recyclables at desk. • Building maintenance empties and stores. Resources Needed: <ul style="list-style-type: none"> • 47 desk side containers • 5 large bins at copiers/printers • dock storage space

Examining Facility Records/Conducting a Facility Walk-Through

Name _____ Date _____

Department/ Material	Waste Materials Produced Weekly/Annually (lbs)	Annual Amount of Waste Material Converted to Cubic Yards	Percent Recyclable	Annual Waste Disposal Cost Savings	Suggestions for Workplace Recycling / Resources Needed

Conducting a Waste Sort

When conducting a waste sort, follow the procedures below and enter the data on the Waste Sort Form (next page)

1. Plan your waste sort for a typical work day. Decide whether you will sort an entire day's waste or a representative sample. A representative sample method is often used at large companies. Note the type of sample, the date, and name of the person performing the waste sort on the Waste Sort Form.

2. Determine the waste components to be collected and sorted separately (at a minimum, potential recyclables). Review appendix B. If necessary, add specialized waste components to the waste sort form.

3. Provide containers for each major Waste Category (e.g., paper, plastic, glass, metals, organics) and for each Waste Component when appropriate (e.g., within the paper category: computer paper, white ledger, colored ledger).

4. Locate an area for set-up of a sorting station with a scale for weighing waste materials. Assemble containers for each Waste Category and/or Waste Component.

5. Enlist the help of custodial staff and volunteers. Make certain containers are in place and make certain all employees know what to do.

6. At the day's end or according to the representative sampling plan developed, collect the waste from all departments or waste receptacles.

7. Weigh each Waste Component within a Category. Subtract the weight of the empty collection container if necessary. Enter the Component Weight on the Waste Sort Form.

8. To calculate the other data requested on the Waste Sort Form, refer to the following key terms and methods of calculation. Enter this information by key term or numerical reference.

Total Category Weight (1):

Add all components.

Total Weight of Waste Sample (2):

Add all Total Category Weights (1).

Total Category Percentage (3):

Divide each Category's Total Weight by the Total Weight of Waste Sample (2) and multiply it by one hundred. *Example: 60 lbs paper/150 lbs total waste x 100 = 40 percent. Forty percent of total sample weight is paper.*

Percent of Total Weight of Waste Component (no number):

Divide each component's weight by the Total Weight of the Waste Sample (2) and multiply it by one hundred. *Example: 20 lbs computer paper /150 lbs total waste x 100 = 13 percent. Thirteen percent of total sample weight is computer paper.*

Estimated Weight per week or year by Category (4):

Multiply each Total Category Weight (1) by the number of office working days per week or per year for an Estimated Weight per week or year by Category. *Example: 60 lbs of paper/day x 5 working days/week = 300 lbs of paper per week; 60 lbs of paper/day x 260 working days/year = 15,600 lbs of paper per year. If you used a representative sample shorter than one day, adjust information to a one day sample before using this formula.*

Estimated Weight per week or year for Total Waste Sample (5):

Add all category's Estimated Weight per week or year (4) for an Estimated Weight of the Total Waste.

9. Use the waste sort information for choosing the waste components to include in your recycling program. Select the components with the highest potential for recovery, based on weight and market value.

Waste Sort Form





Name _____

Date _____

Sample: One Day

Other _____

(1) Total Category Weight : Add all components.
 (2) Total Weight of Waste Sample: Add all Total Category Weights (1).
 (3) Total Category Percentage: Divide each Category's Total Weight by the Total Weight of Waste Sample. Percent of Total Weight of Waste Component (no number): Divide each component's weight by the Total Weight of the Waste Sample.
 (4) Estimated Weight per week or year by Category: Multiply each Total Category Weight .
 (5) Estimated Weight per week or year for Total Waste Sample: Add all category's Estimated Weight per week or year (4) for an Estimated Weight of the Total Waste.

Waste Component		Component Weight (lbs)	Percent of Total Weight	Est. Weight per wk or yr (lbs)
PAPER	Computer printout (high)			
	White Ledger (high)			
	White Ledger (medium)*			
	Colored Ledger (medium)			
	Mixed Paper (low)			
	Newspaper (low)			
	Corrugated Cardboard			
Total Category Weight/Percentage		(1)	(3)	(4)
PLASTICS	PETE 			
	HDPE 			
	Other Plastics  			
	Total Category Weight/Percentage	(1)	(3)	(4)
GLASS	Clear			
	Brown			
	Green			
	Total Category Weight/Percentage	(1)	(3)	(4)
METALS	Aluminum/Bi-Metal Cans			
	Ferrous (tin-coated steel cans)			
	Total Category Weight/Percentage	(1)	(3)	(4)
ORGANICS	Yard Trimmings			
	Scrap Wood			
	Food Waste			
	Total Category Weight/Percentage	(1)	(3)	(4)
TOTALS		(2)	100%	(5)
		Total Weight		Total Estimated

* White ledger with laser printing is sometimes classified as a medium grade. In most organizations, it is very difficult to separate out laser printed materials. Many recyclers no longer require laser print to be separated. Check with local recycling sources.

Selected Resources

Guides

Business Guide for Reducing Solid Waste,

November 1993, EPA/530-K-92-004

Waste Prevention Pays Off,

November 1993, EPA/530-K-92-005
RCRA Information Center
U.S. Environmental Protection Agency
Office of Solid Waste (OS-305)
410 M Street, SW
Washington, DC 20460
(800) 424-9346
(703) 412-9810 Washington DC area

Buy Recycled Business Alliance Guide

National Recycling Coalition, Inc.
1101 30th Street, NW
Suite 305
Washington, DC 20007
(202) 625-6406

**Office Paper Recycling Guide
Buy Recycled Paper Products Guide**

The U.S. Conference of Mayors
1620 I Street, NW
Washington, DC 20006
(202) 293-7330

PaperMatcher

American Paper Institute, Inc.
1250 Connecticut Avenue, NW
Suite 210
Washington, DC 20036
(800) 878-8878

Magazines and Publications

BioCycle: The Journal of Waste Recycling

419 State Avenue, 2nd Floor
Emmaus, PA 18049
(215) 967-4135

Recycled Paper News

5528 Hempstead Way
Springfield, VA 22151
(703) 642-1120

Recycling Times

National Solid Waste Management Association
4301 Connecticut Avenue, NW
Suite 300
Washington, DC 20008
(202) 659-4613

Resource Recycling

1206 NW 21st Avenue
Portland, OR 97209
(503) 227-1319

Waste Age Magazine

4301 Connecticut Avenue, NW
Suite 300
Washington, DC 20008
(202) 244-4700

For more information on Recycling or Buy recycled contact:

Ohio Department of Natural Resources
Division of Recycling & Litter Prevention
1889 Fountain Square Court, Building F-2
Columbus, OH 43224-1331
(614) 265-6333
Fax (614) 262-9387
Website:
www.dnr.state.oh.us/odnr/recycling



The Mission of the Division of Recycling and Litter Prevention

To provide leadership and financial and technical support to advance waste reduction, recycling and litter prevention programs that positively impact the citizens of Ohio.

The Vision of the Division of Recycling and Litter Prevention

Ohio - Litter free, minimal waste, and effective recycling.