United States
Environmental Protection
Agency

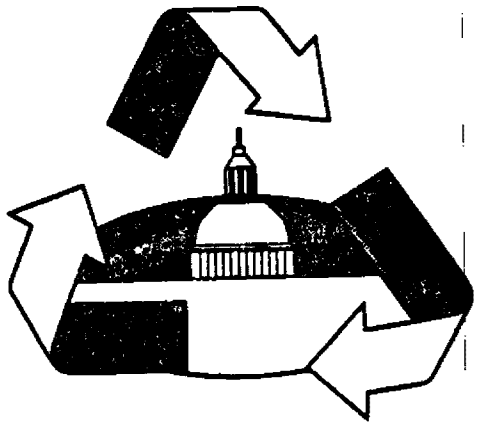
Solid Waste and
Emergency Response
(OS-305)

December 1991

EPA

Recycling in Federal Offices:

Resource Materials



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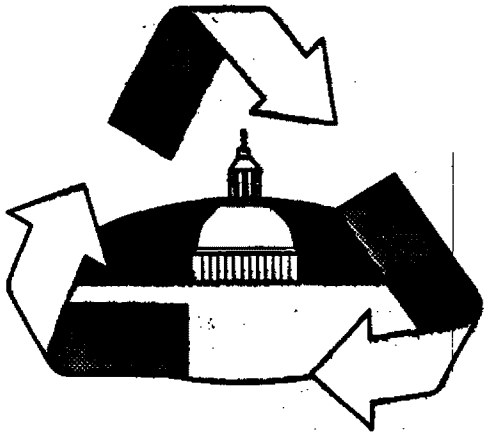

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ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

These resource materials were developed under a cooperative effort between the **U.S. Environmental Protection Agency**, Office of Solid Waste 401 M Street, S.W., Washington, D.C. 20460, Project Officer: Terry Grist and; the **General Services Administration**, Federal Recycling Program, Office of Real Property Management and Safety, 8th and F Streets, N.W., Washington, D.C. 20405, Recycling Specialist: Beverly Goldblatt.

PREFACE

As the amount of waste generated annually in our nation grows, as landfill space diminishes, and as the public begins to realize the value and limit of its natural resources, programs are being implemented throughout the nation to both reduce and recycle to the greatest extent possible the waste we generate. Federal offices generate large quantities of recyclable paper and non-paper wastes and therefore present an excellent opportunity for source reduction and recycling. In fact, the Federal government strongly encourages all government agencies to recycle and mandates that Federal offices employing over 100 office personnel separate and collect office paper for recycling.[1]

To help Federal agencies comply with this mandate, EPA has compiled *Recycling in Federal Offices*. The information contained in this package has been prepared to train Federal agency officials and office recycling program coordinators on how to start and operate a comprehensive office recycling program. The training materials will assist recycling coordinators in undertaking all aspects of an office recycling program, including evaluating an office's waste stream, developing a contract with a materials dealer, and educating and motivating all agency employees participating in the program.

This package is comprised of five main components:

- Section 1.0 *An Overview of Recycling in Federal Offices.* This background document provides agency officials who will become the program coordinators with an understanding of how to design, implement, and monitor a comprehensive recycling program. Each of the points addressed in the paper is paralleled by paper slides, also included in this package.

- Section 2.0 *Training Seminar for Program Coordinators.* This presentation is designed to give program coordinators a full understanding of how to start and operate an office paper recycling program. The presentation covers a range of topics from performing a market analysis and selecting collection containers, to procurement guidelines and establishing a recycling contract. The presentation includes a series of paper slides that can be made into transparencies, along with talking points for the presenter to use when showing the transparencies.

- Section 3.0 *Training Seminar for Office Employees.* A presentation designed for use by recycling coordinators to educate all agency personnel

[1] 40 CFR 246.200-1 and 200-2

recycling in the office place. This suggested slide show could be shown to all agency personnel at the initiation of your agency's recycling program and describes the office collection system used, and materials recycled. Included in the package is a series of suggested slides with accompanying talking points.

- Section 4.0 *Supplemental Resource Materials for Program Coordinators.* Reference publications that can educate program coordinators about various aspects of office recycling. The reference materials provide Federal agency officials with some of the most recent and comprehensive guides to Federal office recycling that are available. Included with the references is a copy of EPA's publication *Office Paper Recycling: An Implementation Manual.*

- Section 5.0 *Educational Materials for Employees.* Example reference materials that can be used to educate Federal employees about office recycling and promote participation in the program.

These materials should assist you in developing and implementing a comprehensive office recycling program in your Federal office building.

RECYCLING IN FEDERAL OFFICES: RESOURCE MATERIALS

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- Section 2.1 Paper Copies of Slides and Talking Points
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- Section 3.1 Example Narrative for Suggested Slide Show Presentation

Section 4.0 SUPPLEMENTAL RESOURCE MATERIALS FOR PROGRAM COORDINATORS

- Section 4.1 "Office Paper Recycling: An Implementation Manual", U.S. EPA, Office of Solid Waste and Emergency Response, January 1990 (EPA/530-SW-90-001).
- Section 4.2 "Office Recycling Handbook", U.S. EPA, Region V.
- Section 4.3 "Developing a Comprehensive Federal Recycling Program: A Handbook", U.S. EPA, January 1990.
- Section 4.4 "The Garbage Problem: An Action Agenda", (brochure), U.S. EPA, Office of Solid Waste, February 1989 (EPA/530-SW-89-018).
- Section 4.5 "General Services Administration Federal Recycling Program Contract Specifications", GSA, May 16, 1991.
- Section 4.6 "Procurement Guidelines for Government Agencies", (brochure), U.S. EPA, Office of Solid Waste, 1991.
- Section 4.7 Sample Letters to Employees and Branch Chiefs Promoting Paper Recycling.
- Section 4.8 Annotated Bibliography of Paper Recycling Materials.

Section 4.9 "Your Office Paper Recycling Guide", GSA, Region IX.

Section 5.0 EDUCATIONAL MATERIALS FOR EMPLOYEES

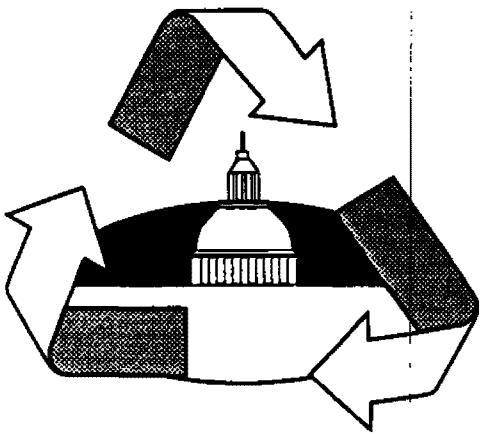
Section 5.1 "Federal Office Recycling Program", (slide show), U.S. EPA, Office of Solid Waste and GSA Federal Supply Service.

Section 5.2 "Recycling in Federal Agencies", (brochure), U.S. EPA, Office of Solid Waste, 1990.

Section 5.3 "Invest in the Environment", (brochure), GSA.

Section 5.4 "Recycle", (brochure), U.S. EPA, Office of Solid Waste, October 1988 (EPA/530-SW-88-050).

Section 1.0
Recycling in Federal Offices:
Overview of Recycling in Federal Offices



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OVERVIEW OF RECYCLING IN FEDERAL OFFICES

This document is part of a larger EPA training package entitled *Recycling in Federal Offices: Resource Materials*, designed to help Federal agencies comply with a mandate to promote office recycling throughout the Federal government.

This particular component provides background information on office recycling program design, implementation, and maintenance. It is intended to be used by the individuals who will be responsible for overseeing the program implementation -- the prospective Program Coordinators and Program Monitors. The document can also be used to further educate program participants who wish to learn more about office recycling programs.

The program design detailed here is not the only possible way to establish an office recycling program, therefore it does not have to be strictly followed. Design your program so that it operates with maximum efficiency given the conditions that exist in your agency.

I. BACKGROUND

THE BENEFITS OF SOURCE REDUCTION AND RECYCLING

In 1988, the Nation generated about 180 million tons of municipal solid waste, or garbage.[1] The Federal government, of which your agency is a part, contributed a large amount of office waste to this sum. In fact, the Federal government generated approximately 1.3 pounds of trash per employee, per day.[2] By far, the largest component of office waste is paper. In fact, of the waste generated by Federal employees, between 50 and 85 percent is paper. Office waste streams also contain lesser amounts of metal, plastic, and glass, most commonly in the form of food or beverage containers. All of these discarded materials represent potentially valuable resources that can be recovered and recycled.

Materials commonly considered waste, such as used beverage bottles, aluminum cans, and office paper, can be recycled into new products. Many of you are familiar with the recycling concept and may already participate in residential recycling programs operated by the state, county, or city in which you live, or you may participate in

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[1]U.S. EPA, Characterization of Municipal Solid Waste in the U.S.: 1990 Update, June 1990, p. 10.

[2]Earthworm Consultants, 1990. Study conducted for EPA Region I.

recycling activities sponsored by local organizations. These activities can easily be transferred to the workplace, including your agency. Recycling is becoming popular across the nation as people learn of the benefits gained by recovering resources from "waste." In many locations, local governments are reinforcing this environmental groundswell by enacting laws that mandate recycling for materials such as newspapers, glass bottles, and aluminum cans.

Every piece of waste that you put in a trash can goes somewhere: it does not disappear. The most common methods of waste management have been landfilling and incineration. These waste management options appeared satisfactory in the past because sites for disposal and combustion facilities were readily available and the public was generally supportive of facility sitings or remained neutral. Presently, however, landfills are reaching their capacity or closing down because of new, tougher design and operating standards, and new landfills and incinerators are becoming increasingly difficult to site because of public concern regarding potential emissions and public health hazards. The EPA estimates that by 1995, approximately 50 percent of the current space in all landfills will be exhausted.[3] In some parts of the country, a shortfall in municipal solid waste disposal capacity has reached crisis proportions. For those areas, a different approach to waste management is a necessity.

The nation has two preferred options for dealing with this crisis: produce less waste (known as source reduction) and recycle materials into new products. Realizing this, EPA established an integrated waste management hierarchy that promotes source reduction as the most preferred waste management option and recycling as the option of second choice. In general, source reduction and recycling are environmentally preferable to incineration and landfilling,[4] although there will continue to be a need for safe disposal capacity for those wastes that may not be amenable to source reduction or recycling.

SOURCE REDUCTION

Source reduction means reducing or eliminating waste at the point of generation (when something is created or first used), rather than after it has been manufactured or used. By addressing the problem early on, you can avoid or reduce the amount of waste you must deal with later. Source reduction can be accomplished by a number of methods, such as reusing items to the maximum extent possible, using fewer materials when producing a product or package, reducing the amount of materials needed for a

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[3]U.S. EPA, based on a 1986 survey of landfill operators.

[4]U.S. EPA, Characterization of Municipal Solid Waste in the U.S.: 1990 Update, June 1990, p. 4.

task by redesigning the task to be more efficient, and substituting materials that are less toxic for harmful materials. Although the source reduction concept has been traditionally applied to industrial settings, this pollution preventing technique can also be an effective tool for reducing office waste. Source reduction methods you can use at your agency include:

General Methods:

- Reduce waste by not generating it in the first place.
- Reuse items as often as you can before you dispose of them.
- Eliminate the use of unnecessary items.
- Economize in your use of materials.
- Substitute less harmful or toxic materials for hazardous materials.
- Procure items that have long lifetimes and produce less or no waste.

Specific Practices:

- Use the two-sided copying feature on your photocopying machines as standard practice.
- Where possible, perform document modifications on-screen, rather than on printed drafts.
- Maximize use of electronic media (e.g., voice mail and bulletin boards) instead of writing memos on paper.
- Reuse items such as transmittal envelopes, three-ring notebooks, binder clips, and hanging files.
- Buy printers and copiers that have double-sided capabilities.
- Buy facsimile machines that use white ledger instead of thermal paper.
- Maximize use of renewable writing media (e.g, wipe boards).
- Reuse non-recyclable packing materials, or switch to recyclable packing materials.
- Purchase in bulk whenever possible to reduce packaging.

- Use reusable coffee mugs.

- Reuse laser printer toner cartridges by exchanging or selling them to the dealer to be refilled.

- Use old drafts as scratch paper/note pads.

Integrating Source Reduction Into Your Office

In an office setting, source reduction is best applied as a reevaluation of how we conduct business. The source reduction ethic is instilled by educating staff about what the concept means and how it can reduce the amount of waste we generate in the office. The goal of such education is to make your fellow employees consider each of their daily actions as a potential waste generating practice, and to help them modify their work approach so that they reduce the amount of waste they generate. All employees should incorporate source reduction into their normal work habits. Some source reduction practices -- especially those involving procurement and product quality issues -- require the participation of management and procurement officials.

Whenever possible, waste management problems should first be addressed through source reduction. In those instances where you can't source reduce, however, recycling is the next best alternative. In most cases, source reduction and recycling efforts exist side by side in the office, complementing one another.

THE RECYCLING LOOP

The recycling process can be thought of as a continuous loop of related activities, each having equal importance and stimulating the growth of the other elements. The recycling loop is comprised of the following elements: the supply of raw materials, the demand for products with recycled content, and manufacturing of the raw materials into recycled products. A simplified description of the recycling loop follows:

1. An office recycling program collects materials for recycling.

2. A manufacturing company purchases the recyclables collected in the office recycling programs, and uses them to produce new products.

3. An agency's procurement office purchases the products made with recycled content.

4. Eventually, those products are used by agency employees and are collected in the office recycling program. This process begins again...

The collection element of the loop (the office recycling program) cannot exist without someone to buy the collected materials (the manufacturer of the products with recycled content). Similarly, the manufacturer won't create products with recycled content unless there is sufficient demand for those products in the marketplace (the agency's procurement of goods with recycled content). These three elements--demand (procurement), supply (collection), and manufacture (materials broker)--cannot function without each other. In other words, the recycling loop is interdependent upon all of the elements within the loop.

This training package focuses on the collection element of the loop. Although the manufacturing of recycled products is an equally important element, collecting and procurement are the elements that concern office recycling programs the most.

Procurement - An Important Aspect Of Source Reduction And Recycling

Procurement is an important aspect of source reduction and recycling because the ability to reduce, reuse, and recycle is dependent upon the materials with which we are working. The way in which we obtain products (our purchasing practices) and the design of the products themselves contribute to the nature and quantity of waste generated in the office. The following "smart shopping" techniques should help you practice source reduction when procuring items for your office:

Source Reduction Approaches:

- *Procure items that are durable and produce little or no waste.* Avoid disposable products with short life spans -- durable, well-built products may be more expensive in the short term, but often cost less over the long term.

- *Use the "Just-In-Time" buying practice when you have to procure products that have a short life span.* Buy only when it is necessary to avoid stockpiling (and later disposing) unused, outdated, or spoiled items.

- *Avoid procuring items that are needlessly overpackaged.* When possible, buy in bulk to avoid extra packaging.

- *Procure products with less toxic contents.* The fewer products we buy that contain toxic constituents, the fewer harmful chemicals will be manufactured and potentially released to the environment.

Not only is procuring items that contribute to source reduction important, procuring materials with recovered material content is equally important. Recycling entails separation, collection, processing, marketing and use of the material as a raw material for new products, and does not simply mean the collection of materials. Federal agencies should contribute to the complete recycling process by purchasing products that

contain recycled materials. RCRA Section 6002 requires Federal agencies, in many cases, to procure items composed of the highest percentage of recovered materials practicable. To date, EPA has promulgated five guidelines for the procurement of products containing recovered materials.[5] These guidelines are provided to assist Federal agencies in determining what percentage of recovered materials is practicable in specific products and assist procurement officials in identifying and evaluating products containing recycled materials. Final guidelines have been published for paper and paper products, lubricating oils, retread tires, building insulation products, and cement and concrete containing fly ash.

Federal agency procurement of items containing recovered materials can be especially influential upon the markets for products containing recycled materials because of the Federal government's significant and extensive purchases of goods (7-8 percent of the GNP). Your agency can help stimulate the market for secondary materials by becoming familiar with the procurement guidelines and assuring that the guidelines are being actively implemented within your agency, including grant recipients and contractors, required under RCRA.

The following techniques are the general "smart shopping" techniques for incorporating recycling into your approach to procurement:

Recycling Approaches:

- *Procure items made from recycled materials.* Follow EPA's procurement guidelines to determine the specific type of product you should obtain. To assist you in selecting specific products with recycled content, GSA has developed a recycled products catalog.[6]

- *Procure items that are themselves easily recycled.* Give preference to items that can be incorporated into your agency's recycling program.

Your agency's procurement practices can contribute positively to the manufacture and use of recycled products, and the avoidance of waste generation--and less waste means less cost.

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[5]A booklet describing these guidelines is included in Section 4 of the Supplemental Resource Materials for Program Coordinators. (This section is included in the Recycling in Federal Offices Resource Materials.)

[6]See Appendix A.

PAPER RECYCLING AS A FIRST STEP

Because paper comprises a large percentage of office waste, immediate progress toward dealing with the nation's waste crisis can be made by implementing paper recycling programs. Where feasible, other materials such as metal, glass, and plastic should be incorporated into office recycling programs. We must all participate in a comprehensive office recycling program -- a program that makes economic and environmental sense.

The reasons to participate in recycling programs include the following:

Economics

- You are reducing the amount of office waste that must be hauled, and reducing the hauling and tipping fees incurred by your agency for trash disposal. Waste hauling fees are on the rise, costing the government more and more to dispose of its waste.

- In some instances, you are generating revenues from the sale of recyclables. Since money generated from Federal office recycling is returned to the Treasury in most instances, there may not be a direct financial incentive for agencies to proceed with recycling programs (other than the important aspect of decreasing disposal costs). It is worth noting, however, that several bills presently before Congress would authorize Federal agencies operating programs to retain proceeds from the recycling of office paper and other materials.

Environmental Protection

- You are diverting what may otherwise be disposed as waste in landfills and thereby saving limited disposal capacity.

- You are conserving natural resources by substituting recycled for virgin materials in the manufacture of products.

- You can potentially conserve natural resources by using less fuel, water, and other resources in the manufacturing of recycled products rather than virgin products.

- You can help reduce emissions from combustors and landfills.

Social Benefit

- You are demonstrating your leadership and commitment by caring for the environmental quality of your community.
- You are enhancing the quality of life in your community.
- You are contributing to state, municipal, or community source reduction and recycling goals.
- You are protecting the quality of life for future generations.

SOURCE SEPARATION

Source separation involves sorting recoverable materials by type and/or grades. The primary purpose of source separation is to ensure the quality and homogeneity of the materials prior to their collection and subsequent use. Because of the large number of paper grades used in the office environment, education for employees on the source separation of paper is especially important. In general, other recyclable materials require less complicated separation methods than recyclable paper.

One point to remember is that the need for source separation of paper grades (and other material types as well) is driven by the recycled paper market. If there is a demand for unsorted (also called "commingled") paper in your area, you may not need to source separate your recyclable paper. Conversely, if your local materials dealers only accept certain grades of paper, you will have to source separate. When designing your office recycling program, take into consideration the demand for the recyclables you will be collecting, and determine the extent to which your program will source separate.

PAPER

It is important to know that different grades of paper lend themselves to making different types of new products. Paper grades range from high grade (e.g., computer printouts, white ledger), to low grade (e.g., colored writing tablets), to specialty grades (e.g., newspaper, corrugated material). Higher grade paper is generally worth more than lower grade to the mills that recycle paper. However, the grades most marketable in your area will depend on local markets. It is important to work with your paper dealer to determine what grades can be collected and sold in your area.

The recyclable paper generated in offices is generally a mixture of several types of paper products. Different locations within an office may generate different types of recyclable paper, including the following:

- White and colored bond paper
- Computer paper
- Business forms
- Stationery
- Data tabulating cards
- Newspapers
- Corrugated containers (commonly known as cardboard boxes)

If paper is to be recycled by grade or type of paper, these paper types must be sorted (i.e., separated by grade) to ensure a homogeneous, high-quality supply for the paper mills.

Another important consideration is the "cleanliness" of your recyclable paper. Foreign objects, such as food waste, contaminate the recycling process and create processing difficulties at the mills, resulting in lower prices paid for or the rejection of the paper. It is essential that these contaminants be kept out of the recycling containers. Check with your paper dealer to determine what items should be considered contaminants in your program.

OTHER RECYCLABLE MATERIALS

Because paper comprises the largest component of most Federal office waste, it is the natural first component of an office recycling program. Depending on the waste generating characteristics of your agency, however, you may wish to consider including other materials in your recycling program. Metals, glass, and plastic merit equal consideration for inclusion in office recycling programs, if they are present in your office waste stream in sufficient quantities to warrant separate collection (see "Waste Stream Analysis and Building Profile"). Collecting recyclable paper is a start -- when feasible, expand your recycling program to include these other "traditional" recyclables, as well as any non-traditional items that lend themselves to recycling in your area.

II. PROGRAM ORGANIZATION

DESIGNATING A PROGRAM COORDINATOR

An office recycling program of any type needs a basic level of organization if it is to be successful. It needs a central manager -- a program coordinator -- who is responsible for overall program operations, and it needs individuals at the staff level -- recycling monitors -- who are responsible (usually on a part time basis) for overseeing the daily operations of the recycling program.

A program coordinator must be enthusiastic, have excellent communication and organizational skills, be willing to learn, and have a general understanding of building operations. It is also important that the program coordinator have a good rapport with the employees, as well as other tenants in the building, because this individual will be responsible for encouraging and educating the employees about the operation of their recycling program.

Enthusiasm for any office recycling program is often infectious when the right person takes the lead. The program coordinator is critical because his or her knowledge, personality, and support for the recycling concept will inspire others to become active participants. The recycling coordinator is responsible for making all employees realize that each individual's participation makes a difference.

The responsibilities of the program coordinator may include:

- Initiating the program
- Performing a market analysis and waste stream analysis
- Training program monitors
- Developing and implementing the collection and storage system
- Evaluating the program on a monthly basis
- Developing program reports
- Implementing employee education programs
- Encouraging employee participation.

Depending on the needs of a particular recycling program, the recycling coordinator may have additional responsibilities that involve:

- Organizing a recycling program task force
- Establishing a contract or accessing an existing contract

The administrative requirements during the startup period of approximately three or four months are often substantial. The program coordinator must be committed to the success of the recycling program and willing to provide the time and energy necessary to make the program work. While the demands on the program coordinator ease considerably after the startup period, he or she must remain committed to the effort.

SELECTING PROGRAM MONITORS

Each operational area, such as a floor, a division, or a branch, etc., should have its own monitor to ensure the smooth operation of the recycling program. Since the recycling program is an additional duty, it is important to note that each monitor should be responsible for no more than 100 employees; greater numbers make the job significantly more time consuming and difficult. This person is responsible for the daily operation of an area recycling program and acts as a liaison to the program coordinator. The time required each week for monitoring activities is usually very small, although during the initial period and during changes in the program's scope or procedures, more time may be required.

To fill this position successfully, each program monitor must have skills similar to those of the coordinator, including good communication and organization skills, and enthusiasm. Because they will be working with the employees in their operational area, program monitors must have an excellent relationship with these individuals.

The responsibilities of the program monitor include:

- Encouraging employee participation
- Answering questions and educating employees about the recycling process in general and the success of their own operation
- Ensuring that recycling containers are being used properly (e.g., that employees are properly sorting materials by type, and ensuring that contaminants are not commingled with the recyclable materials)

- Notifying the coordinator about any difficulties, such as aesthetic problems, or conflicts with other tenants.

SELECTING A TASK FORCE (optional component)

In a multi-tenant building, the recycling program coordinator may need to organize a task force to coordinate the recycling efforts of the various agencies. If your agency shares your building with another agency or a non-government organization, then you will need to include representatives of the other organizations on the task force.

If there is a need, the program coordinator may wish to assemble a group of individuals who are knowledgeable in the various areas and operations of a building and who have the requisite expertise for a successful recycling program. The role of the task force is to provide the initial guidance and organization to establish the goals, design, and operation of the recycling program. After the startup period, the task force will be active only when problems arise (e.g., resolving conflicts with other tenants or renegotiating waste materials collection contracts) or when program changes are anticipated, such as adding a new recyclable commodity to the program.

The composition of the task force will vary among agencies, but the types of people that should be included are representatives from:

- Facility operations (e.g., the building supervisor or head custodian)
- Employees (someone to represent the interests of the average worker)
- Management (someone to express management's support for the recycling effort and voice their perspective)
- Contracts representatives (someone who can give advice/direction on the contractual and financial requirements of the program)
- Recycling monitors.

OVERCOMING RESISTANCE

The major challenge in establishing a recycling program is to change people's attitudes about waste management. By motivating people to recycle you are helping to instill an environmental ethic in others that will carry over into their everyday lives. Misconceptions about recycling abound, and it is the job of the program coordinator and

the program monitors to correct those misunderstandings. Examples of the misconceptions include:

- There are no benefits to recycling office wastes -- I get nothing out of it.
- Participating in an office recycling program consumes a lot of time/space. What a pain!
- No one else recycles -- why should I?
- Office paper recycling programs do not adequately protect confidential information.

These sentiments most often result from a lack of knowledge about recycling. For many people, recycling is a new concept or requires a change in behavior. To overcome resistance, the program coordinator and the program monitors must educate their coworkers by emphasizing the positive aspects of recycling. In particular, they should stress facts such as:

- Recycling has economic, environmental, and social benefits.
- Recycling at the office is an extension of recycling at home.
- Recycling does not place an enormous burden on the employee -- in fact, once accepted, recycling becomes second nature.
- Office recycling programs are spreading throughout the country, in both the public and private sectors.
- Office paper recycling programs can be designed so that they do not jeopardize confidential information (measures can be taken to ensure that such information is protected; offices of Federal agencies, such as the Federal Bureau of Investigation and the Internal Revenue Service, operate successful office paper recycling programs).

III. WASTE STREAM ANALYSIS AND BUILDING PROFILE

WASTE STREAM ANALYSIS

A waste stream analysis is an evaluation to identify the quantity and composition of materials contained in an office's refuse. The analysis provides basic information necessary for the program coordinator (and others, depending upon the office's

characteristics) to plan, design, and operate an effective program. This analysis will help determine:

- The types of materials to be included in your office recycling program (e.g., white paper only, white paper and mixed paper, or paper and non-paper recyclables)

- Which sections of the office should participate (those that generate sufficient quantities of recoverable materials and quality materials should participate).

A waste stream analysis can be elaborate (such as a formal waste assessment using scientific methods)[7] or simple (such as examining waste receptacles at several locations to determine the approximate composition and quantity of waste and then extrapolating those conditions for other similar locations). The type of waste stream analysis suitable for your agency depends upon the conditions of your particular office and your need for precise information. Although we focus on paper as the example in this section, a waste stream analysis will identify the quantities of glass, metal, and plastic as well. To avoid the time and expense of future analyses, you may want to consider a complete waste stream analysis at the outset so that expansion of your program to include other recyclables can be done easily.

The basic questions that should be answered in a waste stream analysis are:

- What is the total volume of waste generated by each division/floor/operating unit over a given period of time?

- What is the quantity of each recyclable in the waste stream?

- What types/grades of material comprise this waste stream?

- How much of each type/grade of material is in your office waste?

In conducting a waste stream analysis of recyclable materials generated in your office building, it is essential that you be familiar with and able to distinguish between the different types and grades of materials that comprise your waste. Below is a detailed description of the potentially recyclable paper grades and other material types you may encounter in the analysis of your building's waste stream.

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[7]EPA has developed a rigorous waste assessment methodology. This is described in the *Waste Minimization Opportunity Assessment Manual* (EPA/625/7-88/003).

PAPER GRADES

Recyclable paper generated in office buildings can be categorized into a variety of grades depending on the quality of paper used in the paper product and the contaminants (e.g., plastic windows) that may be associated with the paper product. The quality of the paper collected is important for the end use of the material as well as to maintain a stable contract with a recycler. The grades of recyclable paper generated in an office environment are listed below. This delineation by grade can be used to assist you in conducting your waste stream analysis, which in turn will help shape the design of your office paper recycling program. However, check with your local recycler for their classification of paper types. There is a limited market for commingled paper, however it is generally of lower value. If you wish to include this mix, you will need to check with your materials broker to see if commingled paper are acceptable.

- High grades
  - Computer printouts
  - White ledger (with any color printing)
  - White envelopes with water-soluble glue (without plastic windows)
- Low grades
  - Colored paper
  - Colored note pads
  - Colored envelopes (without plastic windows)
  - Books with insoluble glue bindings
- Newspaper
- Corrugated containers
- Specialty grades
  - Manila/Colored tabulator cards
  - File stock
  - Shredded paper

High Grades

These grades consist primarily of computer printouts and white ledger. High-grade paper is typically recycled into tissue, printing and writing papers, containerboard, and boxboard. This type of paper can be recycled in the U.S., but is also exported to other countries to be recycled into new products.

Computer Printouts

Computer printouts (CPOs), white papers manufactured for use in data processing machines, may account for up to 45 percent of the office waste stream (depending upon computer usage). This grade may contain colored stripes and may consist of impact (i.e., mechanically typed) or non-impact (i.e., laser) computer printouts. Mixing computer printouts with any lower grade will reduce the value of the computer printouts to the value of the lowest grade of paper in the mix.

Impact computer printouts, if sold separately, have a higher market value than CPOs that are laser-printed. Distinguishing between the two types of printing, however, is difficult to the untrained eye. In many instances, it is more beneficial to overall program performance if laser and impact-printed computer papers are collected with no distinction made between them. Please note CPOs are also available in groundwood (a newspaper-like CPO); it may be necessary to identify and segregate groundwood from white CPOs.

White Ledger

This paper grade, accounting for approximately 33 percent of the typical office waste stream, consists of commonly used white office paper, such as printed or unprinted bond, photocopies, typing paper, letterhead, writing papers, white tablet sheets, white scratch paper, outdated office worksheets, memos, and reports. Although computer printouts can be added to this mix, their inclusion generally does not increase the market value of white ledger.

White Envelopes

White envelopes are suitable for high grade recycling only if they do not contain contaminants, such as plastic windows. Some paper mills can accept a higher level of contaminants than others. Check with your paper dealer to determine what levels of contaminants are considered acceptable.

Low Grades

Low grades usually comprise only 5 percent of the typical office waste stream. These types of paper are usually recycled into boxboard and wallboard facings, construction board, tissue, and packaging products. They are also an exported commodity.

Typical types of paper comprising this category include:

- Colored paper (printed or unprinted bond, photocopies, letterhead, writing papers, scratch paper, yellow legal pads and yellow telephone message paper)

- Colored envelopes that do not contain plastic windows.

Mixing low-grade paper in with high-grade white paper will slightly increase the volume of recovery but will lower the quality of the high-grade paper. Separate collection will increase equipment, labor, and storage requirements, but it may be feasible depending on the current market for recyclable paper grades in your area.

Newspaper

While usually not a major component of the office waste stream, newspaper is an excellent candidate for a recycling program because it is easily identifiable (and therefore easy to separate). To promote the recycling of newsprint, many municipalities require that office and residential buildings separate newspaper from other wastes. Because of the success of these recycling programs across the nation, used newsprint is currently in abundant supply, which in turn reduces the price paid for this paper. The newspaper collected in these recycling programs is used to make new newspaper, recycled boxboard, tissue, packaging paper, and construction board. Newspaper is also exported overseas for other countries to use in manufacturing new paper products.

Whether your office recycles newspapers or not, it is important to keep newspapers separate from other types of paper you intend to recycle. Mixing newspaper with higher grades of paper lowers the overall quality of the recyclable paper stock.

Corrugated Containers

This grade is recycled into containerboard, recycled boxboard, tissue, construction board, and packaging paper. It is also exported to be recycled.

Most office buildings generate appreciable amounts of corrugated waste, primarily in the form of packaging for stationery supplies, xerographic paper, office equipment, and food services. The weight of corrugated material in the waste stream is less important than the space (or volume) corrugated boxes take when they are disposed of in either bulk or compacted form. The compaction ratio of corrugated boxes is poor, and case studies have determined that, in many office complexes, boxes are thrown away unflattened. Disposal methods should be examined to determine if compactors and/or containers are being underutilized because of the presence of corrugated bulk. A more effective method may be to have the boxes flattened and tied and left for pickup by the

same paper dealer who purchases the other grades of paper. Paper dealers generally have profitable markets for sufficient quantities of processed and baled corrugated bulk.

Specialty Grades

Paper dealers produce and trade specialty grades in carload and truckload quantities throughout the United States. Many paper mills around the world have special equipment and can use large quantities of these grades. The decision to separate these materials from the building's waste stream, however, should be based on local markets and their waste reduction value versus the additional in-house handling, equipment costs, and storage they will require. Local recycling laws may also influence which materials should be separated for recycling. The specifications for each grade should be determined between agency and recycler.

Manila/Colored Tabulating Cards

This category consists of printed colored or manila cards, predominately sulfite or sulfate, which have been manufactured for use in tabulating machines. Although still valued as high-grade paper, the limited use of these cards throughout the business sector has reduced this category to a specialty grade.

File Stock

This grade is white and colored office file paper containing various amounts of staples, paper clips, rubberbands, and only trace amounts of carbon paper, glued forms, tape, and pressure sensitive adhesives. Almost all offices periodically purge their files. The incidental or periodic removal of these materials can usually be included as a "special service" to an ongoing office paper recycling program.

Shredded Paper

Some amount of shredded office paper will be found at almost every facility. It is usually part of the security operation and contains a variety of types and grades of paper. Shredded paper is categorized as low grade paper since the shredding process breaks down the fiber content. Because of its poor weight-to-volume ratio, shredded paper displaces valuable storage space. Two alternatives to in-house shredding are available however: 1) securing an Affidavit of Destruction, which guarantees that the recovered paper will be kept secure until it is reduced to pulp, and 2) contracting with a company that offers off-site document destruction services.

Contaminants

The value to the end user of the paper collected in an office paper recycling program is directly related to the quality of the material and whether or not the material

meets the dealer's specifications of the purchaser. The value of any grade of recyclable paper can be reduced significantly if it is contaminated with materials that do not meet the dealer's specifications for that particular grade of paper. Contaminants mixed with recyclable paper not only reduce its value, but may also be the cause for rejection by the dealer or mill. The following materials are usually contaminants[8] for office paper recycling programs (although program coordinators need to confirm this list in each case with their paper dealer):

- Newspapers and magazines
- Telephone books
- Carbon paper
- Gummed labels, adhesives
- Slick, waxed, and plasticized papers
- Cardboard
- Ditto or memo stencils
- Photographic and blueprint paper
- Envelopes with plastic windows/self-stick closings
- Thermofax copy paper
- Chemically treated paper
- Thermal facsimile (fax) paper
- Cellophane tape
- Self-adhesive labels and note pads.

[8]Some of the items that appear on this list, such as newspaper and cardboard, may be suitable for separate recycling programs. They are included here because they are common contaminants of higher grade paper in office recycling programs.

TYPES OF METAL

The most commonly found metal in office waste streams is aluminum in the form of beverage containers. Other metal containers such as steel cans (including tin-coated, tin-free, and bimetal cans) may be encountered, but these are usually in quantities so small that they are not routinely included in office recycling programs. However, these are recyclable and may be a candidate for inclusion in your office recycling program. Aluminum is a ubiquitous material that has been extensively recycled for over two decades: the aluminum industry recycled over half of the aluminum cans produced in the 1980's, which translates into nearly 12 billion pounds of aluminum that were diverted from the solid waste stream.[9] Aluminum is a valuable recyclable resource because making aluminum products from recycled materials saves approximately 95 percent of the energy required to make new aluminum from ore.[10]

Beverage cans should be separated by type of metal (aluminum and steel). Make sure all aluminum cans collected are 100 percent aluminum (most cans have this written on them, others have the Aluminum Association recycling symbol printed on them).[11] When uncertain about this, test the beverage can with a magnet -- aluminum is not magnetic like steel. Be sure to test the magnet against the sides, not the top, since most steel beverage cans use steel for the sides and aluminum for the ends. These types of cans are often accepted by steel recyclers. Check with your local steel and/or bimetal recyclers.

TYPES OF GLASS

Glass is another recyclable material commonly found in office waste. Like aluminum and steel, this material is usually encountered in the form of beverage containers. Glass containers are 100 percent recyclable, and crushed glass (cullet) has traditionally been used as an ingredient in glass manufacturing. Glass can be part of a comprehensive office recycling program if sufficient quantities are generated.

There are generally three colors or types of beverage container glass: clear, green, and amber. Glass will usually need to be separated by color prior to removal by the recycler. Some recycling plants, however, accept glass that contains mixes of these colors -- check with your materials dealer to see what mix (if any) is acceptable.

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[9]The Aluminum Association, 1990.

[10]Ibid.

[11]See Appendix B for illustrations of recycling symbols for aluminum and other materials.

Many materials dealers require that glass containers be empty and clean, and some may have restrictions as to the amount of metal and plastic (caps and neck rings) that is permitted. Some dealers do accept broken glass. Due to the chemical composition of some types of glass such as fluorescent and incandescent light bulbs, window glass, or leaded glass (e.g. crystal or television tubes), these are not acceptable in most glass collection programs. Ceramics are also not acceptable.

TYPES OF PLASTIC

Although still in its infancy, plastics recycling is quickly becoming a widespread practice across the nation as supplies and markets expand. Currently only about 1 percent of all plastic containers and packaging are being recycled,[12] but some specific types of plastic are being recycled at rates as high as 20 percent.[13] Office waste usually contains minimal amounts of plastic, most likely in the form of beverage containers.

There are seven categories of plastic used to produce containers and packaging, each for a different type of resin that has its own unique chemical composition and characteristics. The Society of Plastics, Inc. developed a coding system to distinguish between these different resin types.[14] This coding system consists of a triangle formed of continuous arrows with the number identifying the resin type in the middle. This voluntary system has already been adopted by many plastics manufacturers, and the symbols are now found on many products (usually on the bottom of containers). The coding system is as follows:

Number	Chemical Name	Abbreviation
1	Polyethylene Terephthalate	PETE or PET
2	High-Density Polyethylene	HDPE
3	Polyvinyl Chloride	V
4	Low-Density Polyethylene	LDPE
5	Polypropylene	PP
6	Polystyrene	PS
7	Other	OTHER

[12]The Council on Plastics and Packaging in the Environment, 1989.

[13]The Council for Solid Waste Solutions, 1989.

[14]See Appendix B.

Although all of these forms of plastic can be recycled, the type most prevalent in office waste is PETE. PETE has a clear, glossy surface that is difficult to scratch. Most soft drink bottles are made from this plastic, which can appear clear or colored. When collecting this type of plastic for recycling, it is important that the other plastic types do not get commingled in the collection. Some plastics recyclers do accept mixed plastic, but others do not (check with your materials dealer). Also, as in the case of recyclable glass, most dealers require that all plastic containers are rinsed and drained.

BUILDING PROFILE

In addition to conducting a waste stream analysis, you should develop a building profile as part of the preliminary stage for establishing your recycling program. The purpose of a profile is to identify what (if any) special requirements may be necessitated by the particular design or operation of your building. Examples of special considerations include:

- If the building lacks a loading dock, recyclables may have to be stored elsewhere until the pickup time.
- If the recyclables' storage area lacks a fire sprinkler, special storage containers may be required.
- If the building is leased, is the lessor willing to participate in the recycling program? (If the building is leased, make sure that the proposed storage area is leased by your agency.)

Such factors may impede the success of an office recycling program unless they are identified early in the program development phase. To assist you in developing a building profile, please refer to the checklist in Appendix C.

RECOVERY RATES

After you have determined the composition and quantity of your office waste stream, you need to estimate the amount of material that can be potentially recovered. Again, recyclable paper is used here as an example; the same type of analysis can be used for other materials as well.

Estimated Paper Recovery

The amount of paper generated per employee varies both within and between different types of office buildings. Major factors affecting generation rates include the

type of organization and the presence of in-house paper generating activities such as data processing, printing, copying, and other paper uses.

Paper Generation Rate for a Typical Federal Office

Each employee in a typical office environment generates approximately one-half pound of recyclable paper per day.[15] This generation includes high grade computer printouts (impact and laser) and white ledger, as well as lower grade paper.

Projecting Annual Recovery Rates

The following steps can be used to calculate annual recovery rates for office paper:

(1) Multiply the applicable generation rate (in pounds) by the number of employees.

(2) Reduce this by an allowance of approximately 10 percent for non-participating areas, such as art departments (due to the presence of glue, paint, tape, and other non-paper contaminants), mailrooms (due to the presence of self-stick labels, plastic window envelopes), and departments that generate carbon and carbonless forms.

(3) Multiply the resulting figure by the number of work days per year (approximately 260) and then divide by 2,000 to convert your total pounds to tons.

The result is an estimate of the tonnage of recyclable paper an office recycling program can expect to recover each year.

Example for a general office:

(1) 1,000 employees x 0.5 pound of paper per day = 500 lbs paper per day

(2) 500 lbs paper per day less 10 percent = 450 lbs paper per day

(3) 450 lbs paper per day x 260 work days = 117,000 lbs paper per year

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[15]Earthworm Consultants, 1990. This month-long study conducted at EPA Region I offices indicated that 1.3 pounds of waste were generated per person per day. Of that total, 0.56 pound was office paper (both high- and low-grade).

(4) 117,000 lbs paper per year divided by 2,000 lbs = 58.5 tons of paper per year.

IV. MARKET ANALYSIS

When deciding which types and grades of materials to separate from the waste stream, an important aspect to consider is the availability of viable markets for recycling the materials collected. High-grade computer printouts and white ledger have historically had a sound economic base for recycling in the paper industry. Aluminum has a well developed market and has a relatively constant demand. Deciding whether to separate or combine paper grades or to introduce additional types of recoverable materials to the program should be based on program economics and goals, and the market demand in your area. Factors such as additional time, labor, participation rates, and equipment required to collect grades separately (as opposed to combining them) should also be considered.

Publications such as "Fibre Market News"[16] and "Official Board Markets" provide current average price listings for paper collected and delivered to a paper mill. However, it is important to note that markets for recyclable paper can fluctuate dramatically over time and therefore the decision of what grades to include in your agency's paper recycling program should not be based solely on current prices for paper grades.

For information on markets for recycled aluminum, consult publications such as "American Metal Market." You can also contact local scrap dealers (listed under "Scrap Metals" in the phone book) or recycling centers (listed under "Recycling Centers") to determine prices paid in your locality.

Unlike paper and aluminum, glass and plastic price information is not readily accessible through market publications. To determine prices paid for scrap glass, call several vendors in your area for their prices, and then average those prices. For plastic prices, call several scrap plastics buyers in your area (look under "Plastics - Scrap" in your phone book) or contact several industries that use post-consumer (i.e. recovered by consumers in offices or residences) plastic and average their prices.

A market analysis will reveal the demand for recyclables in your area. The program coordinator will need to assess the quality and quantity of materials that different materials dealers will accept, the price structures, and the services that dealers will provide. All of these preliminary steps should be taken prior to issuing an invitation

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[16]See Appendix D for a list of trade associations and publications that are potential sources of information about recyclables market data, as well as other subjects.

for bids to evaluate what should be collected in the program and to estimate the costs and revenues. The General Services Administration (GSA) may have done this analysis and may already have a viable contract in place in your area, so check with your regional GSA office. Names, addresses and telephone numbers of organizations dealing in recylable materials are listed in Appendix D.

A market analysis involves making initial contacts with local materials dealers. In making these contacts, you should consider contacting the waste hauler for your building. This contractor may also provide a recycling collection service. Local and state government officials are often aware of materials dealers in the area and are a good initial contact point for names of companies to call regarding recycling services. The phone book listings mentioned previously are another source of this information.

When contacting materials dealers, the following information is important to obtain:

- Descriptions and types/grades of materials handled
- Acceptable contamination types and levels
- Container types and sizes provided or required and equipment, if any, available for use, such as compactors or handcarts
- Minimum quantities per pickup and pickup scheduling procedures
- Methods for handling confidential or classified materials
- Price structures offered for the different types/grades of material picked up

When analyzing the market conditions for recyclable paper, it is important to remember that not all paper is the same. There are a variety of grades of paper, and different grades lend themselves to making different types of new products. As mentioned earlier, for example, old newspapers are used primarily to make newsprint and recycled paperboard, whereas high-grade papers may be used to make tissue products or printing and writing papers. Different mills accept and recycle different grades and types of paper, therefore, the availability of local markets should be an initial consideration in the design of any recycling program.

V. CONTRACTS

A recycling contract is the mechanism that consummates the agreement between your agency and the company collecting your recyclable materials. This contract essentially specifies the "who," "what," "where," "when," and "what if" of the agreement.

In a recycling contract between your agency and a materials collector or recycler, the terms of the agreement typically address:

- Who the parties are to the recycling contract
- What the responsibilities are of the recycling contractor
- What your agency's responsibilities are
- How much the contractor will pay your agency for recyclable materials
- What types and grades of materials the contractor will collect
- How, when, and where the contractor will collect the recyclable materials
- What the term of the contract is, and
- What happens in the case of nonperformance by either party.

An effective contract specifies the agreement between the parties concisely and in sufficient detail to describe fully the obligations of the parties, while still anticipating those unforeseen situations that occasionally arise. Such a contract promotes recycling by providing the government with a service obligated to remove and pay for recyclable office materials and by giving recyclers a known source and quantity of recyclables.

Most Federal agencies have two alternatives in establishing contracts for the sale of recyclables: they can use existing GSA recycling contracts (assuming their region has such a contract), or they can establish their own independent recycling contracts.[17] The following discussion briefly describes the general nature of these recycling contracts, the requirements applicable to GSA and independent contracts, and the strengths and weaknesses of each approach. Recycling contracts for paper collection are discussed here as an example.

GENERAL SERVICE ADMINISTRATION CONTRACTS

In response to the passage of the Resource Conservation and Recovery Act (RCRA), GSA initiated a recycling support program in the late 1970's. As part of this program, GSA has been, and is presently, administering recycling contracts that can be

[17]GSA recycling contracts primarily address recyclable office paper. Some contracts -- but not all -- include provisions for glass, metal, and plastics. Consult with your GSA regional recycling coordinator to determine which materials are included in their contract.

used for recycling office paper by any civilian Federal agency located in a region where a GSA contract exists.[18]

The GSA recycling contracts essentially provide Federal agencies with a contractor that will pay for and pick up the types of recyclable paper specified under the agreement. These contracts establish all of the terms and conditions necessary to support office paper recycling once the paper has been collected at the facility. The contract provides for a company to pick up the paper and for GSA to bill the company according to the type and amount removed.

To use a GSA recycling contract, an agency must:

- Reside within a GSA region where a GSA contract is in place
- Contact GSA and indicate a desire to use the GSA recycling contract
- Generate a minimum quantity of paper (quantity depends on GSA region)
- Collect and centrally store the recyclable paper for pick up by the GSA contractor (dependent upon GSA region).

These are the basic and minimum requirements for participation in the GSA program at this time. Because of the many other considerations that must be taken into account for each agency and facility, GSA suggests that recycling coordinators contact GSA to discuss in detail the requirements for using a GSA recycling contract. GSA has representatives covering all of its 11 regions. Addresses and phone numbers of the contacts in your region can be obtained from the Federal Recycling Program at GSA headquarters, (202) 208-7929.

Two key advantages to a GSA contract are that GSA establishes and administers the contract, and the Administration has over 10 years of experience in administering recycling contracts. This experience provides GSA with a working knowledge of how to administer these contracts efficiently. Other advantages of GSA administration of the contract are:

- *The recycling contract is already in place.* Your agency can make almost immediate use of existing GSA contracts. There is no need to collect contract information, solicit bids, or draft, revise, or negotiate a contract. By contacting GSA and organizing recyclables collection through the steps discussed earlier, a program can begin to operate in a short period of time.

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[18]For military agencies, the Defense Logistics Agency provides this service in lieu of GSA.

- *GSA administers the contract.* GSA performs nearly all of the contract administration, including billing, paperwork and recordkeeping, modification, renewal, and enforcement. This can constitute a significant amount of work.

- *GSA provides assistance and training for agency personnel.* GSA supports your agency personnel by providing training and guidance on how to establish and implement recycling programs.

- *GSA performs recordkeeping and provides feedback.* GSA maintains central records for office recycling by your agency and provides feedback though periodic reports.

- *GSA has 10 years of experience in administering recycling contracts.* GSA understands how to establish a program, what key elements lead to success, and what kinds of problems are likely to arise. Existing GSA contracts are a product of this experience.

Not all agencies, however, will be able to use a GSA recycling contract. There are situations that arise where it may be desirable or necessary for agencies to develop their own recycling contracts. One situation is where an agency is located in a region without a GSA recycling contract. Where this is the case, agencies will need to develop their own recycling contracts to participate in office recycling. Other situations include an agency that rents office space from a private lessor, and an agency that does not meet the requirements of GSA's contract (e.g., generates insufficient quantities, cannot secure a central collection/storage space). These agencies also may need to establish their own contracts.

Agencies subject to strict security guidelines (e.g., required to shred all recyclable paper) may choose to establish their own recycling contracts. However, recyclable paper not considered confidential may still be recycled by a GSA contractor. Your agency should contact the GSA Regional Recycling Coordinator in your area to find out if provisions for destruction are contained in the regional GSA contract.

INDEPENDENT CONTRACTS

Although there are many advantages to using the GSA recycling contracts, some agencies may find themselves in a position where they must develop their own contract, as previously noted. GSA requests that the agency contact them before soliciting a contract (GSA would like the opportunity to suggest guidelines regarding soliciting a contract). In these situations, several basic steps should be followed to develop an effective recycling contract. These steps focus on developing an agreement that addresses the basic terms of the contract: parties, term, payment, and obligations.

The steps for establishing an independent contract include:

- Contact building management if you rent your office space from a private lessor
- Collecting detailed market information (market analysis)
- Inviting bids
- Developing the contract
- Overseeing the contract.

To establish a recycling contract, your agency's contracting office must collect certain preliminary information. The agency's needs and the services available to meet these needs must be assessed. This information is often available from local buyers, dealers, and brokers. Basic information includes specifics on pricing mechanisms (i.e., flat fee, floating price, or periodic adjustment of price), unit price information or the minimum price expected in the short term, and references of current contracts for recycling contractors. Some of this information is attained during the market analysis.

To invite parties to provide recycling service bids, your agency should write and release an Invitation for Bids (IFB). Since potential contractors cannot formulate an accurate bid without a clear understanding of what is expected of them under a contract, the IFB should explain precisely what your agency expects in terms of performance by the contractor. Much of this information can be obtained through your waste stream and market analyses. Major elements of the IFB typically include:

- A description of the type/grade of recyclable materials that need to be collected and sold
- An estimate of generation rates
- Location of material pickups
- Minimum pickup quantities and schedule for pickups
- Containers and equipment that you expect the contractor to provide
- Confidential document destruction procedures, if applicable
- A description of nonperformance penalties
- A proposed pricing mechanism

- The term of the contract
- Date your agency requests proposals to be submitted.

Additional items can be included if they clarify the agency's requirements or if they are considered key terms. Industry standards, such as Scrap Specifications (available from the Institute for Scrap Recycling Industries) can be used to identify material specifications where this would be helpful, or unique descriptions of grades can be developed to fit the particular needs of the agency and the contractor.

Interested bidders then submit proposals in answer to your IFB. Submitted proposals set out the terms and conditions addressed in the IFB upon which the contract is consummated. Each proposed contract should specifically describe the obligations of the agency and contractor and address contingencies that may arise, including breach, nonperformance, modification, extension, or termination. Proposed contracts should address these items in sufficient detail to make the obligations of the agency and the contractor clear. Under regulations specified in 40 CFR § 246.200-9, requirements and recommended procedures for high-grade paper recovery, it is recommended that contracts include the buyer's quality specifications, quantity and transportation agreements, a guarantee that the material will be accepted for one year or more, and a guaranteed minimum purchase price. The specifications in the proposed contract should reflect the needs of the agency, as well as the ability of the bidder to fulfill the terms set out in the IFB. All procedures should be specified, as should locations, notice requirements, recordkeeping, and billing and reporting requirements.

Your agency's contracting officer will work with the GSA Regional Recycling Coordinator to develop and implement an independent recycling contract or incorporate provisions into an existing custodial or waste hauling contract. The contracting officer should work with legal staff to draft or identify appropriate contract language (GSA guide specifications are available as examples). Naturally, those persons drafting the contract should fully understand applicable Federal regulations, specifically the Federal Property Management Regulations (FPMR), since these apply to sales of Federal property.

Establishing independent contracts is not without difficulties. The disadvantages of developing an independent recycling contract center on the fact that the overall process is fairly complex, requires regulatory and legal support initially, and administrative support and resources over the longer term.

For more information on establishing contracts for the sale of recyclable paper, you can refer to EPA's *Office Paper Recycling: An Implementation Manual.*[19]

VI. COLLECTION SYSTEMS

Once a waste stream analysis, a building profile, and a market analysis have been conducted, and a contract is in place, the next step in implementing your recycling program is to design an in-house collection system.[20] The system your agency selects will depend on what materials you choose to collect, who collects the recyclable materials, and what storage space and handling equipment exist. No matter what system you decide to employ, it must be easy to use and meet the specification requirements in the contract.

PAPER

The way you choose to collect your paper will depend on the results of your waste stream analysis, your agency's goals (e.g., waste reduction/revenue) and the conditions of your recycling contract.

Office paper recycling programs typically use the dual container system for collecting recyclable paper. With the dual container system, one container is used for recyclable paper and the other for discarding non-recyclable waste. When a desk or office recycling container is full, the employee or facility services personnel empties the recyclable paper into a central collection container. Your agency will be able to obtain recycling containers from a variety of sources. Many companies now offer recycling containers in their product lines. Additionally, containers can be ordered through GSA's Customer Supply Centers and Schedules.

Another collection method requires employees to take their recyclable paper directly to the central container. No container is placed on or near the desk.

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[19]This manual is included in Section 4 of the Supplemental Resource Materials for Program Coordinators. (This section is included in the Recycling in Federal Offices Resource Materials.)

[20]The only times you would not want to design a collection system is when (1) a collection system has already been designated in your recyclable materials contract or (2) when your recyclables are commingled with your office's trash and separated by someone else at another location.

If the paper requires storage, obtaining adequate and conveniently located main storage space is crucial to your program. When selecting your main storage area, consider the following issues:

- Is the central collection site large enough?
- Can the site be locked?
- Is the site protected with sprinklers?
- Is a freight elevator and loading dock easily accessible?

The program coordinator will need to work with the building manager and the hauler to locate and obtain appropriate storage space for both local and central collection. The amount of storage space needed will depend upon the quantity of paper collected, the requirements of the contract, and the method of storage. A minimum tonnage will probably be required per pickup. The program coordinator should be aware of this minimum limit to accurately calculate the amount of storage space needed. It is advisable to provide extra space to allow for overflow. Some haulers may collect at certain defined frequencies or pickup days, regardless of paper accumulation. In this case, storage space will depend upon the amount of paper generated between pickup days. Keep in mind that additional space may be needed around containers so that they are accessible and conform with fire and safety regulations.

In the central storage area, recovered paper is usually stored in mobile canvas hampers, pallet boxes, or bulk containers. Your paper hauler may provide storage containers. The program coordinator should consult the hauler regarding such services, as well as which type of storage container would be most suitable. Storage space is usually obtained in the basement or the loading dock area of the facility.

If storage space is simply unavailable, paper may be kept in local containers and delivered to the loading dock on the day of pickup. If outdoor storage is necessary, the paper should be secured from theft and covered to ensure protection from the elements.

In addition to choosing collection containers and acquiring storage space, you must determine who can consolidate your recyclables most efficiently and transport them from the local containers to the main storage area. Most office paper recycling programs work best when integrated with existing custodial operations. Many agencies add the responsibility of picking up the recyclable materials to the custodial contract when it is up for renewal or modify an existing contract. In some instances, this requirement may already be in your present custodial contract and can be initiated by the contracting officer. Check with your contracting office to find out. If the custodians are not involved in the collection of the recyclable paper, make sure they are informed about the

program so that they do not accidentally mix the recyclables with the regular trash and throw the recyclables away.

Once you have determined who will move the recyclable paper, you must figure out how to move it. The movement of recyclable office paper from individual employees through the building and to the loading dock will require certain collection and handling equipment. Existing equipment commonly found in many office buildings may be appropriate for handling and collecting office paper. Suitable equipment includes mobile canvas bins, canvas bags, handcarts or dollies, and forklifts or pallet jacks (if you are storing paper in pallet boxes). If your agency does not have access to the required equipment, the program coordinator should discuss leasing the equipment from the paper hauler. Additionally, it may be required in your contract that the paper hauler provide this equipment. Your agency may also consider purchasing this equipment.

As noted earlier, one issue your agency may confront is the collection of confidential paper for recycling. You should consult with the National Security Agency to determine the level of confidential materials shredding required for your agency. The program coordinator should contact the paper hauler to determine if the company accepts shredded material. Additionally, most recycling companies will guarantee that confidential paper will be handled according to security guidelines. Recycling of confidential paper will most likely require special collection and management. Storage must be secure. You should note that when including shredded paper in your program and designating storage space, shredded paper takes up more space than flat or crumpled paper.

OTHER MATERIALS

Recyclables other than paper require a slightly different collection approach. Because of the bulkiness and lower generation rate of aluminum, glass, and plastic, most offices prefer to centrally locate collection containers for these materials. Many types of recycling containers are now commercially available -- some have wheels for easy transport to the loading dock and lids with openings sized to fit standard bottles or cans. Because beverage containers are frequently discarded in or around kitchens or lunchrooms, these areas are good candidates for locating the collection containers. Additionally, these areas usually have sinks for emptying and rinsing containers.

Collection containers for non-paper materials may also be located outside of the building (usually in the parking lot or loading bay). This scheme requires individuals or custodial staff to deposit the recyclables in an "igloo" or large bin.

VII. EDUCATION OF EMPLOYEES

A successful office recycling program depends upon employer endorsements and employee participation. To have a successful recycling program, employees from all levels must participate in the recycling efforts. To introduce employees to the recycling program, your agency might begin with a memo to all personnel highlighting the importance and the benefits of an office recycling program.[21] The memo could also list facts such as the percentage of landfill space saved by recycling and the amount of these materials that is presently being discarded by your agency every month.

Because managers have influence over their staff, it is important that they set a precedent and stress the importance of, and their commitment to, the program. Therefore, a good place to begin implementation of an office recycling program is at the managerial level. Because managers should set a good example for their staff to follow, it is important that managers clearly understand the goals of an office recycling program and the benefits that result from employee participation. Implementation could begin with the distribution of a memo to managers that informs them of the goals of the program, instructs them on how to recognize types of recyclables in the office, and suggests ways they might encourage their workers to participate in the recycling program. This memo should also encourage managers to support the recycling program coordinator. Managers should encourage their employees to cooperate with program monitors in their section or division and to attend or participate in recycling meetings, workshops, and any other special events, such as a Recycling Awareness Week. The memo to managers could be followed by memos and other avenues of outreach to the rest of the agency staff. The desired result of these efforts is that managers become informed and supportive of the program monitors, who ultimately will be working with the staff to oversee participation in the program.

Several outreach strategies could be used to bring attention to the office recycling program. Memos distributed about two weeks prior to the actual start date of the program, followed by regular reminder memos, can be very effective. Keep the tone of the memos positive, share facts regarding how much money the agency can save, and mention the impact your agency is having saving our natural resources. When the program is getting started, the program coordinator and monitors should hold a short orientation session for all employees to help them understand the goals of the program and to teach them which types of office materials to recycle. In addition to distributing memos, program monitors could provide other means of communication to catch the attention of agency employees. Posters are good attention-getters and can be displayed in lunch rooms, near elevators, or in any other high-traffic location. Posters can be changed in format periodically to keep them up-to-date. For instance, one might design an initial poster illustrating how much paper and other recyclables you are collecting is

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[21]See Section 4.7.

landfilled annually and at what cost. The next poster might illustrate how much of each of these materials was recycled during the first year of the program. Program monitors could also start a competition between offices to see which office collects the most materials for recycling. Be sure to include custodial staff involved. If necessary, provide multilingual posters so no one will be left out of the program.

A recycling "hotline" could be set up for agency employees so that personnel participating in the recycling program can have their questions answered easily and conveniently. Recycling monitors or members of the task force could be responsible for answering the phoneline.

Sometime early during the program, schedule a special event, such as a Recycling Awareness Week. Provide written information, buttons, and pamphlets about other area recycling programs, such as county recycling stations or curbside collections. In addition to memos, posters, and special events, write articles about the progress of the recycling program for the employee newsletter (printed on recycled paper). Keep in mind that your goal is to get everyone in your agency to participate in the office recycling program.

Outreach activities should continue after the program has been implemented to remind employees to recycle and stay interested in the program. In addition, program or orientation packets should be made available to new employees.

VIII. PROGRAM MONITORING AND EVALUATION

Office recycling programs require continued administration by the program coordinator, and program monitors, in order to ensure successful operation and employee participation. The program coordinator must oversee the program to monitor its effectiveness and ensure that it is running smoothly over its entire life.

Once your agency's office recycling program is underway, an evaluation procedure should be established to ensure the continued success of your program. The monitoring and evaluation process will allow your agency to periodically measure progress toward the recycling objectives established at the initiation of the program. An evaluation program will also enable your agency to set realistic goals, evaluate implementation options, and anticipate and resolve any problems arising from changes in the office environment or operating objectives.

To institute your evaluation program, staff should be assigned to carry out evaluation activities. The program coordinator, program monitors and task force members will play key roles in the design and implementation of your agency's evaluation program. Additionally, the facilities service division of your agency or contracted service personnel can play a large and important role in program evaluation.

Remember that facilities service staff are collecting the materials for recycling; therefore, their input regarding the cleanliness of the materials, the amount of sorting achieved, etc. will be valuable.

Monitors can ensure that the recycling program is running smoothly and that objectives are being met. Monitors assisting in the evaluation program will be responsible for conducting periodic inspections of office areas to determine if employees are properly separating recyclable materials. This inspection should include screening recycling containers for contaminants and waste baskets for recyclable materials. Other important duties in a successful evaluation program include posting recycling statistics to allow employees to follow the program's success, fielding questions regarding program operation, and contributing to articles in agency bulletins and newsletters to remind employees of the recycling program's objectives. An effective evaluation program will also solicit reactions to the recycling program and ideas for program improvement from employees. A feedback mechanism for employee suggestions should, therefore, be developed.

To begin the evaluation program at your agency, the current status of recycling at the facility must be determined. The waste stream analysis performed prior to program initiation will give monitors a facility baseline with which to compare monthly recycling progress (i.e., percent of total discards recovered). To assess current knowledge of and attitudes toward recycling, a staff questionnaire can be distributed. Periodic updates of this questionnaire can indicate increased knowledge and support of the program.

An accurate measure of program successes and progress will result from keeping a current record of costs and revenues, monitoring recovery rates and participation, and reporting successes and problems to management and employees. This means that you must keep accurate and up-to-date statistics, including records of tonnage figures, dollars received from recycling vendors, and estimated cost savings for removing recyclable from the waste stream and avoiding disposal fees. Log records may be maintained in handwritten form or on a computer data base.

One source for obtaining these data is the materials dealer with which you contract. The contractor should provide, for each pickup, the total weight of each material type and grade collected, the grade assigned to each load of paper, and the amount paid per unit of weight for each type of material.

Tracking employee participation and commitment, monitoring collection contamination, and recording data on the quantity of material recycled will allow your agency to regularly assess the status of the recycling program and plan for changes and improvements. This information can also be used for further program marketing and employee education efforts. The design of your agency's evaluation program will ultimately depend on your recycling objectives, agency commitment to recycling, and your agency's specific waste material characteristics.

IX. MAINTENANCE

An office recycling program should be maintained and nurtured on a regular basis. One maintenance responsibility that befalls the program coordinator is to regularly infuse energy into the program to ensure the enthusiastic participation of Agency staff. Introducing to new staff the rationale for participating in an office recycling program, and reintroducing these benefits to current participants, are activities that should occur throughout the life of a recycling program.

The program coordinator and monitor are also responsible for making any necessary adjustments to meet operational and/or physical changes that may occur in the office environment. For instance, growth in staff or a location move would require physical adjustments to the program. To adjust to such changes, collection bins and receptacles may need to be relocated, or a new arrangement or schedule change for paper pick up may need to be made with the materials collector. An office recycling program must grow over time to adapt to such changing circumstances.

Another program maintenance activity is to sustain a high visibility of the program. Continued efforts to reinforce program goals and Agency participation in the program are included in this activity. Communicating program success should be shared on a regular basis with program participants and Agency management. Such feedback should be encouraged and used to refine or improve the program.

Reevaluation of program goals should be pursued by the program coordinator on a periodic basis, as described previously in "Program Evaluation." Issues such as program expansion to include other divisions or groups, the addition of new recyclable materials to the program, etc. are examples of some issues that might arise during your program reevaluation.

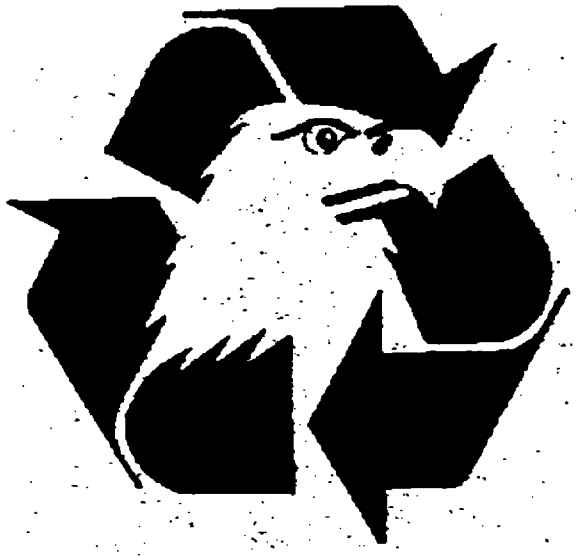
X. ADDITIONAL INFORMATION

All of the information that has been presented in this background document, as well as additional information, is available in EPA's *Office Paper Recycling: An Implementation Manual* and *Developing a Comprehensive Federal Recycling Program.* These materials are included in Section 4.0 of the overall package of *Recycling in Federal Offices: Resource Materials.*

APPENDIX A

GSA'S RECYCLED PRODUCTS CATALOG

GSA / FSS



RECYCLED PRODUCTS

GUIDE

May 1991

Setting an example in Conservation!

With ATTITUDE and PRACTICE !

This Guide reflects the results of GSA/FSS continuing efforts to provide the Federal community with supply alternatives with recycled product content.

The Guide is divided into two sections. Section I presents items in the GSA Stock Supply System that are available to Federal agencies through FEDSTRIP/MILSTRIP procedures.

Section II contains brief descriptions of four Federal Supply Schedules for acquisition of recycled products directly from vendors.

This Guide is not meant as a complete catalog of FSS recycled products as they are changing on a daily basis. The Guide is meant as a recycled product highlighter to the GSA SUPPLY CATALOG. The descriptions herein are brief by design. They serve to provide sufficient identification for you to be aware of products that might be similar to supplies currently being used in your day-to-day operation. Once a recycled item is identified you should look to the GSA SUPPLY CATALOG for complete and technical description.

We will provide periodic addendums to this guide or revised guides as the information becomes available.

We, as members of the Government, must concentrate our efforts at fostering both Attitude and Practice in the subject of "Conservation."

The % column shown to the far right on the following pages reflects the percent of recycled materials contained in each particular item!

Unit of issue definition as used in this guide:

BD = Bundle	*BE = Bale*	*BX = Box*
HD = Hundred	*PG = Package*	*RO = Roll*
SD = Skid	*SH = Sheet*	

THIS GUIDE IS PRINTED ON RECYCLED PAPER!

ENVELOPES

See GSA Supply Catalog for complete description.

						%
AIRMAIL ENVELOPE	Official Business- No penalty or indicia, white	4-1/8" x 9-1/2"	BX (500)	$8.09	7530-00-130-3256	SO
PAYCHECK ENVELOPE	See GSA Catalog for printing, white	3-9/16 x 7-13/16"	BX (500)	$9.38	7530-00-130-3262	SO
PREPRINTED ENVELOPE	Official Business, side opening, window, white	4-5/16 x 8-11/16"	BX (500)	$9.68	7530-01-152-5120	SO
	Official Business, side opening,window,white	4-1/8 x9-1/2"	BX (500)	$8.79	7530-00-130-3281	SO
	Official Business, side opening, white	4-1/8 x 9-1/2"	BX (500)	$7.07	7530-00-130-3284	SO
	Official Business, side opening, white	9-1/2 x 12"	BX (500)	$25.78	7530-00-130-3283	SO
	Official Business, side opening, white	8-1/2 x 13-1/2"	BX (500)	$31.01	7530-00-130-3280	SO
	-"Dept of State", side opening, penalty ,white	3-7/8 x 8-7/8"	BX (500)	$5.06	7530-01-009-2564	SO
	-"Dept of State", E.O. Emp, side opening,white	3-7/8 x 8-7/8"	BX (500)	$8.02	7530-01-012-4001	SO
	-"Dept of State", E.O. Emp, s/o,penalty, Kraft	6-1/16 x10-1/2"	BX (500)	$11.15	7530-01-009-2562	SO
	-"Dept of State", E.O. Emp, s/o,penalty, Kraft	10 x 15"	BX (500)	$25.37	7530-01-009-2563	SO
	-"Dept of State", E.O. Emp,penalty, Kraft	9-1/2 x 12"	BX (500)	$23.99	7530-01-010-7700	SO
	-"Dept of State", E.O. Emp,penalty, Kraft	12 x 16"	BX (500)	$42.47	7530-01-010-8429	SO
	Official Business, s/o, penalty, indicia & Eagle,white	3-5/8 x 6-1/2"	BX (500)	$6.07	7530-00-767-5707	SO
		3-7/8 x 8-7/8"	BX (500)	$5.70	7530-00-767-5708	SO
		4-1/8 x 9-1/2"	BX (500)	$6.62	7530-00-767-5709	SO
		4-1/2 x 10-3/8"	BX (500)	$11.43	7530-00-767-5710	SO
	Official Business,s/o, penalty,indicia & Eagle,lt/brn.	3-7/8 x 8-7/8"	BX (500)	$7.06	7530-00-187-3147	SO
		4-1/8 x 9-1/2"	BX (500)	$6.61	7530-00-767-5729	SO
		10 x 15"	BX (500)	$28.08	7530-00-767-5756	SO
		11 x 13"	BX (500)	$29.30	7530-00-767-5825	SO
		12 x 16"	BX (500)	$49.42	7530-00-767-5758	SO
	End opening, ideal for small items, lt/ brn	3-3/4 x 5-7/8"	BX (500)	$7.95	7530-00-031-7300	SO
UNPRINTED ENVELOPE	Side opening, no penalty, no indicia, white	3-7/8 x 8-7/8"	BX (500)	$6.26	7530-00-198-5873	SO
		4-1/8 x9-1/2"	BX (500)	$6.60	7530-00-286-6970	SO
		4-5/16 x 8-11/16"	BX (500)	$7.81	7530-01-152-5122	SO
		9 x 12-3/4"	BX (500)	$25.00	7530-01-152-5119	SO
	Side opening, no penalty, no indicia, lt. brn/Kraft	4-1/8 x 9-1/2"	BX (500)	$6.46	7530-00-198-5876	SO
		9-1/2 x 4-1/2"	BX (500)	$6.87	7530-00-935-7081	SO
		10 x 15"	BX (500)	$26.97	7530-00-242-1218	SO
		11 x 13"	BX (500)	$30.43	7530-00-926-9000	SO
		12 x 16"	BX (500)	$51.94	7530-00-286-6963	SO
	End opening, no penalty, no indicia, lt. brn/Kraft	2-1/2 x 4-1/4"	BX (500)	$6.66	7530-00-286-6937	SO
		3-3/4 x5-7/8"	BX (500)	$9.20	7530-00-286-6935	SO
X-RAY ENVELOPE	-"X-ray Film"-Do Not Bend or Fold, lt. brn					
	Uses button and string closure, Indicia	15 x 18"	BX (50)	$53.61	7530-00-601-4900	SO
	Uses a gummed flap, no indicia	15 x 18"	HD	$67.23	7530-00-286-6929	SO

PAPER

BOND

WRITING PAPER	25% rag bond, 16-lb weight, white	8-1/2 x 11"	BX (5000)	$36.19	7530-00-290-0599	25
		8-1/2 x 14"	BX (5000)	$48.23	7530-00-290-0600	50
	25% rag bond, 20-lb weight, white	8-1/2 x 11"	BX (5000)	$43.44	7530-00-616-7284	25
		17 x 22"	BX (3000)	$117.58	7530-00-227-1436	25
	50% rag pulp paper, 16-lb weight, white	8-1/2 x 11"	BX (5000)	$43.15	7530-01-077-2365	50
	100% wood-pulp paper, 20-lb weight, white	8-1/2 x 11"	BX (5000)	$30.94	7530-00-290-0617	50
		8-1/2 x 13"	BX (5000)	$27.03	7530-00-904-7704	50
		8-1/2 x14"	BX (5000)	$39.24	7530-00-290-0618	50
		17 x 22"	BX (3000)	$73.93	7530-00-290-0621	50
		22 x 34"	BX (1500)	$89.25	7530-00-160-9165	50
		34 x 44"	BX (500)	$51.62	7530-00-160-9168	50

DUPLICATION

						%
MIMEOGRAPH PAPER	20-lb long grain paper, for 2-sided copying					
	25% rag stock, white	8-1/2 x 11"	BX (5000)	$43.11	7530-00-285-3073	50
	A good wood pulp for general use Blue	8-1/2 x 11"	BX (5000)	$34.29	7530-00-285-3070	
	Buff	8-1/2 x 11"	BX (5000)	$34.45	7530-01-072-2533	
	Goldenrod	8-1/2 x 11"	BX (5000)	$32.70	7530-00-234-7169	50
	Green	8-1/2 x 11"	BX (5000)	$33.01	7530-01-072-2534	50
	White	8-1/2 x 11"	BX (5000)	$31.31	7530-00-286-6178	50
SPIRIT DUPLICATING	Paper, duplicating, copy, liquid process, 20-lb Green	8-1/2 x 11"	BX (5000)	$33.29	7530-01-037-5556	50
	Pink	8-1/2 x 11"	BX (5000)	$32.32	7530-00-221-0805	50
	White	8-1/2 x 11"	BX (5000)	$31.32	7530-00-240-4768	50
	White	11 x 17"	BX (2500)	$32.46	7530-00-239-9747	50
	Yellow	8-1/2 x 11"	BX (5000)	$33.22	7530-01-037-5555	50

PRINTING

						%
LEDGER PAPER	Unruled, 25% rag bond, 64 lb, white	17 x 22"	BX (2000)	$112.19	7530-00-286-7771	50
BLEACHED OFFSET	Opaque, bleached wood-pulp, highspeed offset 16-lb basis weight White	8-1/2 x 11"	BX (5000)	$33.89	7530-00-[illegible]	50
	Green	8-1/2 x 14"	BX (5000)	$35.02	7530-01-[illegible]	50
	White	17 x 22"	BX (4000)	$109.90	7530-00-[illegible]	
	20-lb basis weight Blue	8-1/2 x 11"	BX (5000)	$34.32	7530-01-[illegible]	
	Buff	8-1/2 x 11"	BX (5000)	$34.12	7530-01-[illegible]	

PRINTING

						%
	Green	8-1/2 x 11"	BX (5000)	$34.71	7530-00-509-8632	50
	Pink	8-1/2 x 11"	BX (5000)	$34.12	7530-01-071-9794	50
	Salmon	8-1/2 x 11"	BX (5000)	$34.12	7530-01-071-9795	50
	Yellow	8-1/2 x 11"	BX (5000)	$34.12	7530-01-077-5387	50
	Blue	22 x 34"	BX (1500)	$83.05	7530-00-515-1101	50
	Green	22 x 34"	BX (1500)	$81.88	7530-00-515-1099	50
	Pink	22 x 34"	BX (1500)	$82.89	7530-00-515-1098	50
	White	22 x 34"	BX (1500)	$73.41	7530-00-515-1086	50
	Yellow	22 x 34"	BX (500)	$86.12	7530-00-515-1100	50
RAILROAD BOARD	Uncoated railroad board,letterpress or offset					
	White, 0.030 thick	22 x 28"	BX (250)	$95.95	9310-00-223-0358	80
	White, 0.048 thick	28 x 44"	BX (100)	$124.12	9310-00-953-1696	80

OFFICE MACHINE

TELETYPE PAPER ROLL	8-7/16" wide, 5" outside dia, fiber core, 1"inside dia Roll features two-part paper; both white		RO (195')	$4.33	7530-00-935-4183	50

SPECIAL PURPOSE

						%
INDEX PAPER						
	25% rag paper, 220-lb weight , 25-1/2" x 30-1/2" (** = Buy on Demand)	Blue	BX (500)	**	9310-00-752-9083	25
		Yellow	BX (500)	$125.66	9310-00-752-9090	25
	Chemical wood-pulp paper has 220-lb basis weight Measures 8-1/2" x 11"	Blue	BX (2000)	$40.22	9310-00-982-0492	50
		Green	BX (2000)	$40.22	9310-00-955-0218	50
		Pink	BX (2000)	$40.22	9310-00-982-0491	50
		Salmon	BX (2000)	$40.22	9310-00-042-3867	50
		White	BX (2000)	$39.38	9310-00-955-0217	50
		Yellow	BX (2000)	$40.22	9310-00-042-5758	50
	Measures 17-1/2" x 22-1/2"	White	SD (20K)	$1652.89	9310-01-074-9409	50
		Yellow	BX (1000)	$84.44	9310-01-075-7765	50
	Measures 22-1/2" x 28-1/2"	Blue	BX (500)	$68.84	9310-00-160-7830	50
		Buff	BX (500)	$68.84	9310-00-160-7832	50
		Salmon	BX (500)	$68.84	9310-00-221-1172	50
		White	BX (500)	$64.34	9310-00-160-7834	50
	Measures 22-1/2" x 35"	Blue	BX (500)	$84.82	9310-00-752-8775	50
		Buff	BX (500)	$84.82	9310-00-752-8776	50
		Green	BX (500)	$84.82	9310-00-752-8780	50
		Salmon	BX (500)	$84.82	9310-00-752-8782	50
		White	BX (500)	$83.04	9310-00-955-8808	50

SPECIAL PURPOSE

						%
		White	SD (10K)	$1671.39	9310-00-926-4541	
	Measures 25-1/2" x 30-1/2"	Blue	BX (500)	$83.67	9310-00-160-7831	
		Buff	BX (500)	$83.67	9310-00-160-7833	50
		Pink	BX (500)	$83.67	9310-00-223-0376	50
		Salmon	BX (500)	$83.67	9310-00-223-0377	50
		White	BX (500)	$81.92	9310-00-160-7835	50
		Yellow	BX (500)	$83.67	9310-00-223-0378	50
	Wood-pulp paper has a 280-lb basis weight Measures 22-1/2" x 28-1/2"	White	BX (500)	**	9310-00-160-7840	50
	Measures 25-1/2" x 30-1/2"	White	BX (500)	**	9310-00-160-7841	50

(** = BUY ON DEMAND)

ART/DRAFTING

%

STENCILS/TEMPLATES

STENCIL BOARD	Lightweight(47-60 lb basis wt)0.011" thick		20 x 24"	HD	$23.25	9310-00-282-2501	50
	Heavyweight(70-92 lb basis wt) 0.0165" thick		6 x 20"	SH	$0.06	9310-00-282-6893	50
			8 x 24"	HD	$10.32	9310-00-160-7853	50
			8 x 36"	SH	$0.15	9310-00-160-7854	
			12 x 36"	SH	$0.23	9310-00-160-7856	
			20 x 24"	SH	$0.24	9310-00-160-7857	50
			20 x 32"	HD	$33.86	9310-00-265-6797	50
			24 x 36"	HD	$41.66	9310-00-160-7858	50

PAPER

BRISTOL BOARD	100% cotton fiber posterboard, 2 ply, 110-128 lb	White	40 x 30"	SH	$2.86	9310-00-982-8120	25
	Wood pulp-based posterboard, 3 ply,160-167 lb	White	22 x 30"	SH	$1.37	9310-00-290-2972	50
	Wood pulp-based posterboard,4 ply,214 - 250 lb	White	22 x 30"	SH	$1.79	9310-00-290-2973	50
	Wood pulp-based posterboard, 2 ply,106-124 lb	White	22 x 30"	SH	$0.79	9310-00-290-2977	50
	Wood pulp-based posterboard, 3 ply,160-187 lb	White	22 x 30"	SH	$1.15	9310-00-240-1273	50
CONSTRUCTION PAPER	Heavyweight paper,eggshell finish, 72 lb 9 x 12" sheet	Black		HD	$1.30	7530-00-285-2920	
		Light Blue		HD	$1.16	7530-00-285-2879	
		Marine Blue		HD	$1.24	7530-00-285-2880	50

CONSTRUCTION PAPER		Brown	HD	$1.24	7530-00-285-2883	% 50
		Medium Gray	HD	$1.22	7530-00-285-2884	50
		Green	HD	$1.19	7530-00-285-2887	50
		Orange	HD	$1.28	7530-00-285-2896	50
		Red	HD	$1.44	7530-00-285-2901	50
		White	HD	$1.14	7530-00-285-2905	50
		Yellow	HD	$1.18	7530-00-285-2906	50
MATBOARD	Single thickness, pebble finish, 0.045 to 0.050 thick, white	28 x 44"	SH	$1.45	9310-00-291-7847	50
POSTERBOARD	Paperboard,drawing, 50% rag, thick, single faced smooth finish, white	30 x 40"	BX (50)	$63.75	7530-00-515-0478	50
	Paperboard,drawing, 50% rag, extra thk, single faced smooth finish,white	30 x 40"	BX (50)	$75.83	7530-00-180-6306	50
	Paperboard,drawing, 50% rag, extra thk, single faced rough finish,white	30 x 40"	BX (50)	$72.41	7530-00-515-0812	50
	Paperboard,drawing, 100% rag, single faced rough finish,white	30 x 40"	SH	$2.06	7530-00-270-6686	50
	Paperboard,drawing,50% rag, extra thk, double faced rough finish,white	22 x 30"	BX (50)	$69.48	7530-00-270-6684	50
	Paperboard,drawing,100% rag,extra thk,double faced smooth finish,white	30 x 40"	SH	$2.46	7530-00-317-4291	50
	Soft-textured,1/16" paperboard ,blue	32 x 40"	SH	$1.85	7530-00-724-6295	25

FORMS

OPTIONAL

						%
GENERAL OFFICE FORM	OF-41 Routing and Transmittal, 100 per pd	PG (10 pads)	PG	$2.56	7540-00-935-5862	25

STANDARD

GENERAL OFFICE FORM	SF 63 Memorandum of Call	PG (20 pads)	PG	$2.30	7540-00-634-4018	25

HOUSEHOLD

PAPER PRODUCTS

						%
KRAFT PAPER	General purpose wrap,Kraft #2, untreated					
	Sheets are flat or soft folded Paper has a basis weight of 30 lb, 50-lb bdle natural	24 x 36"	BD (850)	$28.86	8135-00-290-3408	5
	Paper has a basis weight of 70 lb, natural	36 x 48"	PG (200)	$27.18	8135-00-290-5504	5
	Paper roll 9" dia, basis weight of 30 lb, natural	24" wide	RO (1636')	$18.60	8135-00-286-7317	5
		30" wide	RO (1636')	$23.82	8135-00-160-7752	5
		36" wide	RO (1636')	$29.04	8135-00-160-7753	5
	Paper roll 9" dia, basis weight of 40 lb, natural	24" wide	RO (1228')	$17.25	8135-00-160-7757	5
		30" wide	RO (1228')	$21.05	8135-00-160-7758	5
		36" wide	RO (1228')	$25.90	8135-00-160-7759	5
		48" wide	RO (1228')	$32.81	8135-00-160-7762	5
KRAFT PAPER	Paper roll 9" dia, basis weight of 50 lb, natural	24" wide	RO (980')	$15.96	8135-00-290-3407	5
		36" wide	RO (980')	$24.55	8135-00-160-7764	5
	Paper roll 9" dia, basis weight of 60 lb, natural	24" wide	RO (820')	$14.91	8135-00-160-7766	5
		36" wide	RO (820')	$23.68	8135-00-160-7768	
		48" wide	RO (820')	$28.48	8135-00-160-7769	
	Paper roll 9" dia, basis weight of 70 lb, natural	24" wide	RO (700')	$15.84	8135-00-160-7770	5
		36" wide	RO (700')	$23.49	8135-00-160-7771	5
		48" wide	RO (700')	$29.93	8135-00-160-7772	5
	Paper roll 9" dia, basis weight of 80 lb, natural	36" wide	RO (615')	$22.67	8135-00-160-7776	5
		48" wide	RO (615')	$29.87	8135-00-160-7778	5

BATH PRODUCTS

						%
FACIAL TISSUE	Soft, absorbent tissue , folded, 2-ply, creped, white					
	Pop-up dispenser	66 sq. in.	BX (100)	$0.36	8540-00-793-5425	5
	Dispenser contains 50 sheets (200 disp to BX)	40 sq. in	BX	$35.39	8540-00-900-4891	5
	Regular dispenser , BX contains 200 sheets	66 sq. in.	BX	$0.72	8540-00-281-8360	5
PAPER TOWELS	Heavywgt paper hand towels , for bathroom dispensers					
	10-1/8" wide, 130 sq. in., BX contains 2400	Direct Delivery	BX	$13.07	8540-00-291-0392	40
	Single fold, 9-1/2" wide, 99 sq in, 4400 to BX	Direct Delivery	BX	$15.27	8540-00-262-7178	
	Sgle fld,9-1/4" wide,99 sq in, 4400 , Waterproof pkg	Direct Delivery	BX	$27.81	8540-01-055-6134	
	Narrow, multifold for use in APW Onliwon #645; 4000	Direct Delivery 9-1/4" w,130 sq.in	BX	$30.06	8540-00-291-0390	40

BATH PRODUCTS

						%
	Wide, multifold, for use in Brown Nibroc #5; 4000	Direct Delivery 9-1/4" w,85 sq in	BX	$15.96	8540-00-291-0389	40
TOILET PAPER	Single-ply tissue, uncompressed rls, ind wrapped NIB/NISH – White, 4500" long, 96 rolls	Direct Delivery	BX	$42.21	8540-00-530-3770	20

BAGS

KRAFT BAG	Heavy duty, 25-lb cap; self-opening, BE contains 500 Printed " Burn,Paper Only, Classified Waste" 8-3/8 x17-5/8 x8-1/8"		BE	$25.30	8105-00-130-4586	5
	Popular-weight paper bag, normal use,groc stores,etc	Natural				
	No. 1/2 bg, 30 cu.in; 3 x 1-3/4 x 5-7/8"	BE(10,000)	BE	$102.32	8105-00-281-1156	5
	No. 2 bag, 83 cu.in;4-1/4 x 2-3/8 x8-1/8"	BE (6000)	BE	$47.99	8105-00-281-1158	5
	No. 5 bag, 191 cu.in; 5-1/4 x3-3/8 x10-3/4"	BE (3000)	BE	$34.66	8105-00-281-1163	5
	No. 8 bag, 304 cu.in; 6-1/4 x3-3/4 x12-3/4"	BE (2000)	BE	$28.74	8105-00-281-1425	5
	No. 12 bag, 433 cu.in; 7 x 4-1/2 x13-7/8"	BE (1000)	BE	$19.56	8105-00-271-1485	5
	No. 20 bag, 700 cu.in; 8-1/8 x6 x 14-3/8"	BE (1000)	BE	$24.76	8105-00-286-7308	5
	No. 25 bag, 779 cu.in; 8-1/4 x5-1/4 x17-7/8"	BE (1000)	BE	$26.18	8105-00-281-1429	5
	No. 1/8 bag, 973 cu.in; 9-3/4 x6-1/4 x16-3/8"	BE (500)	BE	$17.50	8105-00-579-9161	5
	No. 1/4 bag, 1782 cu.in; 11 x 7 x 23-1/4"	BE (250)	BE	$21.16	8105-00-543-7169	5
	Heavy-weight for heavy items;i.e.,jugs,glass jars					
	No. 1/6 bag is 1386 cu in, 12 x 7 x 17",natural	BE (400)	BE	$21.23	8105-00-022-1319	5
	No. 1/4 bag is 1782 cu in,11 x 7 x 23-1/4",natural Entire bag printed w 1/4" red & white stripes separated by blank spaces	BE (250)	BE	$23.57	8105-00-262-7363	5
	Holds hardware, nails ; high strength bag					
	No. 3 bag, 4-3/4 x 2-3/4 x7-7/8"	BE (2000)	BE	$30.47	8105-00-849-9843	5
	No. 10 bag, 6-1/4 x 3-7/8 x 10-1/2"	BE (1000)	BE	$33.69	8105-00-849-9845	5
SHOPPING BAG	Heavy-duty,2 handles;65-lb kraft, natural	17 x 13 x 7"	BD (250)	$47.97	8105-00-857-2250	5
TRASH BAGS	Paper,waste receptacle liner, heavy-duty					
	12-lb load cap., 7-gal.	BE (200)	BE	$31.50	8105-01-284-2923	5
	50-lb load cap., 30 gal.	BE (50)	BE	$21.76	8105-01-284-2924	5
	Paper, wet-strength, line sanitary waste receptacle 8 x 17-1/8 x 7-3/4,	BX (600)	BX	$28.80	8105-00-050-7266	5
WASTE BAG	Paper, waste material, 2 tape closure tabs, foil laminated, flame retardant, moisture resistant	15 x 6 x 3-1/2"	MX	$99.16	8105-00-726-2242	5

CORRUGATED BOX

Corrugated shipping box, folded flat

Single walled, not weather resistant;domestic service

Regular slotted box, burst strength 125 psi, 4 flaps on top and bottom;Style RSC

4 x 4 x 6"	BD (25)	BD	$4.42	8115-00-576-8428	40
6 x 6 x 6"	BD (25)	BD	$4.23	8115-00-179-0565	40
6 x 6 x 10"	BD (25)	BD	$5.45	8115-00-179-0566	40
8 x 5 x 4-1/2"	BD (25)	BD	$4.76	8115-00-290-5494	40
8 x 8 x 8"	BD (25)	BD	$5.93	8115-00-179-0568	40
10 x 10 x 16"	EA (25)	EA	$0.60	8115-00-290-5481	40
11 x 8-1/2 x 12-1/2"	BD (25)	BD	$9.84	8115-00-290-5482	40
11-5/8 x 5 x 5-1/2"	BD (25)	BD	$6.48	8115-00-584-3005	40
11-7/8 x 11-7/8 x 15-3/8"	BD (25)	BD	$15.85	8115-00-290-5484	40
14 x 8-1/2 x 12-1/2"	BD (25)	BD	$10.68	8115-00-290-5496	40

Regular slotted box, burst strength 200 psi, 4 flaps on top and bottom;Style RSC

6 x 5 x 7"	BD (25)	BD	$4.19	8115-00-290-3364	40
7-1/2 x 7 x 3-3/8"	BD (25)	BD	$5.87	8115-00-782-3940	40
8 x 4 x 4"	BD (25)	BD	$4.34	8115-00-290-3365	40
8 x 4 x 24"	BD (15)	BD	$7.27	8115-00-664-0058	40
8 x 6 x 7"	BD (25)	BD	$6.38	8115-00-290-3367	40
8 x 8 x 2"	BD (25)	BD	$6.79	8115-00-584-3052	40
10 x 6 x 8"	BD (25)	BD	$6.09	8115-00-290-3369	40
10 x 8 x 6"	BD (25)	BD	$5.89	8115-00-179-0570	40
10 x 10 x 6"	BD (25)	BD	$7.43	8115-00-179-0571	40
10-7/8 x 9 x 12-1/8"	BD (25)	BD	$12.89	8115-00-530-6121	40
11 x 11 x 6-1/2"	BD (25)	BD	$8.52	8115-00-782-3932	40
11-1/4 x 8-3/4 x 2"	BD (25)	BD	$5.76	8115-00-190-4870	40
11-1/4 x 8-3/4 x 4"	BD (25)	BD	$6.17	8115-00-861-1574	40
12 x 10 x 8"	BD (25)	BD	$8.85	8115-00-179-0575	40
12 x 12 x 12"	BD (25)	BD	$13.57	8115-00-290-3370	40
13 x 7 x 10-1/2"	BD (25)	BD	$9.78	8115-00-290-3371	40
13 x 13 x 24	BD (25)	BD	$23.69	8115-00-290-3374	40
13-1/2 x 12 x 8-1/2"	BD (25)	BD	$14.47	8115-00-290-3373	40
14 x 14 x 8"	BD (25)	BD	$13.84	8115-00-290-3376	40
15 x 7 x 7"	BD (25)	BD	$9.21	8115-00-290-3378	40
15 x 15 x 28"	BD (15)	BD	$13.88	8115-00-290-3380	40

16 x 9 x 5"	BD (25)	BD	$9.26	8115-01-013-1508	40
17-1/2 x 14-1/2 x 8-1/2"	BD (25)	BD	$16.89	8115-00-290-3384	40
18 x 15 x 5-1/2"	BD (25)	BD	$15.78	8115-00-290-3386	40
18 x 18 x 18"	BD (15)	BD	$17.15	8115-00-290-3387	40
25 x 20 x 5"	BD (15)	BD	$15.47	8115-00-290-3394	40

Regular slotted box, burst strength 275 psi, 4 flaps on top and bottom;Style RSC

4 x 4 x 16"	BD (25)	BD	$9.29	8115-00-079-8700	40
4-3/8 x 4-3/8 x 4-3/8"	BD (25)	BD	$4.20	8115-00-079-8447	40
6-3/4 x 6-3/4 x7-1/2"	BD (25)	BD	$7.18	8115-00-079-8449	40
7 x 5 x 40"	BD (25)	BD	$19.49	8115-00-079-9015	40
8 x 5 x 24"	BD (25)	BD	$15.22	8115-00-079-8791	40
8 x 8 x 16"	BD (25)	BD	$12.38	8115-00-079-8693	40
9 x 9 x 9"	BD (25)	BD	$10.47	8115-00-079-8459	40
10 x 8 x 5"	BD (25)	BD	$9.17	8115-00-080-1025	40
12 x 9 x 6 "	BD (25)	BD	$9.57	8115-00-079-8677	40
12 x 12 x 4"	BD (25)	BD	$11.55	8115-00-079-8679	40
12 x 12 x 12"	BD (25)	BD	$16.85	8115-00-079-8680	40
14 x 12 x 6"	BD (25)	BD	$13.61	8115-00-079-8681	40
14 x 14 x 10"	BD (15)	BD	$11.80	8115-00-079-8682	40
16 x 10 x 8"	BD (25)	BD	$14.18	8115-00-179-0578	40
16 x 16 x 16"	BD (15)	BD	$17.69	8115-00-079-8745	40
16-1/2 x 12 x 10"	BD (25)	BD	$17.87	8115-00-079-8697	40
17 x 13-1/2 x 12"	BD (25)	BD	$20.66	8115-00-782-3936	40
18 x 12 x 10"	BD (25)	BD	$18.75	8115-00-179-0579	40
18 x 14 x 18"	BD (25)	BD	$28.75	8115-00-179-0580	40
18 x 15 x 11"	BD (15)	BD	$15.16	8115-00-079-8788	40
20 x 20 x 20"	BD (15)	BD	$26.19	8115-00-079-8823	40
24 x 12 x 24"	BD (15)	BD	$21.69	8115-00-179-0547	40
24 x 12-1/2 x 10"	BD (15)	BD	$14.41	8115-00-079-8825	40
24 x 17 x 13"	BD (15)	BD	$20.27	8115-00-079-8879	40
25 x 20 x 10"	BD (15)	BD	$22.08	8115-00-782-3935	40
32 x 15 x 15"	BD (15)	BD	$24.95	8115-00-079-8989	40

Center,special slotted box, strength 350 psi, 4 flaps on top and bottom;Style CSSC

15-1/2 x 11-9/16 x 7-1/8"	BD (25)	BD	$34.23	8115-00-179-0549	40

						%
Slotted box w/full overlap, strength 200 psi. Outer flaps fully overlap top and bottom length,short inner flaps,Style FOL						
	35 x 20 x 16"		EA	$3.88	8115-00-194-2518	40
Slotted box w/full overlap, strength 350 psi, Outer flaps partially overlap w/short inner flaps, Style OSC-L						
	23-1/2 x 15 -15"	BD (15)	BD	$42.23	8115-00-682-6820	40
Special full-flap,slotted box, strength 350 psi, outer flaps overlap full length of bx; inner flaps meet in center. Style SFF						
	23-1/2 x 15 x 15"	BD (15)	BD	$41.65	8115-00-179-0550	40
Double Walled box is weather resistant.						
Half-slotted box with removable cover, stapled joints,no flaps on top. Style HSC						
	39-3/16 x 23-3/16 x16-5/16"		EA	$5.83	8115-00-142-9627	40
Regular slotted box, burst strength 275 psi. 4 flaps top and bottom. Style RSC						
	16 x 15 x 24"		EA	$1.78	8115-01-015-4241	40
Regular slotted box, burst strength 350 psi. 4 flaps top and bottom. Style RSC						
	23 x 19 x 10"	BD (10)	BD	$18.78	8115-00-139-0722	40
	33 x 16 x 22"	BD (10)	BD	$45.61	8115-00-139-0691	40
	39 x 13 x 13"	BD (10)	BD	$32.41	8115-00-139-0706	40
Regular slotted box, burst strength 500 psi. 4 flaps top and bottom. Style RSC						
	41 x 15 x19"	BD (10)	BD	$39.51	8115-00-139-0749	40
Regular slotted box, burst strength 600 psi. 4 flaps top and bottom. Style RSC domestic						
	26 x 21 x 21"		EA	$5.32	8115-01-015-4994	40
Regular slotted box, burst strength 500 psi. Telescoping cover fits over bottom. Joints overlapped and stapled,Style FTC						
	22 x 22 x 36"	BD (10)	BD	$58.64	8115-00-139-0652	40
	37 x 18 x 7"	BD (10)	BD	$42.71	8115-00-139-0673	40
	51 x 12-1/2 x 9-1/2"	BD (10)	BD	$61.95	8115-00-139-0689	40
Single walled box for exterior overseas shpg ctnrs; weather resistant class.						
Regular slotted box, burst strength 175 psi. 4 flaps top and bottom. Style RSC						
	3 x 3 x 2-1/2"	BD (25)	BD	$7.66	8115-00-200-6961	40

					%
5 x 5 x 5"	BD (25)	BD	$4.32	8115-00-183-9504	40
6 x 4 x 4"	BD (25)	BD	$4.32	8115-00-183-9505	40
6 x 4 x 8"	BD (25)	BD	$5.24	8115-00-190-4888	40
6 x 6 x 6"	BD (25)	BD	$4.66	8115-00-183-9503	40
6 x 6 x 8"	BD (25)	BD	$7.44	8115-00-526-1617	40
8 x 4 x 4"	BD (25)	BD	$4.23	8115-00-183-9500	40

Regular slotted box, burst strength 275 psi.
4 flaps top and bottom. Style RSC

8 x 8 x 6"	BD (25)	BD	$7.68	8115-00-183-9501	40
8 x 8 x 8"	BD (25)	BD	$8.03	8115-00-183-9498	40
8 x 8 x 10"	BD (25)	BD	$10.10	8115-00-183-9499	40
9 x 6 x 6"	BD (25)	BD	$6.46	8115-00-190-4950	40
10 x 6 x 4"	BD (25)	BD	$6.28	8115-00-183-9496	40
10 x 8 x 6"	BD (25)	BD	$8.27	8115-00-183-9497	40
10 x 10 x 8"	BD (25)	BD	$11.40	8115-00-183-9494	40
10-3/4 x 8 x 4"	BD (25)	BD	$9.12	8115-01-011-3634	40
11-1/4 x 8-3/4 x 3"	BD (25)	BD	$8.07	8115-01-011-3617	40
11-1/4 x 8-3/4 x 4"	BD (25)	BD	$9.06	8115-01-012-5003	40
11-1/4 x 8-3/4 x 6"	BD (25)	BD	$9.93	8115-01-011-3621	40
11-1/4 x 8-3/4 x 7"	BD (25)	BD	$10.36	8115-01-011-3620	40
11-1/4 x 8-3/4 x 10"	BD (25)	BD	$12.20	8115-01-017-6054	40
11-1/4 x 8-3/4 x 12"	BD (25)	BD	$13.30	8115-01-011-3619	40
11-1/4 x 8-3/4 x 18"	BD (25)	BD	$18.85	8115-01-011-3623	40

Regular slotted box, burst strength 400 psi.
4 flaps top and bottom. Style RSC

4 x 4 x 12"	BD (25)	BD	$8.90	8115-00-418-4660	40
4 x 4 x 16"	BD (25)	BD	$10.04	8115-00-200-6954	40
6 x 6 x 24"	BD (25)	BD	$16.91	8115-00-190-4921	40
8 x 6 x 6"	BD (25)	BD	$8.13	8115-00-281-3877	40
8 x 8 x 12"	BD (25)	BD	$14.17	8115-00-281-3882	40
8 x 8 x 16"	BD (25)	BD	$17.03	8115-00-190-4936	40
8 x 8 x 24"	BD (15)	BD	$11.30	8115-00-417-9442	40
9 x 6-1/2 x 32"	BD (15)	BD	$18.07	8115-00-190-4858	40
10 x 10 x 10"	BD (25)	BD	$15.26	8115-00-190-4959	40
10 x 10 x 16"	BD (25)	BD	$21.67	8115-00-417-9414	40
10 x 10 x 20"	BD (15)	BD	$17.41	8115-00-417-9412	40
11 x 11 x 11"	BD (25)	BD	$23.24	8115-00-417-9406	40
11-1/4 x 8-3/4 x 12"	BD (25)	BD	$17.52	8115-00-190-4968	40
11-1/4 x 8-3/4 x 18"	BD (15)	BD	$13.87	8115-00-190-4969	40

Use as exterior overseas shipping container, single wall, weather resistant,folded flat

R slotted box, strength 275 psi. Style RSC

12 x 6 x 12"	BD (25)	BD	$13.65	8115-00-190-4974	40
12 x 8 x 8"	BD (25)	BD	$10.33	8115-01-024-5962	40
12 x 9 x 3"	BD (25)	BD	$9.39	8115-01-011-3629	40
12 x 9 x 4"	BD (25)	BD	$9.91	8115-01-011-3628	40
12 x 9 x 5"	BD (25)	BD	$10.90	8115-01-011-3627	40
12 x 9 x 6"	BD (25)	BD	$10.77	8115-01-011-3626	40
12 x 9 x 7"	BD (25)	BD	$11.03	8115-01-011-3625	40
12 x 9 x 8"	BD (25)	BD	$12.87	8115-01-012-3958	40
12 x 9 x 10"	BD (25)	BD	$17.10	8115-01-012-5004	40
12 x 9-1/2 x 5"	BD (25)	BD	$10.75	8115-00-255-1346	40
16 x 10 x 12"	BD (25)	BD	$20.57	8115-00-190-4863	40
16 x 16 x 30"	BD (15)	BD	$29.44	8115-00-190-4864	40
18 x 8 x 10-1/2"	BD (25)	BD	$16.93	8115-00-292-0724	40
18-1/8 x 10-3/8x6-7/8"	BD (15)	BD	$10.03	8115-01-024-5962	40
18-1/2 x 12-1/2 x 10-1/2"	BD (25)	BD	$22.98	8115-01-011-3618	40
22-5/8 x 10 x 16"	BD (15)	BD	$18.02	8115-00-190-4865	
44 x 6 x 4"	BD (15)	BD	$13.61	8115-00-190-5053	

Reg slotted box, strength 400 psi.Style RSC

12 x 4 x 4"	BD (25)	BD	$8.78	8115-00-281-3886	40
12 x 8 x 6"	BD (25)	BD	$12.67	8115-00-281-3889	40
12 x 10 x 10"	BD (25)	BD	$17.47	8115-00-176-8062	40
12 x 12 x 6"	BD (25)	BD	$16.83	8115-00-229-9340	40
12 x 12 x 8"	BD (25)	BD	$18.95	8115-00-417-9378	40
12 x 12 x 10"	BD (25)	BD	$20.19	8115-00-183-9490	40
12 x 12 x 12"	BD (25)	BD	$21.28	8115-00-183-9491	40
12 x 12 x 16"	BD (25)	BD	$27.62	8115-00-418-4853	40
12 x 12 x 20"	BD (25)	BD	$32.17	8115-00-418-4856	40
12 x 12 x 24"	BD (15)	BD	$22.67	8115-00-418-4857	40
12 x 12 x 30"	BD (10)	BD	$17.34	8115-00-418-4854	40
12-1/2 x 9-5/8 x 6"	BD (25)	BD	$14.39	8115-00-[illegible]	40
14 x 8 x 6"	BD (25)	BD	$14.37	8115-00-[illegible]	40
14 x 12 x 8"	BD (25)	BD	$20.94	8115-00-[illegible]	40
14 x 14 x 12"	BD (25)	BD	$26.90	8115-00-[illegible]	
14 x 14 x 18"	BD (25)	BD	$34.94	8115-00-[illegible]	
14 x 14 x 24"	BD (15)	BD	$24.99	8115-00-[illegible]	40
14 x 14 x 29"	BD (10)	BD	$21.70	8115-00-[illegible]	40
15 x 15 x 10"	BD (25)	BD	$28.40	8115-00-[illegible]	40

16 x 12 x 8"	BD (25)	BD	$21.18	8115-00-183-9487	40
16 x 12 x 12"	BD (25)	BD	$26.02	8115-00-176-8064	40
16 x 14 x 12"	BD (25)	BD	$29.55	8115-00-183-9484	40
16 x 16 x12"	BD (25)	BD	$33.54	8115-00-451-7853	40
16 x 16 x 16"	BD (25)	BD	$36.40	8115-00-190-5002	40
16 x 16 x 24"	BD (25)	BD	$53.42	8115-00-165-6599	40
16-1/2 x 12-1/2 x 10-3/4"	BD (25)	BD	$28.83	8115-00-579-9153	40
18 x 15 x 10"	BD (25)	BD	$30.40	8115-00-190-5007	40
18 x 15 x 15"	BD (15)	BD	$23.16	8115-00-417-9292	40
18 x 18 x 12"	BD (15)	BD	$23.03	8115-00-183-9482	40
18 x 18 x 18"	BD (15)	BD	$29.35	8115-00-428-4185	40
18 x 18 x 36"	BD (3)	BD	$10.50	8115-00-953-0275	40
18-3/4 x 12-1/4 x 12"	BD (15)	BD	$17.43	8115-00-514-2409	40
20 x 8 x 9"	BD (15)	BD	$11.64	8115-00-190-5012	40
20 x 16 x 16"	BD (15)	BD	$25.15	8115-00-275-5777	40
20 x 20 x 3-1/2"	BD (15)	BD	$25.01	8115-00-201-1123	40
20 x 20 x 12"	BD (15)	BD	$29.00	8115-00-428-4183	40
20 x 20 x 20"	BD (10)	BD	$23.04	8115-00-428-4158	40
21 x 21 x 20-1/2"	BD (15)	BD	$45.30	8115-00-598-5807	40
22 x 22 x 12"	BD (5)	BD	$11.79	8115-00-428-4145	40
24 x 14 x 24"	BD (5)	BD	$13.23	8115-00-190-4995	40
24 x 16 x 12"	BD (15)	BD	$23.77	8115-00-183-9481	40
24 x 16 x 16"	BD (5)	BD	$9.46	8115-00-292-0123	40
24 x 20 x 16"	BD (15)	BD	$35.91	8115-00-417-9236	40
24 x 24 x 10"	BD (10)	BD	$23.39	8115-00-428-4124	40
24 x 24 x 12"	BD (15)	BD	$38.82	8115-00-174-2354	40
24 x 24 x 24"	BD (3)	BD	$10.20	8115-00-417-9416	40
24 x 24 x 32"	BD (10)	BD	$42.31	8115-00-985-7312	40
25 x 21 x 15-1/4"	BD (10)	BD	$29.02	8115-00-579-9155	40
26 x 16 x 19"	BD (25)	BD	$57.03	8115-00-117-9529	40
26 x 18 x 26"	BD (10)	BD	$31.54	8115-00-190-5011	40
27 x 21-1/2 x 18-3/4"	BD (9)	BD	$29.05	8115-00-656-0912	40
29-1/2 x 19-1/2 x 19-1/4"	BD (10)	BD	$29.43	8115-00-579-9156	40
30 x 12 x 6"	BD (15)	BD	$18.62	8115-00-[illegible]	40
30 x 16 x 16"	BD (5)	BD	$11.79	8115-00-[illegible]	40
30 x 17 x 12"	BD (10)	BD	$21.13	8115-00-[illegible]	40
32 x 12 x 14"		EA	$14.79	8115-00-[illegible]	40
36 x 14 x 14"	BD (10)	BD	$20.33	8115-00-[illegible]	40
40 x 20 x 12"		EA	$3.58	8115-01-[illegible]	40
48 x 12 x 12"		EA	$2.04	8115-01-[illegible]	40

51 x 29 x 23"		EA	$6.26	8115-01-010-4655	40
56 x 34 x 24"		EA	$7.78	8115-01-010-4657	40
One piece folder box, burst strength 275 psi. Style OPF					
10-3/4 x 8 x 3"	BD (25)	BD	$9.28	8115-01-015-3955	40
Full telescope box, strength 400 psi, Style FTC					
30 x 23 x 4"	BD (15)	BD	$33.03	8115-00-222-3022	40
39 x 7 x 7"	BD (15)	BD	$32.46	8115-01-012-9070	40
Center, spec slotted box, strength 400 psi, Style CSSC.					
12 x 12 x 14"	BD (25)	BD	$31.07	8115-00-285-1116	40
26 x 26 x 18"	BD (7)	BD	$25.75	8115-00-190-5015	40
For use as exterior overseas shipping ctnr, weather resistant box, corrugated fiberbrd, double wall constr, comes folded flat.					
Reg slotted box, strength 600 psi. Style RSC					
23-1/2 x 19-1/2 x 17"	BD (5)	BD	$17.42	8115-01-019-0766	
39-1/2 x 23-1/2 x 17"	BD (5)	BD	$35.37	8115-01-019-0767	40
39-1/2 x 35 x 23-1/2"	BD (5)	BD	$45.65	8115-01-019-0768	40
47-1/2 x 39-1/2 x 35"	BD (5)	BD	$69.66	8115-01-019-0770	40
Regular slotted box					
48 x 40 x 36"		EA	$14.86	8115-00-360-2858	40
Use this weather-resistant box of corrugated fiberboard for shipping or storage under extreme weather cond and high humidity. Triple-wall constr ,bi-stacking strength, bursting strgth 1100 psi.					
Regular-slotted bx, printed w/legend shown in DGSC drawing 65C29,Rev A,Style RSC					
42 x 28 x 32-1/2"		EA	$12.95	8115-00-726-0673	40
Regular slotted box, Style RSC					
17 x 15 x 10-1/2"	BD (9)	BD	$32.17	8115-00-616-9153	40
17 x 15 x 16"	BD (6)	BD	$26.55	8115-00-616-9152	40
21 x 19 x 14-3/4"	BD (4)	BD	$20.92	8115-00-616-9150	40
21 x 21 x 10-3/4"	BD (4)	BD	$22.78	8115-00-616-9149	40
22 x 14 x 22"	BD (5)	BD	$27.35	8115-00-579-8405	
22 x 21 x 26"	BD (3)	BD	$23.60	8115-00-559-9995	
22 x 22 x 11"	BD (4)	BD	$21.66	8115-00-579-8406	40
23 x 23 x23"	BD (3)	BD	$21.04	8115-00-579-8407	40
24 x 11-1/2 x 11-3/4"	BD (7)	BD	$25.68	8115-00-616-9148	40

					%
24 x 24 x 14-3/4"	BD (3)	BD	$19.41	8115-00-616-9151	40
27 x 19 x 14-3/4"	BD (4)	BD	$22.63	8115-00-616-9147	40
30 x 30 x 30"	BD (3)	BD	$37.03	8115-00-993-2791	40
38 x 14 x 20"	BD (3)	BD	$18.17	8115-00-579-8461	40
40 x 28 x 28"	BD (3)	BD	$37.68	8115-00-993-2790	40
43 x 17 x 8-1/2"	BD (4)	BD	$26.06	8115-00-559-9997	40
43 x 22 x 34"	BD (2)	BD	$26.07	8115-00-559-9998	40
43-1/2 x 18-1/2 x 13"	BD (3)	BD	$23.05	8115-00-616-9154	40
45 x 14 x 22"	BD (3)	BD	$23.01	8115-00-559-5516	40
45 x 22 x 22"	BD (2)	BD	$21.62	8115-00-559-9999	40
46 x 46 x 22"		EA	$21.05	8115-00-559-9996	40
48 x 40 x 36"		EA	$19.57	8115-00-774-6562	40
Half-regular-slotted box,short top flaps and cover. Side of box reads "REUSABLE CONTAINER RETURN TO:."					
40 X 24 X 36"		EA	$18.36	8115-00-887-8112	40
46-7/8 X 38-7/8 X 26"		EA	$19.35	8115-00-926-4886	40
46-7/8 X 38-7/8 X 36		EA	$21.36	8115-00-926-4887	40
46-7/8 X 38-7/8 X 42"		EA	$24.15	8115-00-926-4888	40
47-1/2 X 39-1/2 X 35-1/2"		EA	$23.00	8115-00-953-0276	40
48 X 40 X 36"		EA	$21.58	8115-00-935-1140	40
Half-regular-slotted box,short top flaps and cover. Side of box reads "Box, Modular Intermodal container system , NSN, Series 2,Size B,Do Not Use Without Pallet."					
46-7/8 x 38-7/8 x 15-13/16"		EA	$19.27	8115-00-142-9594	40
Half-reg slotted box has short top flaps and cover.					
48 x 40 x 28-1/4"		EA	$20.70	8115-00-782-1695	40
60-1/2 x 34-1/4 x 29"		EA	$32.30	8115-00-163-7923	40
Corrugated,fiberboard box, double wall construction high strength. Weather resistant, folded flat.					
Regular-slotted box. Style RSC					
18 x 14 x 14"		EA	$2.82	8115-00-926-4893	40
Half-slotted box. Style RSC					
46-7/8 x 38-7/8 x 26"		EA	$16.20	8115-00-926-4895	40
46-7/8 x 38-7/8 x 36"		EA	$18.52	8115-00-926-4896	40
46-7/8 x 38-7/8 x 42"		EA	$18.88	8115-00-926-4897	40

Weather resistant,corrugated, fiberboard box. Use as exterior shipping container or as an insert in cargo transporters such as CONEX,SEAVAN or MILVAN. Does not include pallets.					
Double wall constr ,regular slotted					
	29 x 31-3/4 x 14-3/4"		EA	$10.38	8115-00-935-5902
	29 x 31-3/4 x 35-1/4"		EA	$12.61	8115-00-935-5897
	43 x 31-3/4 x 35-1/4"		EA	$13.93	8115-00-935-5896
	58 x 43 x 35-1/4"		EA	$24.56	8115-00-935-5898
Features triple-wall construction					
Regular slotted box					
	29 x 31-3/4 x 14-3/4"		EA	$9.15	8115-00-935-6514
	29 x 31-3/4 x 35-1/4"		EA	$12.76	8115-00-935-5907
	43 x 31-3/4 x 35-1/4"		EA	$15.44	8115-00-935-5906
	57 x 31-3/4 x 35-1/4"		EA	$18.99	8115-00-935-5905
	58 x 43 x 35-1/4"		EA	$24.94	8115-00-935-6510
	86 x 31-3/4 x 35-1/4"		EA	$26.37	8115-00-935-5904
Half-slotted box					
	44 x 31-1/2 x 27-3/8"		EA	$15.75	8115-00-753-4690
	57 x 32 x 27-3/8"		EA	$17.73	8115-00-753-4691
Corrugated,fiberboard box for domestic and overseas consolidated shipment of aircraft parts, general supplies and equip. Weather-resistant box comes knocked down					
Double-wall const & sleeve w/double cover					
	23 x 18-1/2 x 15"		EA	$8.17	8115-00-901-6432
	23 x 18-1/2 x 29"		EA	$4.87	8115-00-901-6431
	40 x 23 x 29"		EA	$9.39	8115-00-901-6429
Triple wall construction					
Sleeve has double cover					
	39-1/2 x 22-1/2 x 28-1/4"		EA	$14.48	8115-00-901-6433
	47-1/2 x 39-1/2 x 28"		EA	$21.58	8115-00-901-6434
	47-1/2 x 39-1/2 x 28"		EA	$18.77	8115-00-901-6435
	83 x 49 x 28"		EA	$37.75	8115-00-901-6428
Corrugated,fiberboard box in flat form is half slotted, w/detachable cover that is 11" deep. Full telescopic box for domestic use.					
	56 x 16 x 11"	BD (10)	BD	$57.53	8115-00-139-0690

Solid fiberboard box is weather resistant.

Reg-slotted box, burst 400 psi, Style RSC

8 x 8 x 4"	BD (25)	BD	$34.19	8115-00-281-3878	40
11-1/4 x 8-3/4 x12"	BD (25)	BD	$89.91	8115-00-515-2045	40
18-5/8 x 12-3/8 x 14"	BD (10)	BD	$52.56	8115-00-183-9461	40
20 x 15 x 7"	BD (10)	BD	$48.55	8115-00-190-5056	40
24 x 24 x 24"	BD (4)	BD	$49.80	8115-00-515-2130	40
26 x 18 x 30"	BD (4)	BD	$53.53	8115-00-183-9458	40
26 x 20 x 10"	BD (6)	BD	$76.08	8115-00-183-9459	40

Full-overlap box, burst 400 psi. Style FOL

18 x 6 x 6"	BD (25)	BD	$53.98	8115-00-281-3892	40
20 x 20 x 20"	BD (4)	BD	$76.08	8115-00-281-3896	40

Full telescope box, burst 550 psi. Style FTC

23 x 17 x10"	BD (5)	BD	$63.63	8115-00-255-1343	40

Domestic one-piece folder,burst 125 psi. W/outer flaps 4-3/4" scored every 1/2"

10-1/4 x 9 x 3"	BD (25)	BD	$31.65	8115-00-782-4004	40

Solid fiberboard box,weather resistant and burst strength 400 psi;folded flat, full overlap,with liner. Style FOL-L.

33-1/4 x 14 x 13"	BD (4)	BD	$42.83	8115-00-183-9401	40

For preserving, handling, shipping and storing serviceable and repairable items Corrugated, weather resistant, fiberboard box w/ cushioning is reusable.

Vertical star pack holds meters,gauges instruments and similar items. NIB /NISH Mandatory Source.

6 x 6 x 10"		EA	$3.43	8115-00-192-1603	40
8 x 8 x 12"		EA	$5.63	8115-00-192-1604	40
10 x 10 x 12"		EA	$7.64	8115-00-192-1605	40
12 x 12 x 14"		EA	$7.08	8115-00-134-3655	40
12 x 12 x 18"		EA	$8.77	8115-00-050-5237	40
14 x 14 x 16"		EA	$10.32	8115-00-134-3656	40

Folded,convoluted pk,for flat items such as circuit boards,electronic modules and tubes. *Modified triple slide style.* NIB /NISH Mandatory Source.

6 x 5 x 2-1/2"		EA	$2.11	8115-00-787-2142	40
6 x 5 x 3-1/2"		EA	$2.81	8115-00-787-2147	40
9 x 6 x 2-1/2"		EA	$2.92	8115-00-101-7647	40
9 x 6 x 3-1/2"		EA	$2.93	8115-00-101-7638	40

FIBERBOARD BOX

					%
10 x 10 x 3-1/2"		EA	$5.31	8115-01-057-1244	
12 x 8 x 2-1/2"		EA	$4.10	8115-00-787-2146	40
12 x 8 x 3-1/2"		EA	$4.36	8115-00-787-2148	40
13 x 13 x 3-1/2"		EA	$7.52	8115-01-057-1243	40
16 x 16 x3-1/2"		EA	$10.63	8115-01-057-1245	40
18 x 12 x 2-1/2"		EA	$6.64	8115-01-019-4085	40
18 x 12 x 3-1/2"		EA	$7.65	8115-01-019-4084	40
24 x 16 x 3-1/2"		EA	$12.56	8115-01-093-3730	40

Telescoping encapsulated packs for black box type items; i.e., receiver-transmitters, amplifiers,power supply,etc. Full telescope style comes with cover.

20 x 14 x 9"		EA	$7.96	8115-00-516-0251	40
24 x 14 x 14"		EA	$14.01	8115-00-550-3558	40
24 x 18 x 16"		EA	$18.12	8115-01-015-1312	40
25 x 14 x 14"		EA	$16.38	8115-00-550-3574	40
26 x 9 x 9"		EA	$7.43	8115-01-015-1313	40
30 x 16 x 14"		EA	$17.81	8115-00-516-0242	40
30 x 27 x 14"		EA	$33.35	8115-01-094-652	
32 x 18 x 16"		EA	$26.01	8115-01-015-1315	40
34 x 24 x 18"		EA	$34.70	8115-01-015-1314	40

Horizontal star pack for electrical-electronic items w/small cross section relative to length; i.e., control generators and amplifiers. Double cover container bursting strength 400 psi.

20 x 14 x 14"		EA	$16.06	8115-01-010-8956	40
22 x 16 x 16"		EA	$20.03	8115-01-006-7257	40

CORRUGATED FIBERBOARD SHEET

%

Used in the fabrication of boxes for domestic or interior use. Sheet is single wall two faces of linerboard and filler and has bursting strength of 275 psi dry.

Sheet has 33-39 or 39-45 flutes per lin ft.

36 x 60"	Natural	SH	$1.19	8135-00-281-3923	40
96 x 60"	Natural	SH	$3.27	8135-00-290-663	
60 x 80"	Natural	SH	$2.62	8135-00-251-8022	
48 x 96"	Natural	SH	$2.44	8135-00-664-4092	40

CORRUGATED FIBERBOARD SHEET

%

Use this weather-resistant,corrugated fiberboard sheet to fabricate boxes for overseas shipping and other uses

Single wall sheet consists of 2 faces of linerboard and filler

Sheet has 39-45 or 47-53 flutes per lin ft., burst strength of 275 psi dry and 100 psi wet

36 x 120"	Natural	SH	$2.22	8135-00-281-4121	40
60 x 96"	Natural	SH	$2.89	8135-00-281-5105	40
72 x 72"	Natural	SH	$2.69	8135-00-281-5106	40
72 x 120"	Natural	SH	$4.24	8135-00-281-5107	40

Sheet has 39-45 or 47-53 flutes per lin ft., burst strength 400 psi dry,150 psi wet.

36 x 84"	Natural	SH	$1.62	8135-00-281-4112	40
36 x 120"	Natural	SH	$2.42	8135-00-281-4113	40
48 x 72"	Natural	SH	$2.03	8135-00-240-8226	40
48 x 96"	Natural	SH	$2.61	8135-00-132-9067	40
60 x 80"	Natural	SH	$2.77	8135-00-251-8017	40
60 x 96"	Natural	SH	$3.28	8135-00-281-4115	40
72 x 72"	Natural	SH	$3.26	8135-00-281-4117	40
72 x 96"	Natural	SH	$4.11	8135-00-664-1384	40
72 x 120	Naatural	SH	$4.94	8135-00-281-4118	40

Sheet has 39-45 flutes per lin ft., burst strength of 400 psi dry, 150 psi wet

26 x 76"	Natural	SH	$1.06	8135-01-256-1108	40

Sheet has 39-53 flutes per lin ft. and burst strength 400 psi dry, 150 psi wet.

48 x 120"	Natural	SH	$3.30	8135-00-013-8961	40

Sheet has 47-53 flutes per lin ft and burst strength 400 psi dry, 150 psi wet.

26 x 76"	Natural	SH	$1.32	8135-00-240-8230	40
32 x 84"	Natural	SH	$1.65	8135-00-240-8227	40
58 x 110"	Natural	SH	$3.77	8135-00-240-8224	40
78 x 108"	Natural	SH	$6.37	8135-00-132-9065	40

Double-wall sheet ; 3 faces of linerboard and 2 layers of filler. Sheet has bursting strength of 600 psi dry and 300 psi wet.

75 x 120"	Natural	SH	$9.47	8135-00-926-4907	40

CORRUGATED FIBERBOARD SHEET

Triple wall sheet consists of 4 faces of linerboard and 3 layers of filler. Sheet has bursting strength of 110 psi.

75 x 120"	Natural	SH	$17.00	8135-00-926-4908	40

SOLID FIBERBOARD SHEET

Use this weather-resistant,solid pulp fiberboard sheet to fabricate boxes for overseas shipping and other uses.

Sheet has a burst strength 400 psi dry, 150 psi wet.

60 x 80"		SH	$6.20	8135-00-251-8018	40

Sheet has burst strength 500 psi dry , 500 psi wet

48 x 96"		SH	$12.12	8135-00-926-2105	40

SHIPPING BAG

Water-resistant shipping bag used for packaging items weighing up to 10 lb. Protects publications, small parts and other articles during mailing and handling. Double wall kraft, flat bottom and opens on short side.

Cushioned envelope has padding of macerated paper. Opening can be glued, stapled or taped closed.

4 x 8"	BD (500)	BD	$34.38	8105-00-498-6619	5
6 x 10"	BD (250)	BD	$18.41	8105-00-290-0340	5
7-1/4 x 12"		HD	$9.92	8105-00-290-0342	5
8-1/2 x 12"		HD	$11.38	8105-00-290-0343	5
9-1/2 x 14-1/2"		HD	$13.94	8105-00-281-1168	5
10-1/2 x 16"		HD	$16.11	8105-00-281-1436	5
14-1/4 x 20"	BX (50)	BX	$12.96	8105-00-281-1169	5

WILDLAND GEAR

TOILET BOWL LINER Disposable liner of waxed paper, used with electrical-type, immediate consuming waste material toilets in mobile trailers at ground communication facilities.

12 x 18"	BX (200)	BX	$31.02	8105-00-137-1613	

FEDERAL SUPPLY SCHEDULES (FSS)

In addition to the stock items listed in this guide, GSA also provides products made from recycled materials under our Federal Supply Schedule Program. Four different areas are covered here:

RETREAD TIRES

- *FSS 26, PART III (Pneumatic Tires and Inner Tubes)*

This Federal Supply Schedule contains both new and retread tires. In accordance with the Resource Conservation and Recovery Act, the Environmental Protection Agency developed and issued the "Guideline for the Federal Procurement of Retread Tires," which went into effect November 17,1989. The intent of this mandate is to retard the growth of scrap tires in the United States, and the resulting environmental problems these tires cause, until a long-term solution for proper disposal can be obtained. All government agencies are required to purchase a retread tire in lieu of a new tire unless there is a valid justification for the purchase of a new tire . All new and retread tires in this schedule have undergone extensive qualified products list (QPL) testing to assure the utmost level of safety and quality of the tires furnished to government users. This testing exceeds DOT requirements for both new and retread tires to be marketed in the United States.

ENVELOPES

- *FSS 75, PART V (Office Supplies)*

This schedule offers more than 100 items - most of which contain 50% recycled content material.

Envelopes available from this schedule meet most government mailing needs from savings bond envelopes with windows to first class green diamond border envelopes for larger mail pieces.

RECYCLED XEROGRAPHIC PAPER

Federal Supply Schedule FSC 75, Part X, now has available in limited quantities xerographic paper with recycled content. The paper size will be 8-1/2" x 11" (NSN 7530-01-335-2623) and 8-1/2" x 14" (NSN 7530-01-334-7817) in white only. The quantity order for this recycled copy paper will be 10 cartons minimum and up to 880 cartons maximum.

This paper contains 50% wastepaper recovered materials and is available in the same zonal regions as in the non-recycled Xerographic Paper with the exception of Puerto Rico. GSA plans to have limited coverage in both Hawaii and Alaska.

The contractors will do their utmost to meet your needs in fulfilling orders on recycled Xerographic Paper. However, quantities will be limited during the contract period, so please plan accordingly. GSA is confident that production capacity for recycled Xerographic Paper will increase steadily and will eventually be applicable to all remaining Xerographic Paper under this single award schedule during future contract periods.

Contact: Madeline Coleman, FTS 264-2697 or COM (212) 264-2697

EASY ORDERING SYSTEM

This Paper is now also available through FEDSTRIP/MILSTRIP by sending orders to the Office Supplies and Paper Products Commodity Center (2FY), 26 Federal Plaza, New York, NY 10278.

Domestic Federal agencies now have the option of submitting their requirements for Xerographic Paper to GSA for direct placement of orders, making ordering much easier!

This move virtually eliminates all your paperwork and administration because the Commodity Center will handle everything: place orders, monitor delivery, process payments, and resolve any administrative problems. Should a shipment discrepancy arise, FSS will handle that also. The small fee (2%) that GSA charges to process these orders should be more than recovered by reduced paperwork.

To order, use normal requisition channels, FEDSTRIP or MILSTRIP: no calls to vendors, no purchase order, no followup, no concern about vendor's prompt payment requirement. One requisition will do it all.

Standard AOA MILSTRIP/FEDSTRIP transactions can be submitted through your regular channels or keyed directly into MUFFIN requisition system. Contact Rick Walton at FTS 557-0977 or COM (703) 557-0977.

TONER CARTRIDGES - New Item Introductory Schedule

Recharged and remanufactured toner cartridges are currently available nationwide under fourteen contracts. Information on these contracts will be contained in the 1991 NIIS Catalog. We are listing basic contract data below for your convenience.

The advantages to using these products and services are twofold - to prevent and reduce plastics from entering the waste stream and to make cartridges available at significantly lower prices - typically 40 - 50% over new cartridges. These cartridges fit various copiers and lazer printers used with personal computers.

Contractor: ***Cartridge Technology Network, Inc.***
512 Herndon Parkway, Suite F
Herndon, VA 22070-5225
Saundra Luck..... (703) 318-0500
1-800-767-0160

Contract No.: GS-OOF-09809
Special Item No.: NIS-G-0215
Period: January 1,1990 - December 31, 1992

Contractor: ***Graph-Com-Corp***
2200 Norcross Parkway, Suite 235
Norcross, GA 30071-3670
Tricia Rutledge ..... (404) 448-5050
1-800-868-6333

Contract No.: GS-OOF-2707A
Special Item No.: NIS-G-0248
Period: July 1,1990 - June 30, 1993

Contractor: ***Access Computer Products, Inc.***
832 Phoenix Drive
Ann Arbor, MI 48108
Shirley Weatherwax..... (313) 677-4000

Contract No.: GS-OOF-2708A
Special Item No.: NIS-G-0242
Period: July 1,1990 - June 30, 1993

Contractor: ***Laser Life, Inc.***
401 Center Street, Suite 101
Mount Airy, MD 21771
David Jones ..... (301) 294-8863

Contract No.: GS-OOF-2709A
Special Item No.: NIS-G-0218
Period: July 1,1990 - June 30 , 1993

Contractor: ***TCS, Inc. (Total Computer Services, Inc.)***
1101 King Street, Suite 601
Alexandria, VA 22314
Henry Walker..... (703) 838-9277
1-800-673-8107

Contract No.: GS-OOF-2711A
Special Item No.: NIS-G-0244
Period: July 1, 1990 - June 20, 1993

Contractor: ***Lasertronics, Inc.***
6075 Roswell Road, N.E., Suite 425
Atlanta, GA 30328
James Lee ..... (404) 250-9797

Contract No.: GS-OOF-2713A
Special Item No.: NIS-G-0239; 0240; 0241
Period: October 1,1990 - September 30, 1993

Contractor: ***Blake Enterprises***
2154A North Main Street
Walnut Creek, CA 94596
Lorrie K. Eysel..... (415) 939-1718
1-800-888-1718

Contract No.: GS-OOF-2714A
Special Item No.: NIS-Q-0263
Period: October 1,1990 - September 30, 1993

Contractor: ***American Laser Products, Inc.***
900-B East Miracle Mile
McAllen, TX 78501
Sid Hooper ..... (512) 686-7404

Contract No.: GS-OOF-2716A
Special Item No.: NIS-G-0261
Period: October 1,1990 - September 30 , 1993

For GSA pricelist and technical information, contact each contractor's representative shown under each contract.
GSA Contracting Office: FTS (703) 557-8393 -- GSA Technical Representative: Bill Dougherty, FTS (703) 557-8434

TONER CARTRIDGES - Continued

Contractor: Laser Vision
P.O. Box 487
Wilmington, N.C. 28406
M. Bethel ..... (191) 343-1350)
1-800-325-4573

Contract No.: GS-OOF-4801A
Special Item No.: NIS-Q-0282
Period: January 1,1991 - December 31,1993

Contractor: Interstate Toner & Ribbon
1001 West Port Road
Kansas City, MO. 64111
Dave Bryan ..... (816) 753-0053

Contract No.: GS-OOF-4808A
Special Item No.: NIS-G-0243
Period: April 1, 1991 - March 31, 1994

Contractor: Toner Etcetera, Inc
210 West Road
Portsmouth, NH 03801
..... (603) 431-3624
1-(800) 288-5273

Contract No.: GS-OOF-4811A
Special Item No.: NIS-Q-0285
Period: April 1, 1991 - March 31, 1994

Contractor: Toner Service Co.
6827 South Broadway
St. Louis, Mo. 63111
Nancy Leonard..... (314) 352-8667

Contract No.: GS-OOF-4807A
Special Item No.: NIS-Q-0284
Period: April 1, 1991 - March 31, 1994

Contractor: FKF Computer Systems
7206 Talisman Lane
Columbia, MD. 21045
Stephen W. Faulkner ..... (301) 596-7707

Contract No.: GS-OOF-4809A
Special Item No.: NIS-Q-0309
Period: April 1, 1991 - March 31, 1994

Contractor: New Image of California
2250 Galaxy Court , Suite E
Concord, CA. 94520
Joseph Jones ..... (415) 680-0668

Contract No.: GS-OOF-4813A
Special Item No.: NIS-Q-0259
Period: April 1, 1991 - March 31, 1994

For GSA pricelist and technical information, contact each contractor's representative shown under each contract.
GSA Contracting Officer FTS (703) 557-4393 -- GSA Technical Representative: Bill Dougherty, FTS (703) 557-0434

Copies of this Guide may be obtained, without cost, from:

General Services Administration
Centralized Mailing List Service
P.O. Box 6477
Ft. Worth, TX 76115

Comm (817) 334-5215
FTS 334-5215
AUTOVON 739-7369

Mailing list code RCPG-0001

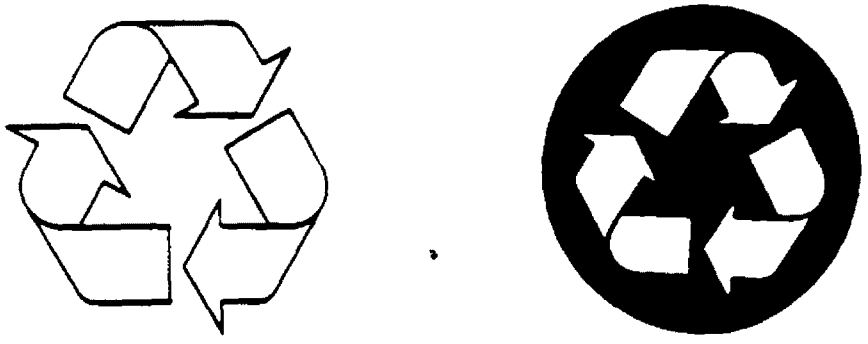
APPENDIX B

RECYCLING SYMBOLS FOR VARIOUS MATERIALS

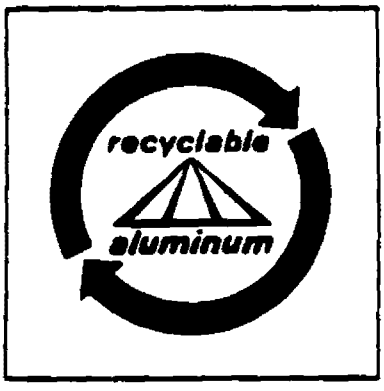
APPENDIX B

RECYCLING SYMBOLS FOR VARIOUS MATERIALS

Symbols Designating that a Material is Recyclable (left) or Made from Recycled Goods (right)

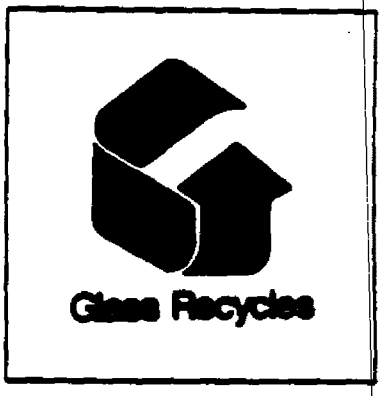


Paper



Aluminum

Steel



Glass

Plastic

APPENDIX C

BUILDING PROFILE CHECKLIST

BUILDING PROFILE

BUILDING NAME:_____ BUILDING NUMBER:_____
BUILDING ADDRESS:_____ CITY:_____

1.	Is there a loading dock at this facility to accomodate the pickup of recyclables?	Yes No	_____ _____
2.	What types of containers are used to hold solid waste for pickup?	Dumpster Compactor	_____ _____
3.	Is storage space available on the loading dock or in solid waste pickup areas to hold recyclable containers until pickup by Contractors? How much space is available?	Yes No	_____ _____
4.	Is the storage space sprinklered?	Yes No	_____ _____
5.	Does facility have scales to weigh recyclables?	Yes No	_____ _____
6.	How is cleaning performed?	Force Account Contract	_____ _____
7.	Does custodial contract contain requirements for removal?	Yes No	_____ _____

8. If yes, what items are required to be recycled?

Paper _____
Glass _____
Plastic _____
Newspaper _____
Alum. Cans _____
Other (Specify) _____

If the building is leased-lessor operated, the following question should also be asked:

9.	I lessor willing to participate in a recycling program?	Yes No	_____ _____

If yes, list any special requirements.

APPENDIX D

ADDITIONAL SOURCES OF INFORMATION

ADDITIONAL SOURCES OF INFORMATION

The trade associations and publications listed on this page are potential sources of additional information on specific recyclable materials. This is not a comprehensive list of all trade associations and publications concerned with recycling of these materials.

PAPER

American Paper Institute
260 Madison Avenue
New York, New York 10016
(212) 340-0600

Publications:

Fibre Market News
156 5th Avenue
New York, New York 10010

Official Board Markets
111 East Wacker Drive
16th Floor
Chicago, Illinois 60601

Recycling Markets
3505-111 Woodhead Drive
Northbrook, Illinois 60062

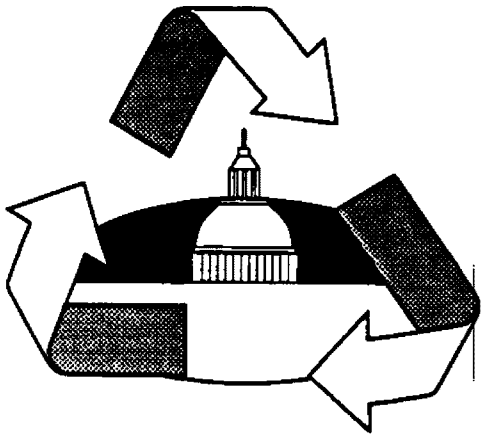
METALS

The Aluminum Association
900 19th Street, N.W.
Washington, D.C. 20006
(202) 862-5100 Phone
(202) 862-5164 Fax

Institute of Scrap Recycling Industries, Inc.
1627 K Street, N.W.
Washington, D.C. 20006
(202) 466-4050

Steel Can Recycling Institute
Foster Plaza 10
680 Andersen Drive
Pittsburgh, Pennsylvania 15220
(800) 876-SCRI

Section 2.0
Recycling in Federal Offices:
Training Seminar for Program Coordinators



Section 2.1 Paper Copies of Slides and Talking Points

RECYCLING IN FEDERAL OFFICES
TRAINING SEMINAR FOR PROGRAM COORDINATORS

I. THE BENEFITS OF SOURCE REDUCTION AND RECYCLING

II. DESIGNATING A PROGRAM COORDINATOR

III. PERFORMING A WASTE STREAM ANALYSIS

IV. PERFORMING A MERKET ANALYSIS

V. ESTABLISHING A RECYLING CONTRACT

VI. SELECTING A COLLECTION SYSTEM

VII. EDUCATING EMPLOYEES

VIII. PROGRAM MONITORING AND EVALUATION

IX. PROGRAM MAINTENANCE

THE BENEFITS OF SOURCE REDUCTION AND RECYCLING

THE BENEFITS OF SOURCE REDUCTION AND RECYCLING

- In 1988, the U.S. generated 180 million tons of municipal solid waste
- The Federal government is a large contributor to problems associated with solid waste
- The Federal government can make a large contribution to solving the municipal solid waste problems
- Office paper, aluminum, glass and plastic are all recyclable materials that can be recovered

---

AS A LARGE GENERATOR OF COMMERCIAL OFFICE WASTE -- THE FEDERAL GOVERNMENT HAS OVER 2 MILLION EMPLOYEES -- THE FEDERAL GOVERNMENT HAS A RESPONSIBILITY TO REDUCE AND RECYCLE AS MUCH OF THIS WASTE AS POSSIBLE. FEDERAL OFFICES CAN EASILY RECYCLE MATERIALS SUCH AS PAPER, ALUMINUM, GLASS AND PLASTIC TO HELP SOLVE THE NATIONAL SOLID WASTE PROBLEM.

- The most common methods of waste management are:
  - Landfilling
  - Incineration

EXISTING METHODS OF WASTE DISPOSAL -- LANDFILLING AND INCINERATION -- ARE BECOMING PROBLEMATIC IN SOME PARTS OF THE COUNTRY. MANY LANDFILLS ARE REACHING THEIR CAPACITY OR CLOSING, AND NEW LANDFILLS AND INCINERATORS ARE INCREASINGLY DIFFICULT TO SITE.

EPA ESTIMATES THAT BY 1995 APPROXIMATELY HALF OF THE CURRENTLY AVAILABLE SPACE IN LANDFILLS WILL BE FILLED. ON TOP OF THIS, WASTE HAULING AND DISPOSAL FEES CONTINUE TO INCREASE. CLEARLY, ALTERNATIVE APPROACHES TO WASTE MANAGEMENT ARE NEEDED.

THE BENEFITS OF SOURCE REDUCTION AND RECYCLING

- Two preferred options for dealing with the Nation's waste crisis:
  - Produce less waste (source reduction)
  - Recycle waste into new products
- When feasible, attempt source reduction first, then turn to recycling

---

TO ADDRESS THIS PROBLEM, EPA HAS ESTABLISHED AN INTEGRATED WASTE MANAGEMENT HIERARCHY THAT CONSIDERS SOURCE REDUCTION AND RECYCLING TO BE PREFERABLE TO LANDFILLING AND INCINERATION.

WHENEVER POSSIBLE, SOURCE REDUCTION SHOULD BE CONSIDERED FIRST WHEN ADDRESSING A WASTE GENERATION PROBLEM. IF SOURCE REDUCTION IS NOT FEASIBLE, RECYCLING IS THE NEXT BEST MANAGEMENT METHOD.

THE BENEFITS OF SOURCE REDUCTION AND RECYCLING

ECONOMICS:

- Reduces the charges incurred by your agency for the ever-increasing cost of waste hauling and disposal
- Potentially generates revenues from the sale of the materials

---

ENVIRONMENTAL PROTECTION:

- Saves disposal capacity by diverting waste from landfills
- Reduces potential releases and/or pollution from waste management units
- Potentially conserves natural resources by using less fuel, water and other resources in the manufacture of products made with recycled materials

---

THERE ARE MANY REASONS TO RECYCLE -- ECONOMIC, ENVIRONMENTAL, AND SOCIAL. IT IS THE RIGHT THING TO DO AND NOW IS THE RIGHT TIME TO DO IT. YOUR OFFICE RECYCLING PROGRAM SHOULD ACT AS A CATALYST TO OTHERS WITHIN AND OUTSIDE OF YOUR AGENCY.

SOURCE REDUCTION

Reducing or eliminating waste at the point of generation, rather than after it has been created

---

BY SOURCE REDUCTION WE MEAN REDUCING OR ELIMINATING WASTE AT THE POINT OF GENERATION -- THAT IS, WHERE SOMETHING IS MANUFACTURED OR USED FOR THE FIRST TIME. SOURCE REDUCTION IS ACCOMPLISHED THROUGH PRACTICES SUCH AS USING FEWER MATERIALS, REUSING ITEMS AS MUCH AS POSSIBLE, AND SUBSTITUTING LESS HARMFUL MATERIALS. BY ADDRESSING THE PROBLEM EARLY ON, YOU CAN AVOID OR REDUCE THE AMOUNT OF WASTE THAT YOU MUST DEAL WITH LATER.

SOURCE REDUCTION

- General Methods:

  - Reduce waste by not generating it in the first place
  - Reuse items as much as possible
  - Eliminate the use of unnecessary items
  - Economize in your use of materials
  - Substitute less harmful or toxic materials for hazardous materials
  - Procure items that have long lifetimes and produce less or no waste

---

IN AN OFFICE ENVIRONMENT, SOURCE REDUCTION CAN BE ACHIEVED BY INCORPORATING THESE OPERATING METHODS INTO ORDINARY OFFICE TASKS. AVOID NEEDLESSLY CREATING WASTE -- ALWAYS TRY TO IMPROVE YOUR WORK HABITS TO MINIMIZE THE AMOUNT OF WASTE YOU GENERATE.

- Specific Practices:

  - Use two-sided copying as standard photocopying practice
  - Modify documents on-screen, rather than on printed drafts
  - Maximize use of voice mail and bulletin boards instead of writing paper memos
  - Reuse items such as transmittal envelopes, three-ring notebooks, binder clips, hanging files, etc.
  - Buy printers and copiers that have double-sided capabilities
  - Use old drafts as scratch sheets/note paper

THESE ARE SOME EXAMPLES OF SPECIFIC WAYS YOU CAN PRACTICE SOURCE REDUCTION IN YOUR AGENCY. EACH ONE OF US COULD THINK OF OTHER SOURCE REDUCTION TECHNIQUES THAT APPLY TO OUR WORKPLACE.

SOURCE REDUCTION

- Specific Practices (Continued):

  - Maximize use of renewable writing media (e.g, chalk boards and wipe boards)
  - Reuse non-recyclable packing materials or switch to recyclable packing materials
  - Purchase in bulk whenever possible to reduce packaging
  - Use ceramic coffee mugs rather than paper
  - Reuse laser printer cartridges by exchanging or selling them to the dealer to be refilled

---

WHILE THESE PRACTICES ARE NOT DIFFICULT OR COMPLICATED TO IMPLEMENT, THEY HAVE A REAL IMPACT IN THE AMOUNT OF WASTE PRODUCED IN AN OFFICE. EVERY SMALL CONTRIBUTION TO WASTE REDUCTION COUNTS.

SOURCE REDUCTION

- Each of your daily activities is a potential waste generating practice
- Incorporate source reduction thinking into everything that you do

---

SOURCE REDUCTION IS BEST APPROACHED AS AN INFORMAL EDUCATIONAL EFFORT, RATHER THAN AS A STRUCTURED PROGRAM. PROMOTE SOURCE REDUCTION BY EDUCATING MANAGEMENT AND STAFF ABOUT WHAT THE CONCEPT MEANS, AND HOW IT CAN REDUCE THE AMOUNT OF WASTE WE GENERATE IN THE OFFICE. TEACH PEOPLE HOW TO THINK "REDUCTION" AT ALL TIMES TO AVOID THE WASTE PROBLEM IN THE FIRST PLACE.

SOURCE REDUCTION AND RECYCLING

- Source reduction and recycling complement each other
- Recycling programs should incorporate source reduction concepts and practices

---

SOURCE REDUCTION AND RECYCLING ARE NOT MUTUALLY EXCLUSIVE IDEAS -- THEY SHOULD OPERATE SIDE BY SIDE. WHERE FEASIBLE, YOU SHOULD TRY TO PRACTICE SOURCE REDUCTION FIRST. IF SOURCE REDUCTION IS NOT POSSIBLE, YOU SHOULD THEN TURN TO RECYCLING. YOUR AGENCY'S OFFICE RECYCLING PROGRAM SHOULD PROMOTE SOURCE REDUCTION AND RECYCLING AT THE SAME TIME. SOME WASTE PROBLEMS ARE BETTER ADDRESSED THROUGH SOURCE REDUCTION; OTHERS LEND THEMSELVES TO RECYCLING.

THE BENEFITS OF SOURCE REDUCTION AND RECYCLING

SOCIAL BENEFIT:

- Demonstrate leadership and commitment by caring for the environmental quality of your (the) community
- Contribute to state, local, or community source reduction and recycling goals
- Protect the quality of life for future generations

BY SUCCESSFULLY IMPLEMENTING YOUR OWN PROGRAM, YOU WILL SHOW OTHERS THE BENEFITS OF RECYCLING.

PROCUREMENT--AN IMPORTANT ASPECT OF SOURCE REDUCTION

Procurement is an important aspect of source reduction and recycling because:

- Our ability to reduce, reuse, and recycle is dependent upon the materials with which we are working
- Our purchasing practices and the design of the products we buy contribute to the amount of waste generated in the office
- There must be a market for recycled materials

PROCUREMENT IS AN INTEGRAL PART OF AN OFFICE RECYCLING PROGRAM. IT IS IMPORTANT BECAUSE WHAT AND HOW WE BUY DETERMINES TO A LARGE DEGREE THE EXTENT TO WHICH WE CAN SOURCE REDUCE AND RECYCLE.

PROCUREMENT--AN IMPORTANT ASPECT OF SOURCE REDUCTION

"Smart shopping" techniques should help you practice source reduction when procuring items for your office, for instance:

- Procure items that are durable and produce little or no waste
- Use the "Just-In-Time" buying practice to avoid stockpiling unused or outdated items
- Avoid procuring items that are needlessly overpackaged. When possible, buy in bulk to avoid extra packaging

---

YOUR OFFICE SHOULD APPROACH PROCUREMENT FROM A "SMART SHOPPING" PERSPECTIVE -- THAT IS, USING PROCUREMENT PRACTICES THAT PROMOTE SOURCE REDUCTION.

FOR EXAMPLE, DURABLE, WELL-BUILT PRODUCTS MAY BE MORE EXPENSIVE IN THE SHORT TERM, BUT OFTEN COST LESS OVER THE LONG TERM.

BUYING PRODUCTS "JUST-IN-TIME" AVOIDS STOCKPILING UNUSED, OUTDATED, OR SPOILED ITEMS.

PROCUREMENT--AN IMPORTANT ASPECT OF SOURCE REDUCTION

"Smart shopping" techniques should be included into your approach to procurement. The key "smart shopping" techniques are:

- Procure items made from recycled materials
- Procure items that are themselves recyclable

FOLLOW EPA PROCUREMENT GUIDELINES TO DETERMINE THE SPECIFIC TYPE OF PRODUCT YOU SHOULD OBTAIN. GIVE PREFERENCE TO ITEMS THAT CAN BE INCORPORATED INTO YOUR AGENCY'S RECYCLING PROGRAM. REFER TO GSA'S RECYCLED PRODUCTS CATALOG WHENEVER POSSIBLE.

REMEMBER, YOUR AGENCY'S PROCUREMENT PRACTICES CAN CONTRIBUTE POSITIVELY TO THE PROMOTION OF RECYCLED PRODUCTS AND THE AVOIDANCE OF WASTE GENERATION -- PURCHASES BY THE FEDERAL GOVERNMENT CONTRIBUTES TO 7-8 PERCENT OF THE GNP.

PROCUREMENT--AN IMPORTANT ASPECT OF SOURCE REDUCTION

Federal Procurement Activities:

- RCRA Section 6002, requires Federal agencies to procure items containing the highest percentage of recovered materials practicable;
- EPA promulgated five guidelines for the procurement of products containing recovered materials:
  - Paper and paper products
  - Fly ash in cement and concrete
  - Lubricating oils
  - Retread tires
  - Building insulation products
- GSA developed the Recycled Products Catalog.

NOT ONLY IS PROCURING ITEMS THAT CONTRIBUTE TO SOURCE REDUCTION IMPORTANT, BUT IT IS EQUALLY IMPORTANT THAT WE PROCURE IN SUCH A WAY AS TO PROMOTE RECYCLING. PROCUREMENT PROCEDURES CAN REINFORCE RECYCLING THROUGH PURCHASES OF PRODUCTS WITH RECYCLED CONTENT, AND PRODUCTS THAT CAN BE EASILY RECYCLED WHEN THEY ARE DISCARDED. EPA RECOGNIZES THIS LINK BETWEEN PROCUREMENT AND RECYCLING -- THE AGENCY DEVELOPED GUIDELINES TO ASSIST FEDERAL AGENCIES IN DETERMINING WHAT PERCENTAGE OF RECOVERED MATERIALS IS PRACTICABLE IN SPECIFIC PRODUCTS. FINAL GUIDELINES INCLUDE THOSE FOR PAPER AND PAPER PRODUCTS, LUBRICATION OILS, RETREAD TIRES, BUILDING INSULATION PRODUCTS, AND CEMENT AND CONCRETE CONTAINING FLY ASH.

PAPER RECYCLING AS A FIRST STEP

- The average Federal office worker generates approximately one-half pound of office waste daily, including both paper and non-paper materials[1]

- EPA estimates that 90% of all office waste is paper

THE AVERAGE OFFICE WORKER GENERATES ONE HALF POUND OF OFFICE WASTE EACH DAY, OF WHICH NEARLY 90 PERCENT IS PAPER OF VARIOUS TYPES. SUCH LARGE GENERATION RATES MAKE PAPER AN EXCELLENT MATERIAL TO TARGET FOR RECYCLING.

TWELVE FEDERAL OFFICE BUILDINGS REDUCED THEIR VOLUME OF SOLID WASTE BY 34 PERCENT WHEN THEY SEPARATED RECYCLABLE PAPER FROM OTHER TRASH.

---

[1]Earthworm (Consulting); 1990; EPA Region I.

PAPER RECYCLING AS A FIRST STEP

Federal regulations mandate that:

- Federal offices employing over 100 office workers collect high-grade paper for recycling
- Federal offices employing fewer than 100 office workers implement office paper recycling programs, where feasible

---

SEPARATING RECYCLABLE OFFICE PAPER CAN CONSIDERABLY REDUCE THE VOLUME OF TRASH BEING SENT TO LANDFILLS OR INCINERATORS. THE FEDERAL GOVERNMENT STRONGLY ENCOURAGES OFFICE PAPER RECYCLING AND HAS EVEN PROMULGATED REGULATIONS THAT MANDATE OFFICE PAPER RECYCLING PROGRAMS IN FEDERAL OFFICES WITH OVER 100 OFFICE WORKERS.

Source Separation

- Ensures that quality and homogeneity of the materials collected and
- Brings the highest revenues

SOURCE SEPARATION OF DIFFERENT TYPES AND GRADES OF RECYCLABLE MATERIALS ENSURES THE QUALITY AND HOMOGENEITY OF THE MATERIALS COLLECTED AND BRINGS THE HIGHEST REVENUES. IT IS IMPORTANT THAT THE MATERIAL COLLECTED -- WHICH WILL BE SOLD TO A MATERIALS BROKER -- IS CLEAN AND UNIFORM. THE DEGREE OF SOURCE SEPARATION REQUIRED BY YOUR LOCAL RECYCLABLE MARKET WILL DETERMINE THE EXTENT TO WHICH YOUR PROGRAM MUST SOURCE SEPARATE.

SOURCE SEPARATION

Office waste generally contains a variety of paper grades:

- White and colored bond paper
- Computer paper
- Business forms
- Stationery
- Data tabulating cards
- Newspaper
- Corrugated containers
- Envelopes
- File Folders

THESE GRADES CAN BE COLLECTED SEPARATELY FROM ONE ANOTHER.

PAPER IS A VERSATILE MATERIAL THAT CAN BE MADE INTO A WIDE RANGE OF PRODUCTS, INCLUDING THE PAPER PRODUCTS USED IN YOUR OFFICE. PAPER COMES IN SEVERAL GRADES WITH DIFFERENT CHARACTERISTICS. IF YOUR WASTE DEALER DOES NOT ACCEPT COMMINGLED (THAT IS, NON-SEPARATED) PAPER, THESE PAPER TYPES MUST BE SORTED TO ENSURE A HOMOGENEOUS, HIGH-QUALITY SUPPLY FOR THE PAPER MILLS.

IT IS IMPORTANT TO NOTE THAT FOREIGN OBJECTS SUCH AS FOOD AND FOOD PACKAGING CONTAMINATE THE RECYCLING PROCESS, CAUSING DIFFICULTIES AT THE MILLS. IT IS ESSENTIAL THAT THESE CONTAMINANTS NOT BE PLACED IN THE RECYCLING CONTAINERS (THIS APPLIES TO BOTH SOURCE-SEPARATED AND COMMINGLED PAPER).

OTHER RECYCLABLE MATERIALS

- Other materials merit equal consideration for inclusion in your recycling programs
- Other materials suitable for recycling programs include:
  - Metal
  - Glass
  - Plastic
  - Additional materials, depending on your office's operation and local market conditions

---

MANY OFFICES HAVE SUCCESSFULLY DESIGNED OFFICE RECYCLING PROGRAMS THAT INCLUDE BOTH PAPER AND NON-PAPER ITEMS.

BECAUSE PAPER COMPRISES THE LARGEST COMPONENT OF MOST FEDERAL OFFICE WASTE, IT IS THE NATURAL FIRST COMPONENT OF AN OFFICE RECYCLING PROGRAM. OTHER RECYCLABLE -- SUCH AS THESE MATERIALS -- SHOULD MERIT EQUAL CONSIDERATION FOR RECYCLING.

DESIGNATING A PROGRAM COORDINATOR

PROGRAM COORDINATOR

Designated individuals:

- Program Coordinator -- the central manager -- responsible for overall program operations

- Program Monitors -- individuals responsible for overseeing the daily operations of the program, in different units of the agency

---

EVERY RECYCLING PROGRAM SHOULD HAVE A PROGRAM COORDINATOR AND PROGRAM MONITORS DESIGNATED TO RUN THE PROGRAM. ENTHUSIASM FOR ANY OFFICE RECYCLING PROGRAM IS OFTEN INFECTIOUS WHEN THE RIGHT PERSON TAKES THE LEAD. THE PROGRAM COORDINATOR IS IMPORTANT BECAUSE HIS OR HER KNOWLEDGE, PERSONALITY, AND SUPPORT FOR THE RECYCLING CONCEPT WILL INSPIRE OTHERS TO BECOME ACTIVE PARTICIPANTS. THE RECYCLING COORDINATOR MAKES ALL EMPLOYEES REALIZE THAT THEIR PARTICIPATION MAKES A DIFFERENCE.

PROGRAM COORDINATOR

Responsibilities of the Program Coordinator include:

- Initiating the program
- Performing a market analysis and waste stream analysis
- Training Program Monitors
- Developing and implementing the collection and storage program
- Evaluating the program and tracking progress
- Developing program reports
- Implementing employee education programs
- Encouraging employee participation
- Coordination with Agency and building management

THE PROGRAM COORDINATOR HAS NUMEROUS RESPONSIBILITIES -- HE OR SHE IS THE CENTRAL ELEMENT OF THE PROGRAM. THE ADMINISTRATIVE REQUIREMENTS FOR THE START-UP PERIOD OF APPROXIMATELY 3 - 4 MONTHS ARE OFTEN SUBSTANTIAL.

Other responsibilities may include:

- Organizing a recycling program task force
- Establishing a recycling contract or accessing an existing contract

---

THE PROGRAM COORDINATOR MUST BE COMMITTED TO THE SUCCESS OF THE RECYCLING PROGRAM AND BE WILLING TO PROVIDE THE TIME AND ENERGY NECESSARY TO MAKE THE PROGRAM WORK.

PROGRAM MONITORS

Program Monitors should be designated for each operational area (e.g., a floor, a division, or a group of 50 - 100 employees).

Each Program Monitor is responsible for the daily operation of that area's recycling activities and acts as a liaison to the Program Coordinator

---

THE PROGRAM MONITORS SHOULD HAVE SKILLS SIMILAR TO THE PROGRAM COORDINATOR. UNLIKE THE COORDINATOR, HOWEVER, THE TIME REQUIRED FOR THE MONITORS' RESPONSIBILITIES IS USUALLY MUCH LESS (THE EXCEPTION BEING DURING THE START-UP PERIOD).

PROGRAM MONITORS

Respon: ..ities of the program mo..itors include:

- Ensuring that recycling containers are being used properly
- Encouraging employee participation
- Answering questions and educating employees about the agency's recycling program
- Notifying the coordinator about any problems (e.g., aesthetic problems or conflicts with other tenants)

THE PROGRAM MONITOR IS THE "FRONT LINE" TEAM LEADER RESPONSIBLE FOR DAILY OPERATIONS, EDUCATION, AND ENCOURAGEMENT.

OVERCOMING RESISTANCE

Misconceptions about recycling include:

- There are no benefits to recycling office wastes -- I get nothing out of it
- Participating in an office recycling program consumes a lot of time/space -- What a pain!
- No one else recycles -- Why should I?
- Office recycling programs do not adequately protect confidential information

---

THE MAJOR CHALLENGE IN ESTABLISHING AN OFFICE RECYCLING PROGRAM IS TO CHANGE PEOPLE'S ATTITUDES ABOUT RECYCLING.

MISCONCEPTIONS ABOUT OFFICE PAPER RECYCLING OFTEN RESULT FROM A LACK OF KNOWLEDGE ABOUT RECYCLING: FOR MANY PEOPLE, RECYCLING IS A NEW CONCEPT OR REQUIRES A CHANGE OF BEHAVIOR.

OVERCOMING RESISTANCE

In reality ....

- Recycling has economic, environmental, and social benefits
- Recycling at the office is an extension of recycling at home
- Recycling does not place an enormous burden on the employee, in fact, once accepted, recycling becomes second nature
- Office recycling programs are spreading throughout the country
- Office paper recycling programs can be designed so that they do not jeopardize confidential information

---

TO OVERCOME THIS RESISTANCE, THE PROGRAM COORDINATOR AND THE PROGRAM MONITORS SHOULD EDUCATE THEIR COWORKERS BY EMPHASIZING THE POSITIVE ASPECTS OF RECYCLING.

SELECTING A TASK FORCE

Individuals suitable for a task force include:

- A building supervisor or head custodian
- Staff employee
- A manager
- A contracts representative
- One or more program monitors

OFFICE RECYCLING PROGRAMS RELY ON THE EXPERTISE OF INDIVIDUALS KNOWLEDGEABLE IN THE VARIOUS AREAS AND OPERATIONS OF A BUILDING. A TASK FORCE OF THESE INDIVIDUALS CAN BE FORMED TO PROVIDE THE INITIAL GUIDANCE AND ORGANIZATION TO ESTABLISH THE GOALS, DESIGN, AND OPERATION OF THE RECYCLING PROGRAM. TOGETHER, THIS GROUP OF INDIVIDUALS REPRESENTING THEIR PEERS WILL PROVIDE INSIGHT INTO ALL ASPECTS OF THE RECYCLING PROGRAM -- HOW AND WHERE TO COLLECT THE RECYCLABLE MATERIALS, WHAT THE EMPLOYEES THINK ABOUT THE PROGRAM, HOW TO SET UP A RECYCLING CONTRACT, AND HOW TO IMPLEMENT THE PROGRAM EFFECTIVELY.

PERFORMING A WASTE STREAM ANALYSIS

PERFORMING A WASTE STREAM ANALYSIS

A waste stream analysis:

- Identifies the quantity and composition of materials contained in an office's trash
- Provides basic information necessary to plan, design, and operate an effective recycling program
- Helps to determine the types of materials to be included in the recycling program
- Identifies those sections of the office that should participate

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BEFORE YOU CAN DESIGN YOUR OFFICE RECYCLING PROGRAM, YOU MUST KNOW HOW MUCH AND WHAT TYPES OF WASTE YOU GENERATE. TO DETERMINE THESE CHARACTERISTICS, YOU SHOULD CONDUCT A WASTE STREAM ANALYSIS -- AN INVESTIGATION OF YOUR OFFICE WASTE.

PERFORMING A WASTE STREAM ANALYSIS

A waste stream analysis should answer the following questions:

- How much waste is generated within each division/floor/operating unit over a given period of time?
- What types and grades of materials comprise this waste?
- How much of each type/grade is generated in your office waste?

A WASTE STREAM ANALYSIS CAN BE ELABORATE -- SUCH AS A FORMAL WASTE ASSESSMENT USING SCIENTIFIC METHODS -- OR SIMPLE -- SUCH AS EXAMINING WASTE RECEPTACLES AT SEVERAL LOCATIONS TO DETERMINE THE COMPOSITION AND QUANTITY OF WASTE AND THEN EXTRAPOLATING THOSE CONDITIONS FOR OTHER SIMILAR LOCATIONS. THE TYPE OF WASTE STREAM ANALYSIS SUITABLE FOR YOUR AGENCY DEPENDS ON THE PARTICULAR CONDITIONS OF YOUR OFFICE. WHICHEVER METHOD YOU CHOOSE, YOU MUST ANSWER THESE BASIC QUESTIONS.

PAPER GRADES

During your waste stream analysis, you will find that your waste probably contains different grades of paper

Understanding the differences in paper grades will allow you to design your recycling program to maximize the value of your paper

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DIFFERENT GRADES OF PAPER HAVE DIFFERENT VALUES TO PAPER DEALERS. TO DESIGN THE MOST EFFICIENT PAPER RECYCLING PROGRAM, YOU MUST KNOW WHETHER OR NOT YOUR WASTE BROKER REQUIRES YOU TO SEPARATE THE DIFFERENT GRADES OF PAPER. MANY WASTE DEALERS REQUIRE SOURCE SEPARATION, BUT SOME ACCEPT COMMINGLED PAPER GRADES -- CHECK WITH YOUR DEALER.

PAPER GRADES

High Grades:

- Computer printouts
- White ledger
- White envelopes (without plastic windows)

Low Grades

- Colored ledger
- Colored note pads
- Colored envelopes (without plastic windows)

THESE ARE THE MAJOR GRADES OF OFFICE PAPER, WITH EXAMPLES OF COMMON PAPER PRODUCTS MADE IN THOSE GRADES. THE HIGHER GRADE PAPER IS GENERALLY TREATED BY CHEMICAL OR MECHANICAL MEANS TO MAKE IT WHITE AND FREE OF IMPURITIES, WHILE THE LOWER GRADES ARE EITHER DYED OR CONTAIN VISUAL IMPURITIES.

PAPER GRADES

Newspaper

Corrugated Containers

Specialty Grades

- Manila/Colored tabulating cards
- File stock
- Shredded paper

HIGHER GRADE PAPER IS WORTH MORE BECAUSE IT TAKES LESS RESOURCES TO RECYCLE IT INTO NEW, HIGH-GRADE PRODUCTS. REMEMBER THAT WHICHEVER GRADE OF PAPER YOU COLLECT, IT IS IMPORTANT TO KEEP THE MATERIAL FREE OF CONTAMINANTS.

PAPER GRADES

High Grades

Computer Printouts (CPOs)

- Are white paper used in data processing
- May contain stripes and may be produced from impact (i.e., mechanical) printers or non-impact (i.e., laser) printers
- Made out of groundwood (like newspaper) are not considered high-grade paper
- Account for up to 45% of the office waste stream

THESE ARE COMMON HIGH GRADE PAPER PRODUCTS. IN MOST OFFICES, THEY WILL COMPRISE THE BULK OF THE RECYCLABLE PAPER.

PAPER GRADES

High Grades (continued)

White Ledger

- Commonly used white office paper, such as printed or unprinted bond, photocopies, typing paper, letterhead, writing paper and white tablet sheets
- Accounts for approximately 33% of the typical office waste stream

White Envelopes

- Typical white envelopes that do not contain plastic windows

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MIXING ANY OF THESE PRODUCTS WITH LOWER GRADE PAPER WILL REDUCE THE OVERALL VALUE OF YOUR RECYCLABLE PAPER.

PAPER GRADES

Low Grades

Colored Ledger:

- Printed or unprinted bond, photocopies
- Letterhead
- Writing papers
- Scratch paper
- Yellow legal pads and yellow telephone pads
- Colored envelopes

Mixed Paper:

- A composite of high-grade paper and low-grade paper (e.g., white ledger mixed with colored ledger)

LOW GRADE REFERS TO COLORED PAPER OR PAPER MADE WITH IMPURITIES. LOW GRADE PAPER IS NOT WORTHLESS -- MANY PAPER DEALERS WILL BUY IT FROM YOU. CONTACT YOUR PAPER DEALER FOR MORE INFORMATION ABOUT THE VALUE OF THESE MATERIALS. IN SOURCE SEPARATION PROGRAMS, KEEP LOW GRADES SEPARATE FROM THE OTHER GRADES -- THE DEALERS WILL PAY BETTER PRICES FOR SEPARATED, HOMOGENOUS PAPER. TYPICALLY, LOW-GRADE PAPER COMPRISES ONLY 5 PERCENT OF THE OFFICE WASTE STREAM.

PAPER GRADES

Newspaper

While not usually a major component of office waste, newspaper is an excellent candidate for a recycling program.

Many municipalities across the country have passed mandatory newspaper recycling laws that apply to both residences and offices.

NEWSPAPER IS A PAPER GRADE BEING RECYCLED ACROSS THE UNITED STATES -- IF YOUR OFFICE WASTE CONTAINS A SUFFICIENT AMOUNT OF NEWSPAPER, YOU SHOULD CONSIDER INCLUDING IT IN YOUR RECYCLING PROGRAM.

PAPER GRADES

Newspaper

Recycled newspaper is used to manufacture:

- New newsprint
- Recycled boxboard
- Tissue
- Packaging paper
- Construction board

PAPER GRADES

Corrugated Containers

- Are generated in appreciable quantities in most offices from the packaging of office and food service supplies
- Obtain a greater price when they have been flattened and tied, or baled

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CORRUGATED CONTAINERS CAN BE A LARGE COMPONENT OF OFFICE WASTE. MANY BUSINESSES THAT ROUTINELY USE THIS MATERIAL RETURN IT TO BE RECYCLED -- SO CAN YOU!

PAPER GRADES

Specialty Grades

Manila/Colored Tabulating Cards

- Used in tabulating machines
- Considered a specialty grade because of their limited use in the business sector

File Stock

- Includes white and colored file waste, including file folders
- Generated in large quantities during periodic "file purges"

THESE SPECIALTY GRADES ARE RECYCLED BY PAPER DEALERS THROUGHOUT THE UNITED STATES. HOWEVER, YOU MUST DETERMINE WHETHER YOUR OFFICE PRODUCES SUFFICIENT QUANTITIES OF THESE GRADES TO MERIT INCLUSION IN YOUR PAPER RECYCLING PROGRAM AND IF THESE GRADES ARE SALABLE IN YOUR AREA.

PAPER GRADES

Specialty Grades (continued)

Shredded Paper

- Is usually generated as a part of a security operation to protect confidential business information
- Often contains a variety of paper grades

ALTHOUGH SOME WASTE PAPER DEALERS ACCEPT THIS SPECIALTY PAPER GRADE, THERE ARE TWO ALTERNATIVES TO IN-HOUSE SHREDDING.

Shredded Paper

Two alternatives to in-house shredding:

- An affidavit of Destruction, which guarantees that the recovered paper will be kept secure until it is reduced to a pulp
- Contracting with a company that offers off-site document destruction services

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AN AFFIDAVIT OF DESTRUCTION, WHICH GUARANTEES THAT THE RECOVERED PAPER WILL BE KEPT SECURE UNTIL IT IS REDUCED TO A PULP; OR CONTRACTING WITH A COMPANY THAT OFFERS OFF-SITE DOCUMENT DESTRUCTION SERVICES.

CONTAMINANTS

Typical contaminants in collected paper include:

- Newspapers and magazines
- Telephone books
- Carbon paper
- Gummed labels, adhesives (e.g., mailing labels)
- Slick, waxed, and plasticized papers
- Cardboard
- Ditto or memo stencils

THE VALUE OF THE PAPER COLLECTED IS DIRECTLY RELATED TO THE QUALITY OF THE MATERIAL AND WHETHER OR NOT THE MATERIAL MEETS THE SPECIFICATIONS OF THE PURCHASER. IN ADDITION TO SEPARATING THE PAPER BY GRADE, YOU MUST TRY TO KEEP THE PAPER AS FREE FROM CONTAMINANTS AS POSSIBLE. THE MATERIALS LISTED HERE ARE USUALLY CONSIDERED CONTAMINANTS AND MAY CAUSE DIFFICULTIES WHEN THE MILLS PROCESS YOUR PAPER INTO NEW PRODUCTS.

Typical contaminants (continued):

- Photographic or blueprint paper
- Envelopes with plastic windows/self-stick closings
- Thermofax copy paper
- Chemically treated paper
- Thermal facsimile (fax) paper
- Cellophane tape
- Self-adhesive labels and note pads

IF YOUR PAPER IS CONTAMINATED, IT MAY BE REDUCED IN VALUE OR REJECTED ALTOGETHER BY THE BROKER. NOTE: SOME OF THE ITEMS ON THIS LIST, SUCH AS NEWSPAPER, MAY BE SUITABLE FOR THEIR OWN RECYCLING PROGRAMS, BUT ARE COMMON CONTAMINANTS IN OFFICE PAPER RECYCLING PROGRAMS. YOU CAN CONFIRM THIS LIST WITH YOUR PAPER DEALER.

OTHER RECYCLABLE MATERIALS

METAL

The most commonly found recyclable metal in office waste streams is aluminum beverage containers

Other metal containers, such as steel cans (including tin-coated, tin-free, and bimetal cans), are usually not generated in sufficient quantities for office recycling but may be a candidate for your agency's office recycling program.

ALUMINUM CANS HAVE BEEN SUCCESSFULLY RECYCLED FOR OVER 20 YEARS, TRANSLATING INTO BILLIONS OF POUNDS OF METAL THAT WERE DIVERTED FROM THE SOLID WASTE STREAM. ALUMINUM IS A VALUABLE RESOURCE BECAUSE MAKING ALUMINUM PRODUCTS FROM RECYCLED ALUMINUM SAVES APPROXIMATELY 95 PERCENT OF THE ENERGY REQUIRED TO MAKE NEW ALUMINUM FROM ORE.

ALUMINUM CANS DO NOT VARY BY GRADE, THEREFORE, THERE IS NO NEED FOR SEPARATION -- JUST REMEMBER TO AVOID MIXING STEEL CANS WITH THE RECYCLABLE ALUMINUM.

OTHER RECYCLABLE MATERIALS

GLASS

Glass beverage containers are 100 percent recyclable

Glass bottles are generally segregated by these colors:

- Clear
- Green
- Amber

LIKE ALUMINUM, GLASS IS USUALLY FOUND IN OFFICE WASTES IN THE FORM OF BEVERAGE CONTAINERS. GLASS BEVERAGE CONTAINERS ARE 100% RECYCLABLE, AND CRUSHED GLASS HAS TRADITIONALLY BEEN USED AS AN INGREDIENT IN GLASS MANUFACTURING. GLASS CAN BE PART OF A COMPREHENSIVE OFFICE RECYCLING PROGRAM IF SUFFICIENT QUANTITIES ARE GENERATED. DEPENDING UPON YOUR LOCAL MARKET, YOU WILL PROBABLY HAVE TO SORT YOUR GLASS BY THESE COLORS.

OTHER RECYCLABLE MATERIALS

PLASTIC

There are seven categories of plastic of which most plastic bottles are made, each type has its own unique chemical composition and characteristics

	Chemical Name	Abbreviation
1.	Polyethylene Terephthalate	PETE or PET
2.	High Density Polyethylene	HDPE
3.	Polyvinyl Chloride	V
4.	Low Density Polyethylene	LDPE
5.	Polypropylene	PP
6.	Polystyrene	PS
7.	Other	Other

MOST PLASTIC FOUND IN THE OFFICE ENVIRONMENT WILL BE IN THE FORM OF BEVERAGE CONTAINERS. ALTHOUGH STILL IN ITS INFANCY, PLASTICS RECYCLING IS QUICKLY BECOMING A WIDESPREAD PRACTICE ACROSS THE NATION AS SUPPLIES AND MARKETS EXPAND. PLASTIC IS NOT USUALLY A LARGE COMPONENT OF OFFICE WASTE, BUT IT MAY BE SUITABLE FOR INCLUSION IN A RECYCLING PROGRAM. TO FACILITATE PLASTICS RECYCLING, MANY COMPANIES HAVE ADOPTED A VOLUNTARY CODING SYSTEM TO IDENTIFY THE VARIOUS PLASTICS RESINS. THIS SYSTEM CONSISTS OF A SERIES OF TRIANGLES FORMED OF CONTINUOUS ARROWS WITH THE NUMBER IDENTIFYING THE RESIN TYPE IN THE MIDDLE (PETE IS NUMBER 1). THE MOST COMMON TYPE FOUND IN OFFICES IS POLYETHYLENE TEREPHTHALATE (PETE). MOST SOFT DRINK BOTTLES ARE MADE OF PETE.

Special considerations include:

- If the building lacks a loading dock, recyclable may have to be stored elsewhere until pickup time
- If the recyclable' storage area lacks a sprinkler, special storage containers may be required
- If the building is leased, is the lessor willing to participate in the recycling program

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IN ADDITION TO CONDUCTING A WASTE STREAM ANALYSIS, YOU SHOULD DEVELOP A BUILDING PROFILE AS PART OF THE PRELIMINARY STAGE FOR ESTABLISHING YOUR RECYCLING PROGRAM. A CHECKLIST IS AVAILABLE FROM THE BACKGROUND MATERIALS ACCOMPANYING THIS PRESENTATION TO ASSIST YOU IN CONDUCTING YOUR PROFILE.

A BUILDING PROFILE IS USED TO IDENTIFY WHAT (IF ANY) SPECIAL REQUIREMENTS MAY BE NECESSITATED BY THE PARTICULAR DESIGN OR OPERATION OF YOUR BUILDING.

GENERATION RATE

Generation rate for a typical office:

- Each employee in a general office environment generates approximately one half pound of recyclable paper per day

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AFTER YOU HAVE ANALYZED THE COMPOSITION AND QUANTITY OF YOUR OFFICE WASTE STREAM, YOU SHOULD ESTIMATE THE AMOUNT OF RECYCLABLE THAT CAN BE POTENTIALLY RECOVERED.

RECYCLABLE PAPER IS USED HERE AS AN EXAMPLE; THE SAME TYPE OF ANALYSIS CAN BE USED FOR OTHER MATERIALS.

ESTIMATED PAPER GENERATION

- **THE AMOUNT OF WASTE GENERATED PER EMPLOYEE DEPENDS BOTH ON THE TYPE OF ORGANIZATION AND THE PREVALENCE OF RECYCLABLE PAPER GENERATING ACTIVITIES, SUCH AS DATA PROCESSING, PRINTING, COPYING, AND OTHER PAPER USES.**

(GENERATION RATE WAS DERIVED FROM A MONTH-LONG STUDY OF EPA REGION I OFFICES.)

RECOVERY RATES

To project your office's annual recovery rates:

- Multiply the applicable generation rate by the number of employees
- Reduce this by 10% to allow for non-participating areas, such as art departments, mailrooms, and departments that generate carbon and carbonless forms
- Multiply the resulting figure by the number of work days per year (approximately 260) and then divide by 2,000 to convert to tons

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THESE ARE STEPS THAT CAN BE USED TO CALCULATE THE ANNUAL RECOVERY RATES FOR OFFICE PAPER. THE RESULT IS A DEPENDABLE ESTIMATE OF THE PAPER TONNAGE A PROGRAM CAN EXPECT TO RECOVER EACH YEAR.

RECOVERY RATES

Example for a General Office

- 1,000 employees x 0.5 lb paper per day = 500 lbs paper per day
- 500 lbs paper per day less 10% = 450 lbs paper per day
- 450 lbs paper per day x 260 work days = 117,000 lbs paper per year
- 117,000 lbs paper per year divided by 2,000 lbs = 58.5 tons of paper per year

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AS YOU CAN SEE, THE SMALL AMOUNTS OF RECYCLABLE PAPER GENERATED BY EMPLOYEES EACH DAY ADD UP TO A LARGE AMOUNT OVER A YEAR'S TIME. THE SAME HOLDS TRUE FOR OTHER RECYCLABLE MATERIALS FOUND IN THE OFFICE WASTE STREAM.

PERFORMING A MARKET ANALYSIS

Deciding whether to separate or combine the grades should be based on program economics and goals, as well as:

- Additional time and labor
- Participation rates
- Equipment required to collect grades separately.

BEFORE IMPLEMENTING A PROGRAM, ASSESS THE AVAILABILITY OF STEADY MARKETS FOR THOSE MATERIALS YOU PLAN TO RECYCLE.

ONE IMPORTANT ASPECT TO CONSIDER WHEN DECIDING WHICH PAPER GRADES AND OTHER MATERIALS TO SEPARATE FROM THE WASTE STREAM IS THE AVAILABILITY OF STEADY MARKETS FOR RECYCLING THEM. A MARKET ANALYSIS WILL REVEAL THE DEMAND FOR RECYCLABLE MATERIALS IN YOUR AREA.

ADDITIONALLY, PROGRAM ECONOMICS, SUCH AS REDUCED DISPOSAL COSTS FOR THE FACILITY, AND PROGRAM GOALS, INCLUDING WASTE REDUCTION, WILL AFFECT YOUR DECISION, AS WILL THE OTHER FACTORS LISTED HERE.

MARKET ANALYSIS

The program coordinator will need to assess:

- The type/grade and quantity of paper and other recyclable that different materials dealers will accept
- The price materials dealers will pay for different types/grades of recyclable
- The services materials dealers will provide

BEFORE ISSUING AN INVITATION FOR BIDS, THESE STEPS SHOULD BE TAKEN TO IDENTIFY WHAT SHOULD BE COLLECTED IN THE PROGRAM AND TO ESTIMATE PROGRAM COSTS AND REVENUES.

THE GENERAL SERVICES ADMINISTRATION MAY HAVE DONE THIS ANALYSIS ALREADY AND MAY HAVE A VIABLE SALES CONTRACT IN PLACE.

MARKET ANALYSIS

The program coordinator can contact the following resources for recycling information:

- The municipal solid waste hauler servicing the building
- Local and state government officials
- Publications such as "Fibre Market News," and "American Metal Market"
- Phone book listings under "Recycling Centers," "Scrap Metals," or "Plastics - Scrap"

A MARKET ANALYSIS INVOLVES MAKING CONTACTS WITH LOCAL MATERIALS DEALERS. YOU SHOULD CONSIDER CONTACTING THE MUNICIPAL SOLID WASTE HAULER SERVICING YOUR BUILDING -- THIS CONTRACTOR MAY ALSO PROVIDE A RECYCLING COLLECTION SERVICE.

LOCAL AND STATE GOVERNMENT OFFICIALS ARE OFTEN AWARE OF MATERIALS DEALERS IN THE AREA AND ARE A GOOD INITIAL CONTACT POINT FOR NAMES OF COMPANIES TO CALL REGARDING RECYCLING SERVICES.

THE YELLOW PAGES ARE ANOTHER SOURCE OF THIS INFORMATION.

MARKET ANALYSIS

When contacting materials dealers, be sure to obtain the following information:

- Descriptions and types/grades of materials handled
- Acceptable contamination types and levels
- Containers and equipment available for use, such as a compactor or handcarts
- Pickup scheduling procedures
- Methods for handling confidential materials
- Price structures for the different types/grades of materials picked up.

YOU SHOULD OBTAIN CERTAIN INFORMATION WHEN CONTACTING MATERIALS DEALERS REGARDING THEIR SERVICES. COLLECTING THE TYPES OF INFORMATION LISTED HERE IS A GOOD STARTING POINT.

ESTABLISHING A RECYCLING CONTRACT

- The recycling contract consummates the agreement between your agency and the company collecting your recyclable

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RECYCLING CONTRACTS REPRESENT THE FORMAL AGREEMENT BETWEEN YOUR AGENCY AND THE RECYCLER, SETTING OUT ALL OF THE ESSENTIAL TERMS OF THE AGREEMENT.

AN EFFECTIVE CONTRACT PROMOTES RECYCLING BY PROVIDING THE GOVERNMENT WITH A SERVICE OBLIGATED TO REMOVE AND PAY FOR RECYCLABLE MATERIALS AND BY GIVING RECYCLERS A KNOWN SOURCE AND QUANTITY OF RECYCLABLE.

- The contract essentially specifies the "who," "what," "where," "when," and "what if" of the agreement

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THE TERMS OF THE AGREEMENT TYPICALLY ADDRESS:

- **WHO THE PARTIES ARE TO THE RECYCLING CONTRACT**
- **WHAT THE RESPONSIBILITIES ARE OF THE RECYCLING CONTRACTOR**
- **WHAT YOUR AGENCY'S RESPONSIBILITIES ARE**
- **HOW MUCH THE CONTRACTOR WILL PAY YOUR AGENCY FOR RECYCLABLE MATERIALS**
- **WHAT TYPES/GRADES OF MATERIALS THE CONTRACTOR WILL COLLECT**
- **HOW, WHEN, AND WHERE THE CONTRACTOR WILL COLLECT THE MATERIALS**
- **WHAT THE TERM OF THE CONTRACT IS**
- **WHAT HAPPENS IN THE CASE OF NONPERFORMANCE BY EITHER PARTY.**

TYPES OF CONTRACTS

Civilian Federal agencies have the option to:

- Use recycling contracts established by the General Services Administration (GSA)
- Establish their own independent recycling contract

GSA IS PRESENTLY ADMINISTERING RECYCLING CONTRACTS THAT CAN BE USED FOR RECYCLING OFFICE PAPER BY ANY CIVILIAN FEDERAL AGENCY LOCATED IN A REGION WHERE A GSA CONTRACT EXISTS.[2] GSA RECYCLING CONTRACTS PRIMARILY ADDRESS RECYCLABLE PAPER, HOWEVER, SOME CONTRACTS INCLUDE PROVISIONS FOR GLASS, METAL AND PLASTICS.

YOUR AGENCY CAN ALSO ESTABLISH ITS OWN RECYCLING CONTRACT RATHER THAN TO USE AN EXISTING GSA CONTRACT.

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[2]For military agencies, the Defense Logistics Agency serves in lieu of GSA.

TYPES OF CONTRACTS

GSA recycling contracts:

- Provide Federal agencies with a contractor that will pay for and pick up the agency's recyclable materials
- Establish all of the terms and conditions necessary to support recycling once the materials have been collected at the facility
- Provide for GSA to bill the company according to the type/grade and amount of materials removed

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AGAIN, GSA RECYCLING CONTRACTS PRIMARILY ADDRESS RECYCLABLE PAPER. THEREFORE, CONTRACTS FOR COLLECTING RECYCLABLE OFFICE PAPER ARE USED AS AN EXAMPLE HERE.

TYPES OF CONTRACTS

To use a GSA recycling contract, an agency must:

- Reside within a GSA region where a GSA contract is in place
- Contact GSA and indicate a desire to use the GSA recycling contract
- Generate a minimum quantity of recyclable paper
- Collect and centrally store the recyclable paper for pick up by the GSA contractor

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GSA SUGGESTS THAT PROGRAM COORDINATORS CONTACT GSA TO DISCUSS IN DETAIL THE REQUIREMENTS FOR USING A GSA RECYCLING CONTRACT. GSA HAS CONTACTS IN ALL 10 REGIONS. CONTACT NAMES AND PHONE NUMBERS CAN BE OBTAINED FROM THE FEDERAL RECYCLING PROGRAM AT GSA HEADQUARTERS.

TYPES OF CONTRACTS

There are two key advantages to utilizing a GSA contract:

- GSA establishes and administers the contract
- GSA has over 10 years of experience in administering recycling contracts

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OTHER ADVANTAGES THAT FLOW FROM THESE TWO KEY POINTS INCLUDE:

- **THE RECYCLING CONTRACT IS ALREADY IN PLACE**
- **GSA ESTABLISHES ASSISTANCE AND TRAINING FOR AGENCY PERSONNEL**
- **GSA IS RESPONSIBLE FOR RECORDKEEPING AND PROVIDING FEEDBACK**

You cannot use a GSA recycling contract if:

- No GSA recycling contract exists in the region where the agency resides
- An agency does not generate sufficient quantities of waste paper
- An agency is subject to strict security requirements

THESE ARE THREE SITUATIONS WHERE AN AGENCY WOULD NOT BE ABLE TO USE A GSA RECYCLING CONTRACT. IN THESE SITUATIONS AN AGENCY MAY CHOOSE TO ESTABLISH AN INDEPENDENT RECYCLING CONTRACT.

TYPES OF CONTRACTS

Agencies that choose to develop their own contracts (independent recycling contracts), should follow several basic steps, including:

- Collecting detailed market information
- Inviting bids
- Developing and overseeing the contract
- Adhering to the Federal property management regulations

THE BASIC STEPS IN DEVELOPING AN INDEPENDENT RECYCLING CONTRACT INCLUDE COLLECTING MARKET INFORMATION, INVITING BIDS, DEVELOPING THE CONTRACT, AND ADMINISTERING THE CONTRACT.

COLLECTING MARKET INFORMATION HELPS THE CONTRACTING OFFICE ASSESS ITS NEEDS AND THE SERVICES AVAILABLE TO MEET THESE NEEDS. LOCAL DEALERS CAN PROVIDE BASIC INFORMATION, INCLUDING:

- **INFORMATION ON PRICING MECHANISMS, UNIT PRICE OR MINIMUM PRICE EXPECTED IN THE SHORT TERM**
- **REFERENCES OF CURRENT CONTRACTS FOR RECYCLING CONTRACTORS**
- **LETTERS OF INTENT TO BID FROM CONTRACTORS INTERESTED IN SERVICING THE RECYCLING CONTRACT.**

The disadvantage of developing an independent recycling contract is:

- The overall process is fairly complex, requiring:
  - recycling support
  - regulatory assistance
  - legal support (initially)
  - administrative support
  - long-term resources

THE COMPLEXITY OF DEVELOPING AN INDEPENDENT RECYCLING CONTRACT MAY DETER YOUR AGENCY FROM DEVELOPING A RECYCLING CONTRACT INDEPENDENTLY.

SELECTING A COLLECTION SYSTEM

COLLECTION SYSTEMS

The collection of recyclable involves:

- Separating recyclable from general waste
- Depositing collected materials at central collection points
- Transferring recyclable from collection points to storage areas
- Pickup by the recycling contractor for transport to a processing facility

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ONCE A WASTE STREAM ANALYSIS, A BUILDING PROFILE AND A MARKET ANALYSIS HAVE BEEN CONDUCTED, AND A CONTRACT IS IN PLACE, THE NEXT STEP IS TO DESIGN AN IN-HOUSE COLLECTION SYSTEM.

THERE ARE SEVERAL STEPS IN THE COLLECTION PROCESS THAT TAKE PLACE IN ANY RECYCLING PROGRAM. MATERIALS ARE GENERALLY COLLECTED THROUGHOUT THE OFFICE BUILDING, MOVED TO A CENTRAL STORAGE AREA AND FINALLY TAKEN FROM THE FACILITY BY YOUR MATERIALS DEALER.

COLLECTION SYSTEMS

In choosing a collection system, consider:

- What materials (e.g., grades of paper and types of other recyclable) are being collected
- What transfer system will be employed within your office building
- Who will transfer the collected material within the facility
- What storage space and handling equipment are available

THE SYSTEM YOUR AGENCY CHOOSES WILL DEPEND UPON THE FACTORS LISTED HERE.

NO MATTER WHAT SYSTEM YOU DECIDE TO EMPLOY, IT MUST ENCOURAGE SOURCE SEPARATION TO AVOID CONTAMINATION OF RECYCLABLE MATERIALS AND TO MEET THE SPECIFICATIONS OF ALL MATERIALS BEING COLLECTED.

COLLECTION SYSTEMS: PAPER

Office paper recycling programs typically use the dual container system:

- One container for recyclable paper
- Another is for discarding non-recyclable waste

TO COLLECT RECYCLABLE OFFICE PAPER FROM INDIVIDUAL EMPLOYEES, RECYCLING PROGRAMS TYPICALLY USE THE DUAL CONTAINER SYSTEM.

COLLECTION SYSTEMS: PAPER

When containers in employee areas are full:

- The employee or facility services personnel empty the recyclable paper into a central container
- When full, the central containers are moved to a central storage area

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IN MAINTAINING EMPLOYEE RECYCLING CONTAINERS, INDIVIDUAL CONTAINERS MAY BE EMPTIED INTO A CENTRAL COLLECTION CONTAINER AND THEN MOVED TO A CENTRAL STORAGE AREA.

ANOTHER COLLECTION METHOD REQUIRES EMPLOYEES TO TAKE THE RECYCLABLE PAPER DIRECTLY TO THE CENTRAL CONTAINER. NO CONTAINER IS PLACED ON OR NEAR THE DESK.

COLLECTION SYSTEMS: PAPER

When acquiring storage space, the following issues must be addressed:

- Is the storage site large enough?
- Can the site be locked?
- Is the site protected with sprinklers?
- Are a freight elevator and loading dock easily accessible?

WHEN ACQUIRING STORAGE SPACE:

- **WORK WITH THE BUILDING MANAGER AND RECYCLING CONTRACTOR TO LOCATE AND OBTAIN APPROPRIATE STORAGE SPACE.**
- **REMEMBER, ADDITIONAL SPACE MAY BE NEEDED AROUND CONTAINERS SO THAT THEY ARE ACCESSIBLE AND CONFORM WITH FIRE AND SAFETY REGULATIONS.**
- **KEEP ACCUMULATED PAPER AS CLOSE TO THE POINT OF PICKUP AS POSSIBLE. THIS USUALLY MEANS OBTAINING STORAGE SPACE IN THE BASEMENT OR THE LOADING DOCK AREA OF THE FACILITY.**

Recovered paper can be stored in:

- Mobile canvas hampers
- Pallet boxes
- Bulk containers

Or

- In central containers to be delivered to the loading dock on the day of pickup
- Stored outside in protective containers (igloos or large bins)

IN THE STORAGE AREA, RECOVERED PAPER CAN BE STORED IN A VARIETY OF CONTAINERS.

IF STORAGE SPACE IS SIMPLY UNAVAILABLE, PAPER MAY BE KEPT IN CENTRAL CONTAINERS UNTIL THE DAY OF PICKUP. IF OUTDOOR STORAGE IS NECESSARY, THE PAPER MUST BE SECURED FROM THEFT AND PROTECTED FROM THE ELEMENTS.

THE PROGRAM COORDINATOR MAY WISH TO CONSULT THE PAPER DEALER CONCERNING THE TYPE OF STORAGE CONTAINER MOST SUITABLE FOR THE BUILDING.

COLLECTION SYSTEMS: PAPER

Determine who will consolidate your agency's recyclable and:

- Integrate the collection of recyclable materials with existing custodial operations.
- Inform all custodians about the program so that they do not accidentally mix the recyclable with the regular trash.

IN ADDITION TO CHOOSING COLLECTION CONTAINERS AND ACQUIRING STORAGE SPACE, YOU MUST DETERMINE WHO CAN CONSOLIDATE YOUR RECYCLABLE MOST EFFICIENTLY. MOST OFFICE PAPER RECYCLING PROGRAMS WORK BEST WHEN INTEGRATED WITH EXISTING CUSTODIAL OPERATIONS.

MANY AGENCIES AND COMPANIES ADD THE RESPONSIBILITY OF PICKING UP THE RECYCLABLE MATERIAL TO THE CUSTODIAN'S CONTRACT WHEN IT IS UP FOR RENEWAL.

COLLECTION SYSTEMS: PAPER

Determine what collection and handling equipment you will need

Suitable equipment may include:

- Mobile canvas bins
- Canvas bags
- Handcarts or dollies
- Forklifts or pallet jacks

THE MOVEMENT OF RECYCLABLE PAPER FROM THE POINT OF GENERATION THROUGH THE FACILITY AND TO THE PAPER HAULER WILL REQUIRE CERTAIN COLLECTION AND HANDLING EQUIPMENT.

EXISTING EQUIPMENT COMMONLY FOUND IN MANY OFFICE BUILDINGS MAY BE APPROPRIATE FOR HANDLING AND COLLECTING WASTE OFFICE PAPER.

IF YOUR OFFICE DOES NOT HAVE ACCESS TO THE REQUIRED EQUIPMENT, THE PROGRAM COORDINATOR SHOULD DISCUSS LEASING THE EQUIPMENT FROM THE RECYCLER OR CONSIDER PURCHASING THE EQUIPMENT.

COLLECTION SYSTEMS: PAPER

In colle ng confidential recyclable paper:

- Contact the recycling contractor to determine if the company accepts shredded material, or
- Obtain a guarantee that confidential paper will be handled according to security guidelines

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ONE COLLECTION ISSUE WITH WHICH YOUR AGENCY MAY BE FACED IS THE COLLECTION OF CONFIDENTIAL PAPER FOR RECYCLING. ARRANGEMENTS CAN USUALLY BE MADE WITH YOUR PAPER DEALER TO ASSURE THE SECURITY OF YOUR CONFIDENTIAL PAPERS.

THE RECYCLING OF CONFIDENTIAL PAPER WILL MOST LIKELY REQUIRE SPECIAL COLLECTION AND MANAGEMENT. STORAGE MUST BE SECURE. YOU SHOULD ALSO NOTE THAT WHEN INCLUDING SHREDDED PAPER IN YOUR PROGRAM AND DESIGNATING STORAGE SPACE, SHREDDED PAPER TAKES UP MORE SPACE THAN FLAT OR CRUMPLED PAPER.

COLLECTION SYSTEMS: OTHER MATERIALS

Because of the bulkiness and lower generation rate of metal, glass, and plastic, most offices prefer to centrally locate collection containers for these materials

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RECYCLABLE OTHER THAN PAPER REQUIRE A SLIGHTLY DIFFERENT COLLECTION APPROACH -- A CENTRALLY LOCATED COLLECTION CONTAINER. KITCHENS OR LUNCHROOMS ARE GOOD LOCATIONS FOR THESE CONTAINERS BECAUSE BEVERAGE CONTAINERS CAN BE EASILY EMPTIED AND RINSED.

MANY TYPES OF RECYCLING CONTAINERS ARE AVAILABLE FOR THESE MATERIALS -- SOME HAVE WHEELS FOR EASY TRANSPORT TO THE LOADING DOCK AND LIDS WITH OPENINGS SIZED TO FIT STANDARD BEVERAGE CONTAINERS.

COLLECTION CONTAINERS FOR METAL, GLASS, AND PLASTIC MAY ALSO BE LOCATED OUTSIDE OF THE OFFICE BUILDING, USUALLY IN THE PARKING LOT OR LOADING BAY. THESE OUTDOOR CONTAINERS CAN BE LARGE BINS OR "IGLOOS."

EDUCATING EMPLOYEES

EDUCATING EMPLOYEES

A successful office recycling program requires:

- Employer endorsements
- Employee participation

AN OFFICE RECYCLING PROGRAM WILL NOT WORK EFFECTIVELY WITHOUT THESE TWO ELEMENTS. BOTH MANAGERS AND STAFF NEED TO BE COMMITTED TO THE PROGRAM'S SUCCESS.

EDUCATING EMPLOYEES

Start by educating the managers -- they should be examples for the staff to follow and lead the recycling effort

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MANAGERS NEED TO HAVE A CLEAR UNDERSTANDING OF THE GOALS AND OBJECTIVES OF THE OFFICE RECYCLING PROGRAM. DISTRIBUTE A MEMO TO BRANCH/DIVISION MANAGERS EXPLAINING KEY ELEMENTS OF THE PROGRAM, AND FOLLOW-UP WITH INFORMAL DISCUSSION, IF NECESSARY.

MAKE SURE BRANCH/DIVISION MANAGERS UNDERSTAND THE IMPORTANCE OF THE PROGRAM.

EDUCATING EMPLOYEES

Emphasize to managers that they need to:

- Have a clear understanding of the goals of the office recycling program
- Set a good example to employees
- Work with and support the Program Coordinator
- Encourage employee participation

BECAUSE MANAGERS HAVE DIRECT INFLUENCE OVER THEIR STAFF, IT IS IMPORTANT THAT THEY SET AN EXAMPLE AND THAT THEY CONVEY THEIR COMMITMENT TO THE PROGRAM TO THEIR STAFF.

ALSO, MANAGERS SHOULD BE MADE AWARE OF THE IMPORTANCE OF SUPPORTING THE PROGRAM COORDINATORS IN THEIR EFFORTS TO KEEP THE PROGRAM OPERATING.

EDUCATING EMPLOYEES

Start your program with a kick-off memo to all staff emphasizing that the program helps to:

- Conserve natural resources
- Contribute to meeting state or local recycling goals
- Save landfill space
- Save fossil fuels

INTRODUCE THE OFFICE RECYCLING PROGRAM WITH A MEMO EXPLAINING THE GOALS OF THE PROGRAM. THIS MEMO SHOULD HIGHLIGHT SOME OF THE BENEFITS OF THE PROGRAM, SUCH AS THOSE LISTED HERE.

EDUCATING EMPLOYEES

Distribute a reminder memo several weeks prior to the starting date of the program -- highlight the following:

- Types/grades of materials that are recyclable
- Locations of recycling bins
- Names and telephone numbers of the Program Coordinator and Program Monitors

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TO REMIND STAFF THAT AN OFFICE RECYCLING PROGRAM IS ABOUT TO BE IMPLEMENTED, SEND AROUND A MEMO DESCRIBING THE NEW RECYCLING PROCEDURES. WITHOUT SUCH A REMINDER, YOU MAY NOT GET MUCH PARTICIPATION DURING THE FIRST FEW WEEKS. AFTER THE PROGRAM IS INITIATED, SEND EMPLOYEES MEMOS OR NEWSLETTERS AT REGULAR INTERVALS TO KEEP THEM UP TO DATE ABOUT THE PROGRAM'S SUCCESS.

EDUCATING EMPLOYEES

Provide continuous outreach, such as:

- Posters
- Newsletters/memos
- Brochures
- Promotional buttons
- Special events
- In-house competitions
- Recycling hotline

IN ADDITION TO DISTRIBUTING MEMOS, PROVIDE OTHER MEANS OF OUTREACH TO ENCOURAGE THE PARTICIPATION OF EMPLOYEES IN RECYCLING, SUCH AS THE EXAMPLES LISTED HERE. MAKE THE START OF THE PROGRAM AN EVENTFUL ONE.

POSTERS CAN BE HUNG IN HIGH TRAFFIC AREAS, SUCH AS LUNCH ROOMS AND ELEVATOR HALLWAYS AND SHOULD PROVIDE INTERESTING RECYCLING FACTS OR STATISTICS.

RECYCLING BUTTONS CAN BE DISTRIBUTED AT RECYCLING STATIONS OR AT SPECIAL EVENTS TO SPREAD THE WORD AND PROVIDE VISIBILITY FOR THE PROGRAM.

SPONSORING SPECIAL EVENTS SUCH AS A RECYCLING AWARENESS WEEK AND IN-HOUSE COMPETITIONS WILL HELP STIMULATE INTEREST AND COMMITMENT TO THE PROGRAM.

FINALLY, SETTING UP A RECYCLING HOTLINE AT YOUR FACILITY WILL ALLOW STAFF TO HAVE THEIR QUESTIONS ANSWERED IMMEDIATELY AND CONVENIENTLY.

PROGRAM MONITORING AND EVALUATION

PROGRAM MONITORING AND EVALUATION

Establish a regular evaluation program to:

- Set realistic program goals
- Measure progress toward recycling objectives
- Anticipate and resolve any problems arising from changing office environments or operation objectives

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BY IMPLEMENTING A REGULAR MONITORING AND EVALUATION PROGRAM YOU WILL BE ABLE TO MEASURE YOUR RECYCLING PROGRAM'S PROGRESS, SUCCESSES, AND PROBLEMS. USING THIS EVALUATION PROCESS, YOU WILL BE ABLE TO MAINTAIN THE PROGRAM AT A HIGH DEGREE OF EFFICIENCY.

Agency staff who play key roles in the evaluation program include:

- Program Coordinator
- Program Monitor
- Facilities services division (contracted service personnel)

TO INSTITUTE YOUR EVALUATION PROGRAM, STAFF SHOULD BE ASSIGNED TO CARRY OUT EVALUATION ACTIVITIES. THE RECYCLING PROGRAM COORDINATOR, THE PROGRAM MONITORS, AND THE FACILITIES SERVICE DIVISION WILL ALL PLAY LARGE AND IMPORTANT ROLES IN THE EVALUATION PROGRAM.

REMEMBER, IF FACILITIES SERVICES STAFF ARE COLLECTING THE RECYCLABLE FOR RECYCLING, THEIR INPUT WILL BE VALUABLE.

PROGRAM MONITORING AND EVALUATION

Program evaluation staff will:

- Ensure that the recycling program is running smoothly and that objectives are being met
- Be responsible for conducting periodic inspections of office areas to evaluate segregation practices
- Post recycling statistics indicating program success
- Contribute articles to agency bulletins and newsletters reminding employees of the recycling program's objectives and reporting the program's status

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PROGRAM EVALUATION STAFF'S RESPONSIBILITIES WILL INCLUDE THOSE LISTED HERE.

THE INSPECTION OF OFFICE AREAS WILL INCLUDE MONITORING RECYCLING CONTAINERS FOR CONTAMINANTS AND SCREENING WASTE BASKETS FOR RECYCLABLE MATERIALS.

An effective evaluation program will solicit:

- Reactions to the recycling program, and
- Ideas for program improvement from employees.

SOLICITING REACTIONS TO THE RECYCLING PROGRAM AND IDEAS FOR PROGRAM IMPROVEMENT FROM EMPLOYEES WILL ALLOW YOU TO IMPROVE YOUR PROGRAM OVER TIME AND MODIFY IT TO FIT THE CHANGING NEEDS OF YOUR STAFF.

PROGRAM MONITORING AND EVALUATION

Establish a baseline from which to evaluate and measure the progress of your recycling program by:

- Determining the current status of recycling at the facility
- Assessing current knowledge of, and attitude toward, recycling

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THE WASTE STREAM ANALYSIS PERFORMED PRIOR TO PROGRAM INITIATION WILL PROVIDE MONITORS WITH A FACILITY BASELINE WITH WHICH TO COMPARE MONTHLY RECYCLING STATISTICS.

TO ASSESS EMPLOYEE COMMITMENT TO THE RECYCLING PROGRAM, A STAFF QUESTIONNAIRE CAN BE DISTRIBUTED. PERIODIC UPDATES OF THIS QUESTIONNAIRE CAN INDICATE INCREASED KNOWLEDGE AND SUPPORT OF THE PROGRAM.

PROGRAM MONITORING AND EVALUATION

To accurately measure the progress and success of your recycling program:

- Keep an accurate record of costs, revenues, and quantities of recyclable material collected
- Monitor recovery rates and participation
- Report successes and problems to management and employees

AN ACCURATE MEASURE OF PROGRAM SUCCESSES AND PROGRESS WILL HELP REVEAL ANY PROGRAM DIFFICULTIES AND ALLOW THE PROGRAM COORDINATOR TO INCREASE THE PROGRAM'S SUCCESS THROUGH PERIODIC PROGRAM MODIFICATIONS.

PROGRAM MAINTENANCE

PROGRAM MAINTENANCE

In order to maintain employee cooperation, the Program Coordinator must:

- Infuse energy
- Make necessary adjustments to operational and/or physical changes in your office environment
- Communicate program successes to program participants and Agency management
- Encourage feedback from program participants

ONE MAINTENANCE RESPONSIBILITY THAT BEFALLS THE PROGRAM COORDINATOR IS TO REGULARLY INFUSE ENERGY INTO THE PROGRAM TO ENSURE THE ENTHUSIASTIC PARTICIPATION OF AGENCY STAFF.

IN ADDITION, THE PROGRAM MONITOR IS RESPONSIBLE FOR MAKING ANY NECESSARY ADJUSTMENTS TO MEET OPERATIONAL AND/OR PHYSICAL CHANGES THAT MAY OCCUR IN THE OFFICE ENVIRONMENT.

FOR INSTANCE, GROWTH IN STAFF OR A LOCATION MOVE WOULD REQUIRE SOME DEGREE OF PHYSICAL ADJUSTMENTS TO THE PROGRAM. COLLECTION BINS AND RECEPTACLES MAY NEED TO BE RELOCATED, OR A NEW ARRANGEMENT OR SCHEDULE CHANGE FOR PAPER PICK UP MAY NEED TO BE MADE WITH THE CONTRACT.

AN OFFICE RECYCLING PROGRAM MUST GROW OVER TIME TO ADAPT TO SUCH CHANGING CIRCUMSTANCES.

FEEDBACK SHOULD BE ENCOURAGED AND USED TO REFINE OR IMPROVE THE PROGRAM.

Reevaluate program goals on a periodic basis

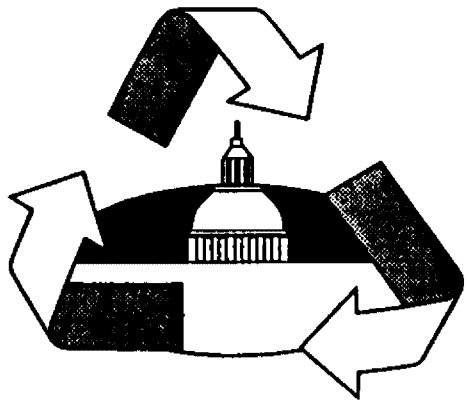
REEVALUATION OF PROGRAM GOALS SHOULD BE PURSUED BY THE PROGRAM COORDINATOR ON A PERIODIC BASIS. ISSUES SUCH AS PROGRAM EXPANSION TO INCLUDE OTHER DIVISIONS OR GROUPS, THE ADDITION OF NEW RECYCLABLE MATERIALS TO THE PROGRAM, ETC. ARE EXAMPLES OF SOME ISSUES THAT MIGHT ARISE DURING YOUR PROGRAM REEVALUATION.

BY FOLLOWING THE STEPS DESCRIBED TODAY, YOUR RECYCLING EFFORT WILL BE OFF TO A GREAT START!

Section 2.2 Paper Copies of Slides for Overhead Transparencies

RECYCLING IN FEDERAL OFFICES: TRAINING SEMINAR FOR PROGRAM COORDINATORS

OCTOBER
1991



RECYCLING IN FEDERAL OFFICES
TRAINING SEMINAR FOR PROGRAM COORDINATORS

I. The Benefits of Source Reduction and Recycling

II. Designating a Program Coordinator

III. Performing a Waste Stream Analysis

IV. Performing a Market Analysis

V. Establishing a Recycling Contract

VI. Selecting a Collection System

VII. Educating Employees

VIII. Program Monitoring and Evaluation

IX. Program Maintenance

THE BENEFITS OF SOURCE REDUCTION AND RECYCLING

BENEFITS OF SOURCE REDUCTION AND RECYCLING

- **In 1988, the U.S. generated 180 million tons of municipal solid waste**
- **The Federal Government is a large contributor of solid waste**
- **The Federal Government can make a large contribution to solving municipal solid waste problems**
- **Office paper, aluminum, glass and plastic are all recyclable materials that can be recovered**

BENEFITS OF SOURCE REDUCTION AND RECYCLING

The most common methods of waste management are:

- **Landfilling**
- **Incineration**

BENEFITS OF SOURCE REDUCTION AND RECYCLING

- **Two preferred options for dealing with the Nation's waste crisis:**
  - **Produce less waste (source reduction)**
  - **Recycle waste into new products**
- **When feasible, attempt source reduction first, then turn to recycling**

BENEFITS OF SOURCE REDUCTION AND RECYCLING

ECONOMICS:

- **Reduces the charges incurred by your agency for the ever-increasing cost of waste handling and disposal**
- **Potentially generates revenues from the sale of the materials**

BENEFITS OF SOURCE REDUCTION AND RECYCLING

ENVIRONMENTAL PROTECTION:

- **Saves disposal capacity by diverting waste from landfills**
- **Reduces potencial releases and/or pollution from waste management units**
- **Potentially conserve natural resources by using less fuel, water and other resources in the manufacture of products made with recycled materials**

BENEFITS OF SOURCE REDUCTION AND RECYCLING

SOCIAL BENEFIT:

- **Demonstrates leadership and commitment by caring for the environmental quality of the community**
- **Contributes to State, local, or community source reduction and recycling goals**
- **Protects the quality of life for future generations**

SOURCE REDUCTION

Reducing or eliminating waste at the point of generation, rather than after it has been created

SOURCE REDUCTION

GENERAL METHODS:

- **Reduce waste by not generating it in the first place**
- **Reuse items as much as possible**
- **Eliminate the use of unnecessary items**
- **Economize in your use of materials**
- **Substitute less harmful or toxic materials for hazardous materials**
- **Procure items that have long lifetimes and produce less or no waste**

SOURCE REDUCTION

SPECIFIC PRACTICES:

- **Use two-sided copying as standard photocopying practice**
- **Modify documents on-screen, rather than on printed drafts**
- **Maximize use of voice mail and bulletin boards instead of writing paper memos**
- **Reuse items such as transmittal envelopes, three-ring notebooks, binder clips, hanging files, etc.**
- **Buy printers and copiers that have double-sided capabilities**
- **Use old drafts as scratch sheets/note paper**

SOURCE REDUCTION

SPECIFIC PRACTICES (CONTINUED):

- **Maximize use of renewable writing media (e.g., chalk boards and wipe boards)**
- **Reuse non-recyclabe packing materials or switch to recyclable packing materials**
- **Purchase in bulk whenever possible to reduce packaging**
- **Use reusable coffee mugs rather than paper**
- **Reuse laser printer cartridges by exchanging or selling them to the dealer to be refilled**

SOURCE REDUCTION

Each of your daily activities is a potential waste generating practice

Incorporate source reduction thinking into everything that you do

SOURCE REDUCTION

Source reduction and recycling complement each other

Recycling programs should incorporate source reduction concepts and practices

PROCUREMENT - AN IMPORTANT ASPECT OF SOURCE REDUCTION

Procurement is an important aspect of source reduction and recycling because:

- **Our ability to Reduce, Reuse, and Recycle is dependent upon the materials with which we are working**
- **Our purchasing practices contribute to the amount of waste generated in the office**
- **There must be a market for recycled materials**

PROCUREMENT - AN IMPORTANT ASPECT OF SOURCE REDUCTION

"Smart shopping" techniques should help you practice source reduction when procuring items for your office, for instance:

- **Procure items that are durable and produce little or no waste**
- **Use the "Just-In-Time" buying practice to avoid stockpiling unused or outdated items**
- **Avoid procuring items that are needlessly overpackaged. When possible, buy in bulk to avoid extra packaging**

PROCUREMENT - AN IMPORTANT ASPECT OF SOURCE REDUCTION

"Smart shopping" techniques should be incorporated into your approach to procurement. The key "smart shopping" techniques are:

- **Procure items made from recycled materials**
- **Procuring items that are themselves recyclable**

PROCUREMENT - AN IMPORTANT ASPECT OF SOURCE REDUCTION

Federal Procurement Activities:

- **RCRA Section 6002, requires Federal agencies to procure items containing the highest percentage of recovered materials practicable**

- **EPA promulgated five guidelines for the procurement of products containing recovered materials:**

  - **Paper and paper products**
  - **Fly ash in cement and concrete**
  - **Lubricating oils**
  - **Retread tires**
  - **Building insulation products**

- **GSA developed the Recycled Products Catalog**

PAPER RECYCLING AS A FIRST STEP

- **The average Federal government office worker generates approximately one half pound of office waste daily, including both paper and non-paper materials[1]**

- **EPA estimates that 90% of all office waste is paper**

1. Earthworm (consulting); 1990; EPA Region I

PAPER RECYCLING AS A FIRST STEP

Federal regulations mandate that:

- **Federal offices employing over 100 office workers collect high-grade paper for recycling**
- **Federal offices employing fewer than 100 office workers implement office paper recycling programs, where feasible**

SOURCE SEPARATION

Source separation:

- **Ensures the quality and homogeneity of the materials collected**
- **Brings the highest revenues**

SOURCE SEPARATION

Office waste generally contains a variety of paper grades:

- **White and colored bond paper**
- **Computer paper**
- **Business forms**
- **Stationery**
- **Data tabulation cards**
- **Newspaper**
- **Corrugated containers**
- **Envelopes**
- **File folders**

OTHER RECYCLABLE MATERIALS

Other materials merit equal consideration for inclusion in your recycling program

Other materials suitable for recycling programs include:

- **Metal**
- **Glass**
- **Plastic**
- **Additional materials, depending on your office's operation and local market conditions**

DESIGNATING A PROGRAM COORDINATOR

PROGRAM COORDINATOR

Designated Individuals:

- **Program Coordinator -- the central manager -- responsible for overall program operations**
- **Program Monitors -- individuals responsible for overseeing daily operations of the program**

PROGRAM COORDINATOR

Responsibilities of the Program Coordinator include:

- **Initiating the program**
- **Performing a market analysis and waste stream analysis**
- **Training Program Monitors**
- **Developing and implementing the collection and storage program**
- **Evaluating the program and tracking progress**
- **Developing program reports**
- **Implementing employee education programs**
- **Encouraging employee participation**
- **Coordination with Agency and building management**

PROGRAM COORDINATOR

Other responsibilities may include:

- **Organizing a recycling program task force**
- **Establishing a recycling contract or accessing an existing contract**

PROGRAM MONITORS

Program Monitors should be designated for each operational area (e.g., a floor, a division, or a group of 50 - 100 employees)

Each Program Monitor is responsible for the daily operation of that area's recycling activities and acts as a liaison to the Program Coordinator

PROGRAM MONITORS

Responsibilities of the Program Monitors include:

- **Ensuring that recycling containers are being used properly**
- **Encouraging employee participation**
- **Answering questions and educating employees about the agency's recycling program**
- **Notifying the coordinator about any problems, (e.g., aesthetic problems or conflicts with other tenants)**

OVERCOMING RESISTANCE

Misconceptions about recycling include:

- **There are no benefits to recycling office wastes -- I get nothing out of it**
- **Office recycling programs consume a lot of time/space -- what a pain!**
- **No one else recycles -- why should I?**
- **Office paper recycling programs do not adequately protect confidential information**

OVERCOMING RESISTANCE

In reality...

- **Recycling has economic, environmental, and social benefits**
- **Recycling at the office is an extension of recycling at home**
- **Recycling does not place an enormous burden on the employee, and becomes second nature**
- **Office recycling programs are spreading throughout the country**
- **Office recycling programs can be designed so that they do not jeopardize confidential information**

SELECTING A TASK FORCE

Individuals suitable for a task force include:

- **Building supervisor or head custodian**
- **A staff employee**
- **A manager**
- **A contracts representative**
- **One or more program monitors**

PERFORMING A WASTE STREAM ANALYSIS

PERFORMING A WASTE STREAM ANALYSIS

A waste stream analysis:

- **Identifies the quantity and composition of materials in an office's trash**
- **Provides basic information necessary to plan, design, and operate an effective recycling program**
- **Helps to determine the types of materials to be included in the recycling program**
- **Identifies those sections of the office that should participate**

PERFORMING A WASTE STREAM ANALYSIS

A waste stream analysis should answer the following questions:

- **How much waste is generated within each division/floor/ operating unit over a given period of time?**
- **What types and grades of materials comprise this waste?**
- **How much of each type/grade is segregated in your office waste?**

PAPER GRADES

During your waste stream analysis, you will find that your waste probably contains different grades of paper

Understanding the differences in paper grades will allow you to design your recycling program to maximize the value of your paper

PAPER GRADES

High Grades

- **Computer printouts**
- **White ledger**
- **White envelopes (without plastic windows)**

Low Grades

- **Colored ledger**
- **Colored note pads**
- **Colored envelopes (without plastic windows)**

PAPER GRADES

Newspaper

Corrugated Containers

Specialty Grades

- **Manila/Colored tabulating cards**
- **File stock**
- **Shredded paper**

PAPER GRADES

High Grades

Computer Printouts (CPOs)

- White paper used in data processing
- May contain stripes and may be used with impact (i.e., mechanical) printers or non-impact (i.e., laser) printers
- Made of groundwood (like newspaper) are not considered high-grade paper
- Account for up to 45% of the office waste stream

PAPER GRADES

High Grades (continued)

White Ledger

- Commonly used white office paper, such as printed or unprinted bond, photocopies, typing paper, letterhead, writing paper and white tablet sheets
- Accounts for approximately 33% of the typical office waste stream

White Envelopes

- Typical white envelopes that do not contain plastic windows

PAPER GRADES

Low Grades

Colored ledger:

- **Printed or unprinted bond**
- **Photocopies**
- **Letterhead**
- **Writing papers**
- **Scratch paper**
- **Yellow legal pads and telephone pads**
- **Colored envelopes**

Mixed paper:

- **A composite of high-grade paper and low-grade paper (e.g., white ledger mixed with colored ledger)**

PAPER GRADES

Newspaper

- **While not usually a major component of office waste, newspaper is an excellent candidate for a recycling program**

- **Many municipalities across the country have passed mandatory newspaper recycling laws that apply to both residences and offices**

PAPER GRADES

Newspaper (continued)

Recycled newspaper is used to manufacture:

- **New newsprint**
- **Recycled boxboard**
- **Tissue**
- **Packaging paper**
- **Construction board**

PAPER GRADES

Corrugated Containers

- **Are generated in appreciable quantities in most offices from the packaging of office and food service supplies**

- **Obtain a greater price when they have been flattened and tied, or baled**

PAPER GRADES

Specialty Grades

Manila/Colored Tabulating Cards

- Used in tabulating machines
- A specialty grade because of their limited use in the business sector

File Stock

- Includes white and colored file waste, including file folders
- Generated in large quantities during periodic "file purges"

PAPER GRADES

Specialty Grades (continued)

Shredded Paper

- **Is usually generated as part of a security operation to protect confidential business information**
- **Often contains a variety of paper grades**

PAPER GRADES

Specialty Grades (continued)

Two alternatives to in-house shredding:

- **An Affidavit of Destruction, which guarantees that the recovered paper will be kept secure until it is reduced to a pulp**

- **Contracting with a company that offers off-site document destruction services**

CONTAMINANTS

Typical contaminants in collected office paper include:

- **Newspapers and magazines**
- **Telephone books**
- **Carbon paper**
- **Gummed labels, adhesives (e.g., mailing labels)**
- **Slick, waxed, and plasticized papers**
- **Cardboard**
- **Ditto or memo stencils**

CONTAMINANTS

Typical contaminants (continued):

- **Ditto or memo stencils**
- **Photographic or blueprint paper**
- **Envelopes with plastic windows/self-stick closings**
- **Thermofax copy paper**
- **Chemically treated paper**
- **Thermal facsimile (fax) paper**
- **Cellophane tape**
- **Self-adhesive labels and note pads**

OTHER RECYCLABLE MATERIALS

Metal

The most commonly found recyclable metal in office waste streams is aluminum beverage containers

Other metal containers such as steel cans (including tin-coated, tin-free, and bimetal cans) are usually not generated in sufficient quantities for office recycling but may be a candidate for your agency's office recycling program.

OTHER RECYCLABLE MATERIALS

GLASS

Glass beverage containers are 100% recyclable

Glass bottles are generally segregated by these colors:

- **Clear**
- **Green**
- **Amber**

OTHER RECYCLABLE MATERIALS

There are seven categories of plastic of which most plastic bottles are made, each has its own unique chemical composition and characteristics

Chemical Name	Abbreviation
1. Polyethylene Terephthalate	PETE or PET
2. High-Density Polyethylene	HDPE
3. Polyvinyl Chloride	V
4. Low-Density Polyethylene	LPDE
5. Polypropylene	PP
6. Polystyrene	PS
7. Other	Other

BUILDING PROFILE

Special considerations include:

- **If the building lacks a loading dock, recyclables may have to be stored elsewhere until pickup time**
- **If the recyclables storage area lacks a sprinkler, special storage containers may be required**
- **If the building is leased, is the lessor willing to participate in the recycling program**

GENERATION RATE

Generation rate for a typical office:

- **Each employee in a general office environment generates approximately one half pound of recyclable paper per day**

RECOVERY RATES

To project your office's annual recovery rates:

- **Multiply the applicable generation rate by the number of employees**
- **Reduce this by 10% to allow for non-participating areas such as art departments, mailrooms, and departments that generate carbon and carbonless forms**
- **Multiply the resulting figure by the number of work days per year (approximately 260) and then divide by 2,000 to convert to tons**

RECOVERY RATES

Example For a General Office

- **1,000 employees x .5 lb paper per day = 500 lbs paper per day**
- **500 lbs paper per day less 10% = 450 lbs paper per day**
- **450 lbs paper per day x 260 work days = 117,000 lbs paper per year**
- **117,000 lbs paper per year divided by 2,000 = 58.5 tons of paper per year**

PERFORMING A MARKET ANALYSIS

MARKET ANALYSIS

Deciding whether to separate or combine the grades should be based on program economics and goals, as well as:

- **Additional time and labor**
- **Participation rates**
- **Equipment required to collect grades separately**

MARKET ANALYSIS

The Program Coordinator will need to assess:

- **The type/grade and quantity of paper and other recyclables that different materials dealers will accept**
- **The price materials dealers will pay for different types/ grades of recyclables**
- **The services materials dealers will provide**

MARKET ANALYSIS

The Program Coordinator can contact the following resources for recycling information:

- **The municipal solid waste hauler servicing the building**
- **Local and state government officials**
- **Publications such as "Fibre Market News," and "American Metal Market"**
- **Phone book listings under "Recycling Centers," "Scrap Metals" or "Plastic - Scrap"**

MARKET ANALYSIS

When contacting materials dealers, be sure to obtain the following information:

- **Descriptions and types/grades of materials handled**
- **Acceptable contamination types and levels**
- **Containers and equipment available for use, such as a compactor or handcarts**
- **Pickup scheduling**
- **Methods for handling confidential materials**
- **Price structures for the different types/grades of material picked up.**

ESTABLISHING A RECYCLING CONTRACT

WASTEPAPER RECYCLING CONTRACTS

The recycling contract consummates the agreement between your agency and the company collecting your recyclables

WASTEPAPER RECYCLING CONTRACTS

The contract specifies the "who," "what," "where," "when," and "what if" of the agreement

TYPES OF CONTRACTS

Civilian Federal agencies have the option to:

- **Use recycling contracts established by the General Services Administration (GSA)**
- **Establish their own independent recycling contract**

TYPES OF CONTRACTS

GSA recycling contracts:

- **Provide Federal agencies with a contractor that will pay for and pick up the agency's recyclable materials**
- **Establish all of the terms and conditions necessary to support recycling once the materials have been collected at the facility**
- **Provide for GSA to bill the company according to the type/grade and amount of materials removed**

TYPES OF CONTRACTS

To use a GSA recycling contract, an agency must:

- **Reside within a GSA region where a GSA contract is in place**
- **Contact GSA and indicate a desire to use the GSA recycling contract**
- **Generate a minimum quantity of recyclable paper**
- **Collect and centrally store the recyclable paper for pick up by the GSA contractor**

TYPES OF CONTRACTS

There are two key advantages to utilizing a GSA contract:

- **GSA establishes and administers the contract**
- **GSA has over 10 years of experience in administering recycling contracts**

TYPES OF CONTRACTS

You cannot use a GSA recycling contract if:

- **No GSA recycling contract exists in the region where the agency resides**
- **An agency does not generate sufficient quantities of waste paper**
- **An agency is subject to strict security requirements**

TYPES OF CONTRACTS

Agencies that choose to develop their own contracts (independent recycling contracts) should follow several basic steps, including:

- **Collecting detailed market information**
- **Inviting bids**
- **Developing and overseeing the contract**
- **Adhering to the Federal property management regulations**

TYPES OF CONTRACTS

The disadvantage of developing an independent recycling contract is:

- **The overall process is fairly complex, requiring:**
  - **recycling**
  - **regulatory assistance, and legal support (initially)**
  - **administrative support**
  - **long-term resources**

SELECTING A COLLECTION SYSTEM

COLLECTION SYSTEMS

The collection of recyclables involves:

- **Separating recyclables from general waste**
- **Depositing collected materials at central collection points**
- **Transferring recyclables from collection points to storage areas**
- **Pickup by the recycling contractor for transport to a processing facility**

COLLECTION SYSTEMS

In choosing a collection system, consider:

- **What materials (e.g., grades of paper and types of other recyclables) are being collected**
- **What transfer system will be employed within your office building**
- **Who will transfer the collected material within the facility**
- **What storage space and handling equipment are available**

COLLECTION SYSTEMS: PAPER

Office paper recycling programs typically use the dual container system:

- **One container for recyclable paper**
- **Another for discarding non-recyclable waste**

COLLECTION SYSTEMS: PAPER

When containers in employee areas are full:

- **The employee or facility services personnel empty the recyclable paper into a central container**
- **When full, the central containers are moved to a central storage area**

COLLECTION SYSTEMS: PAPER

When acquiring storage space, the following issues must be addressed:

- **Is the storage site large enough?**
- **Can the site be locked?**
- **Is the site protected with sprinklers?**
- **Are a freight elevator and loading dock easily accessible?**

COLLECTION SYSTEMS: PAPER

Recovered paper can be stored in:

- **Mobile canvas hampers**
- **Pallet boxes**
- **Bulk containers**

Or:

- **In central containers to be delivered to the loading dock on the day of pickup**
- **Stored outside in protective containers (igloos or large bins)**

COLLECTION SYSTEMS: PAPER

Determine who will consolidate your agency's recyclables and:

- **Integrate the collection of recyclable materials with existing custodial operations**
- **Inform all custodians about the program so that they do not accidentally mix the recyclables with the regular trash**

COLLECTION SYSTEMS: PAPER

Determine what collection and handling equipment you will need

Suitable equipment may include:

- **Mobile canvas bins**
- **Canvas bags**
- **Handcarts or dollies**
- **Forklifts or pallet jacks**

COLLECTION SYSTEMS: PAPER

In collecting confidential recyclable paper:

- **Contact the recycling contractor to determine if the company accepts shredded material, or**
- **Obtain a guarantee that confidential paper will be handled according to security guidelines**

COLLECTION SYSTEMS: OTHER MATERIALS

Because of the bulkiness and lower generation rate of metal, glass, and plastic, most offices prefer to centrally locate collection containers for these materials

EDUCATING EMPLOYEES

EDUCATING EMPLOYEES

A successful office recycling program requires:

- **Employer endorsements**
- **Employee participation**

EDUCATING EMPLOYEES

Start by educating managers -- they should be examples for the staff to follow and lead the recycling effort

EDUCATING EMPLOYEES

Emphasize to managers that they need to:

- **Have a clear understanding of the goals of the office recycling program**
- **Set a good example for employees**
- **Work with and support the Program Coordinator**
- **Encourage employee participation**

EDUCATING EMPLOYEES

Start your program with a kickoff memo to all staff emphasizing that the program helps to:

- **Conserve natural resources**
- **Contribute to meeting state or local community goals**
- **Save landfill space**
- **Save fossil fuels**

EDUCATING EMPLOYEES

Distribute a reminder memo several weeks prior to the starting date of the program -- highlight the following:

- **Types/grades of materials that are recyclable**
- **Locations of recycling bins**
- **Names and telephone numbers of the Program Coordinator and Program Monitors**

EDUCATING EMPLOYEES

Provide continuous outreach, such as:

- **Posters**
- **Newsletters/Memos**
- **Brochures**
- **Promotional buttons**
- **Special events**
- **In-house competitions**
- **Recycling hotline**

PROGRAM MONITORING AND EVALUATION

PROGRAM MONITORING AND EVALUATION

Establish a regular evaluation program to:

- **Set realistic program goals**
- **Measure progress toward recycling objectives**
- **Anticipate and resolve any problems arising from changing office environments or operation objectives**

PROGRAM MONITORING AND EVALUATION

Agency staff who can play key roles in the evaluation program include:

- **Program Coordinator**
- **Program Monitor**
- **Facilities services division (contracted service personnel)**

PROGRAM MONITORING AND EVALUATION

Program evaluation staff will:

- **Ensure that the recycling program is running smoothly and that objectives are being met**
- **Be responsible for conducting periodic inspections of office areas to evaluate segregation practices**
- **Post recycling statistics indicating program success**
- **Contribute articles to agency bulletins and newsletters reminding employees of the recycling program's objectives and reporting the program's status**

PROGRAM MONITORING AND EVALUATION

An effective evaluation program will solicit:

- **Reactions to the recycling program**
- **Ideas for program improvement from employees**

PROGRAM MONITORING AND EVALUATION

Establish a baseline from which to evaluate and measure the progress of your recycling program by:

- **Determining the current status of recycling at the facility**
- **Assessing current knowledge of, and attitude toward, recycling**

PROGRAM MONITORING AND EVALUATION

To accurately measure the progress and success of your recycling program:

- **Keep an accurate record of costs, revenues, and quantities of recyclable material collected**
- **Monitor recovery rates and participation**
- **Report successes and problems to management and employees**

PROGRAM MAINTENANCE

PROGRAM MAINTENANCE

In order to maintain employee cooperation, the program coordinator must:

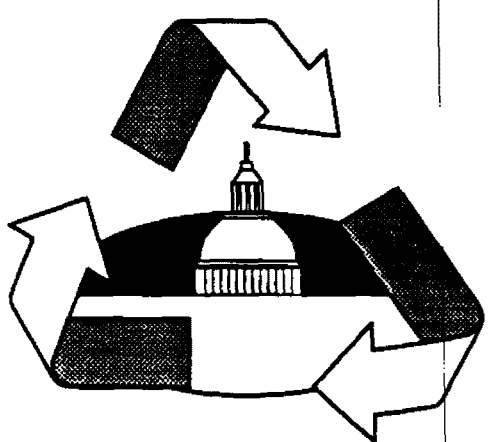
- **Infuse energy**
- **Make necessary adjustments to operational and/or physical changes in your office environment**
- **Communicate program successes with program participants and Agency management**
- **Encourage feedback from program participants**

PROGRAM MAINTENANCE

Reevaluate program goals on a periodic basis.

By following the steps described today, your recycling effort will be off to a great start!

Section 3.0
Recycling in Federal Offices:
Training Seminar for Office Employees



NOTES FOR SLIDE SHOW PRESENTERS

This slide show script is one component of the *Recycling in Federal Offices Training Materials*, jointly developed by the U.S. Environmental Protection Agency and the General Services Administration. The program is designed to assist Federal agencies in designing and implementing multi-material recycling programs. This component is intended to be used by agency recycling coordinators in designing their own slide show (approximately 10 minutes long) to educate Federal office workers about the need to protect our environment through recycling. Note that slides are not provided with this script -- it is incumbent upon you to design a slide show that is tailored to the needs of your particular facility.

Because of the diverse activities of Federal office places, not all offices will collect the same recyclables. Therefore, this slide show script includes information on collecting a range of recyclable materials. All of the recyclable materials discussed may or may not be included in the recycling program you are establishing. If a particular material is not included in your program, simply remove the discussion of those materials from the slides that you assemble for this presentation, and omit the narration that deals with those materials.

Additionally, in the segment describing recyclable paper, there are two suggested slides that deal with two types of collection systems (i.e., one where employee containers are emptied by the employee, and one where the containers are emptied by the custodial staff). Omit the section of the script that does not apply to your recycling program.

We recommend that when presenting such a slide show you have examples or models of the following items on hand:

- Recycling containers you will be using at your office
- Samples of materials your program will be collecting
- Samples of common contaminants
- Posters, brochures, and any educational materials you will be using to promote the recycling program

You may want to make these items available for examination after your slide show, so that employees may become familiar with the specific containers and materials used by your program. Be sure to tell employees who they can contact for more information about your program.

(Introduction Segment)

Slide: "Recycling in Federal Offices", logo (if available)

Presenter's text: This slide show is to introduce you to our new [or expanded] office recycling program. I will be happy to answer any questions you may have about our program after the show.

Slide: Picture of office employee discarding waste into a trash can

Presenter's text: Every piece of waste that you throw in a trash can goes somewhere -- it does not disappear.

Slide: Picture of MSW in landfill

Presenter's text: In 1988, we as a Nation generated 180 million tons of municipal solid waste. That is equal to a convoy of garbage trucks stretching halfway to the moon.

Slide: Graphic pie chart showing relative amount of landfilling, incinerating, and recycling

Presenter's text: The most common method of disposing of municipal solid waste has been landfilling. For many reasons, this method is no longer the best solution for handling all of our waste management needs.

Slide: Landfill with seagulls flying about

Presenter's text: Landfills are reaching capacity or closing down in many areas.

Slide: Closed sign on a landfill

Presenter's text: By 1995, EPA estimates that approximately half of the current space in all landfills will be filled.

Slide: Incinerator with stacks

Presenter's text: A new environmental ethic that includes an enhanced concern for conserving natural resources and protecting human health and wildlife is making the public question the safety and adequacy of traditional waste management methods.

Slide: Cartoon of public demonstration against the siting of a new municipal solid waste facility

Presenter's text: New landfills and incinerators are increasingly difficult to site due to this public concern and tougher design and operating standards meant to protect human health and the environment.

Slide: Trash can graphic of MSW break-out (from EPA pamphlet "Recycle")

Presenter's text: On average, each Federal office worker generates one-half pound of waste paper each day. With over 2 million employees, the Federal Government is a large contributor to our national solid waste problem.

Slide: "Solution = Reduce, Reuse, Recycle"

Presenter's text: The best solution to solve the garbage problem is to avoid creating waste in the first place, and when you do have to create waste, recycle as much as possible.

Slide: Picture of forest/lake

Presenter's text: There are many benefits to recycling. Recycling conserves virgin natural resources that would be used to make products; many times less pollution is created; less energy and water are used; and scarce landfill space is conserved.

Slide: Picture of Earth Day rally

Presenter's text: As more people learn the environmental benefits of recycling, support for community-based and office building recycling programs is sweeping the Nation.

Slide: Picture of bartender recycling

Presenter's text: Everyone is getting into the act, including adults...

Slide: Picture of children recycling

Presenter's text: Kids....

Slide: Picture of Federal employees recycling

Presenter's text: And Federal employees like you! By recycling in the home and office, each one of us can do our part to improve the environment and make our world a cleaner and safer place to live.

Slide: "You are the key to making our recycling program a success."

Presenter's text: Your commitment and participation in our office recycling program is what will make it work.

Slide: Picture of each of these materials:

Paper
Aluminum Cans
Glass Bottles
Plastic Bottles and containers

Presenter's text: These are materials found in office waste that are commonly recycled. Not all of these recyclables are collected at all Federal offices. At our building, we will be/are recycling _____.

(Paper Segment)

Slide: Picture of trash can mostly filled with paper

Presenter's text: Most of what you throw into the trash can during a typical business day is some form of paper. Most paper is recyclable, and therefore it is the material most commonly collected in office recycling programs.

Slide: Examples of the range of paper types acceptable to most recycling programs

Presenter's text: There are many different grades of paper -- some are recyclable and some are not. Although some are only recyclable in certain areas, this slide shows grades of paper that are recyclable in most areas. As a rule of thumb, white paper with any color ink is recyclable and should be collected.

Slide: Examples of the range of paper types not acceptable to most recycling programs

Presenter's text: This slide shows examples of paper types that are usually not collected for recycling -- some of these materials are contaminants and can ruin the quality of your recyclable paper. Be sure to keep these non-recyclable paper types (as well as other contaminants such as paper clips and binder clips) out of collection containers. "When in doubt, leave it out."

Note: You should describe any relevant restrictions or differences in your program.

Slide: Picture showing additional paper products that are less commonly collected for recycling (e.g., colored paper, newspaper, cardboard)

Presenter's text: These are examples of paper products that may also be collected by office recycling programs. We are recycling _____.

Slide: Pictur of different recycling containers

Presenter's text: These are typical containers used for collecting recyclable office paper. Our collection containers are (describe).

Slide: Picture of person at desk putting paper in recycling box

Presenter's text: Recycling paper is easy! All you need to do is put the recyclable paper in the container.

If employee empties his/her own recycling container

Slide: Picture of person emptying their desk-top recycling container into larger, centrally-located container

Presenter's text: When your paper recycling box is filled, just empty it in the central collection bin. This is the type of central bin we are using (point to it). Collection bins are located (give location(s)). When the bins are full, they will be emptied by the custodial staff and the paper stockpiled until the vendor comes and picks it up.

For offices where custodians pick up collected paper directly from employees' desks.

Slide: Custodian picking up and emptying desk-top recycling container

Presenter's text: The custodian will empty your recycling box as part of their routine office maintenance duties.

(Aluminum Segment)

Slide: Picture of different aluminum cans

Presenter's text: Aluminum is another commonly recycled material. At this office, we are recycling aluminum beverage cans. It takes approximately 95% less energy to create aluminum from recycled cans than it does to create aluminum from raw materials.

Slide: Close-up picture of can with aluminum recycling symbol

Presenter's text: Look for "100% aluminum" on the can or the Aluminum Association's recycling symbol printed on the can.

Slide: Picture of man using aluminum can recycling box

Presenter's text: This is what a typical aluminum can recycling container looks like. Our aluminum can collection boxes look like _____. They are located at (give location(s)).

Slide: Picture of person emptying and rinsing aluminum can

Presenter's text: Cans must be empty and rinsed before you put them in the collection container (if your buyer requires this).

Slide: Picture of types of cans not commonly recycled

Presenter's text: Steel and bimetal cans are examples of cans not being collected for recycling in our office building (if this is true for your location).

(Glass Segment)

Slide: Picture of different types of bottles lined up

Presenter's text: Glass beverage bottles are 100% recyclable. We are collecting (specify colors) _____;_____; and _____ glass for recycling in our program.

Slide: Picture of three different colored bottles

Presenter's text: There are three colors of glass: clear, green and amber.

Slide: Picture of types of glass collection bins

Presenter's text: These are typical glass collection containers. Our recycling containers for glass look like _____. They are located at (give location(s)).

Slide:
- Picture of glass separated by color
- Picture of emptied and cleaned bottles

Presenter's text: It is important that these two simple rules are followed because the industries that use recycled glass need to have a clean, homogeneous material.

Slide: Pictures of the types of glass not collected for recycling (e.g., plateglass, lightbulbs)

Presenter's text: These types of glass are not being collected for recycling and should not be put in the collection containers.

(Plastic Segment)

Slide: Picture of different types of plastic containers

Presenter's text: Plastic products and packaging are all around us. There are several different types of plastic, each with its own unique characteristics, but not all of them are collected for recycling yet.

Slide: Picture of PETE beverage bottle

Presenter's text: In our program, we are recycling plastic bottles made out of a material called "Polyethylene terephthalate" or "PETE". Many plastic beverage containers (especially soda containers) are made from PETE.

Slide: Close-up picture of bottom of beverage container with "1" symbol

Presenter's text: PETE bottles can be identified by a triangular recycling symbol that has the number "1" in it. This symbol is usually found on the bottom of beverage containers. Do not put containers with a different number in your recycling bin.

Slide: Picture of collection bin types

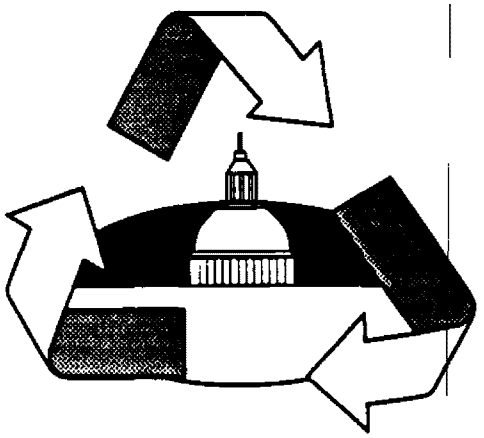
Presenter's text: These are typical plastic recycling bins. Our collection bins look like _____. These bins are located at (give location(s). Remember, plastic containers should be rinsed before you put them in the collection bin (if your buyer requires this).

(Recycling Practices Segment)

Slide: Picture of common contaminants (e.g., food, paper clips, yellow stickies)

Presenter's text: For all of the materials being collected in our program, remember -- do not put contaminants in the recycling collection container. The recycled materials we collect must meet certain purity specifications set by the purchaser. Contaminated material is less valuable to the recycling facility, and may be refused by the vendor.

Section 4.0
Recycling in Federal Offices:
Supplemental Resource Materials for Program Coordinators



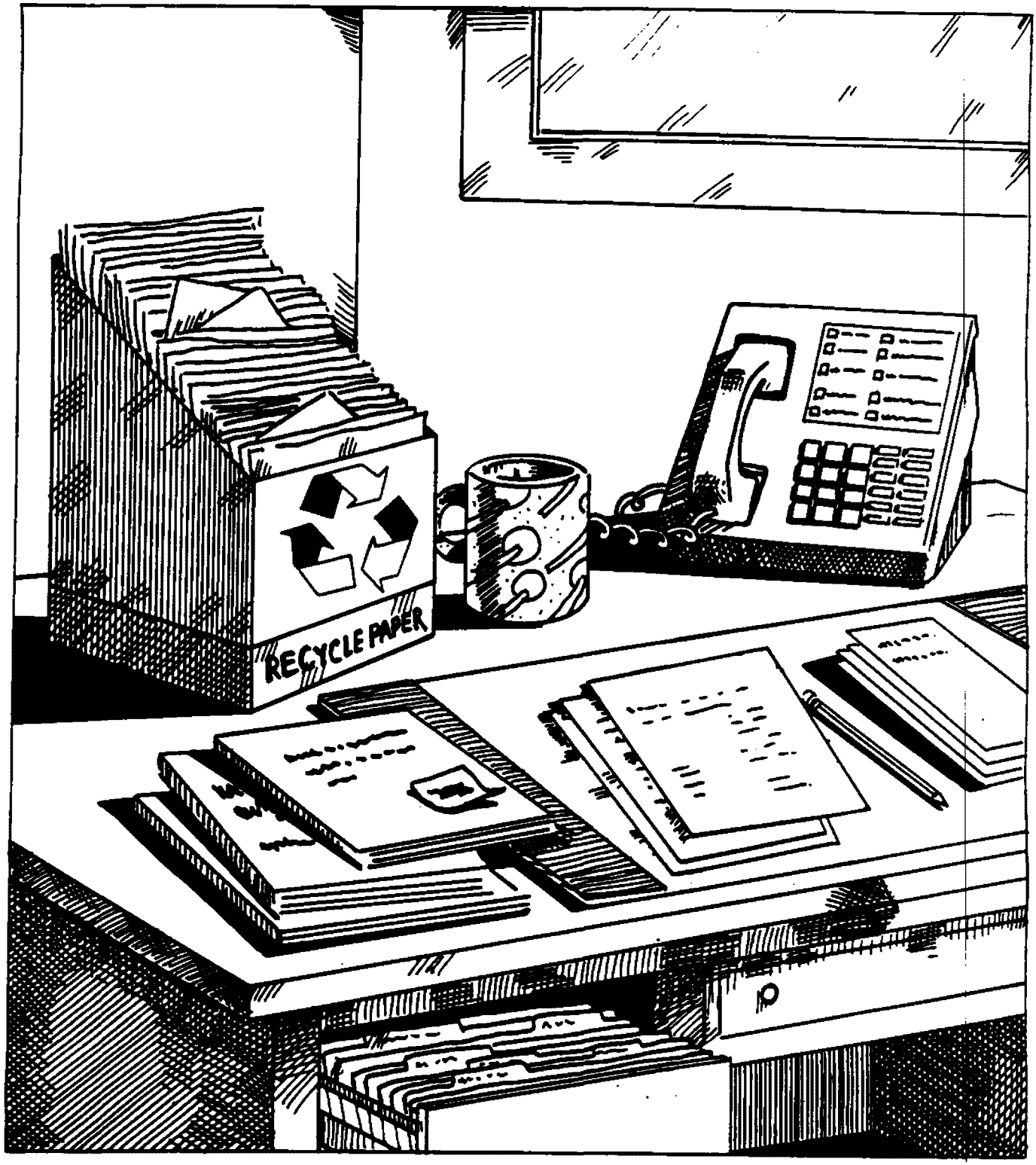
United States
Environmental Protection
Agency

Solid Waste and
Emergency Response
(OS-305)

EPA/530-SW-90-001
January 1990

EPA

Office Paper Recycling
An Implementation Manual



Printed on Recycled Paper

OFFICE PAPER RECYCLING:
AN IMPLEMENTATION MANUAL

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SOLID WASTE MANAGEMENT
401 M STREET, SW
WASHINGTON, D.C. 20460

January 1990

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FOREWORD

In recent years, the management of municipal solid waste has grown increasingly difficult and complex: Americans produce more and more garbage, yet have fewer and fewer places to put it. In response to these problems, many communities, counties and States are turning to recycling and other creative waste reduction methods to help counter the garbage glut.

The Federal government has an important role to play in increasing recycling and reduction of waste to meet our national goal of 25 percent reduction and recycling by 1992. In the Environmental Protection Agency's strategy report "The Solid Waste Dilemma: An Agenda for Action," we note that the Federal government should provide incentives, better planning and implementation tools, and most importantly, should participate in all phases of recycling from source separation and collection of recyclable materials to purchasing of recycled products. In many areas of the country, including the District of Columbia, State and local mandatory recycling laws require that government agencies and private organizations recycle.

In keeping with the goals and objectives outlined in the "Agenda for Action," this implementation manual for recycling of office paper is designed to assist Federal agencies in planning, implementing, and promoting a high-grade office paper recovery program. In addition, the basic principles outlined in this manual should be useful to <u>anyone</u> planning an office paper recycling program, including State and local government agencies, commercial businesses and other private organizations. The concepts in this document are grounded in extensive work done by EPA and others in the 1970's, updated by more recent experience and success in the 1980's.

This manual is only one tool to help and encourage Federal agencies and institutions to recycle. EPA's Office of Solid Waste is planning several technical assistance and outreach projects for Federal agency recycling, while EPA's In-house Recycling Workgroup is striving to make EPA a model for other agencies to follow. In addition, EPA is helping other Federal agencies to complete the recycling process by promoting the Federal procurement guidelines for purchase of recycled materials.

We hope that this manual will serve as the cornerstone for implementing recycling in offices, both governmental and private. As shown at EPA, other Federal agencies, and

offices across the United States, recycling of office paper works! We encourage you to use not only this manual, but to consult other sources of information listed at the end of this document to reduce and recycle more of your solid wastes. In order to stem the tide of solid waste problems, to save economic and natural resources, and to meet the important recycling goals of tomorrow, we all share the responsibility to change the "throw-away" ethic and start recycling.

Sylvia K. Lowrance
Director, Office of Solid Waste

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OFFICE PAPER RECOVERY: AN IMPLEMENTATION MANUAL

INTRODUCTION

The Garbage Crisis

The United States faces a growing solid waste disposal problem: rapidly expanding amounts of waste and shrinking landfill disposal capacity. Every day, each of us produces an average of 3.6 pounds of solid waste. Annual generation of waste paper alone by offices, schools, and homes across the country, increased from 12.1 to 18 million tons between 1970 and 1986. In 1987 alone, Americans generated 160 million tons of municipal solid waste, eighty percent of which is now buried in landfills. The waste growth trend will continue; can we afford to let this occur?

By 1991 one third of the nation's landfills will be closed, with few new ones to replace them. The economic and environmental costs of disposing of these increasing volumes of refuse are escalating along with our waste generation rates. In some areas, the dilemma has reached crisis proportions where tons of waste must be shipped hundreds of miles to scarce landfills at costs of up to $130 per ton.

The Solution

Federal, state and local officials have to seek new, creative waste management practices, including waste reduction and recycling (including composting). Only about 10 percent of the nation's volume of solid waste is currently recycled or reused, far below what it could be. For the nation, the U.S. Environmental Protection Agency (EPA) has established a goal of 25 percent reduction and recycling of municipal solid waste by 1992. This goal recognizes the many advantages to increased solid waste recycling: reduction of waste volumes otherwise destined for the landfill, reduction of costs, productive use of waste materials, and conservation of landfill disposal capacity. In addition, manufacture of products from recycled materials generally consumes, less energy, water, and other natural resources such as trees. For example, manufacturing paper products using recycled fibers consumes 50 to 60[a] percent less energy than when using virgin fibers, and approximately one ton of recovered paper replaces 17 southern pines or three tons of wood pulp. Clearly, recycling is the best possible solution and the easiest to implement.

Why Recycle Paper?

Paper waste is a logical target for increased recycling for two reasons. First, it represents such a large percentage of municipal solid waste - an estimated 41 percent (Exhibit 1). Of this 41 percent, newsprint and paper packaging

a New York Legislative Commission on Solid Waste Management: The Economics of Recycling Municipal Waste; 1986.

EXHIBIT 1
Paper makes up an average 41 percent of the waste stream, but in offices the percentage may be as high as 90 percent. That's why paper is a major recycling target.

(corrugated) are the principal components and recycling of these waste products is fairly common. The waste paper from government and commercial office buildings is also a natural target for recycling, but recycling has yet to become a common practice. The largest waste component in offices is high-grade white paper (bond, copy paper, and computer paper). Fortunately, this grade of paper is recyclable and can be profitable. EPA surveys conducted in the 1970s indicate that a well-run recycling program can reduce the volume of office waste as much as 75 percent, generate income and help ease the pressure on our nation's landfills.

Second, successful recycling of high-grade office paper can readily be accomplished. It has already been successfully demonstrated at many locations, including local, county, and state agencies (CA, NJ, RI, and others), some Federal agencies, and private corporations (such as AT&T and Levi Strauss). When correctly implemented, an office paper recovery program will:

- Slash waste disposal costs by reducing the volume of waste collected and delivered to the landfill.
- Earn revenues from the sale of high-grade paper; paper brokers and mills will pay good prices for high-grade wastepaper because of its short supply and usefulness in manufacturing new products.
- Divert large portions of waste from nearly full landfills that otherwise would occupy scarce landfill space. One ton of recovered paper saves 3.3 cubic yards of landfill space.
- Stimulate a growing market for recyclable paper by providing a constant supply of high quality fiber to the paper industry; paper mills use high grades of wastepaper as a substitute for woodpulp.
- Conserve forest lands and other valuable resources. As stated earlier, less energy and water is required to produce paper from wastepaper than from virgin pulp.
- Decrease emissions harmful to the environment. The recycling process reduces air, water, and land pollution when compared to manufacturing using virgin materials.

- Project a good public image of the office workers and their organization as responsible citizens concerned about the environment.

Recognizing the value of waste paper recycling and the success of office paper recovery programs, EPA developed the "Use it Again, Sam" program in the 1970s to promote high-grade office paper recovery in the Federal government (see Exhibit 2). As part of this early program, EPA published a number of technical documents and promotional materials and published Materials Recovery Guidelines for Source Separation, 40 CFR Part 246. (See reference list and Appendix A for further information).

These publications provided assistance to Federal and commercial offices on how to recover high-grade paper from the waste stream prior to disposal.

Why This Manual?

This manual is a revision of EPA's 1977 guide to office paper recovery. EPA decided to revise this manual to stimulate increased recycling of office paper by government, institutions, and commercial businesses. The primary purpose of this revised manual is to serve as a guide for personnel responsible for the implementation and administration of office paper recovery programs.[1] This guide will take you step by step through the process of setting up a high-grade paper recovery program, including assessing your recycling potential, finding a market for your paper, and educating employees. A case study of EPA's recovery program is also included to show how one program has become a success.

The guide is directly applicable to recycling coordinators in Federal institutions and agencies, since the assistance role of the General Services Administration is explained in some detail and Federal regulations and policies are discussed. In addition, however, those wishing to set up recycling programs in state and local governments, as well as private offices and organizations, will find this manual a useful tool for development of an office paper recovery program.

1 EPA and GSA are working together to provide other assistance on recycling to Federal agencies including high-grade paper and other recyclables such as beverage containers, newspapers, and corrugated materials.

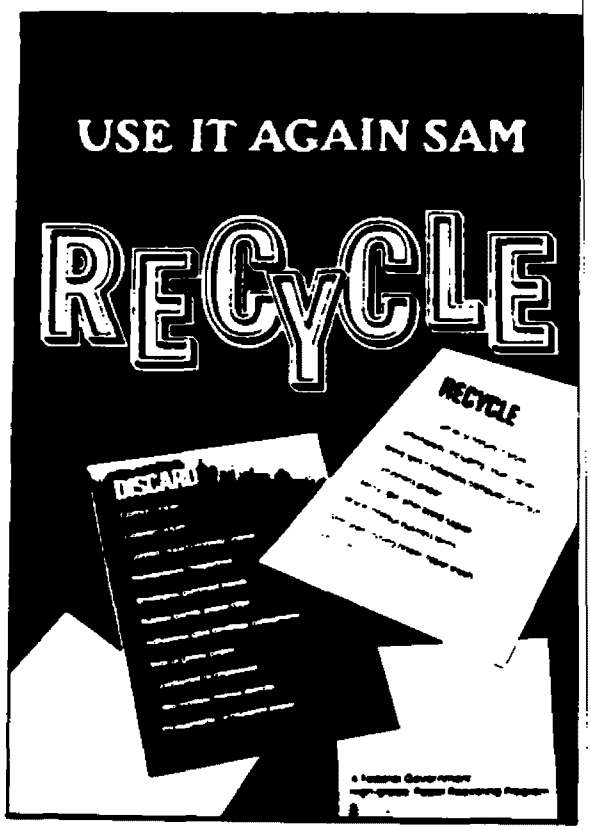

EXHIBIT 2
In 1976 this poster was displayed at EPA headquarters to announce the commencement of the office paper recycling program.

CONSIDERING OFFICE PAPER RECOVERY

Why Recycle in Your Offices?

Good reasons to recycle in your office are as plentiful as the paper! Recycling high-grade paper can save money through avoided disposal costs, earn money through the paper sales revenues, and conserve landfill space, energy, and natural resources. Yes, it takes time and some resources to set up and operate an office paper recovery program, but experience has shown that they work! Recycling programs can build camaraderie among employees, and foster good relations with the surrounding community. Finally, recycling can instill workers with a sense of pride in doing something for the environment.

If these reasons aren't enough, local, state, and Federal regulations often require institutions, Federal agencies, and businesses to separate and collect recyclables such as high-grade paper. For example, at the Federal level, Title 40, Part 246 of the Code of Federal Regulations states that "*high-grade paper generated by office facilities of over 100 office workers shall be separated at the source of generation, separately collected, and sold for the purposes of recycling*" (see Appendix A for more information).

In addition to these Federal requirements, state and local laws may require offices to recycle. As of October 1989, eleven states and the District of Columbia passed mandatory recycling laws which focus on residential recycling, but also recommend or require recycling in offices and government agencies. But for whatever reason: the law, the profits or the environment, recycling makes sense for almost any office.

Can An Office Recycling Program be Economically Successful?

After considering the reasons (and often, requirements) listed above for implementing a recycling program, you may ask, whether such a program can be economically successful.

The answer is yes, but many factors are involved and must be carefully considered. For an office paper recovery program to be economically successful:

- Quantities of high-grade paper present in the waste stream must be large enough to justify its separation and reuse.
- Money saved from avoided disposal costs and earned from the sale of the waste paper should balance the costs of operation.
- The paper should be in demand (marketable) by industry, thereby warranting long-term purchase contracts.
- A proven cost-effective method of separation at the source must be available.

EPA studies show that office waste streams are made up of various grades of

paper. High-grade paper consists of white ledger (bond and copy paper) and computer printout(white or colored striped and perforated form papers used in continuous feed computer printers). Other grades of paper present in the office building waste stream include newsprint, colored ledger, kraft paper, corrugated and other paper board, and coated paper products. The high-grades command a higher market price, have a more stable market demand, and are available in larger quantities than other grades of office paper. High-grades may comprise from 30 to 75 percent of an office's waste stream. Metals, glass, and other materials commonly found in residential and commercial waste streams are found in minimal amounts in office waste. For these reasons, most office paper recovery programs nationwide target the high-grade fraction so that, with careful planning economic success is likely to occur. Even if an office institutes a multi-material recycling program, including low grades of paper, newspaper and beverage containers, the valuable high-grade paper should be kept separate (not mixed with other paper grades).

Office paper recovery programs are based on the principle of source separation. Source separation is defined as the setting aside by the user of recyclable materials at the point of generation. Exhibit 3 outlines the entire office paper recycling routine. An efficient yet simple system integrated within the daily office routine can push participation rates higher. Several methods have been used for separating and collecting recyclable high-grade waste paper from office

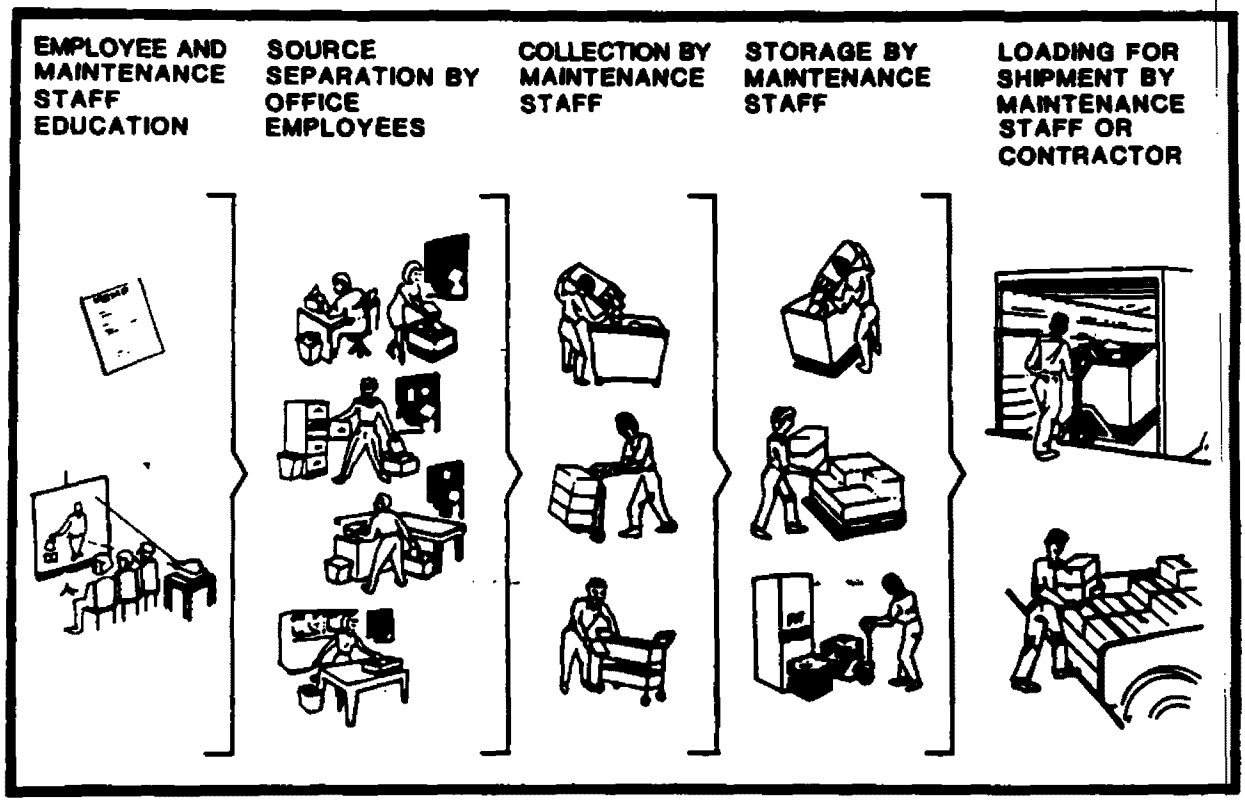

EXHIBIT 3
Outline of the office paper recycling routine.

buildings. In several case studies conducted in the 1970s, EPA evaluated three source separation methods in various locations: dual wastebaskets, central containers, and desk-top systems.

Source Separation Methods

Under the **dual wastebasket system**, each employee is provided with two waste cans or wastebaskets - one for recyclable paper, and one for non-recycled wastes as shown in Exhibit 4. The building custodial staff collects the contents of each basket independently or simultaneously, and the recyclables are kept separate. The collection frequency (ie. daily, weekly, etc.) will depend on the average paper use by employees.

Under the **central container system** (Exhibit 5), separated recyclable paper is carried by each employee to one of the large central containers located throughout the office. Often, this method is appropriate in smaller offices or office buildings where the custodial staff cannot be used for the desk-to-desk collection of recyclables, or when only a limited recycling program is to be established (for instance, only at the copying machine). All other solid waste is placed in wastebaskets and handled separately.

EXHIBIT 4
The "two-basket" system has each basket clearly marked for the kind of waste accepted to avoid mixing by employees or collection staff.

The **desk-top system** is a refinement of the central container system. Under this system, each employee places all high-grade waste paper in a small container located on or near his or her desk as illustrated in Exhibit 6. Non-recyclable waste is deposited in wastebaskets as before. When the container is filled (Exhibit 7), the employee deposits the accumulated waste paper in a central container conveniently located in the office (each central container should serve no more than 50 persons). Appropriate central locations include clerical stations, elevator lobbies, mail rooms, copying areas, computer rooms, and print shops. The paper is collected from the central containers by the trained custodial or contractor staff.

While not generally recommended, a few commercial organizations have used unskilled workers to collect the recycled paper from each desk-top container, rather than relying on actions to be taken by each employee. This method probably is most effective in larger office complexes, but will likely increase overall collection costs, contamination rates, and inadvertent removal of important documents or papers from the desk. At any rate, one of the three suggested methods should be effective if suitably tailored for any office's unique situation.

Which Paper is Recyclable?

White or natural-colored high-grade waste paper products acceptable under most source-separation recovery programs are:

- White typing, writing, photocopy (xerographic), letterhead, and scratch paper.
- Computer printout paper (white bond and color striped).
- Index cards.
- Tabulating cards.

Items generally unacceptable in a high grade office paper recycling program are:

- Colored "sticky" note slips (with a strip of adhesive on the back).
- Envelopes with plastic windows.
- Carbon paper and other sensitized paper.
- Colored paper.
- Newspapers, magazines, books, and glossy or slick paper.
- Cardboard or chipboard.
- File folders.
- Chemically coated paper, gummed labels, adhesives, tablet bindings.
- Blueprint paper.
- Film, photographs, or scotch tape.
- Rubber bands, plastics.
- Facsimile Machine (FAX) paper.
- Paper and cups with food contamination.

EXHIBIT 6
Central containers usually consist of plastic or cardboard. They should be appealing and clearly labeled. Often baffle lids are required to comply with fire codes and some have slit-type lids to discourage disposal of food in containers.

The Desktop System

EPA studies indicate that the desk-top container system is effective in "skimming" a specified grade of recyclable paper from the office waste stream. The desk-top system surpasses the other two systems in employee participation, the value and percentage of the waste stream recovered, and in minimizing the amount of contamination found in the recycling containers.

There are several reasons for this favorable performance:

- Use of the small, accessible, desk-top container quickly becomes habitual. The containers are visible and thereby yield good participation rates. Employee productivity is unchanged and

paper can be stored in desk-top containers for extended periods of time before quantities must be emptied.

- Contaminants such as apple cores and soda bottles cannot be placed in most containers. Colored paper is easily spotted if it is inadvertently included.
- Each employee "volunteers" the minimal labor of transferring the accumulated paper from his or her desk-top container to the central collection container. This reduces waste and recycling collection costs.

This manual outlines procedures for implementing various types of high-grade paper source separation programs. Other methods are feasible and may be preferred, depending on office layouts, employee preferences, available space to conduct collection, and cost considerations. However, this manual emphasizes the use of the desk-top recovery method as a good approach to avoid excessive contamination of the recyclables and to maintain high participation rates of the office building employees.

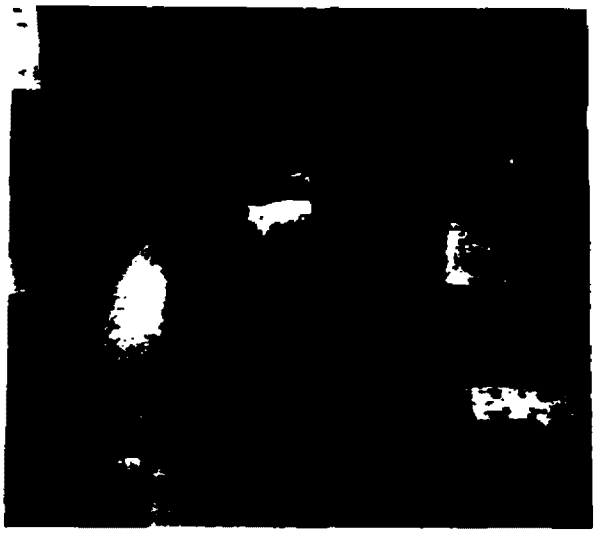

EXHIBIT 6
The cardboard file folder pictured here is for desk waste. Easy to use and clearly marked with the program's logo and phone number, it's highly visible and gets everyone personally involved. The box has a wide enough base to stay upright when placed on the floor to reduce employee desk clutter.

The remainder of this manual is organized into three sections:

- The first section addresses administrative requirements during program planning and implementation. It includes designation of a program coordinator, considerations for a feasibility study, establishment of sales contracts, development of collection and storage systems, employee publicity and education campaigns, and program maintenance.
- The second section discusses the economics of recovery programs. It is useful to assess the economics of an office paper recovery program prior to program planning and initiation. This section addresses how to assess the reduced disposal costs (due to the reduced volume of the waste stream), the quantity and value of the recovered paper, and the costs associated with establishing and operating a successful program.
- The final section of this manual describes a high-grade waste paper recovery program for the EPA headquarters in Washington, D.C. The case study traces the development of EPA's recovery program from the initiation of the "Use it Again, Sam" program in

1975 to the recent success of the program developed by EPA's in-house Recycling Work Group, which was established in 1988.

Appendices to this manual are provided as references that may be helpful in program planning. Included are EPA guidelines for source separation and recovery[1] (40 CFR Part 246), a list of GSA contacts for each region of the country[2], a sample waste composition study[3], and definitions of paper grades.[4]

1. 40 CFR Part 246

2. Provided by General Services Administration, Region 3, Federal Supply Service Bureau, Washington, D.C.

3. SCS Engineers, Reston, VA. Based on data from waste composition studies.

4. Paper Stock Standards and Practices, Circular PS-88, published by the Paper Stock Institute of America, National Association on Recycling Industries, Inc.

EXHIBIT 7
An employee empties her own collection container full of recyclable paper into a centrally located container adjacent to a copy machine. This method decreases labor requirements because all the recyclable waste has been separated at the source and concentrated in several locations.

Besides committed individual employee enthusiasm and participation, successful high-grade office paper recovery programs that use the desk-top system, have several key elements in common:

- An enthusiastic and knowledgeable program coordinator.
- A secure market for the recovered paper.
- A simple and reliable collection and storage system.
- An effective employee education and publicity campaign.
- A reliable method of continued program administration.
- Strong visible support from management.

The procedures discussed below will help establish a successful program with these key elements in place. Exhibit 8 presents a flow chart of the major activities that will be discussed.

DESIGNATING A PROGRAM COORDINATOR

No program can be successful if people don't join in. Yet participation isn't enough. Each office paper recovery program needs a program coordinator to administer the planning, implementation, and operation of the program and to act as a liaison among upper management, building managers, maintenance supervisors, employees, and sales contractors. Good program coordination is crucial to the success of the recycling program. As such, it should be an official function, not a volunteer duty to do in one's spare time. Planning and organizational talent, coupled with enthusiasm and an ability to communicate with others, are qualities sought in the program coordinator. Ideally, his/her interest areas should include cost and waste reduction and environmental control. Personnel at the administrative level who are eager to become recycling specialists and use their abilities are possible choices for coordination work.

In most cases, one person is assigned or requests to be the program coordinator. However, in large buildings, or when one individual does not have sufficient time to perform the task, more than one person may be assigned on a part-time or full-time basis. Having more than one coordinator assures that someone always will be available to oversee the program.

In multi-tenant office buildings, the program coordinator should be selected from the organization with the largest number of employees housed within the facility. One person from each tenant organization should be designated to oversee his/her organizational program, assist the program coordinator in scheduling education sessions, and perform other program implementation activities.

The duties and responsibilities that accompany the operation of the waste paper recovery program may require the program coordinator(s) to perform the

following:

- Establish a waste paper sales contract or access an existing contract.
- Renegotiate a disposal service contract.
- Develop and implement the collection and storage system.
- Conduct the employee publicity and education campaign.
- Continue program operation.

Some of these tasks may be similar to those for which other personnel are currently responsible. Part of the program coordinator's role will be to work closely with personnel responsible for these duties to implement the waste paper recovery program.

The administrative requirements for these activities are significant during program start-up (often the first 3 to 4 months), but tend to decrease after the program is underway. Case studies indicate the importance of initial administrative and educational activities in maximizing employee education and participation and in minimizing contamination levels. EPA's experience suggests that the tendency is to under-estimate the administrative time requirements associated with the implementation and operation of paper recovery programs. While time required to coordinate a program will vary depending upon the size of the organization, the configuration of the building, and the services provided by either existing administrative functions or the paper sales contractor, a full-time recycling coordinator or consultant usually is necessary for the first 3 to 4 months.

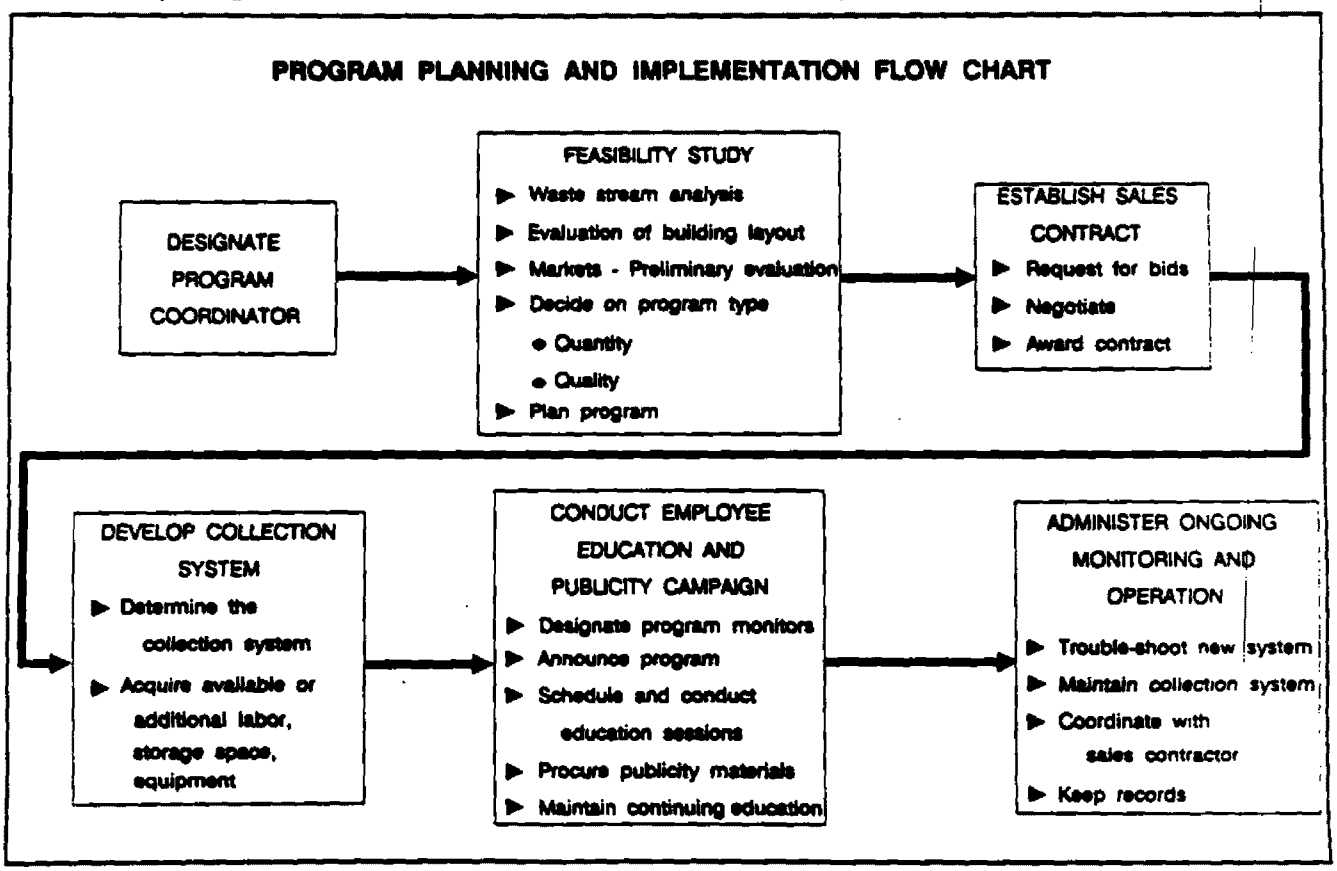

EXHIBIT 8

The program coordinator should designate **program monitors** to assist with various portions of the recycling program such as overseeing the collection containers, screening for contaminants, encouraging employees to participate in the program, and answering questions from fellow workers. Program monitors should have a good rapport with the staff and a thorough understanding of the program's objectives. One monitor per department or for every 50 to 100 employees is recommended, depending on organizational structure, office layout, the receptiveness of the employees, and other considerations. These leadership roles are usually assigned by management as an additional task to current employees as an honor (and it should receive periodic recognition). Typically, their time is not tracked as a labor charge to the program. (Revenues from the recovery program can in some cases be donated to employee fringe benefits as an incentive.)

FEASIBILITY STUDY

To initiate an office paper recovery program, a feasibility study should be conducted for the facility. The feasibility study generates information and data for the design of the program; it evaluates the most practical types of programs to be implemented; it identifies potential markets for recycled paper; and in some areas, it satisfies the requirements for programs mandated by state or local governments.

To determine a program's feasibility and obtain information for contract negotiation, the grades of paper to be separated out (i.e., white ledger or computer printout or mixed white ledger) and the amount of those grades to be segregated must be identified. These data affect the sizes and types of collection containers, the price paid for waste paper (by dictating the number of pickups based upon the contractor's minimum pickup requirement) and the available storage space at the loading dock. Larger pickups often receive a higher unit price for waste paper.

There are three ways to obtain this information: assume generation rates based upon generalized statistics, (e.g., 0.5 lbs. white ledger/employee/day); conduct a one- or two-week waste stream analysis, whereby representative samples of the facility's wastes are manually sorted and weighed by grade description; or conduct a pilot-scale program, whereby a portion of the facility's employees participate in a recovery program over a period of several weeks for the grades of paper intended for recovery and the segregated grades of paper are collected and weighed. The first method of calculating amounts based on a formula is a "tried and true" method that is usually remarkably close to what can be collected. The waste-stream analysis is usually time consuming and costly, while the pilot-scale program requires good organization. The latter two methods can help produce an accurate breakdown of different paper grades which is beneficial to evaluating the economics of the program.

Other suggestions for program feasibility studies include using a phased-in approach for recovery of high-grade paper (e.g., first in computer or copy rooms rather than in employee's offices) to identify the paper load in central

containers and the storage space necessary for such high volume sources of paper. Additional information that is useful for the feasibility study is an assessment of the building layout, availability of central container and loading dock storage space, and locations for central collection facilities. Once the feasibility study is completed and interpreted, the next step is finding a market to sell the collected waste.

MARKET ANALYSIS

Every good recycling program needs a market analysis of the demand for recyclables. In office paper recovery programs, unlike residential programs, a market analysis for high-grade paper is straight-forward. High-grade paper is a valuable commodity, so the program coordinator rarely has to search hard to find a market. However, the program coordinator will need to assess the quality and quantity of paper that different waste paper buyers will accept, the price that buyers will pay, and the services the buyers will provide. All of these preliminary steps can be done prior to issuing an invitation for bids (discussed in the next section) in order to evaluate what should be collected in the program and to estimate the costs and revenues. The program coordinator may also wish to secure letters from waste paper buyers indicating their interest and intent to bid on a contract if it were proposed.

For Federal agencies, this market analysis is often even simpler: the General Services Administration (GSA) may have done this analysis and already have a viable sales contract in place.

The market analysis involves making initial contacts with local waste paper dealers. Information that should be obtained from local dealers includes:

- Descriptions and grades of paper handled.
- Acceptable contamination types and levels.
- Container types and sizes provided and equipment, if any, available for use (e.g., compactor, handcarts, forklifts, etc.).
- Minimum quantities per pickup and pickup scheduling procedures.
- Methods for handling confidential or classified materials.
- Prices for high-grade paper.

ESTABLISHING WASTE PAPER SALES CONTRACTS

The GSA (assisting Federal civilian agencies) and the Defense Logistics Agency (DLA) work with program coordinators to manage the waste paper sales contracts. A list of regional GSA contacts is provided in Appendix B. However, some GSA regions do not have waste paper sales contacts. Consequently, program coordinators may have to work with their contracting office, GSA, etc., to negotiate their own waste paper sales contract. Additionally, Federal offices with large volumes of waste paper may find it effective to contract separately from GSA for their waste paper sales, even if GSA has an existing sales contract in place. To do this, however, the contracting officer should have a thorough knowledge of the Federal Property Management Regulations (FPMR) as they

apply to sales, and any other pertinent regulations. Thus, most Federal agencies should use the GSA services where possible to establish and maintain a specific contract for waste paper sales.

The first step to establishing a sales contract is to solicit more detailed information from local buyers and brokers. This information includes the following:

- Pricing mechanism (i.e., flat fee, floating price or periodic adjustment of price) and term of contracts awarded (e.g., one year).
- Conservative unit price or minimum price expected over the next year for the high-grade paper that will be separated (e.g., white ledger, computer printout, etc.).
- References of current sales contracts with facilities to assess the reliability and flexibility of the dealer, particularly with regard to contaminated loads.
- Letter of Intent to Bid.

Invitation for Bids

The major elements of Invitation for Bids (IFB) are:

- Description and grade of waste paper to be sold with allowable contaminant loadings.
- Estimated generation rates.
- Location(s) of paper pickups.
- Minimum pickup quantities and method of scheduling pickups.
- Containers and equipment provided by the contractor.
- Confidential document destruction procedures, if applicable.
- Performance penalties.
- Pricing mechanism and term of contract.

Waste paper grades may be defined as in Paper Stock Standards and Practices PS-88 (Appendix D) which is an industry standard or they may be set by individual dealers based upon the businesses to which they sell the waste paper (e.g., tissue mill, etc.). Exhibit 9 is an example of the 1989 GSA sales contract for the Washington, D.C. area and specifies a high, medium, low grade classification. These grades allow for the contractor to purchase paper containing certain levels of contaminants at a lower price. Note that this classification was defined by GSA on this one contract to facilitate collection and grading of the material. It is not an industry standard.

Development of Contract

The estimated recovery rate for each grade segregated should be specified in the IFB so the contractor can estimate overall quantities and associated prices to be paid under the contract.

The location of the paper pickup(s) including loading docks or one or more buildings must be specified in the IFB along with the option for the bidders to inspect the area(s) prior to submitting their bids.

The method of handling confidential or classified materials must be specified in the IFB. These materials must be shredded, macerated, pulped or burned

Grade 1: Computer printout, white ledger, hard white shavings, and manila tabulating cards or any combination thereof.
No more than 1% total outthrows or prohibitive materials by weight.

Grade 2: Miscellaneous ledger and contaminated Grade 1 paper or any combination thereof.
No less than 1% and no more than 3% total outthrows or prohibitive materials by weight.

Grade 3: Various grades of paper, including carbon interleaf, file stock, wet strength, corrugated containers, heavy books, and contaminated Grade 2 paper or any combination thereof.
No less than 3% and no more than 10% total outthrows or prohibitive materials by weight.

Acceptable contaminants include paper clips, staples, and soluble glues (i.e., bond envelope glue).

Unacceptable contaminants include pressure-sensitive labels and tapes, plastic window envelopes, rubberbands, brown/golden kraft envelopes, binders (i.e., pressboard, plastic, and cloth covered), paper fasteners, binder clips, plastic materials, and carbon paper.

Prohibitive materials: a) Any materials which by their presence in a packing of paper stock, in excess of the amount allowed, will make the packing unusable as the grade specified. b) Any materials that may be damaging to equipment.

Outthrows: Outthrows shall be understood to be all papers that are so manufactured or treated or are in such form as to be unsuitable for consumption as the grade specified.

EXHIBIT 9
1989 GSA Paper Grade Specifications for Washington, D.C.

EXHIBIT 10
If the facility generates confidential waste paper it still can be included in the recovery program. Shredding of the confidential waste is common practice and it can be sold to the waste paper dealer prior to or after shredding.

(see Exhibit 10). Shredding may be done by the contractor or may be done by in-house personnel. The contractor can certify that the confidential material is destroyed or in-house personnel may accompany it and supervise its destruction. Be sure to check with the individual contractor as to the organization's specifications regarding confidential materials before the method of disposal is determined.

Specifications in contracts vary among GSA regions and may change annually. Categories that are chosen for contract specifications are dependent on the individual contractor and should reflect the content of the facility's specific waste stream.

Segregation of computer printout from white ledger may be economical, depending on recovered quantities, due to the higher market price. Even when segregating only high-grade paper, a lower grade should also be specified in the contract to reflect the price to be paid for a contaminated high-grade load.

Minimum pickup quantities must be specified and may be related to the container types provided (e.g., 4 bales, canvas hampers, trays or pallets of 1-5 tons). Scheduling for pickups either for specific days and times or on an on-call basis (e.g., within 48 hours of notification), must be specified.

Containers to be supplied by the waste paper dealer must be specified in the bid along with the storage requirements of each. Some contractors pay a premium for baled paper if a low contamination level is guaranteed. Others prefer that the paper be stored in boxes or bins so that they can scan for contaminants prior to baling. Also equipment such as handcarts, forklifts, balers, shredders, or compactors which need to be supplied by the waste paper dealer should be specified in the contractor's bid.

The method of pricing pickups is based upon the contractor weighing the load. Usually the loaded truck is weighed and the tare weight of the truck plus the containers is subtracted from this weight. In GSA's 1989 contract, a "Waste Paper Delivery Order" form is completed in quadruplicate and signed by both the contractor and the governmental representative. Load weights are reported back to the government on certified scale tickets within two weeks for proper billing. The program coordinator may want to establish pre-set weights in the contract (estimated weight per container) in order to provide "ball park" figures on weights at the time of pickup. It is important that the

office or agency maintain close oversight of the weighing and billing procedures in order to minimize the opportunity for theft or inaccurate weighings.

Important aspects of a waste paper sales contract are the pricing mechanism and the term of the contract. Long-term contracts are preferable but require more flexible pricing mechanisms (i.e., floating prices tied to the market value of the paper) or a periodic revision of the quoted price per ton. A guaranteed minimum floor price should be specified in each case. One year is considered to be the minimum term of a waste paper sales contract. The Washington, D.C. GSA waste paper contract is reissued for bidding on a yearly basis and specifies a flat fee per ton of waste paper for each grade of paper.

The contract elements discussed above apply primarily to waste paper contracts for pickups at loading docks or central storage areas. Other types of contracts include "full service" contracts, whereby the waste paper dealer establishes the facility's entire recovery program including employee education and paper collection and handles all waste paper pickups. The expenses of these other services would be deducted from the value of the paper yielding a lower unit price per ton paid for the paper. While these contracts seem attractive, the contractor needs to be qualified in implementing all aspects of the program. In addition, the contractor may often limit his services to paper pickup at the dock when paper prices drop, leaving the program undirected.

Office paper recovery consultants, independent of waste paper dealers, also are available to set up a recovery program or at least educate the program coordinator on the mechanics of setting up a program. These consulting services often suggest resources for procuring collection, educational, and publicity materials and may provide educational tools such as slide shows, videos, posters, and other materials. In other words, the information available is vast and the many different ways of devising contracts and methods guarantee finding a program geared to your needs.

RENEGOTIATING DISPOSAL SERVICE CONTRACTS

Depending upon the region of the country where the facility is located, reduced waste disposal fees may be the most significant aspect of the cost-effectiveness of a recovery program. The program coordinator should investigate this in conjunction with the office's contract services staff. Waste disposal contracts usually are based upon one of three cost accounting methods: a flat fee per week, month or year; a fee per "pull" or emptying of the waste storage containers (as well as a fee for renting the containers themselves), or a fee per ton of waste hauled. The first two are the most common in large office buildings. The waste hauler should be contacted to negotiate a reduction in hauling fees by changing the flat fee, the number of containers serviced, and/or the number of pulls needed.

In situations where waste disposal costs may be included in the lease agreement for office space (a common occurrence for Federal agencies), no benefit from avoided disposal costs accrues to the

organization performing the recycling. Negotiations between the organization and the landlord regarding changes in the lease agreement must be undertaken to establish whether savings from reduced disposal costs may be accounted and credited towards the organization's costs for establishing the recycling program.

DEVELOPING AND IMPLEMENTING THE COLLECTION AND STORAGE SYSTEM

Because it gets people involved and minimizes contamination, the desk-top system is emphasized in this manual. The desk-top system requires that employees accumulate paper at their desks and deposit it in central containers at their convenience. The paper is then collected from central containers and consolidated in the main storage area by custodial or general service labor groups within the facility. A simple and reliable system must be developed for collecting and storing the recovered paper. Key components in developing and implementing the collection and storage system include:

- Selecting and distributing easily identifiable desk-top or desk-side containers (including the program's logo and/or motto and instructions for use, as illustrated in Exhibit 11).
- Determining central container locations and selecting and distributing central containers.
- Acquiring and routing collection personnel.
- Considering necessary equipment (storage containers, collection equipment, shredders, etc.).
- Acquiring storage space.

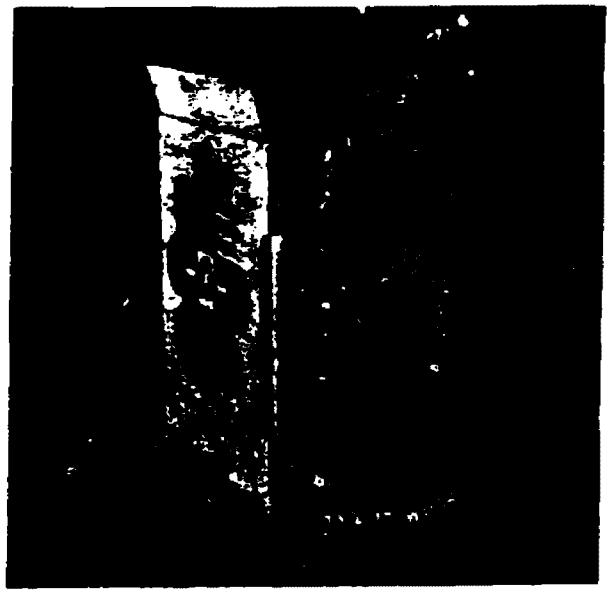

EXHIBIT 11
It is important to show the logo for recycling directly on the desktop container. Acceptable materials are printed on one side, unacceptable (contaminants) on the opposite side.

- Determining methods of collecting and storing confidential wastes.

Selecting and Distributing Desk-Top Containers

Get everybody participating in the program through the distribution of individual containers. A variety of desk-top containers are available commercially through office suppliers and recycling vendors. Sources for locating recycling equipment vendors include magazines and publications such as Resource Recycling, Waste Age, Recycling Today, and the American Recycling Market Annual Directory/Reference Manual, to name a few. Desk-top containers may be available from the waste paper contractor. If, the contractor is changed, however, there is the chance that the facility will be left without equipment (unless it is then purchased from the contractor directly). GSA can supply containers (cardboard

vertical file boxes and central containers with a lid and slit in the top) to Federal agencies through their catalogue and the Customer Supply Center in Washington, D.C. They are in the process of increasing their availability nationwide. Alternatively, contact the office suppliers used for other supplies or vendors of recycling equipment to determine what is available for use as desk-top containers. If the style available does not suit your needs and you need a large quantity, then put a design of your own out for bid.

The desk-top containers may be made of paperboard or plastic and resemble vertical napkin holders, heavy duty vertical file folders, vertical boxes, or horizontal in-boxes. However, the selection of a practical desk-top container depends on the needs and requirements of the specific facility, aesthetic preferences, and budgetary constraints. Vertical containers, illustrated in Exhibit 12, are usually preferred and recommended by EPA because of the large paper capacity and reduced amount of desk space required when compared to horizontal containers. The container selected should be stable, durable, and require a small amount of desk space.

EXHIBIT 12
On the vertical cardboard desk-top folder labels may be used to identify the purpose of the container and the program.

A consistent desk-top container style and color should be used throughout the paper recovery program. Each container should be clearly labelled or printed identifying the program and listing what can and cannot be recycled. The label also may include the telephone number of the program coordinator so that employees may call in case of questions or problems. Since both employees and collection staff may not speak or read English as their first language, container instructions should be multi-lingual as appropriate.

Desk-top containers are supplied to each employee, usually during program education sessions. At smaller facilities, containers may be distributed to employees at their desks during or after education sessions. Making sure each worker has his/her own container will insure greater participation and, in the long run, greater overall success.

Central Container Location, Selection, and Distribution

No program will work without clear organization -- that is, each participant knowing what to do and where to go. Central containers to serve from 15 to 25 employees (for example in office bay areas) and up to 50 employees (in larger storage areas) should be located throughout the office facility. Locations for each container depend on the available space in the building, local building fire

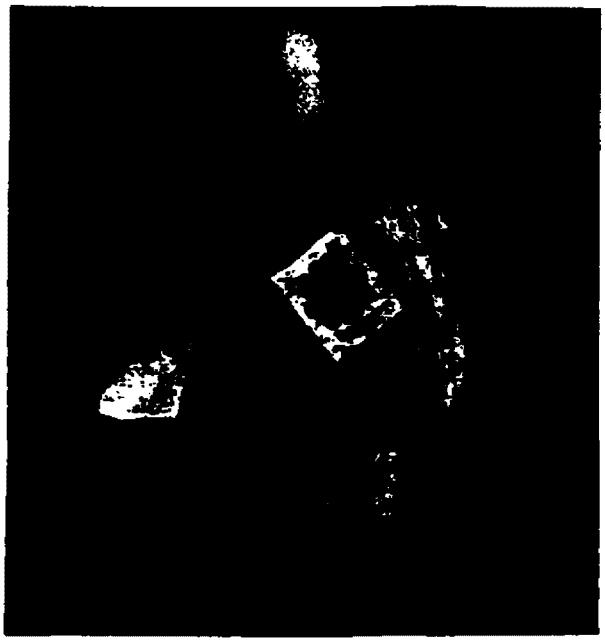

EXHIBIT 13
This central container measures 5.0 cubic feet. It is made of white double strength cardboard making it both visible and attractive in the office environment. Note that the acceptable and unacceptable materials are printed on the front.

codes, and practical considerations. For example, some fire codes may prohibit the placement of containers in hallways or entrances. If possible, containers should be stationed in locations accessible and visible to both general office employees and collection crews. Central containers should be placed in computer centers, record rooms, reproduction rooms, and other areas where large volumes of paper are generated.

Central containers may vary in size and shape from 1.5-cubic-foot cardboard boxes to 44-gallon rubber or plastic cylindrical containers with swing lids or one-cubic-yard canvas hampers. Exhibits 13 to 16 illustrate various designs and locations used for central containers. When selecting central containers, the amount of paper generated per area and the frequency of collections should be considered. Small table-top containers may be suitable for general office locations with cramped quarters or low paper generation rates, while larger containers or bins may be necessary in areas with high rates of paper generation, such as photocopy rooms. Each container should have sufficient storage capacity to hold the paper between collections, which may vary from daily to weekly, depending on the program. Fire codes can dictate the choice of central containers. For example, some fire codes may specify the use of covered containers, such as bins with fire baffle lids. These containers can be purchased through custodial suppliers, the recycling contractor or other vendor. Put a design out for bid if the containers available don't suit your needs and a large quantity is desired. Program budgets may play a role in container selection. Programs with available funds will probably purchase permanent containers, such as plastic, rubber or canvas wheeled bins or hampers. Programs with budgetary constraints could use empty copy paper supply boxes, but be sure these boxes are clearly marked as recycled paper containers.

Central containers should be clearly identified using the same color and program logo used on the desk-top containers to avoid being used as trash containers or thrown away themselves. In addition, a list of acceptable or unacceptable items should be posted on or near each container location. If computer and high-grade paper are collected separately, be sure to identify the type of paper that the container is intended to hold (e.g., "Computer Paper Only"). Again, labelling should be multi-lingual, as appropriate for collection staff

and employees who may not have English as their first language.

Some waste paper dealers will provide central collection containers. However, these containers may not work with the desired program theme or given spatial constraints. Regardless of how or where they are arranged, container locations must be obvious and accessible to the individual employee.

Acquiring and Routing Collection Personnel

Paper deposited by employees into the central containers must be consolidated and transferred to the main storage area. Collection personnel perform this task. EPA studies have shown that facilities housing from 100 to 500 employees may use part-time labor to collect recovered paper, while larger facilities (over 2,500 employees) will likely have to allocate the equivalent to eight man-hours a day or a full-time position to perform this task. The amount of paper generated by the facility and the number of collection stations also must be considered to estimate needed collection labor.

The recycling coordinator should make every effort to meet these collection labor needs with existing staff or contract labor in order to minimize program costs. Most programs successfully accomplish recycling collection activities using the existing labor force, including custodial staff, contractors for furniture moving and facility maintenance, etc. Custodial staff or other collection labor must be thoroughly trained and educated about the recycling program and their tasks (especially to avoid mixing of recyclable paper and trash).

Several options may be available for integrating waste and paper collection activities. Recycled paper and other remaining wastes may be collected simultaneously, each deposited in separate bags or bins on a collection cart and taken to separate storage areas (Exhibit 17). With simultaneous collection, efforts must be made to ensure that the recovered paper is kept separate to prevent contamination. As an alternative, some offices use a rotating collection system in which the custodial staff collect the separated paper and other wastes on alternate nights. Another method, illustrated in Exhibit 18, is to keep recycled paper collection separate from other waste collection altogether. In this situation, one or more members of the

EXHIBIT 14
A large waste basket near a copy machine serves as a receptacle for waste paper. Larger containers are necessary in areas with high paper generation rates such as copy areas or computer printers.

EXHIBIT 15
This recycling program uses separate stacked bins for central collection of various grades of paper. The combination of bins can be adjusted depending on generation rates of each paper type at the collection locations, thus making for a very flexible system.

custodial staff may be assigned to independently collect recyclable paper. Separate paper collection may also be performed by other personnel, such as mailroom, supply distribution, maintenance, general service, or other available service staff. In many cases, contracted maintenance or general service agreements can be renegotiated to include the additional job of paper collection.

When integrating paper collection with existing office routines, consider the number of custodians servicing the building, the nature of their employment (in-house, contract, union), their hourly availability (day or night shift), and other personnel who could perform these duties. If existing personnel cannot be used to perform the consolidation activities, contracting or hiring some additional labor may become necessary. In addition, many government agencies and private organizations participate in temporary or full-time hiring programs for local high school or college students, minority or under-privileged groups, or the disabled.

Paper collection must be supervised closely to maintain high participation rates. Reliability can be maximized by avoiding labor turnover, particularly in larger programs where familiarity with paper collection points is critical. It is important to maintain communication with collection personnel regarding changes in the program, overflowing central containers, or other key information. For this reason, it may be beneficial to arrange for paper collection operations to be performed during the day, when the program

EXHIBIT 16
A small collection box near a copy machine saves space but likely needs to be serviced each day by the collection crew.

coordinator and program monitors are available to communicate with the collection staff.

Collection personnel must begin servicing central collection containers as soon as the program begins. In large buildings, it may be beneficial to conduct a "dry run" before program implementation and to ensure that each collector has a floor plan showing where central containers are located. In this manner, the collection staff becomes familiar with central container locations and the most practical collection routes. A month of program operation will serve to establish appropriate collection routes, the proper frequency of collections, and any added labor requirements.

EXHIBIT 17
The custodial staff services both the paper and other waste containers simultaneously. The paper wastes are collected in clear plastic bags and other waste in black plastic bags.

Collection Equipment

The collection and movement of recovered office paper can be integrated with other materials handling activities within the facility, such as maintenance, mail and supply distribution, or waste collection. Existing equipment may be available for the collection of office paper. Collection and handling equipment commonly used in office buildings for paper recovery programs includes:

- Wheeled canvas bins or barrels.
- Mail carts.
- Canvas bags.
- Hand carts, dollies or gurnees.
- Forklifts.
- Balers.

If existing equipment is unsuitable or unavailable, leasing of equipment from the waste paper dealer (as part of the contract) or purchase of additional equipment may be necessary. Factors to be considered when purchasing equipment include hallway width, doorway width, type of floor covering, and freight elevator size. Wheeled bins are the most common transport equipment (Exhibit 19). Some programs use 44-gallon containers both to collect and transport the paper similar to that shown in Exhibit 20. When the central collection container is full, it is simply wheeled to the main storage area, emptied, and returned to the floor or replaced with an empty container.

EXHIBIT 18
The paper collection system at this university campus uses student labor to service the collection containers in the buildings. The program has a vehicle used for transporting paper to a storage area.

If paper is stored in pallet boxes, a pallet jack or forklift will be needed to move the full pallets (each pallet will weigh between 1,000 and 1,500 pounds). Collected paper can be baled, particularly in buildings already equipped with a high-speed baler or when a significant premium can be obtained for baled paper (Exhibit 21).

Storage Space

Acquiring storage space is an important step towards development of a paper collection system. The program coordinator can play a major role in working with the building manager and sales contractor to locate and obtain appropriate storage space.

Recovered paper is most often stored in mobile canvas hampers, pallet boxes, or bulk containers. Exhibits 22 and 23 illustrate some methods of storage for wastepaper. Containers may be provided by the waste paper dealer. Consult with the local waste paper dealer to determine which type of containers can be provided and which would be most suitable for use in the building. Indoor storage is usually in 1.5-cubic-yard mobile canvas hampers or 2.5-cubic-yard pallet boxes. Bulk containers are used when outdoor storage is necessary and may range from 3 to 30 cubic yards.

The amount of storage space needed will be dictated by the quantity of the paper collected, the requirements of the contract and the method of storage. Most contracts require the accumulation of a specified minimum tonnage before pickup. To determine the necessary space, calculate the number of storage containers needed and multiply by the base square footage of each. Table 1 presents rough data necessary to make estimated calculations of needed space.

TABLE 1
Methods of Storage

Container Specifications	Mobile Hampers	Pallets	Bulk Containers
Size	1.5 cu. yds.	2.5 cu. yds.	4 cu. yds.
Capacity	400 lbs.	1,000-1,500 lbs.	2,000 lbs.
Floor space requirements per unit	12 sq. ft.	20 sq. ft.	30 sq. ft.

Keep in mind that additional space may be needed around containers so that they are accessible and conform with fire and safety regulations.

Some sales contracts may stipulate specific collection frequencies or pickup days regardless of paper accumulation. Under this type of provision, the spatial requirements will depend upon the amount of paper generated between pickup days. If the amount of paper produced between pickup days is known, then the storage space requirements can be calculated using the above data by simply multiplying the number of containers needed by the space each requires.

Accumulated paper should be kept as close to the point of pickup as possible, perhaps in the basement or loading dock area of the building. The space should be convenient to the freight elevator and secured to prevent potential contamination, and tampering with or theft of the paper. In addition, the space should meet local fire code requirements, which may include sprinkler protection or other provisions. If space near the loading dock is unavailable, paper may be kept in central containers until the day of pickup or placed in a temporary storage area and delivered to the loading dock by consolidation staff on the day of pickup. Paper also may be stored outdoors in large bulk containers. If outdoor storage is necessary, the paper must be protected from the elements and secured from theft.

Recycling of Confidential Waste Paper

Many office facilities generate large amounts of confidential or classified materials that are printed on high-grade

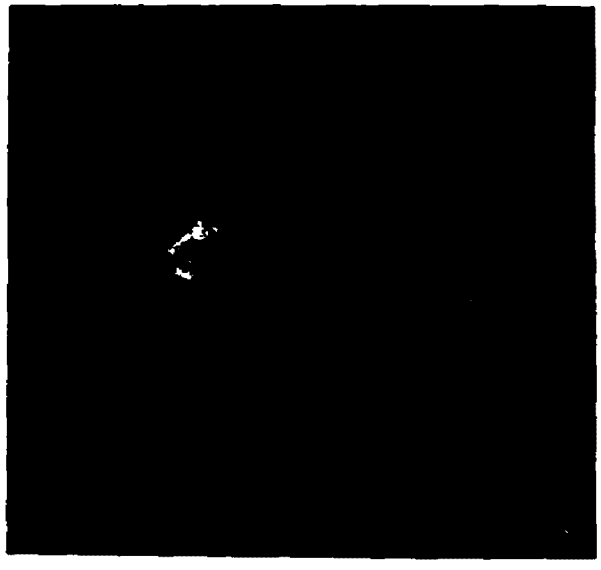

EXHIBIT 18
Canvas carts, usually supplied by the paper vendor, can be wheeled to each central container during collection. The lightweight carts facilitate transportation to the storage facility.

EXHIBIT 20
Plastic wheeled containers are often used for collection and storage. Lids may be required to reduce fire hazards or to protect the contents from the weather if they are stored outside.

recyclable paper. Regulations often require these materials to be incinerated, pulped, or shredded. Recycling of this confidential wastepaper may be possible. The contracted waste paper dealer needs to be contacted to determine if shredded documents are marketable. Management of these special wastes may require separate collection and secure and separate storage of the shredded or unshredded confidential paper. If separate collection and/or storage is necessary, some estimate should be made of the quantity of confidential paper being recycled. Keep in mind that shredded paper takes up more space than flat or crumpled paper.

EMPLOYEE PUBLICITY AND EDUCATION

People are the key to any successful recycling effort. No recycling program can be successful if people don't participate. The success of a source separation program depends upon employee education, awareness, co-operation, enthusiasm and action. Also, the endorsement and commitment of top management to the program will help ensure success and encourage employees to participate. A vigorous education campaign explaining the goals and mechanics of the program is crucial to establishing initial employee participation as well as maintaining that participation over time.

Major elements of the education campaign are:

- Distributing a kick-off memorandum from the top administrator of the organization to all personnel.
- Scheduling and conducting education sessions for management, program monitors, collection staff, and general employees.
- Acquiring and/or developing posters, slide shows, and other publicity materials.
- Conducting ongoing publicity and education before program start-up.

Distributing the Program Kick-Off Memo

The word "Recycle" needs to be spread to each employee, which can be best accomplished with a kick-off memo. The purpose of the kick-off memo is to

demonstrate top-level support and cooperation for the implementation of the paper recovery program. The memo should include:

- Endorsement of the program by top-level management and a clear statement of the organization's goal to reduce waste.
- Environmental and economic benefits of paper recovery.
- Potential for revenues and savings and where they will go.
- Separation and collection procedures and the ease with which they can be incorporated into daily routines.
- Identification of the organization's program coordinator (and program monitors as appropriate).

EXHIBIT 21
Baling may be desirable if large quantities of paper are generated by the facility. A waste paper dealer often will accept baled paper only if a low level of contamination can be guaranteed by the facility.

- Announcement of the educational sessions and a schedule of when they will be conducted.

Distribution of this memorandum should occur a few weeks prior to the education session, leaving sufficient time to ensure employee attendance and interest. Copies of the memo should be available for distribution throughout the course of the program. An example of a kick-off memo is presented in Exhibit 24.

Scheduling and Conducting the Education Sessions

The next step is to inform each worker about how the program will work. A schedule of the education sessions should accompany the kick-off memo. Attendance at the education sessions should be mandatory, and it is important that sessions are organized and scheduled to be as convenient as possible for all employees.

Employee education sessions should initiate recycling as a way of life. Once an employee has attended the session, (s)he immediately begins participating in the program. All other aspects of the employee education program including posters and other publicity materials, should be in place prior to the education sessions.

How sessions are scheduled will depend on the facility's management, size, and available meeting space. Many organizations already have procedures for conducting employee education activities. When scheduling sessions consider the following:

- Conduct sessions for management prior to distribution of the kick-off memo. Informed managers will be better able to communicate the importance of attendance to their subordinates.
- Educate program monitors, collection staff, and other personnel involved in program operations prior to the general office sessions. They must have a working knowledge of program mechanics before implementation.
- Arrange follow-up briefings for those employees who are unable to attend the initial sessions.
- Arrange sessions in mid-morning and mid-afternoon; avoid scheduling at lunch (unless employees are agreeable to "brown-bag" sessions), the beginning and end of the day, and near holidays.

Education sessions should be no longer than 15 to 20 minutes, and should include a formal presentation and time for questions and answers. Include the following key elements in the formal presentation:

- A concise description of the program operation.
- Pictures or displays of all collection equipment.
- Detailed description of acceptable and non-acceptable items stressing the importance of keeping contaminants out of sorted paper.
- A description of the environmental benefits of paper recycling and the end products of the recycling process (tissue, recycled office

EXHIBIT 22
Paper can be stored in 3 cubic yard, roll away containers. Generation rate, collection schedule, and storage area will determine the type of storage containers best suited for a facility.

paper, etc.).

Slide shows or videos can be effective means to convey these key aspects of the program, along with posters and displays of acceptable and unacceptable items, and desk-top and central collection containers. Posters and flyers should appear several days before the first employee education session. Exhibit 25 is a poster that was used to announce the initiation of an office paper recycling program.

Desk-top containers should be distributed during or immediately following the education sessions. It is helpful to place a "how to" memo in the container highlighting the reasons for recycling and important features of the program, how it works, the types of acceptable paper, central container locations, and a telephone number to call in case of questions.

Employees should leave the session and begin recycling as soon as they return to their desks. New employees should receive the same information and handouts including their own desk-top container during orientation and/or training on their first day.

Developing or Procuring Publicity Materials

No successful program is without continual monitoring and reminders. Initial publicity materials such as posters and "how to" memos should be available at the time the education sessions are held. Publicity materials aimed at the employee should support and reinforce the information provided during the education sessions and should continually remind

EXHIBIT 23
Canvas bins on rollers can be used for collection, transportation to the storage area and as storage between collections by the waste paper dealer. The bins also can be stacked inside each other when not in use so that less space is utilized between collections.

employees of the program and the role they play in making it successful. Publicity tools include:

- Program logos and slogans.
- Posters.
- Newsletters and news articles.
- Brochures, leaflets, and memos.

A program logo or slogan can serve as the key unifying and identifying element in an office paper recovery program. A logo can be repeated on essentially all physical components in the program, including desk-top and central collection containers, posters, and other publicity materials. A series of items exhibiting a recycling program logo is presented in Exhibit 26.

Posters, as illustrated in Exhibit 27, designating acceptable and non-acceptable materials may be used to mark central container locations or just to announce and reinforce the program. Posters serve as strong visual reminders

TO: ALL ABC COMPANY EMPLOYEES
FROM: JANE DOE, PRESIDENT
DATE: MAY 24, 1989
SUBJECT: OFFICE PAPER RECYCLING AT ABC COMPANY

Studies show that each office worker throws away an average of a half-pound of recyclable paper every day. That's the equivalent of (X) tons a year from our office alone. This means that over (Y) trees and (Z) gallons of oil are needed each year just to keep our office afloat in paper.[1] We're starting a recycling program to put this paper to better use. By recycling, we'll lower our garbage disposal costs, earn revenue from the sale of our paper, and do our part to improve the environment.

Participation in this program will require only small changes in your daily habits. You will be given a desk-top container for storing white paper and computer paper. When your desk-top container is full, simply empty the contents into the central container nearest your desk. The locations of the central containers will be:

NEXT TO ALL OF THE COPY MACHINES;
ROOMS 200, 319, AND 452;
OUTSIDE THE COFFEE ROOM.

Please attend a short orientation session to learn more about how the program works. Three fifteen minute sessions have been scheduled for June 15, 1989. The sessions will start at 9:30 AM, 10:30 AM, and 1:30 PM. Your supervisor has a sign up sheet.

Your participation in this program does make a difference! For every piece of paper you recycle, you will:

- Protect the environment and save natural resources.
- Conserve scarce landfill space.
- Save money for our company.

If you have any questions about the program, please contact JOHN SMITH, at Extension 4635. Thanks for your cooperation.

1 X = (# OF EMPLOYEES) x (0.5 LBS.) x (240 WORKING DAYS PER YR)/2,000 LBS.
Y = (17 trees) x (X tons of paper)
Z = (682.5 gallons of oil) x (X tons of paper)
Reference: Your Office Paper Recycling Guide. San Francisco Recycling Program.

EXHIBIT 24
A model for a typical kick-off memo for announcing an office paper recycling program.

and should be updated from time to time to reinforce participation in the program.

In-house or company newsletters, newspaper articles, brochures, memos, and notices also serve as constant reminders of program operation. They are effective tools in the initial and continuing education of employees. These communications convey changes in procedures or program progress/performance.

It may be desirable to publicize the paper recovery program in the local newspaper and/or the organization's newsletter. Such a measure improves public relations and boosts employee morale and support of the program. Paper recycling can be a visible demonstration of the office "good neighbor policy". Unlike the Federal government, private businesses may be able to donate proceeds to local community groups or charities. Such efforts are well worth publicizing to the community and other interested parties.

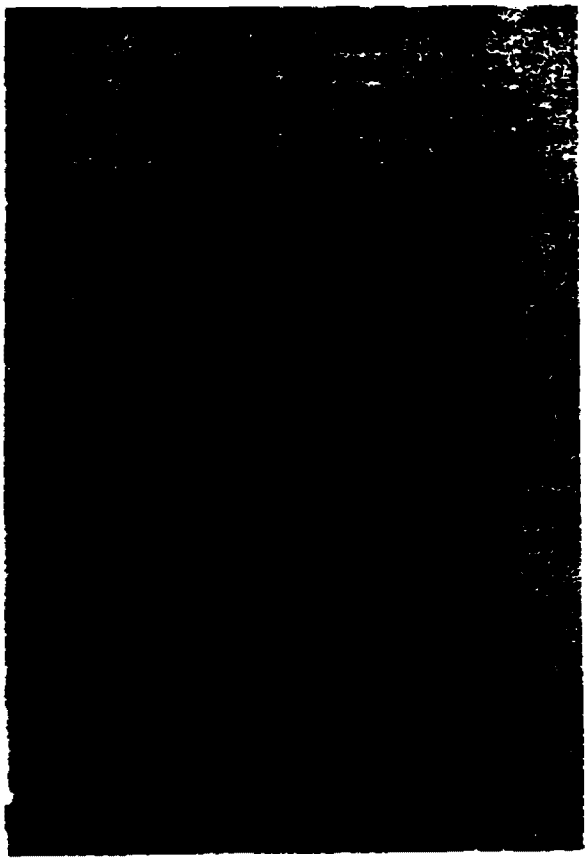

EXHIBIT 25
To announce the education sessions that kick-off the recycling program, posters are placed throughout the office so that employees are notified.

Memos, newsletters, and brochures can be produced in-house or by outside services which specialize in production of posters, slide shows, or videos. Some publicity materials may be available through Federal, municipal, or private organizations. Both GSA and EPA are developing outreach materials to assist agencies in educating employees on recycling. If the recycling program is mandated through local or state legislation, then check with the overseeing agency regarding assistance to conduct the employee education campaign. Alternatively, check with local waste paper dealers or recycling consultants for available materials and program start-up services. In other words, use all the resources available to keep up the momentum and enthusiasm that has been established in the program.

Ongoing Publicity and Education

The publicity and education campaigns should be continuous. There must be immediate and sustained reinforcement of the changing habits required for recycling. It must be clear that the program is permanent and that it will work only through the cooperation of all participants. Ongoing publicity materials should highlight program accomplishments, contamination problems, program

modifications, and revenues that have been received from the sale of the paper. A continuing employee education program can assure increasing participation, while placing few demands on employees. Another aspect of ongoing education is new employee orientation. It is essential that new employees are well informed about the program through literature, handouts, orientation sessions, etc. (Exhibit 28).

CONTINUING PROGRAM OPERATION

Office paper recovery programs require continued administration on the part of building management and the program coordinator to sustain employee enthusiasm and cooperation. Ongoing administrative aspects include:

- Stabilizing and monitoring program operations.
- Providing assistance as needed to employees.
- Coordinating with sales contractors.
- Recordkeeping of costs and revenues.
- Monitoring recovery rates and participation.
- Reporting successes and problems to management and employees.

Program start-up will identify problem areas, such as in distribution of con-

EXHIBIT 28
Logos and slogans can be reproduced on a multitude of items used every day so that the program is well publicized and there are constant visual reminders to recycle.

tainers or missed collections of central containers. The program coordinator will need to work closely with the collection staff to resolve any collection problems. It may be necessary to adjust collection frequencies, container locations, and collection routes. These and other trouble-shooting adjustments should be identified and resolved quickly by the coordinator. On an ongoing basis, the program coordinator should communicate specific problems or changes to the collection staff.

Program monitors should ensure that central container locations are kept neat and orderly and that central containers are emptied regularly. In addition, monitors can screen containers for excess contaminants and answer employee questions. Monitors also may be instructed to routinely screen waste-baskets for the presence of recyclable paper and distribute reminders to those employees not participating in the program. A list of the program monitors will need to be updated as personnel changes occur and periodic training scheduled for newly appointed monitors.

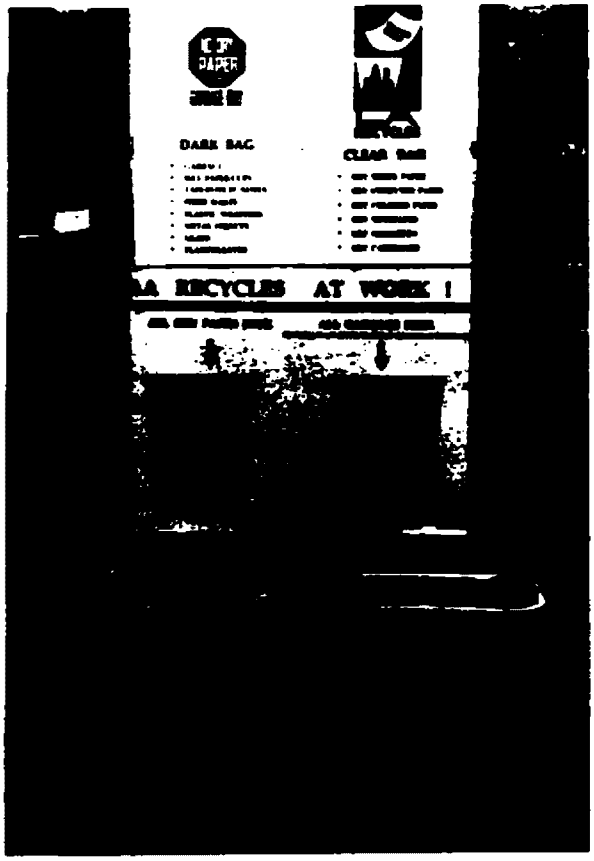

EXHIBIT 27
The poster above serves as a constant reminder for employees to recycle, lists the types of wastes to be placed in each receptacle, and clearly identifies which basket receives each type of waste.

EXHIBIT 28
Educate new employees about the recycling program during their orientation. A coffee mug with the program's logo will welcome them into the program.

The telephone number of the program coordinator and monitor should be listed in the office directory and distributed to employees. Employees should be encouraged to call to report overflows, ask questions, or request special assistance when they anticipate generating large amounts of paper. Extra containers can be made available for office clean-ups and other non-routine activities.

Open communication between the program coordinator and the waste paper dealer is another key element of program

operation. The program coordinator should work closely with shipping and receiving personnel to schedule paper pickups and ensure that the paper is properly organized for pickup. The coordinator should also work with the waste paper dealer to solve problems such as excessive downgrading of paper or late pickups.

The program coordinator should track the progress and effectiveness of the paper recovery efforts by tabulating recovery rates, program operation costs, and revenues from the sale of paper. These records may provide information for ongoing publicity memos for employees, progress reports for management, and help to determine the average quantity of paper recovered per employee. All these help to portray the success of the program and generate further interest and compliance.

PROJECTING THE ECONOMICS OF PAPER RECOVERY

COST FACTORS IN PAPER RECOVERY

Office paper recovery can be economically successful! The cost effectiveness of a high-grade paper recovery program depends on three primary factors: avoided disposal costs due to reducing the present costs of waste disposal, proceeds from the sale of waste paper, and the costs of initiating and operating a recycling program. Although avoided costs of disposal and program operation costs are not always tracked separately for Federally-implemented paper recovery programs, some attention given to improving and managing these components will lead to more cost- effective recycling efforts.

Avoided Disposal Costs

One of the benefits of recycling is that waste disposal costs can be avoided since the waste is recycled rather than disposed. To assess avoided disposal costs related to recycling of paper wastes, first an estimate must be made of the quantities of high-grade paper expected to be removed from the total waste stream. Second, an evaluation must be made of the waste removal service pricing method. This might be structured as a flat fee per time period, a fee per "pull" (emptying of containers), or a fee per ton of waste hauled. The first two methods are the most common in large office buildings.

The quantity of high-grade paper that can be removed from the waste stream is dependent upon the type of business involved. Typically financial and insurance institutions generate the greatest amounts of high-grade waste paper when compared to other institutions such as general office buildings. The most common types of high-grade paper are computer printout and white ledger.

The quantity of high-grade paper that will be recovered can be estimated by instituting a pilot recycling program, conducting a waste stream analysis, or simply making assumptions about waste paper generation rates per employee using data derived from other in-place recycling programs. Each of these methods was previously discussed in the section on the Feasibility Study.

The avoided disposal costs are the difference between your current disposal costs and the costs for disposing of only nonrecyclable wastes. Examine the current disposal contract and determine the costs of collecting/hauling the nonrecyclable waste. The waste hauler should be contacted to negotiate a reduction in hauling fees by changing the flat fee, the number of containers serviced, and/or the number of pulls needed.

The average monthly or yearly disposal costs may not be influenced by reduction in waste tonnage or volume due to recycling. For instance, facilities that dispose of bulk items such as wood pallets and corrugated boxes may not significantly reduce the volume of their waste without compacting. As a result,

the storage and collection frequency requirements would remain unchanged, even though the hauling weight would be reduced. In addition, disposal cost reductions may be precluded by:

- Existing contractual agreements with the hauler and/or pricing mechanisms that limit negotiating cost reductions based upon flow reductions.
- Leasing arrangements that prevent negotiating cost reductions in rented buildings where the lessor has the responsibility for disposal contracts.

In facilities studied by EPA in the 1970s, the disposal cost was reduced by about half the percentage that the waste stream was reduced. For example, if the weight of the waste stream was reduced by 40 percent after program implementation, a 20 percent reduction in disposal cost resulted. This relationship indicates the importance of tracking avoided disposal costs to support a paper recovery program.

Proceeds from the Sale of Waste Paper

The proceeds from the sale of waste paper depend upon the quantity of paper generated, the level of contamination, the transportation costs to get the product to the market, and the general state of the secondary paper market.

Current market prices for one ton of loose, unbaled high-grade paper can be obtained through industrial publications or local manufacturers that directly use recycled paper. The Fiber Market News price quotes are for paper FOB (Free On Board - no shipping costs) at the facility loading dock. Mill Trade Journal quotes prices for paper FOB at the mill dock, whereas the price quoted in the Offical Board Markets publication is FOB at the mill, baled and in boxcar loads (minimum amounts). In addition, local waste paper dealers can provide current prices for recycled high-grade paper specific to local conditions and transportation costs. An example of published mill prices for May 1989 is presented in Table 2. For all regions the price paid per ton for computer paper was 3 to 4 times higher than that paid for sorted white ledger. For both paper types the highest prices are paid in the West while dealers in the East, Mid-west, and South are receiving considerably lower prices for their waste paper.

Federal, state, and some local government agencies have procurement service branches such as GSA and DLA which already may have waste paper contracts in place in specific U.S. regions. These agencies should be contacted for current prices and relevant provisions of the contracts.

For most Federal agencies, collected waste paper is considered to be the property of the U.S. Government. Consequently, proceeds from the sale of recycled paper are deposited in the U.S. Treasury, as required by 40 USC Section 485(a), Federal Property Administrative Services Act of 1949. Thus, revenues derived from a specific Federal facility's program most often cannot be used to offset recycling program costs directly. (However, proposed Federal legislation may change this requirement and enable

individual Federal agencies to control these proceeds from recycling programs.) A few civilian agencies may be exempt from this requirement due to the way in which their funds have been apporpriated. Program coordinators in Federal agencies should contact their general counsel and GSA to ensure that revenues are returned to the proper entity.

Proceeds from the sale of recyclables at the military department or department of defense are used for operational costs of the program. The balance exceeding operation and maintenance of the program is split evenly. Fifty percent goes towards energy conservation programs and occupational health and safety activities. The remaining proceeds are credited to a military welfare and morale account at the installation. Amounts in excess of $2,000,000 per fiscal year are deposited in the Treasury. (U.S. Code Military Construction codification Act, Oct. 1, 1982, Title 10, Section 2577).

Costs of Implementing a Recycling Program

The costs for implementing a recycling program vary among programs and with time. Initially, a high-grade waste paper recycling program is likely to increase both administrative and custodial (or collection) labor, and costs for publicity, educational materials, containers, equipment, and perhaps, storage space. The largest administrative costs typically entail start-up costs that occur over the first several months. Once the program is in place and fine-tuned, then the administrative costs should decline and be limited to trouble-shooting the program on an as-needed basis.

Other costs required to initiate a program depend on the type of facility (size, complexity, and outlay) as well as the support and cooperation from management, employees, and out-of-house contractors (i.e., custodial services and

TABLE 2

MILL PRICES FOR HIGH-GRADE WASTE PAPER
(May 1989)

Region	PRICES (per ton) Sorted White Ledger	Computer Printout
East	$55-60	$200-210
Mid-West	$65-75	$205-215
South	$55-65	$200-210
West	$70-80	$300-310

Source: Official Board Markets, 65 (19), May 13, 1989.

waste disposal services). Many of these cost components are listed in Table 3, along with estimates of requirements for program start-up and operation.

As an example, custodial labor requirements often can be met through an existing custodial service contract. Many Federal agencies have existing clauses in their contracts that require waste paper pickups. Alternatively, the existing custodial service contract may require revision. Estimated labor requirements for custodial services are given in Exhibit 29.

Purchases or capital outlays needed include containers for separating and collecting (and sometimes storing) the waste paper, and educational and publicity materials. Containers for the separation and collection of waste paper will need to be purchased commercially, entailing desk-top containers (at least one per employee) and central collection containers (about one per 20 employees). These containers can be obtained from office supply or custodial supply companies. The recycling contractor may also be able to supply central collection containers. Alternatively, some agencies design specific desk-top and central containers and request that manufacturers supply these units through a bidding process. Table 3 presents a range of estimated costs for desk-top and central containers obtained from all these sources.

Storage containers, depending on size desired or needed, range anywhere from under $500 for a 4 cu. yd. front loader to more than $3,000 for a 30 cu. yd. roll-off container. Because containers for storing waste paper at a loading dock typically are provided by waste paper dealers, they were not included in the expenditure table.

Additional collection equipment may be needed, depending on the facility's requirements. Some waste paper dealers provide wheeled central storage containers to ease inter-facility transport to secondary containers, thereby reducing paper handling labor by eliminating transfers at the central storage area. Compactors or paper balers may need to be purchased or leased to reduce paper volumes if there is little available storage space to be acquired. Associated equipment might include pallets, forklifts, and roll-off containers, depending on the size of the program.

Storage space for containers may already be available at the loading dock, or additional space may need to be leased (or purchased) from the landlord or owner. Additional space requirements can be minimized by arranging for more frequent pickups by the recycling contractor.

Costs for educational and publicity materials (such as posters and labels for the containers) and memos or brochures to inform employees about the program can be minimized by in-house production of the items. Once a program is implemented, further use of low-cost newsletters or other news bulletins should be made to reduce publicity costs. The posters can be reissued every couple of years to revitalize interest in the program. Estimated costs for educational and publicity materials are given in Table 3.

TABLE 3

ASSUMPTIONS USED IN ESTIMATING RATES, TIME, AND EXPENDITURES ASSOCIATED WITH WASTE PAPER RECOVERY PROGRAMS

A)	Mixed High-Grade Paper Recovery	
	General offices or offices w/o significant computer usage (assume computer printout generation is much less than for white ledger)	0.5 lbs/employee/day[1]
	Banks and insurance companies or offices w/significant computer usage (assume computer printout generation is equal to or greater than that for white ledger)	1.0 lbs/employee/day[2]
B)	Percent Recovery	60 - 70%[3]
C)	Weight-to-Volume Conversion (for loose paper)	1 ton = 5 cu/yd non-compacted = 3 cu/yd compacted
D)	Administrative Labor for the Recycling Coordinator	
	1. Start-up labor (during months 1 & 2)	10 hrs/100 employees/month
	2. Labor to maintain the program (for month 3+)	2.25 hrs/100 employees/month
E)	Custodial labor to pick up waste paper from central containers	8 hrs/100 employees/month[4]

TABLE 3 (continued)

F)	Containers	
1.	Desktop containers	$2/container/employee
	paperboard/plastic file folder to upright	($1 - $4)
2.	Central containers w/lids	
	20 gal. plastic	$25/container/20 employees[5]
	32 gal. plastic	$25/container/20 employees[5]
	44 gal. plastic	$35-45/container/20 employees[5]
	36 gal. paperboard	$4.50/container/20 employees[5]
G)	Publicity and Education	
	Posters (purchased)	$25/poster/central container
	Labels (purchased)	$0.50/sticker/container
	Memos/Brochures (produced in-house)	$0.25/person
H)	Life Period	
	Life of paperboard containers	5 years or less
	Life of plastic containers	10 years
	Life of educational materials	2 years

Notes:

(1) This value is sensitive to the amount of computer printout generated and is assumed to be a conservative value.
(2) With the advent of increased computerization, waste paper generation also has increased. This is a conservative value, e.g., utilities that are highly computerized have been shown to collect 1.7 lbs./employee/day. While it is common to collect computer printout and white ledger separately because of the higher value of computer printout, no breakdown is given here because it is highly facility-specific.
(3) For use with waste stream analysis studies only. Values given in "A" already incorporate this assumption.
(4) Refers to Exhibit 29. Labor Requirements for Collection of Recovered Paper.
(5) Any combination will work; remembering that 20 people generating high- grade waste paper at a rate of 0.5 lb/day will fill a space equal to 25 gallons in one week.

COMPARISON OF SOLID WASTE DISPOSAL COSTS WITH AND WITHOUT RECYCLING

The cost effectiveness of implementing a high-grade waste paper recycling program can best be illustrated by comparing costs for solid waste disposal at a facility before recycling is implemented (current situation) versus after recycling is implemented (proposed situation). Typically, the comparison is estimated for one year due to lack of long-term fixed-price contracts for waste disposal and waste paper sales. Costs and computations should include capital expenditures and operation and maintenance (O&M) costs. In order to develop an annual cost for the upcoming year, capital expenditures are converted to annual costs by dividing each expenditure by the estimated useful life (number of years) of the capital item. Operation and maintenance costs normally are tracked as annual costs.

Table 4 is a worksheet used to aid in the computation of costs for solid waste disposal with or without recycling activities. The worksheet will help indicate potential savings gained after implementation of a paper recovery program. Items listed in the worksheet are monthly and annual O & M and capital costs laid out for program operations. To annualize a capital cost for an item, it must be divided by its expected life period (obtained from Table 3).

The only way that program success can be gauged economically, is through careful tracking of costs continually throughout the life of the program. Those values used in the Table 4 worksheet may only be ballpark figures, yet their usefulness in determining the feasibility of a paper recovery program should not be underestimated.

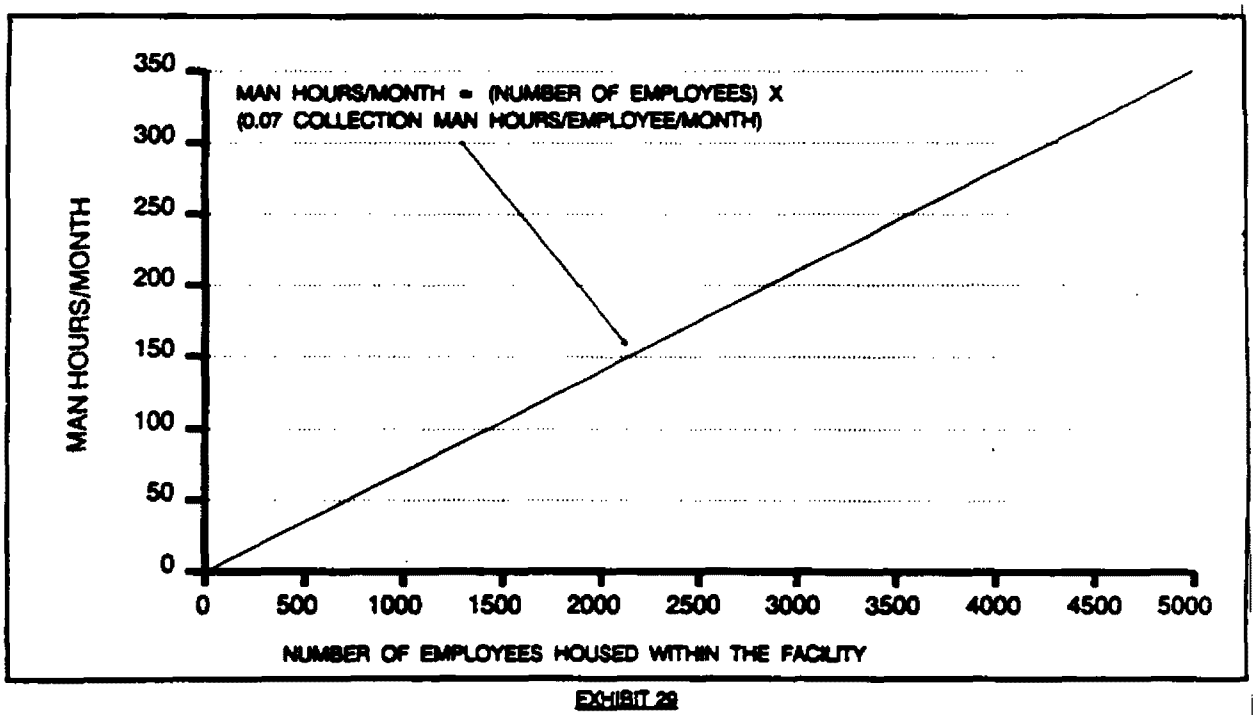

EXHIBIT 29
Labor requirements for collection of recovered paper.

TABLE 4

WORKSHEET FOR COMPARISON OF SOLID WASTE DISPOSAL COSTS WITH AND WITHOUT RECYCLING

	ANNUAL
PRESENT DISPOSAL COSTS:	
Disposal	$_____
Equipment	+ $_____
Custodial Labor	+ $_____
Revenue From Any Current Recycling Program	- $_____
TOTAL	$_____
DISPOSAL COSTS AFTER IMPLEMENTATION:	
Disposal Costs for Reduced Waste Volume[1]	$_____
Labor - Administrative	+ $_____
Custodial	+ $_____
Equipment -	
Desk-top Containers	+ $_____
Central Containers	+ $_____
Storage, etc.	+ $_____
Publicity/Educational Information	
Posters	+ $_____
Labels	+ $_____
Brochures/Memos	+ $_____
SUBTOTAL	$_____
Waste Paper Sales Revenues[2]	- $_____
Net Recycling Disposal Costs	$_____

SAVINGS:

Present Disposal Costs Total	-	Net Recycling Disposal Costs	=	Net Savings (Costs)
_____		_____		_____

1 Determine the reduced waste volumes resulting from recycling and contact your waste disposal company to determine reduced costs.

2 Contact waste paper dealers or consult market listings for the current value of your waste paper with or without pickup

ARRIVING AT SUCCESS AND

BEYOND TO THE FUTURE PROGRAM

Through a concerted recycling effort the current solid waste crisis can be turned back before it worsens. Businesses and offices instituting high-grade waste paper collection programs can help reclaim a great deal of the 41 percent of solid waste made of paper . If each employee can be made to feel that they take part equally and enthusiastically in a greater program of social good, then a paper recovery program can successfully be accomplished. Key components of any program include:

- Management support.
- Designating a capable program coordinator.
- Effective program monitors.
- Conducting an effective employee publicity and education program.
- Developing and implementing a reliable collection system.
- Reliable storage and removal.
- Establishing an appropriate long-term marketing arrangement (i.e., a paper sales contract).
- Establish periodic program monitoring to quantitatively assess progress.

There are a plethora of reasons to implement a successful recycling program. Source separation and recycling of high-grade paper helps to conserve timber, water, and energy resources with benefit to the economy and our nation's environment. Recycling reduces the solid waste quantities generated by office buildings and thus can reduce building management costs. High-grade paper recovery programs using the desk-top containers have demonstrated high levels of participation and help to educate employees about recycling. This education can have far reaching effects, since employees may start to recycle as part of their daily routine at home and pass on the message to family members and friends.

After the office paper recovery program is operating successfully, the organization can further increase its recycling efforts by instituting separation programs for beverage containers and other paper grades, for example. Office recycling programs can be more effective by increasing the office's use of materials and products that are recyclable rather than disposable. One method is to reduce the amount of non-recoverable paper (colored, coated, etc.) procured for use in the office. For example, in the District of Columbia, the Council of Governments is urging offices to avoid using non-recyclable yellow legal paper.

Promote waste reduction efforts in the office by encouraging employees to reduce their waste generation. Make double-sided copies, use the blank side of used paper as scratch paper, and circulate less in-house paper (by using

electronic mail communication or routing memos by department rather than distributing them to each employee).

Less waste can be generated through the purchase of more durable goods in lieu of disposals; refilling rather than replacing cartridges for printers; procurement of more supplies in bulk to avoid over-packaging, and purchase of surplus or second hand supplies, equipment, and furniture. In short, get everyone thinking "conservation".

Finally, recycling does not end with collection of recyclables. As illustrated in the three arrow recycling symbol, the system is continuous and the recycling process is complete only if manufacturers and consumers use and demand products made of recycled materials. Federal agencies and other organizations should purchase products made from recycled paper. In many areas, Federal and state laws require and encourage procurement of recycled materials such as retreaded tires, recycled oil, etc Purchasing recycled materials ensures that there is a demand for the paper collected through recycling programs.

Recycling, waste reduction, and purchasing recycled materials by Federal, state and other offices are important pieces in solving the solid waste puzzle. Implementing a successful office paper recycling program as outlined in this manual is one way for Federal and other offices to help meet our national goal of 25% recycling and reduction of waste and to set the tone for others to follow. By easing the landfill capacity dilemma we can help ourselves and preserve the future for coming generations.

CASE STUDY

EPA HEADQUARTERS, WASHINGTON, D.C.

This case study describes EPA's high-grade waste paper recovery program that was initiated in 1975 at the EPA headquarters at Waterside Mall, 401 M Street S.W., in Washington, D.C. A desk-top system was employed for separation and collection of waste paper.

The program was publicized through the slogan "Use it Again, Sam". This program was introduced to employees through memos and pamphlets (Exhibit 30). Black plastic desktop holders were distributed to each employee, and secondary collection containers (one per 20 employees) were placed throughout the office. The secondary containers were cardboard boxes (approximately 2' x 1.5' and 0.75' high) and were used for paper collection from nearby desk-top containers. Paper was collected from the cardboard containers by the custodial staff and stored at the loading dock in a central storage area. GSA's Office of Public Buildings and Real Property (OPR) and their Buildings Management Division, assigned and funded personnel to oversee the program while the GSA Federal Supply Service supervised the assigned personnel. From 1975 to 1978, an estimated 400 tons of high-grade paper was collected and recycled, generating a gross revenue of $15,000.

In 1978, EPA shifted the responsibility for floor-to-floor waste paper collecting from their custodial contractors to their contract in-house movers, Trans- Continental, Inc.

In 1982, GSA initiated a program for implementing high-grade waste paper recovery at all Federal agencies in the National Capital Region. This program started with 28 targeted buildings but was later discontinued at most of the locations due in part to the declining value of waste paper. EPA (at Waterside Mall) and three other buildings housing Department of Agriculture offices continued the recovery program.

The collection of high-grade waste paper continued at a marginal level at EPA until about 1988. Problems cited in the program included the lack of active program management including employee education; contractor problems for waste pickups; difficulties in obtaining recycle boxes from the Federal Supply Service; and insufficient recordkeeping to track the economics of the program.

Recycling Work Group

In 1988, EPA sought to increase recycling of solid wastes. In February of that year, EPA established a "Recycling Work Group" to help the agency attain the goal of 75 percent recycling of agency white paper wastes by December 1989. The Work Group makes recommendations to EPA's Facilities Management Services Division which currently administers the high-grade waste paper collection program. Funding for the Work Group is through the budgets of the Office of Administration and Resources Man-

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

SUBJECT: PAPER RECYCLING AT WATERSIDE MALL

FROM: Russell E. Train

TO: All EPA Employees

Our Agency will soon initiate at Waterside Mall the first federal paper recycling program in the Washington, D.C. area. The object of this program is to recycle all the high-grade white and off-white wastepaper we generate at Waterside Mall. As you may know, EPA has proposed that all federal agencies recycle their high-grade wastepaper. We hope our program will serve as an example for these agencies. As we approach the Agency's fifth anniversary, it is significant that this program presents a rare opportunity for every individual to contribute personally and tangibly to a collectively significant environmental improvement effort.

By recycling our high-grade wastepaper, we can recover over half of all the waste that leaves EPA's buildings. A contract recently signed for sale of our paper will bring revenues of approximately $50 per ton to the U.S. Treasury. This is in addition to the fact that recycling conserves energy and natural resources and protects our land from overburdens of waste.

The recycling program at Waterside Mall will be simple; only small changes in our daily habits are required. Each employee will have a desk-top container into which he or she will place white and off-white wastepaper. When the container is filled, about once a week, the employee will empty the accumulated paper into a designated box at conveniently located recycling stations on each floor. These stations will be clearly marked with our USE IT AGAIN, SAM slogan and will be located at a place which each employee frequents in the course of his or her normal business day.

A series of slide shows will be given to acquaint each employee with the program. A schedule of these will be distributed within the next two weeks. I urge each of you to attend. In addition to the slide shows, the Office of Solid Waste Management Programs will provide assistance as required.

Within the next week, program coordinators from that office will identify convenient recycling station locations and answer questions.

The success of this program depends upon everyone's cooperation.

EXHIBIT 30

The program kick-off memo used at EPA headquarters to introduce the paper recovery program.

agement and the Office of Solid Waste and Emergency Response.

Work Group initiatives conducted during 1988 and 1989 in conjunction with the high-grade waste paper recovery program include:

- Hiring one full-time employee to address in-house recycling programs at EPA and outreach to other Federal agencies.
- Designating one official recycling coordinator/monitor for each program office within EPA.
- Making spot checks at EPA offices in Waterside Mall; noting the absence of recycle boxes, distributing cards (see Exhibit 31) to each office reminding them that desk-top and secondary containers are available free of charge at the supply store, distributing recycling boxes, providing them with a telephone number to call for paper pickup, and a contact for information requests on the program.
- Recommending that the Crystal City and Fairchild buildings housing EPA employees be included in the waste paper collection program in place at Waterside Mall.
- Conducting a one-week waste stream analysis to estimate the effectiveness of the paper recovery program and distributing a memo to employees reporting the results.
- Implementing a "friendly" administrative enforcement program whereby recycle reminders will be posted when spot visual checks reveal inadequate program participation at a given office (Exhibit 32).
- Including information about recycling into new employee orientation sessions.

U.S. Environmental Protection Agency
Paper Recycling Program

- **Desk Top Containers and Boxes are available –*FREE*– at the Supply Store (G-100)**
- **FOR PAPER PICK-UP CALL 382-2140**
- **For general information on the EPA Recycling Program**

  Call: _____

Look for Glass & Aluminum Recycling Programs Soon!

EXHIBIT 31
A 3x5 inch card was distributed to employees when an absence of recycling containers is noted.

- Placing signs over copiers urging two-sided copying.

In conjunction with these activities at EPA, GSA revised their high-grade waste paper pickup contracts in 1988 and 1989. The standard contract was changed to reflect a price consistent with the market value of the paper. The price-per-ton for high-grade waste paper (white ledger and computer paper) was increased from $30 under the 1988 contract to $80 under the 1989 contract.

Planned activities discussed during the Work Group meetings include the following:

- Replacing the secondary containers with a smaller size (i.e., 1.5' by 1.0' by 0.75').
- Conducting another waste stream analysis in 1989 to monitor the program's success.
- Increasing efforts for procurement of recycled paper products

EPA's WHITE PAPER RECYCLING PROGRAM

RECYCLE ALL	CURRENTLY NOT RECYCLABLE
White letterhead paper White photocopier paper White computer paper White bond paper (Staples need not be removed. Paperclips and binder clips must be removed before recycling.)	Newspapers Colored paper Paper wrapping from photocopier paper Adhesive labels Glossy and coated papers Cardboard[2] Carbon paper[2] Envelopes[2] Binders and Folders[2] Glued paper Thin recycled paper

[2] Although the EPA paper recycling program does not currently (July 1989) include these items, you are encouraged to reuse these items as much as possible.

Please note that glass jars and bottles, from home and work, can be dropped off for recycling at the Igloo containers located in the West Tower parking lot, M Street side.

NAME _____ TELEPHONE _____

Printed on Recycled Paper

RECYCLING REMINDER

Observations around this area revealed high-grade white paper in the trash can. The Agency is now striving to recycle all of its high-grade white paper.[1] Recycling saves energy, conserves natural resources, extends the life of landfills and reduces air and water pollution.

Please help promote EPA's commitment to recycling by putting all waste high-grade white paper (listed on reverse) in a designated box for recycling. If your office does not have a recycling box, or needs additional recycling boxes, these can be obtained at no charge from the EPA Supply Store. If your recycling box is full, please call 382-2140 for pickup. For more information on EPA's recycling efforts, you may call the individual listed on the reverse side who is a volunteer on the Agency's Recycling Workgroup. Thank you for your cooperation.

[1] Even though EPA Headquarters recycled approximately 283 tons of white paper in 1988, a waste stream analysis estimates that we still throw out 280 tons of recyclable white paper.

EXHIBIT 32

The above messages are printed each on one side of a card and hung on the doorknob of an employee's office if it appears they have been discarding recyclable material in the trash.

including letterhead, copy paper and business cards.

- Continuing efforts for recycling other materials (glass and aluminum) inside the EPA building.

In addition, the Work Group is expanding the high-grade paper recovery program to include bulk paper grades and newspapers in compliance with the District of Columbia's recycling mandate. Thus, EPA is purchasing desk-top and central collection containers for collecting various grades of paper. The Recycling Work Group and coordinator have stepped up employee education efforts and collection frequencies to meet the needs of the expanding program.

Current Program Operations

Exhibit 33 illustrates the trends in monthly quantities of waste paper collected at EPA headquarters over the past three contracts (1986-87, 1987-88 and 1988-89). Each succeeding contract period surpassed the other in total quantity collected:

- 185.5 tons in 1986-87 at $30.00/ton for white ledger for a total of $5,565.

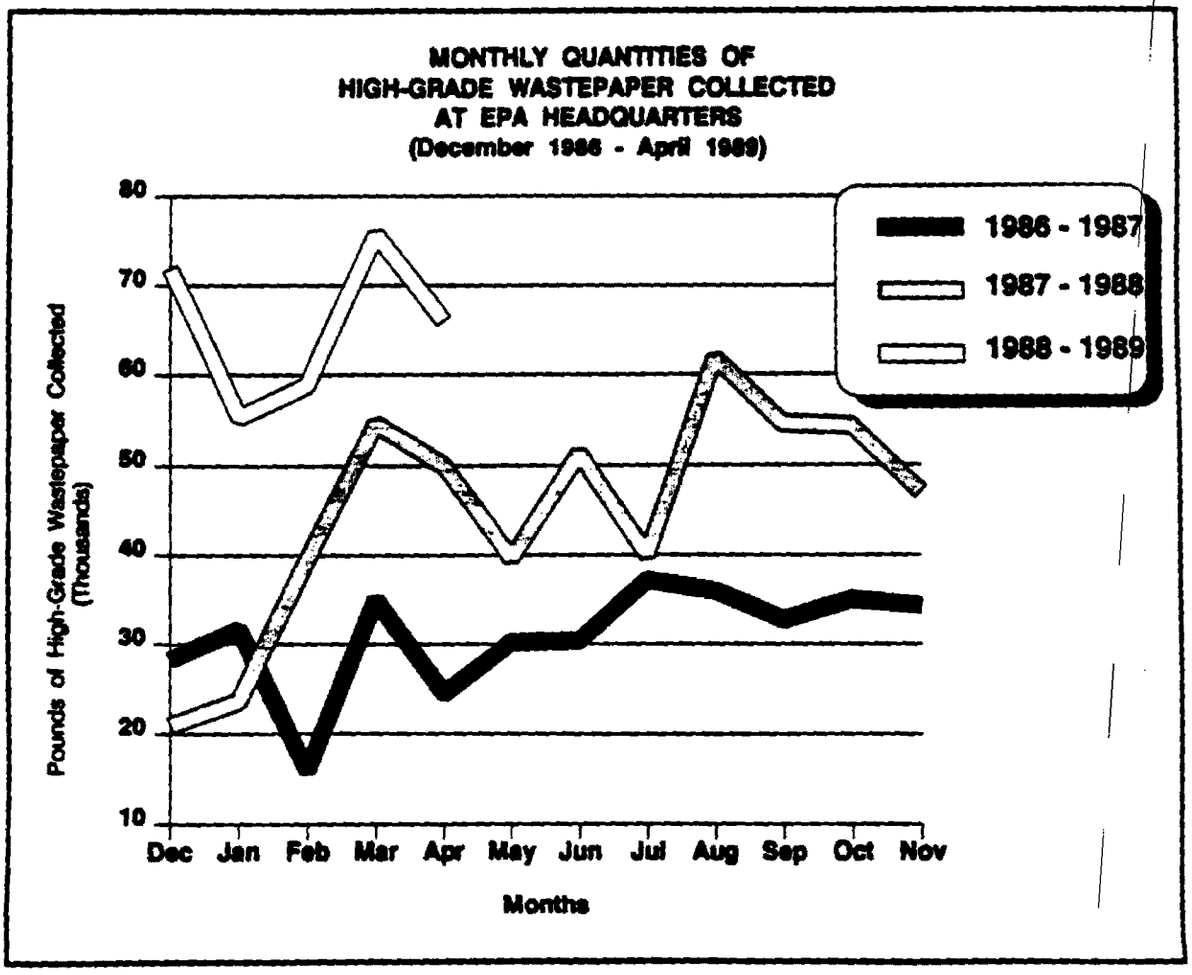

EXHIBIT 33

- 268.7 tons in 1987-88 at $30.00/ton for white ledger for a total of $8,061.
- 403 tons of high-grade paper at $80.00/ton were collected during FY 1988-89 for a total of $32,240.

The effectiveness of the program at EPA was evaluated in 1988 through a waste stream composition study by Franklin Associates Ltd. and NUS Corporation. The study entailed a one-week physical sampling of wastes generated in the three leased EPA buildings (Waterside Mall, Crystal City, and Fairchild). During the 1988 fiscal year, EPA collected and recycled about 269 tons of high-grade waste paper. A comparison of the survey results estimate that 250 tons of high-grade paper was disposed (not recovered) during the same time period. Thus, approximately 52 percent of the high-grade waste stream was recovered successfully. Approx- imately 6,600 EPA employees occupy the three buildings.

Estimates of waste generation rates for high-grade paper were made on the basis of the waste composition study and amounts of recoverable paper. The computations shown below indicate a rate of 0.66/pounds/employee/day.

Current operations (1989) for EPA's program involve a staff of three laborers that empty the secondary containers at each of the three EPA buildings, with subsequent transport and storage at the loading dock at Waterside Mall. (Fairchild and Crystal City do not have adequate storage space.) Waterside Mall is serviced by this staff once per day. Fairchild is serviced twice per week and Crystal City is serviced once per week. Crystal City and Fairchild were added to the program in 1988. Collection of waste paper at these two facilities is limited to the use of 44-gallon plastic barrels at central locations in copy rooms.

Waste paper pickups by the GSA contractor are scheduled on an "as-needed" basis at Waterside Mall and usually occur at a rate of between 1-2 pickups per week. A telephone call one day in advance is required to arrange the pickup. A minimum of four filled central storage containers provided by the waste paper dealer are needed for a pickup. The central containers currently provided to EPA are large cardboard containers on pallets.

The operations staff at Waterside Mall has 10 central containers on hand to store and fill with recovered paper. The waste paper dealer fills out a delivery order form denoting the pickup location, date, truck number, number and type of containers and the grade of paper picked up, if attainable. A government representative signs and receives a copy of the order form as well as empty boxes equal in number to those removed. Within 24 hours, the truck is weighed by the contractor and the tare weight of the truck is subtracted from the weighed value to obtain the weight of the waste paper. This

$$\frac{(269 + 250 \text{ tons})}{1 \text{ year}} \times \frac{(2{,}000 \text{ lbs})}{\text{ton}} \times \frac{(\quad 1 \quad)}{6{,}600 \text{ employees}} \times \frac{(\quad 1 \text{ year} \quad)}{240 \text{ working days}}$$

$$= 0.66 \text{ pounds/employee/day}$$

figure is then reported to GSA and to EPA within 14 days of the pickup. Grade 1 paper as defined by EPA's GSA contract includes:

- Computer printout.
- White ledger.
- Hard white shaving.
- Manila tabulating cards.

Central collection containers must not contain greater than 1 percent unacceptable contaminants by weight. Acceptable contaminants are paper clips, staples, and soluble glues (i.e., bond envelope glue). Unacceptable contaminants include pressure-sensitive labels and tapes, plastic-window envelopes, rubberbands, brown/golden kraft envelopes, binders, paper fasteners, binder clips, plastic materials, and carbon paper. Contaminated loads are downgraded to Grade 3 and are priced at $31/ton in the 1989 contract. Only minor contamination problems have occurred to date in the 1989 contract (less than two percent of the loads have been downgraded).

Waste paper containing classified or confidential material is shredded once per week and combined with the Grade 1 paper prior to being collected by the waste paper dealer. Other confidential materials may be shredded at individual locations within EPA headquarters and disposed with other solid waste materials.

The EPA headquarters' recycling program cannot be assessed in terms of its cost-effectiveness as related to the Agency's budget. The proceeds from the sale of waste paper (which is the property of the Federal government) are directed back into the U.S. Treasury [as specified in 40 USC Section 485(a) pursuant to the Federal Property and Administrative Services Act of 1949]. Also, the buildings in which EPA headquarters reside are leased to them and waste collection and disposal are included in the lease as a service provided by their lessor. Therefore, cost savings in terms of avoided disposal costs or proceeds from paper recovery cannot be tracked readily.

OTHER SOURCES OF RECYCLING INFORMATION

OFFICE PAPER RECYCLING:

Optimization of Office Paper Recovery Systems, Final Report, EPA Office of Solid Waste, May 1977 (NTIS #PB264 214/LP).

Office Paper Recovery: An Implementation Manual, EPA Office of Solid Waste, 1977 (SW-571C).

Office Paper Recycling, Metro Service District, Portland, OR, 1987.

Setting Up An Office Paper Recycling Program, Community Environmental Council, Inc., Santa Barbara, CA, 1987.

"How to Recycle Waste Paper," American Paper Institute, Paper Recycling Committee, New York, NY.

Program Design and Implementation Procedures Report, Council on the Environment of New York City, New York, NY.

Your Office Paper Recycling Guide, The San Francisco Recycling Program, San Francisco, CA.

EPA'S MUNICIPAL SOLID WASTE AND RECYCLING PROGRAM:

The Solid Waste Dilemma: An Agenda for Action, EPA Office of Solid Waste, February 1989 (EPA/530-SW-019).

EPA RCRA/Superfund Hotline - 1 (800) 424-9346 or (202) 382-3000

RECYCLING OTHER MATERIALS IN THE OFFICE:

Guide for Preparing Commercial Solid Waste Reduction and Recycling Plans, OSCAR, Rhode Island Department of Environmental Management, Providence RI.

A Guide to Recycling Commercial Waste, New Jersey Department of Environmental Protection, Office of Recycling, Trenton, NJ.

OTHER MUNICIPAL WASTE AND RECYCLING PUBLICATIONS:

Bibliography of Municipal Solid Waste Management Alternatives, EPA Office of Solid Waste, August 1989 (EPA/530-SW-89-055).

PURCHASING RECYCLED MATERIALS:

"Building Markets for Recyclables - The Federal Paper Guideline," Waste Age, October 1988.

"Buying Recycled Paper: A Primer," Waste Age, July 1989.

EPA Procurement Hotline - (703) 941-4452 (for information and copies of all EPA procurement guidelines, including paper, retread tires, rerefined lubricating oils, and building insulation products).

APPENDIX A

ENVIRONMENTAL PROTECTION AGENCY GUIDELINES FOR SOURCE SEPARATION FOR MATERIALS RECOVERY (40 CFR 246)

ENVIRONMENTAL PROTECTION AGENCY GUIDELINES FOR SOURCE SEPARATION FOR MATERIALS RECOVERY

(40 CFR 246; 41 FR 16950, April 23, 1976; Effective May 24, 1976; Amended by 47 FR 36602, August 20, 1982)

Title 40—Protection of Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

PART 246—SOURCE SEPARATION FOR MATERIALS RECOVERY GUIDELINES

Subpart A—General Provisions

Sec.
246.100 Scope.
246.101 Definitions.

Subpart B—Requirements and Recommended Procedures

246.200 High-grade paper recovery.
246.200-1 Requirements.
246.200-2 Recommended procedures: high-grade paper recovery from smaller offices.
246.200-3 Recommended procedures: market study.
246.200-4 Recommended procedures: levels of separation.
246.200-5 Recommended procedures: methods of separation and collection.
246.200-6 Recommended procedures: storage.
246.200-7 Recommended procedures: transportation.
246.200-8 Recommended procedures: cost analysis.
246.200-9 Recommended procedures: contracts.
246.200-10 Recommended procedures: public information and education.
246.201 Residential materials recovery.
246.201-1 Requirement.
246.201-2 Recommended procedures: newsprint recovery from smaller residential facilities.
246.201-3 Recommended procedures: glass, cans, and mixed paper separation.
246.201-4 Recommended procedures: market study.
246.201-5 Recommended procedures: methods of separation and collection.
246.201-6 Recommended procedures: transportation to market.
246.201-7 Recommended procedures: cost analysis.
246.201-8 Recommended procedures: contracts.
246.201-9 Recommended procedures: public information and education.
246.202 Corrugated container recovery.
246.202-1 Requirement.
246.202-2 Recommended procedures: corrugated container recovery from smaller commercial facilities.
246.202-3 Recommended procedures: market study.
246.202-4 Recommended procedures: methods of separation and storage.
246.202-5 Recommended procedures: transportation.
246.202-6 Recommended procedures: cost analysis.
246.202-7 Recommended procedures: establishment of purchase contract.
246.203 Reevaluation.
246.203-1 Requirement.

Appendix—Recommended Bibliography

Authority: Secs. 1008 and 6004 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6907, 6984).

[Authority citation revised by 47 FR 36602, August 20, 1982]

Subpart A—General Provisions

§ 246.100 Scope.

(a) These guidelines are applicable to the source separation of residential, commercial, and institutional solid wastes. Explicitly excluded are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; infectious wastes; classified waste.

(b) The "Requirement" sections contained herein delineate minimum actions for Federal agencies for the recovery of resources from solid waste through source separation. Pursuant to Section 211 of the Solid Waste Disposal Act, as amended, and Executive Order 11752 Section 4(a), the "Requirement" sections of these guidelines are mandatory for all Federal agencies that generate solid waste. In addition, they are recommended to State, interstate, regional, and local governments for use in their activities.

(c) The "Recommended Procedures" sections are presented to suggest actions or preferred methods by which the objectives of the requirements can be realized. The "Recommended Procedures" are not mandatory for Federal agencies.

(d) The Environmental Protection Agency will render technical assistance in the form of sample cost analysis formats, sample bid specifications, implementation guidance documents and other guidance to Federal agencies when requested to do so, pursuant to Section 3(d)1 of Executive Order 11752.

(e) Within one year after the effective date of these guidelines, agencies shall make a final determination as to what actions shall be taken to adopt the requirements of these guidelines and shall, within two months of such determination, submit to the Administrator a schedule of such actions.

(f) Federal agencies that make the determination not to source separate as described in §§ 246.200-1, 246.201-1, and 246.202-1, for whatever reason, shall make available to the Administrator the analysis and rationale used in making that determination. The Administrator shall publish notice of the availability of this report to the general public in the Federal Register. The following are considered to be valid reasons for not source separating under individual facts and circumstances: inability to sell the recovered materials due to lack of market, and costs so unreasonably high as to render source separation for materials recovery economically impracticable.

(1) The following points are to be covered in the report:

(i) A description of alternative actions considered with emphasis on those alternatives which involve source separation for materials recovery.

(ii) A description of ongoing activities which will be continued and new actions taken or proposed. This statement should identify all agency facilities which will be affected by these actions including a brief description of how such facilities will be affected.

(iii) An analysis in support of the action chosen by the agency including technical data, market studies, and policy considerations used in arriving at such a determination.

In covering the points above, agencies should make every effort to present information succinctly in a form easily understood, but in sufficient detail so that the factors influencing the decision not to source separate for materials recovery are clear.

(2) The above report shall be submitted to the Administrator as soon as possible after a final agency determination has been made not to adopt the requirements of these guidelines, but in no case later than sixty days after such final determination. The Administrator will indicate to the agency his concurrence/nonconcurrence with the agency's decision, including his reason therefor.

(3) Implementation of actions that would preclude source separation for materials recovery shall be deferred for sixty days where feasible, in order to give the Administrator an opportunity to receive, analyze and seek clarification of the above required report.

[Sec. 246.100(f)(3)]

(4) It is recommended that where the report required by § 246.100(f) concerns an action for which an Environmental Impact Statement (EIS) is required by the National Environmental Policy Act, that the report be circulated together with the EIS.

(g) [Removed]

[246.100(g) removed by 47 FR 36602, August 20, 1982]

(g) The report required under § 246.100(e) and (f) shall be made on forms to be prescribed by the Administrator by notice in the Federal Register.

[246.100(h) revised and redesignated as (g) by 47 FR 36602, August 20, 1982]

§ 246.101 Definitions.

As used in these guidelines:

(a) "Agricultural solid waste" means the solid waste that is generated by the rearing of animals, and the producing and harvesting of crops or trees.

(b) "Baler" means a machine used to compress solid wastes, primary materials, or recoverable materials, with or without binding, to a density or form which will support handling and transportation as a material unit rather than requiring a disposable or reuseable container. This specifically excludes briquetters and stationary compaction equipment which is used to compact materials into disposable or reuseable containers.

(c) "Bulk container" means a large container that can either be pulled or lifted mechanically onto a service vehicle or emptied mechanically into a service vehicle.

(d) "Classified Waste" means waste material that has been given security classification in accordance with 50 U.S.C. 401 and Executive Order 11652.

(e) "Collection" means the act of removing solid waste (or materials which have been separated for the purpose of recycling) from a central storage point.

(f) "Commercial establishment" means stores, offices, restaurants, warehouses and other non-manufacturing activities.

(g) "Commercial solid waste" means all types of solid wastes generated by stores, offices, restaurants, warehouses and other non-manufacturing activities, and non-processing wastes such as office and packing wastes generated at industrial facilities.

(h) "Construction and demolition waste" means the waste building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition operations on pavements, houses, commercial buildings and other structures.

(i) "Compartmentalized vehicle" means a collection vehicle which has two or more compartments for placement of solid wastes or recyclable materials. The compartments may be within the main truck body or on the outside of that body as in the form of metal racks.

(j) "Corrugated container waste" means discarded corrugated boxes.

(k) "Corrugated box" means a container for goods which is composed of an inner fluting of material (corrugating medium) and one or two outer liners of material (linerboard).

(l) "Federal facility" means any building, installation, structure, land, or public work owned by or leased to the Federal Government. Ships at sea, aircraft in the air, land forces on maneuvers, and other mobile facilities are not considered Federal facilities for the purpose of these guidelines. United States Government installations located on foreign soil or on land outside the jurisdiction of the United States Government are not considered Federal facilities for the purpose of these guidelines.

(m) "Food waste" means the organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods; commonly called garbage.

(n) "Generation" means the act or process of producing solid waste.

(o) "High-grade paper" means letterhead, dry copy papers, miscellaneous business forms, stationary, typing paper, tablet sheets, and computer printout paper and cards, commonly sold as "white ledger," "computer printout" and "tab card" grade by the wastepaper industry.

(p) "Industrial solid waste" means the solid waste generated by industrial processes and manufacturing.

(q) "Infectious waste" means: (1) Equipment, instruments, utensils, and fomites (any substance that may harbor or transmit pathogenic organisms) of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies; (2) laboratory wastes, such as pathological specimens (e.g. all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites attendant thereto; (3) surgical operating room pathologic specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

(r) "Institutional solid waste" means solid wastes generated by educational, health care, correctional and other institutional facilities.

(s) "Mining wastes" means residues which result from the extraction of raw materials from the earth.

(t) "Post-consumer waste" (PCW) means a material or product that has served its intended use and has been discarded for disposal or recovery after passing through the hands of a final consumer.

(u) "Recoverable resources" means materials that still have useful physical, chemical, or biological properties after serving their original purpose and can, therefore, be reused or recycled for the same or other purposes.

(v) "Recovery" means the process of obtaining materials or energy resources from solid waste.

(w) "Recycled material" means a material that is used in place of a primary, raw or virgin material in manufacturing a product.

(x) "Recycling" means the process by which recovered materials are transformed into new products.

(y) "Residential solid waste" means the wastes generated by the normal activities of households, including but not limited to, food wastes, rubbish, ashes, and bulky wastes.

(z) "Separate collection" means collecting recyclable materials which have been separated at the point of generation and keeping those materials separate from other collected solid waste in separate compartments of a single collection vehicle or through the use of separate collection vehicles.

(aa) "Sludge" means the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solid or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved material in irrigation return flows or other common water pollutants.

(bb) "Solid waste" means garbage, refuse, sludge, and other discarded solid materials, including solid waste materials resulting from industrial, commercial, and agricultural operations, and from community activities, but does not include solids or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants. Unless specifically noted otherwise, the term "solid waste" as used in these guidelines shall not include mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.

(cc) "Source separation" means the setting aside of recyclable materials at their point of generation by the generator.

(dd) "Specification" means a clear and accurate description of the technical requirements for materials, products or services, identifying the minimum requirements for quality and construction of materials and equipment necessary for an acceptable product. In general, specifications are in the form of written descriptions, drawings, prints, commercial designations, industry standards, and other descriptive references.

(ee) "Stationary compactor" means a powered machine which is designed to compact solid waste or recyclable materials, and which remains stationary when in operation.

(ff) "Storage" means the interim containment of solid waste after generation and prior to collection for ultimate recovery or disposal.

(gg) "Virgin material" means a raw material used in manufacturing that has been mined or harvested and has not as yet become a product.

Subpart B—Requirements and Recommended Procedures

§ 246.200 High-grade paper recovery.

§ 246.200-1 Requirements.

High-grade paper generated by office facilities of over 100 office workers shall be separated at the source of generation, separately collected, and sold for the purpose of recycling.

§ 246.200–2 Recommended procedures: High-grade paper recovery from smaller offices.

The recovery of high-grade paper generated by office facilities of less than 100 office workers should be investigated in conformance with the following recommended procedures and implemented where feasible.

§ 246.200–3 Recommended procedures: Market study.

An investigation of markets should be made by the organization responsible for the sale of recyclable materials in each Federal agency and should include at a minimum:

(a) Identifying potential purchasers of the recovered paper through standard market research techniques;

(b) Directaly contracting buyers, and determining the buyers' quality specifications, the exact types of paper to be recycled, potential transportation agreements and any minimum quantity criteria; and

(c) Determining the price that the buyer will pay for the recovered paper and the willingess of the buyer to sign a contract for purchase of the paper at a guaranteed minimum price.

§ 246.200–4 Recommended procedures: Levels of seperation.

A two-level separation is recommended for most facilities. This separation should consist of (a) high-grade wastepaper and (b) all other waste. Facilities that produce large enough quantities of waste computer paper and cards to make their separation into a separate category cost effective may choose to implement three levels of separation: (1) computer papers, (2) other high-grade papers, (3) all other wastes.

§ 246.200–5 Recommended procedures: Methods of separation and collection.

(a) Systems designed to recover high grades of office paper at the source of generation, i.e., the desk, are the desk-top system, the two-wastebasket system, and the office centralized container system.

(b) With the desk-top system, recyclable paper is placed by the generator in a container on his desk, while other waste is placed in a wastebasket. With the two-wastebasket system, recyclable paper is placed by the generator in one desk-side wastebasket, and all other waste is placed in another. In the centralized container system, large containers for the collection of recyclables are placed in centralized locations within the office areas of the building. Nonrecyclable waste is placed in desk-side wastebaskets.

(c) The recommended system is the desk-top system because it is designed to maximize recovery of high value material in an economically feasible manner. While the two-wastebasket system and centralized container system have been implemented with success in isolated instances, data indicate that, on the whole, these systems have experienced high levels of contamination, low levels of participation, and low revenues. The desk-top system has been designed to minimize these problems.

(d) The precise method of separation and collection used to implement the desk-top system will depend upon such things as the physical layout of the individual facility, the ease of collection, and the projected cost effectiveness of using various methods. The recommended desk-top system is carried out in the following manner:

(1) Workers are to deposit high-grade paper into a desk-top tray or other small desk-top holder to be supplied by the agency. This holder should be designed in such a way as to prevent it holding contaminants, such as food or beverage containers.

(2) At the office worker's convenience or when the tray is filled, the worker carries the paper to a conveniently located bulk container within the office area. This large container should be located in an area the worker frequents in the normal course of business.

(3) In locations where computer cards and printouts are to be collected separately, the receptacle for these wastes should be near the computer terminal or in some other logical, centrally located place.

(4) Collection of the high-grade paper from the bulk containers in the office area should be performed by the janitorial or general maintenance service. The number of locations and the frequency of collection of these containers will be determined by office size and maintenance staff capacity.

(e) Mixed paper and some high-grade office papers have also been recovered for recycling by hand-picking in an individual building's trash room or at a centralized facility serving several buildings. With these hand-picking systems, recyclable waste is not separated at the source of generation, but is mixed with other waste in the usual manner and removed to a centralized location where recyclable paper is picked out of the mixed waste by hand. Facilities may choose to use this method of high-grade paper recovery if it is shown by analysis to be economically preferable to source separation.

§ 246.200–6 Recommended procedures: Storage.

Among the alternatives for paper storage are on-site baling, the use of stationary compactors, or storage in corrugated boxes or normal waste containers. Stored paper should be protected from fire, inclement weather, theft, and vandalism.

§ 246.200–7 Recommended procedures: Transportation.

Transportation to market may be supplied by the facility, by a private hauler, or by the purchaser. Collection of the recyclable paper should be on a regular, established schedule.

§ 246.200–8 Recommended procedures: Cost analysis.

After potential markets have been located (but prior to initiation of formal bidding procedures), preliminary determinations of various separation methods, storage, and transportation costs have been made, and estimated tonnages of both recoverable high-grade paper and residual solid waste have been established, an analysis should be conducted which compares the costs of the present waste collection and disposal system with the proposed segregated systems. At a minimum, the study should include all capital, operating and overhead costs and take into account credits for revenue from paper sales and savings from diverting recycled materials from disposal. Potential costs to upgrade collection and disposal practices to comply with EPA's Guidelines for the Storage and Collection of Residential, Commercial and Institutional Solid Wastes (40 CFR Part 243) and Thermal Processing and Land Disposal Guidelines (40 CFR Parts 240 and 241) should be included in the analysis. In formulating a separation system and evaluating its costs, every effort should be made to use janitorial and waste collection resources efficiently. This cost analysis should enable the facility to determine the most cost effective method of implementing the requirement of this part.

§ 246.200–9 Recommended procedures: Contracts.

Formal bids should be requested for purchase of the recovered materials, such bids being solicited in conformance with bidding procedures established for the responsible agency. Contracts should include the buyer's quality specifications, quantity and transportation agreements, a guarantee that the material will be accepted for one year or more, and a guaranteed minimum purchase price.

§ 246.200–10 Recommended procedures: Public information and education.

A well-organized and well-executed public information and education program explaining the justification, goals, methods and level of separation should be conducted to inform and motivate office personnel and secure their cooperation in separating their waste. This public information and education program should precede the program and continue on a regular basis for its duration.

§ 246.201 Residential materials recovery.

§ 246.201–1 Requirement.

Separation of used newspapers at the source of residential generation in conjunction with separate collection shall be carried out at all facilities in which more than 500 families reside, and the newspapers shall be sold for the purpose of recycling.

§ 246.201–2 Recommended procedures: Newsprint recovery from smaller residential facilities.

The recovery of newsprint generated by residential facilities of less than 500 families should be investigated in conformance with the following recommended procedures and implemented where feasible.

§ 246.201–3 Recommended procedures: Glass, cans, and mixed paper separation.

In areas where markets are available, it is recommended that glass, cans, and mixed paper be separated at the source

[See. 246.201-3]

of generation and separately collected for the purpose of recycling.

§ 246.201–4 Recommended procedures: Market study.

An investigation of markets should be made for each material by the organization responsible for sale of recyclable materials in each agency and should include at a minimum:

(a) Identifying potential purchasers of the recovered material through standard market research techniques.

(b) Directly contacting buyers and determining the buyers' quality specifications, potential transportation agreements and any minimum quantity criteria.

(c) Determining the prices that the buyer will pay for the recovered material and the willingness of the buyer to sign a contract for the purchase of the material at guaranteed minimum prices.

§ 246.201–5 Recommended procedures: Methods of separation and collection.

Following separation within the home, any of the following methods of collection may be used:

(a) Materials may be placed at the curbside by the resident and may be collected from each household using separate trucks or compartmentalized vehicles.

(b) For multi-family dwellings, separated materials may be placed in bulk containers located outside of the building and collected by trucks dispatched to collect recyclables.

(c) Collection stations may be set up at convenient locations to which residents bring recyclables. These stations should provide separate bulk containers for each item to be recycled. The size and type of container will depend on the volume and type of material collected, the method of transportation to be used in hauling the materials to market and the frequency of removal.

§ 246.201–6 Recommended procedures: Transportation to market.

Transportation to market may be supplied by the facility or the community generating the waste, by a private hauler, or by the purchaser.

§ 246.201–7 Recommended procedures: Cost analysis.

After potential markets have been located (but prior to initiation of formal bidding procedures), preliminary determinations of various separation methods, storage and transportation costs have been made, and estimated tonnages of both recoverable materials and residual solid waste have been established, an analysis should be conducted which compares the costs of the present waste collection and disposal system with the proposed segregated systems. At a minimum this study should include all capital, operating and overhead costs and take into account credits for revenue from paper sales and savings from diverting recycled materials from disposal. Potential costs to upgrade collection and disposal practices to comply with EPA's Guidelines for the Storage and Collection of Residential, Commercial and Institutional Solid Wastes (40 CFR Part 243) and Thermal Processing and Land Disposal Guidelines (40 CFR Parts 240 and 241) should be included in the analysis. In formulating a separate collection system and evaluating its costs, every effort should be made to use idle equipment and underutilized collection manpower to reduce separate collection costs. This cost analysis should enable the facility to determine the most cost effective method if implementing the requirements of this part.

§ 246.201–8 Recommended procedures: Contracts.

Formal bids should be requested for purchase of the recovered materials, such bids being solicited in conformance with bidding procedures established for the responsible jurisdiction. Contracts should include the buyer's quality specifications, quantity and transportation agreements, a guarantee that the material will be accepted for one year or more and a guaranteed minimum purchase price.

§ 246.201–9 Recommended procedures: Public information and education.

A well organized and well executed public information and education program explaining the justification, goals, methods and level of separation should be conducted to inform and motivate householders and to secure their cooperation in separating their waste. This public information and education program should precede the program and continue on a regular basis for its duration.

§ 246.202 Corrugated container recovery.

§ 246.202–1 Requirement.

Any commercial establishment generating 10 or more tons of waste corrugated containers per month shall separately collect and sell this material for the purpose of recycling.

§ 246.202–2 Recommended procedures: Corrugated container recovery from smaller commercial facilities.

The recovery of corrugated containers from commercial facilities generating less than 10 tons per month should be investigated in conformance with the following recommended procedures and implemented where feasible.

§ 246.202–3 Recommended procedures: Market study.

An investigation of markets should be made by the organization responsible for sale of recyclable material in each Federal agency and should include at a minimum:

(a) Identifying potential purchasers of the recovered corrugated through standard market research techniques.

(b) Directly contacting buyers and determining the buyers' quality specifications, potential transportation agreements and any minimum quantity criteria.

(c) Determining the price that the buyer will pay for the recovered corrugated and the willingness of the buyer to sign a contract for purchase of the paper at a guaranteed minimum price.

§ 246.202–4 Recommended procedures: Methods of separation and storage.

The method selected will depend upon such variables as the physical layout of the individual generating facility, the rate at which the corrugated accumulates, the storage capacity of the facility, and the projected cost-effectiveness of using the various methods. All of the following suggested modes of separation and storage presuppose that the corrugated boxes will be accumulated at a central location in the facility after their contents are removed and that the boxes are flattened.

(a) Balers of various sizes: corrugated boxes are placed in balers and compacted into bales. These bales may be stored inside or outside of the facility. The bales should be protected from fire, inclement weather, theft, and vandalism.

(b) Stationary compactors or bulk containers: corrugated boxes are placed in a stationary compactor or bulk containers outside of the facility. The containers should be protected from fire, inclement weather, theft and vandalism.

§ 246.202–5 Recommended procedures: Transportation.

Transportation to market may be supplied by either the facility, a private hauler or the purchaser. In facilities to which goods are delivered from a central warehouse, corrugated may be backhauled by delivery trucks to the central facility and baled there for delivery to a user.

§ 246.202–6 Recommended procedures: Cost analysis.

After potential markets have been identified (but prior to initiation of formal bidding), preliminary determinations of various separation methods, storage and transportation costs have been made, and estimated tonnages of both recoverable material and residual solid waste have been established, an analysis should be conducted which compares the costs of the present waste collection and disposal system with the proposed segregated systems. At a minimum, the study should include all capital, operating and overhead costs and take into account credits for revenue from paper sales and savings from diverting recycled materials from disposal. Potential costs to upgrade collection and disposal practices to comply with EPA's Guidelines for the Storage and Collection of Residential, Commercial and Institutional Solid Wastes (40 CFR Part 243) and Thermal Processing and Land Disposal Guidelines (40 CFR Parts 240 and 241) should be included in the analysis. This cost analysis should enable the facility to determine the most cost effective method of implementing these guidelines.

§ 246.202–7 Recommended procedures: Establishment of purchase contract.

Formal bids should be requested for purchase of the recovered materials, such bids being solicited in conformance with bidding procedures established for the responsible agency. Contracts should

include the buyer's quality specifications, transportation agreements, a guarantee that the material will be accepted for one year or more and a guaranteed minimum purchase price.

§ 246.203 Reevaluation.

§ 246.203-1 Requirement. [Removed]

[246.203-1 removed by 47 FR 36603, August 20, 1982]

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[Appendix]

APPENDIX B

FEDERAL SUPPLY SERVICE BUREAU - GSA REGIONS
"Surplus Sales Program"

REGION 3
WASHINGTON, DC OFFICE

GSA
Supply Distribution Facility (3FBPS-W)
6808 Loisdale Rd., Bldg. A
Franconia, VA 22150
COM - (703) 557-7785
FTS - 557-7785

District of Columbia; Montgomery and Prince Georges Counties in Maryland, Arlington, Fairfax, Loudoun, and Prince William Counties and Cities of Alexandria and Falls Church in Virginia

REGION 1

GSA, Federal Supply Service Bureau
Personal Property Services (2FBP-1)
10 Causeway Street, 9th Floor
Boston, MA 02222-1076
COM - (617) 565-7316
FTS - 565-7316

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont

REGION 2

GSA,
Supply Distribution Facility (2FBP-S)
26 Federal Plaza, Room 20-116
New York, NY 10278
COM - (212) 264-2626
FTS - 264-2626

New Jersey, New York, Puerto Rico and Virgin Islands

REGION 3

GSA
Supply Distribution Facility (3FBP-S)
Ninth and Market Streets
Philadelphia, PA 19107
COM - (215) 597-5671
FTS - 597-5671

Delaware, Maryland, Pennsylvania, Virginia, and West Virginia (does not include Washington, DC Metropolitan Area - Region 3)

REGION 4

GSA, Supply Distribution Facility
75 Spring Street, SW
Atlanta, GA 30303
COM - (404) 331-0972
FTS - 331-0972

Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee

REGION 5

Illinois, Indiana, Michigan
Minnesota, Ohio, and Wisconsin

GSA,
Supply Distribution Facility (5FBP-S)
230 South Dearborn Street, 34th Floor
Chicago, IL 60604
COM - (312) 353-6061
FTS - 353-6060

REGION 6

Iowa, Kansas, Missouri, and
Nebraska

GSA,
Supply Distribution Facility (6FBP-S)
9001 State Line Road No. 308
Kansas City, MO 64114
COM - (816) 523-6955 or 7002
FTS - NONE

REGION 7

Arkansas, Louisiana, New Mexico,
Oklahoma, and Texas

GSA,
Supply Distribution Facility (7FPB-S)
819 Taylor Street
Fort Worth, TX 76102
COM - (817) 334-2351
FTS - 334-2351

REGION 8

Colorado, Montana, North Dakota,
South Dakota, Utah, and Wyoming

GSA
Supply Distribution Facility (8FPB-S)
Building 41, Denver Federal Center
Denver, CO 80225
COM - (303) 236-7705
FTS - 776-7705

REGION 9

Arizona, California, Hawaii,
Nevada, American Samoa, Commonwealth
of the Northern Marianas, Guam, and
Trust

GSA,
Supply Distribution Facility (9FPB-S)
525 Market Street, 32nd Floor
San Francisco, CA 94105
COM - (415) 974-9189
FTS - 454-9189

REGION 10

Alaska, Idaho, Oregon, and
Washington

GSA,
Supply Distribution Facility (10FPB-S)
GSA Center
Auburn, WA 98002
COM - (206) 931-7562
FTS - 396-7572

APPENDIX C

WASTE COMPOSITION SAMPLING PROCEDURE

1. Separate a representative mixed waste sample of about 50 lbs. from a collection cart or storage bin placing it in a container of known volume and weight.

2. Weigh the sample and estimate the volume (cubic feet or yards). Example:
   - o Estimated volume of the sample = 2.5 cu. ft. (0.09 cu. yd.).
   - o Gross sample weight 35.6 lbs.
     - container weight 1.0 lbs.
     Net sample weight 34.6 lbs.

3. Compute density (lbs./cu. yd.) by dividing net sample weight (lbs.) by estimated sample volume (cu. yds.):
   - o 34.6 lbs. ÷ 0.09 cu. yrds. = 384 lbs./cu. yd.

4. Divide the sample into components listed in the following waste generation and composition tally sheet, placing each material in a corrugated box or other container whose empty weight has been recorded.
   - o Weigh each box separately and subtract the container weight to obtain the net material weight.
   - o Compute the percentage of total weight represented by each material.

These four steps should be repeated several times in order to develop valid density and composition averages.

Sample Weight 34.6 lbs.	lb.	Total %
Paper		
White ledger	13.9	40.2
Colored ledger	1.1	3.3
Computer printout	3.6	10.6
Newsprint	4.3	12.5
Corrugated	1.9	5.6
Books	0.6	2.0
Cardboard files	0.8	2.5
Other mixed paper	3.2	9.6
Garbage	1.1	3.3
Metals and Glass	1.7	5.1
Textiles, Plastics and Wood	0.4	1.6
Special	1.3	3.8
TOTAL	34.6	100.1

5. Once the average density and composition are known, various conclusions can be drawn.
   a. Multiplying the density by the cu. yd. disposed of each month yields an estimate of total monthly solid waste generation.
   b. Using composition percentages, the total generation can be broken down into individual material groups to give an indicatioin of the quantities of high-grade paper in the wastestream.

Compactor Capacity	Number Emptied Per Month	% Full When Emptied	Cu. Yds./ Month
40 cu. yd.	4	100%	160
384 lbs./cu. yd. x 160 cu. yd/month = 61,400 lbs./month or 30.7 tons/month.			

Type of High-Grade Paper	Total Waste Generation	x	% of Paper in the Waste stream	=	Generation of Paper
White ledger	30.7 tons/mo	x	40.2%	=	12.3 tons/mo
Computer Printout	30.7 tons/mo	x	10.6%	=	3.2 tons/mo

APPENDIX D

PAPER GRADE DEFINITIONS

(42) Computer Printout: Consists of white sulphite or sulphate papers in forms manufactured for use in data processing machines. This grade may contain colored stripes and/or impact or non-impact (e.g., laser) computer printing, and may contain not more than 5% of groundwood in the packing. All stock must be untreated and uncoated.

Prohibitive materials..... None permitted
Total Outthrows may not exceed..... 2%

(40) Sorted White Ledger: Consists of printed or unprinted sheets, shavings, guillotined books, quire waste, and cuttings of white sulphite or sulphate ledger, bond, writing paper, and all other papers which have a similar fiber and filler content. This grade must be free of treated, coated, padded, or heavily printed stock.

Prohibitive materials..... None permitted
Total Outthrows may not exceed..... 2%

(30) Hard White Shavings: Consists of baled shavings or sheets of all untreated white bond ledger or writing papers. Must be free from printing and groundwood.

Prohibitive materials..... None permitted
Total Outthrows may not exceed..... 2%

(37) Manilla Tabulating Cards: Consists of manila-colored cards, predominantly sulphite or sulphate, which have been manufactured for use in tabulating machines. This grade may contain manila-colored tabulating cards with tinted margins.

Prohibitive materials..... None permitted
Total Outthrows may not exceed..... 2%

OUTTHROWS

The term "Outthrows" as used throughout this Appendix is defined as "all papers that are so manufactured or treated or are in such a form as to be unsuitable for consumption as the grade specified."

APPENDIX D (continued)

PROHIBITIVE MATERIALS

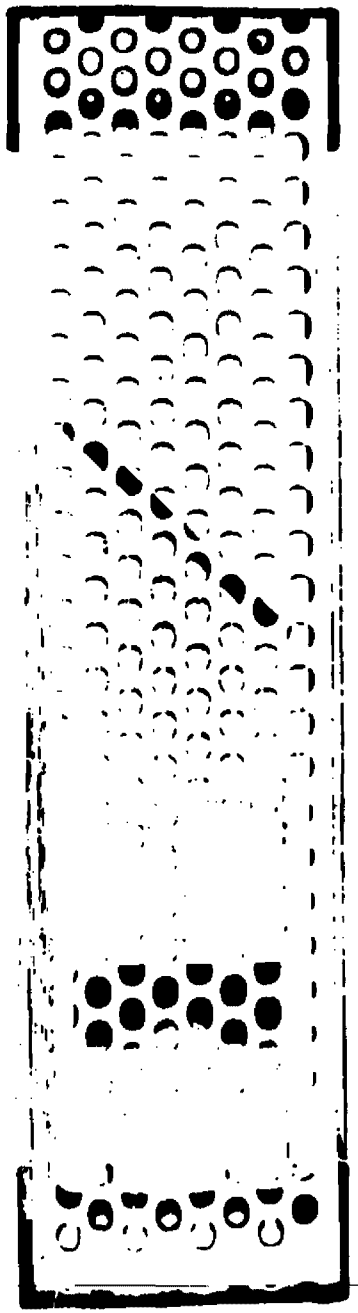
The term "Prohibitive materials" as used throughout this Appendix is defined as:

- Any materials which by their presence in a packing of paper stock, in excess of the amount allowed, will make the packaging unusable as the grade specified.
- Any materials that may be damaging to equipment.

Note: The maximum quantity of "Outthrows" indicated in connection with thefollowing grade definitions is understood to be the TOTAL of "Outthrows" and "Prohibitive Materials."

A material can be classified as an "Outthrow" in one grade and as a "Prohibitive Material" in another grade. Carbon paper, for instance is "UNSUITABLE" in Mixed Paper and is, therefore, classified as an "Outthrow", whereas it is "UNUSABLE" in White Ledger and in this case classified as a "Prohibitive Material."

Ref. Paper Stock Standards and Practices, Circular PS-88.



RECYCLING REGION 5 EFFORT

This information is printed on recycled paper using inks that are lead-free and non-toxic

ACKNOWLEDGEMENTS

This Office Recycling Handbook has been a cooperative effort between the United States Environmental Protection Agency, Region 5, and the General Service Administration, Region 5, in the spirit of Partnership in Administration. It is the result of the partnership expectations for a successful Region 5 recycling effort. Coauthors are: Al Fenedick, Jr., USEPA, Kimberly Henderson, GSA, and Jay Bergamini, USEPA.

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OFFICE TRASH OR CASH?

The average office worker generates approximately 1.5 pounds of office waste daily. Most of the office waste is discarded and eventually ends up in a landfill to become out of sight and out of mind. For decades, our "throwaway" society has buried millions of tons of trash. For example, in 1989, we disposed of 160 million tons of trash. This amount is growing larger each year.

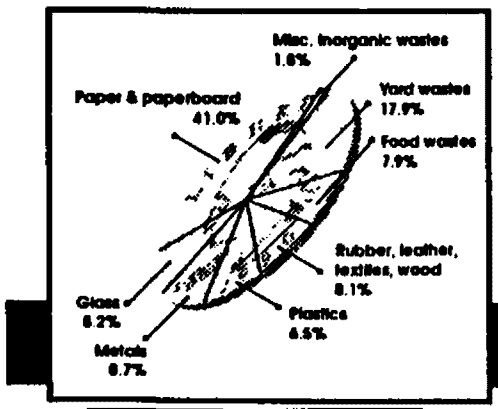
Today, we are confronted by a national trash crisis. The number of operating landfills nationwide has decreased from 18,500 in 1979 to 6,500 in 1988. It is projected that by the year 2000 there will be approximately 3,250 landfills open for business. The landfills which remain open will increase their tipping fees. Associated shipping costs will also rise as local landfills close and trucks must haul trash further and further away. These market-driven factors will result in increases in disposal fees for every waste generator. Therefore, the landfill answer alone is no longer the acceptable answer. We must find other alternatives rather than arbitrarily throwing things away. One effective alternative is recycling.

Over the decades, we have lost resources that could have been recycled. For example, 41 percent of the waste that is sent to the municipal landfills is paper. It is estimated that 85 percent of that waste paper is recyclable. As the national recycling effort continues to expand, the Federal government alone will have a noticeable impact on that effort and the environment. In environmental terms, recovery of paper will result in the conservation of 5 million cubic yards of landfill space, 3 million barrels of crude oil, and 26 million trees a year. This method of dealing with our waste stream will aid in the prevention of further environmental contamination. Recycling will not only be a conservation tool for the environment, but also an economic tool to reduce the projected costs for routine disposal.

As disposal costs skyrocket, recycling becomes increasingly cost-effective. The results of recycling will have a positive influence economically. By reducing the amount of trash through recycling, the cost of waste disposal may decrease or stabilize. In addition, recycling will generate revenue to offset collection costs and provide for a new source of income. If pending legislation is passed, this income could be utilized by the participating agencies for various programs or materials.

The Code of Federal Regulations Title 40 Part 246 indicates that all Federal agencies, which generate solid waste, are required to take action to recover that resource. Compliance with this Federal regulation is not the only regulation that will require the Federal community to recycle. An Executive Order is being proposed mandating that all Federal agencies are required to source separate and purchase recycled content products. On the local, county and state levels, legislation has been passed which mandates recycling. These legislative actions and executive orders will help achieve a 25 percent recycling goal by 1992.

Many actions will be required to reverse the momentum that is eroding our environmental quality and squandering our existing resources. This office recycling manual is one of many steps to achieve that goal. This manual has been designed for the facility or office manager who has accepted the responsibility to improve our environment. It will be that manager, who will make the conversion of office trash to recovered resource a success.



WHAT IS RECYCLING?

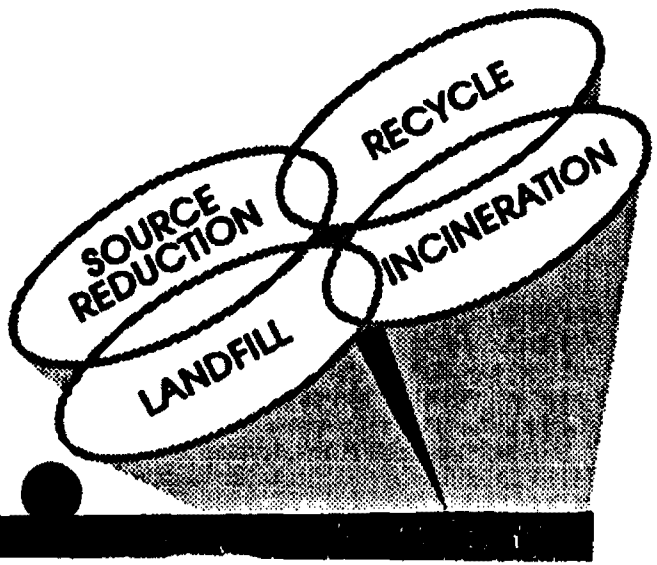
Recycling is a part of a hierarchy of an integrated waste management system.

- Source reduction
- Recycling
- Landfills
- Incineration

Source reduction is the first element in the hierarchy. This element focuses on the minimization of the volume and toxicity of the waste.

Recycling is the second element in the hierarchy. This element shifts valuable resources from the landfills and incinerators back to the manufacturers.

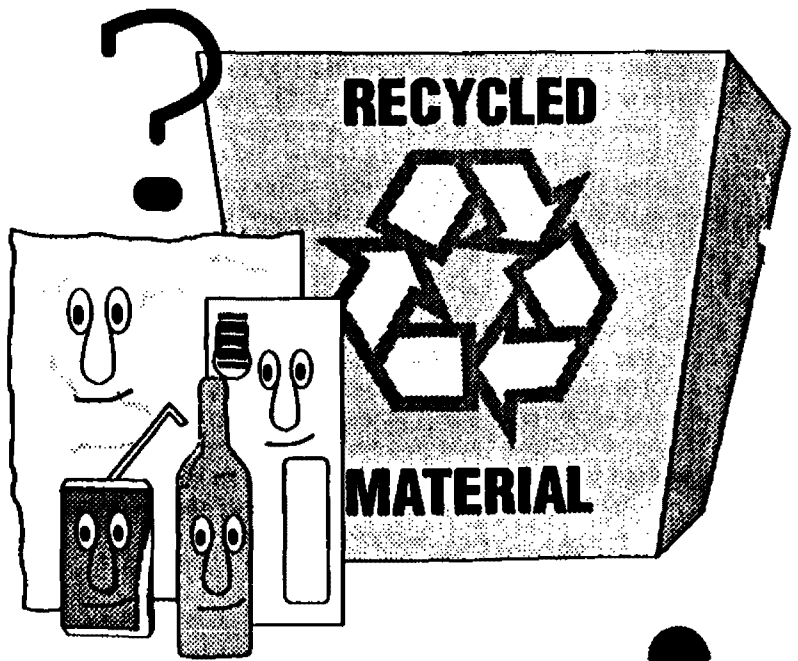
Landfills and Incineration are the third and fourth elements in the integrated waste management system. The United States Environmental Protection Agency specifies no preference on which element is third or fourth; each of these elements has its own ranking depending on region, resources and demographics.



WHAT IS THE BEST OFFICE RECYCLING METHOD?

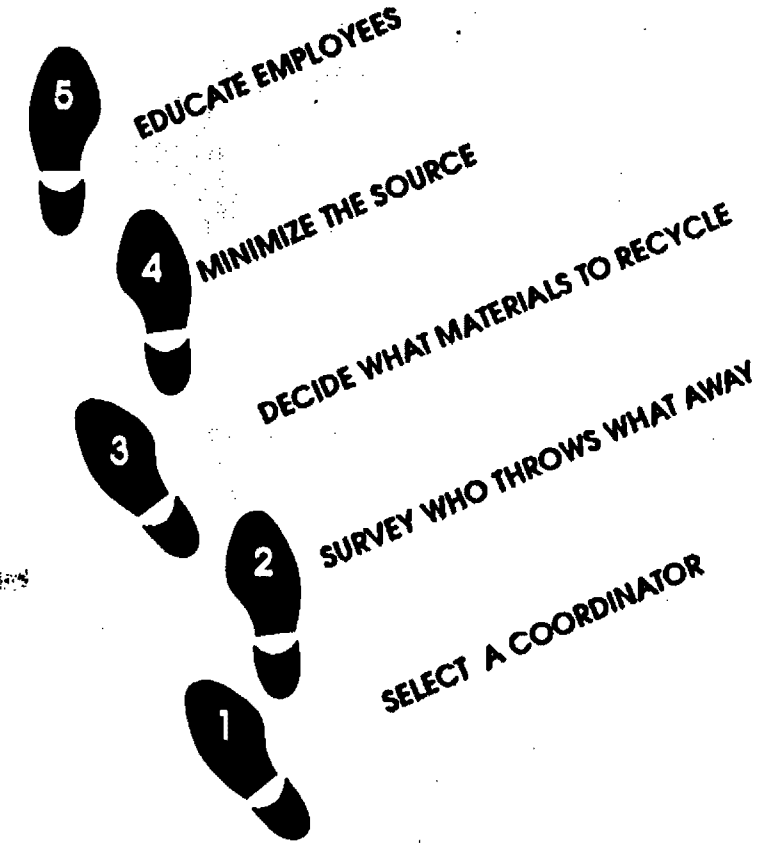
The recycling method that results in the highest grade, most valuable material is called source separation. This method depends heavily on facility manager planning and employee participation. Each person separates recyclables from trash by putting clean, used paper, aluminum cans, glass, etc. in separate containers. One container is used for nonrecyclable trash while several containers are used for the recyclables. Source separation is by far the most efficient, easiest, and cost-effective means to recycle your office trash.

SEE APPENDIX A



FASY STEPS TO A SUCCESSFUL RECYCLING PROGRAM

In order to systematically organize the collection of recyclables in your office, it would be helpful to follow the steps outlined.



STEP 1: SELECT A COORDINATOR

To get started, it's a good idea to choose someone to be responsible for setting up and taking care of the recycling program. Recycling experts believe an enthusiastic coordinator ensures a successful program. The coordinator will act as a liaison among tenant management, janitorial services, the recycling collector and the waste hauler. The recycling coordinator must have a good rapport with the tenants, allowing for open lines of communication. The coordinator should also have good communication skills, effective organizational skills, and thorough knowledge of the recycling program. In multi-tenant buildings, one person from each agency may act on a committee to assist as a tenant coordinator for the recycling program.

Role of the Recycling Coordinator

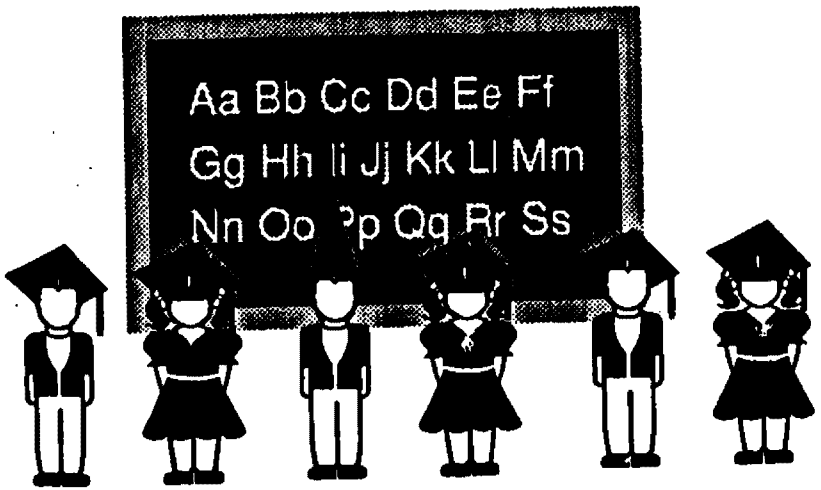
- Initiates the program
- Evaluates the program on a monthly basis
- Implements employee education program
- Tracks progress of the program
- Develops program reports
- Encourages employee participation

SELECT A RECYCLING MONITOR

The selection process for a recycling monitor demands the same consideration of skills as for the coordinator. Each floor will have a monitor who will serve as a contact person for the coordinator. Certainly, a well-designed program with enthusiastic and knowledgeable monitors is critical to a successful recycling program.

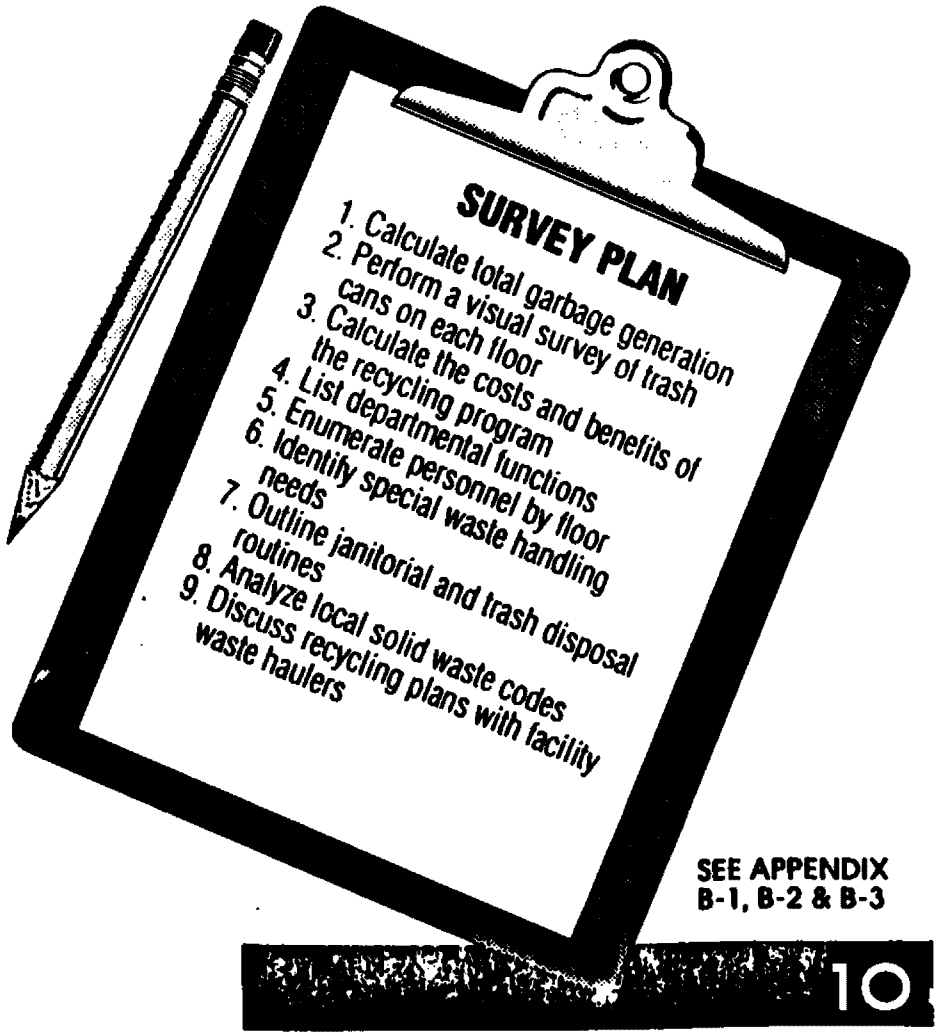
Role of the Recycling Monitor

- Ensures that recycling containers are free of non-recyclable trash
- Notifies coordinator of aesthetic problems
- Encourages employee participation
- Assists the coordinator in education and promotion campaigns



STEP 2: SURVEY WHO THROWS WHAT AWAY

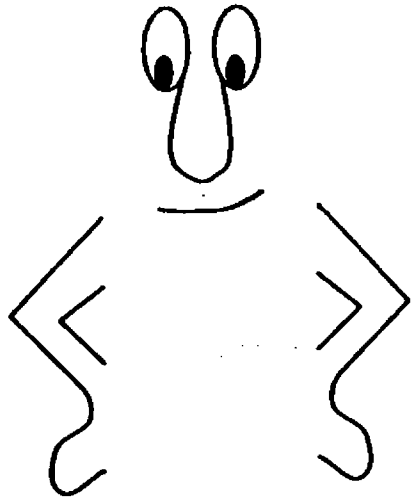
The facility manager and the recycling coordinator need to determine the scope of the recycling program for Federal facilities. It will be necessary to perform a waste audit for the facility. The audit should consist of the following points:



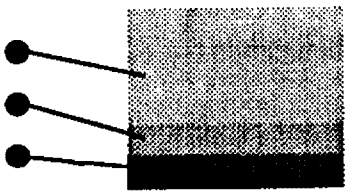
SEE APPENDIX B-1, B-2 & B-3

EVALUATE THE TENANT BASE

The facility manager will need to gather data on the building in order to design an effective recycling program. You will need various building statistics and an assessment of client requirements. You should collect data on the total number of employees, agencies, and floors in the building and input it to your data profile sheet, which is in the appendix. You should also consider the special waste disposal needs of some tenants, such as incineration due to security requirements. Agencies may be concerned about the aesthetic quality of the containers; therefore, facility managers should also consider this when choosing and placing the containers. Facility managers should find out about janitorial and trash collection costs, collection days, number of pickups per week, amount of trash picked up each month (estimated size of the container). In facilities where there are existing programs, the waste audit can be used to determine if the program should be expanded to include more recyclables or to increase the recovery rate of the recyclable materials.



SEE APPENDIX C



KNOW YOUR LOCAL RECYCLING RESOURCES

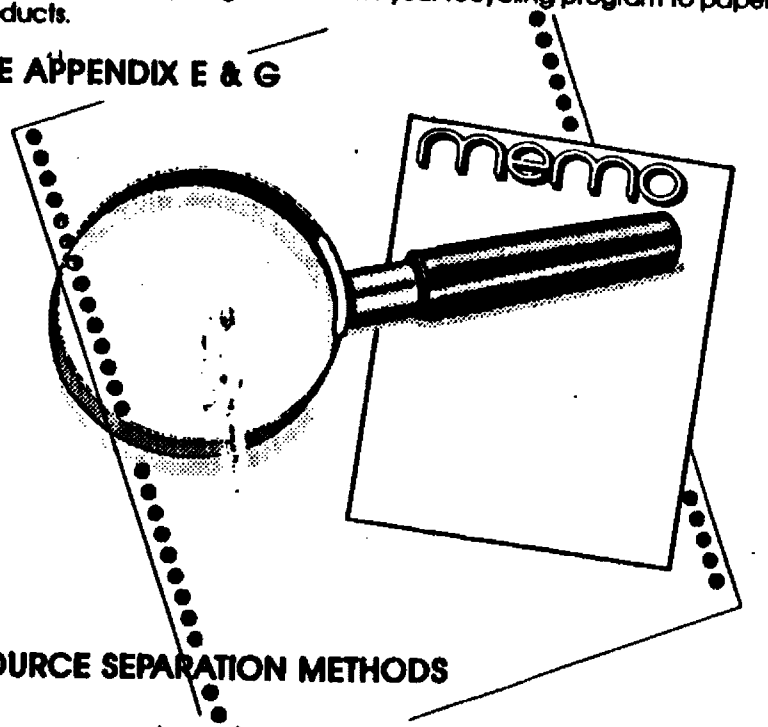
Becoming familiar with information on the local recycling market is critical. Many cities now have recycling programs with coordinators located in Solid Waste Management Offices who can provide timely information on local recycling efforts. Facility managers should also talk to local and state governments officials. Other important contacts are local waste haulers, who usually have information on prices and procedures for pickup of recyclable materials. The first waste hauler to contact may be the one that is currently contracted for your building. This contractor may also provide a recycling collection service.

SEE APPENDIX D

VISUAL SURVEY

The facility manager should survey trash cans on each floor near computer stations, copiers and copy rooms. List the most common items found. This list will help you to determine the items that can be recovered for recycling. Do not limit your recycling program to paper products.

SEE APPENDIX E & G



SOURCE SEPARATION METHODS

There are several ways to source separate. Two methods of source separation that have a history of success are: centralized recovery and desk-side recovery. With a centralized system, containers placed in various locations in the office can be used for depositing materials. However, studies have shown that desk-side recycling programs have the highest efficiency in office situations. Desk-side programs feature

SOURCE SEPARATION METHODS (CONTINUED)

containers at each employee's desk which are emptied by the janitorial staff. In another variation of the desk-side system, employees would be responsible for depositing the materials in central containers located in the office area. The cleaning staff would then collect the materials from the central containers. The desk-side program offers several advantages:

1. Makes recycling easy!

2. Reinforces the awareness of the recycling campaign!

3. Encourages the participation of all employees!

4. Advertises the ongoing recycling program!

5. Generates higher recovery rates!

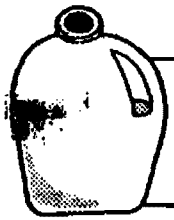
Once you have decided which program will fit your needs, a decision will have to be made regarding the types of collection equipment required. For example, you may need a compactor or baler, and you will have to decide on the type and size of the containers needed.

SPECIAL CONSIDERATIONS

Be aware of your local fire codes. They contain guidelines for storage of your waste paper. Incorporating fire regulations into your recycling program during its development will save you time and inconvenience later. The requirements are easy to follow, and usually include such items as: storage area must be enclosed; and bins containing flammables must have a lid; etc.

STEP 3: WHAT MATE\ \LS TO RECYCLE?

After completing Step 2, y I will have an idea of what is being thrown away. Now you must dec e which material to salvage. The following list shows recyclable cate(ries for your consideration. Since the markets for recyclable pro(ucts are subject to fluctuation, it may be useful to combine several c)tions in your recycling program.



MATERIAL CATEGORIES	EXAMPLES	$/TON
ALUMINUM CANS	soda & beer cans	720 –
TIN CANS	soup & pet food cans	760
ALUMINUM FOIL	pie plates, foil	
GREEN GLASS	beer & wine bottles	20 – 40
CLEAR GLASS	jars, clean window glass	
BROWN GLASS	liquor & beer bottles	
CORRUGATED CARDBOARD	double walled cardboard	0 – 55
& BROWN PAPER BAGS	school paper, junk mail	-10 – 20
MIXED PAPER	cereal boxes, shoe boxes	
NEWSPAPER & MAGAZINES	anything that comes with your newspaper	5 – 10
COMPUTER PRINTOUT	white office paper	180 – 275
OFFICE PAPER	bond paper	65 – 110
GREEN SODA BOTTLES	plastic ginger ale bottles	60 – 200
CLEAR SODA BOTTLES	plastic cola bottles	40 – 200
POLYSTYRENE PACKING	polystyrene p-nuts	NA
MILK JUGS	cider, water & milk jugs	120 – 200

SEE APPENDIX D & F

STEP 4: MINIMIZE THE SOURCE

Don't waste what you don't use!

Source reduction is another strategy to decrease the generation of waste. By eliminating or reducing the need for certain items, the waste that is sent to the landfill is minimized, thus saving resources and landfill space. Source reduction in the office environment can be achieved through various methods. In order to reduce the volume of the waste stream, you will have to use the same approach used in setting up a recycling program.

Here are some activities that are easy to implement:

Copy on two sides

Reduce the number of copies routed in an office

Use electronic mail to send interagency memos

Reuse scrap paper for notes and message pads

Use materials that have a longer life span, e.g., light bulbs, tires

Place information on announcement boards versus making multiple copies

Use mugs instead of paper or polystyrene cups

Encourage the cafeteria to provide china and metal utensils

Avoid using disposable items. Use items that can be repaired, recycled, refilled or reused

Promote the use of items, especially common use office supplies, that contain recycled content

STEP 5: EDUCATE EMPLOYEES

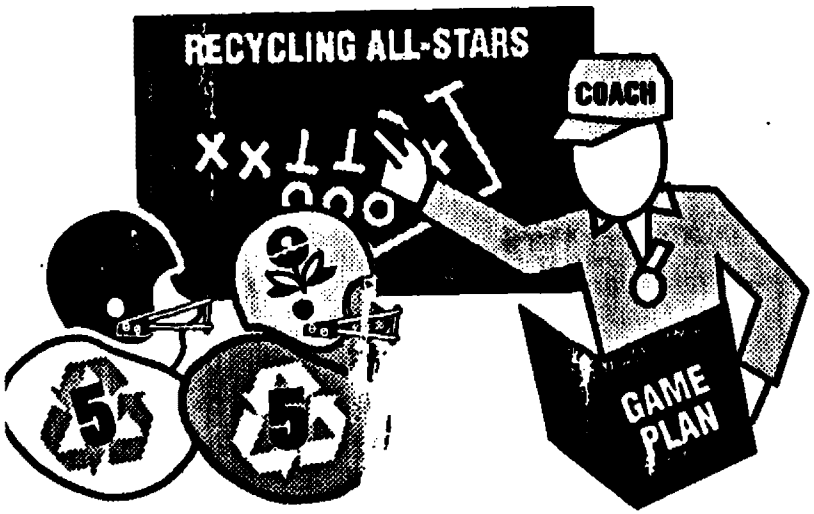
A successful office recycling program depends on employer endorsement and employee awareness, cooperation and concern. Here are ideas to get you off to a good start:

Develop a kickoff memo from top administration to all personnel stating the importance and benefits of starting a recycling program

Provide a memo to all employees explaining how to sort recyclables

Schedule an education seminar for management, employees and maintenance staff

Write articles for the employee newsletter with information about problem areas, and report on how well the program is doing



SEE APPENDIX H

Don't let excess recyclables accumulate at container areas. Reinforce the recycling habit by keeping a neat and tidy program

Give awards to those who do a particularly conscientious job

Have a contact person who can be reached about any questions or problems that may occur

After the program has been implemented, you should have routine evaluation meetings to review and improve the program. This will aid in keeping open lines of communication between you and your client

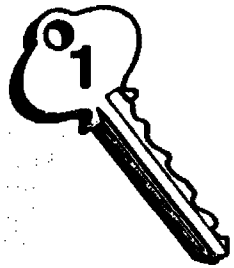
REVIEW

Rather than office paper, computer printouts, aluminum cans, and other recyclables being thrown away, they can be collected by a variety of methods and sold directly, or through a pickup service, to waste buyers.

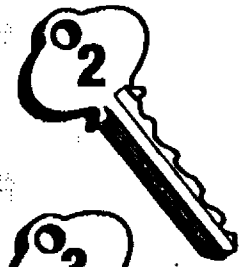
Recycling will reduce the amount of trash hauled away, and will most likely result in lower disposal costs. A 1988 survey conducted by the United States Environmental Protection Agency found that recycling paper alone reduces the amount of trash from office buildings by an average of 34%.

It is as easy to operate a recycling program as the conventional waste management system. Success depends on facility managers making employees aware of the advantages of source separation. In addition, employees must be convinced that recycling will require only a few moments from each person each day.

REMEMBER THE THREE KEYS TO SUCCESSFUL RECYCLING!



Make recycling part of your organization's standard operating procedure. The aim of the program should be full employee participation. The greater the participation the greater the volume. This results in a more efficient and economical program.



Make recycling as simple and convenient as possible. A system that meets the needs of each individual work station will yield the highest quantity and quality of paper.

Give all the participants clear and regular directions about their part in the program. Initial instructions during the kick-off about exactly which materials are recyclable are very important. Continued education keeps the program running smoothly. It is particularly important to give detailed information and training to the cleaning crew. The cleaning crew will provide a built-in quality control to determine the success of the source separation program.

SEE APPENDIX D & F

Appendices

Remember that computer paper is a valuable recyclable resource. The page you are now reading was once thrown away by someone!

WHAT COLLECTION SYSTEM OPTIONS EXIST?

Your agency's collection options will vary based on four decisions:

- What you choose to collect
- Which transfer system you will employ, including where you locate containers
- Who transfers collected material
- What storage space and handling equipment exist

Government agency and private sector organization recycling programs typically use one of a few basic models to move materials from the individual to the various office collection points. These include the:

- **Desk top system** where the user places recyclable paper in a container on the desk and discards non-recyclable waste in a waste basket, or the...
- **Two-waste basket system** where one basket is used for recyclable paper and the second for discarding waste

As either type of these individual office units becomes full, each employee, or a custodian, deposits the materials in appropriate central collection containers. As a variation to the options above, vendors may offer services which enable mixed recyclables to be collectively stored for dealer pick-up and transport to processing centers.

Centralized office containers, which accommodate a wide variety of office recyclables, including paper, glass, and aluminum, also can be used for separating office recyclables. Central collection containers are clearly identified bins, located in copy rooms or within individual office bay areas serving 15 to 20 persons.

APPENDIX A

Other central-location container options for materials such as glass or aluminum include large containers (often called "igloos") located outside of the building, or containers located in lunchrooms or adjacent to employee travel paths. You can expand this central container concept to collect newspapers or corrugated cardboard, among other materials. Custodians or building management staff or, in some cases, outside contractors, move the materials from the centralized containers to bulk storage areas. The main storage area should be organized to minimize the accidental mixing of trash with segregated recyclables. Ask your building manager and/or the recycling vendor to help you select your main storage site. Keep in mind the following points when selecting your site:

- Is the site large enough?
- Can the site be locked?
- Is the site protected with sprinklers?
- Is there a freight elevator easily accessible?

APPENDIX B1

WASTE AUDIT

Total Garbage Generation

1 _____ (No. Employees (a)) X _____ (Avg. lbs. garbage/employee/day) = _____ lbs. (Garbage/day (b))

2 _____ (Garbage/day (b)) X 247 days (Working days/year) ÷ 12 mos. ÷ 2,000 lbs. (Lbs./ton) = _____ (Tons/month)

Recyclable Paper Generation

3 _____ (No. Employees (a)) X _____ (Avg. lbs. recyclable paper/employee/day) = _____ lbs. (Recyclable paper/day (b))

4 _____ (Recyclable paper/day (b)) X 247 days (Working days/year) ÷ 12 mos. ÷ 2,000 lbs. (Lbs./ton) = _____ (Tons/month recyclable paper)

Potential Paper Recovery Rates

5 _____ (Tons/month Recyclable paper (d)) X 65% (Employee participation rate (conservative rate)) = _____ (Tons/month recyclable paper recovered (e))

APPENDIX B2

WASTE HAULING

Garbage disposal company? _____

Size and number of garbage containers? _____

Frequency of pickups? _____

Is garbage on premises? _____ Cost of compactor? _____

Is compactor owned or leased? _____

Garbage disposal cost per cubic yard? _____

Flat fee? _____ Other? _____

This section should help the facility manager to assess the current cost of waste disposal and whether the disposal bill reflects actual service. It is possible that fewer pickups may be needed. This could reduce the disposal bill. The waste hauler might also grant a credit if the garbage is compacted.

The cost/benefit worksheet on the next page will give the facility manager an estimate of the costs and savings associated with office recycling programs. Some programs have generated substantial revenue, while others cost money but register trash disposal savings to offset the cost of starting a recycling program.

COSTS/BENEFITS

PRESENT DISPOSAL COSTS	MONTHLY	ANNUAL
Garbage bill(s)		
Confidential destruction costs		
Equipment costs (trash cans, compactor, etc.)		
Labor (janitorial)[1]		
Revenue from any current recycling program	<	>
TOTAL DISPOSAL COSTS		

AFTER PROGRAM IMPLEMENTATION	MONTHLY	ANNUAL
Disposal costs adjusted downward to reflect reduced service[2]		
Coordinator's time		
Central recycling containers		
Publicity		
Labor (extra janitorial or collection personnel costs)		
Compactor and related equipment		
Installation costs (one time)		
TOTAL COSTS		

REVENUE	PRICE/TON[3]	TONS/MO.[4]	MONTHLY	ANNUAL
White paper				
Computer paper				
Cans/bottles				
Other credits				
TOTAL CREDITS				

NET RECYCLING PROGRAM COSTS
(TOTAL COSTS less TOTAL CREDITS)

SAVINGS

Present costs	−	Net recycling program costs	=	Net savings costs

1 Assign only a percentage of labor costs since the janitors provide other services besides waste removal. Estimate how much you can reduce your waste stream. then call your disposal company to find the cost of less frequent service.
2 Call a few waste paper dealers to find the current price of waste paper. Be sure to ask the dealer for a price that includes pickup services.
3 Refer to the Waste Audit Part C month figure. Estimate how much of the total will be white paper, computer paper, and mixed paper.
4

CREDITS: this worksheet was adapted from the "Justification Worksheet" designed by George Luker of National Semi-Conductor, Santa Clara, California.

SOURCE: Your Office Paper Recycling Guide, the San Francisco Recycling Program. A Division of the Solid Waste Management Program, San Francisco, CA. 94102. (415) 554-6193. Jane Grossman (writer)

BUILDING PROFILE

Building #1 _____

Largest three agencies _____ _____ _____
Agency representatives _____ _____ _____
Phone numbers _____ _____ _____

Total number of employees in building _____

Number of floors _____
Number of loading docks _____
Storage space near dock? (Y/N) _____

Existing recycling program? (Y/N) _____

Waste Removal
Force account _____
Contract _____
Pickup schedule
Daily M___ T___ W___ R___ F___
Weekly _____

Number of containers _____
Capacity of containers _____

Recyclable materials:

Paper	Cans	Other

Current recycled materials	How much per wk./mo.

Participating floors	Number of boxes

Describe space available for central recycling

_____

_____

APPENDIX D

LOCAL SOURCES OF INFORMATION

Regardless of the type of study conducted, a large amount of local information will be required. Waste generation estimates, sources of waste, demographic information, types of commercial facilities, and employment data are all examples of the types of local information decision makers will need. Specific sources include:

- Waste haulers
- Landfill and transfer station operators
- Existing planning documents (e.g. Federal plans)
- Public works office
- Utilities

APPENDIX E

COMMONLY RECYCLED MATERIALS

Paper

Waste paper recycling has several advantages: it provides mills with a valuable fiber source, it provides income to recyclers, and it reduces municipal disposal costs. According to the American Paper Institute, in 1986, 200 of the nation's 600 pulp, paper, paperboard, and building products mills relied almost exclusively on waste paper for raw material, and another 300 used at least some waste paper in their operations (API, 1986; note: a large amount of this waste paper used was industrial scrap rather than post-consumer paper). As more recycling programs come on line and the supply of scrap paper increases, the paper industry is expected to respond by developing more facilities that handle secondary fiber. The following discussion looks more specifically at the issues associated with recycling paper, including market status and program considerations.

Old Newspaper (ONP). Most recycling programs have provisions for the collection of old newspaper, which is not only one of the most prevalent materials in the municipal solid waste stream, it has historically been one of the most commonly recycled materials. Many volunteer and private programs started as single material programs, collecting only newspapers for resale.

It should be noted that old newspaper and mixed paper markets can fluctuate greatly, and that the market is currently down in parts of the country (summer 1989). One of the main reasons for this down market is that waste paper recovery has exceeded domestic mill capacity. This is especially true as more states pass mandatory recycling laws. With the domestic oversupply, many ONP brokers have turned to foreign markets, especially in Pacific Rim countries such as Korea. Although the demand is currently stronger in these countries, many foreign brokers are also holding out because of oversupply. Foreign markets can also present significant transport costs.

COMMONLY RECYCLED MATERIALS

Corrugated Cardboard. According to the American Paper Institute, corrugated cardboard is the largest single source of waste paper for recycling (API, 1985). Many commercial generators, such as supermarkets and retail stores, have in-house balers for preparing corrugated cardboard for mills. Markets for good-quality, baled cardboard have historically been steady.

High-Grade Paper. High-grade papers include computer paper, white ledger paper, key punch cards, and trim cuttings from industrial paper manufacturers. The market for this material has historically remained steady, as good-quality products (e.g., few colored paper mixtures, binders, plastics, etc.) can be used as a direct substitute for wood pulp.

Mixed Paper. Mixed paper is usually collected from office buildings and industrial plants, but can also be collected in municipal programs. Mixed paper often contains significant quantities of high-quality paper, which can be valuable if separated. However, "contaminant" materials, such as rubber bands, inks, and coatings, decrease mixed paper value, and they must be removed during intermediate processing.

Like the newspaper market, the mixed paper market is currently soft, and the revenues may not outweigh the cost to collect, process, and transport mixed paper. However, this does not consider the benefit of avoided disposal costs.

Aluminum

42.5 billion of the 77.9 billion aluminum cans produced in 1988 were recycled (Sallmando, 1989). The demand for recycled aluminum is high, as it is estimated that it takes 95 percent less energy to produce an aluminum can from an existing can than from Ore (Keep America Beautiful, Inc., 1989). Consequently, aluminum is a high-value product that is the greatest revenue generator of many recycling programs.

APPENDIX E

COMMONLY RECYCLED MATERIALS

In addition to aluminum cans, window frames, storm doors, siding, and gutters are all sources of recyclable aluminum. Because these materials are of different grades, recycling programs should check with the buyer to determine specific separation requirements.

Glass

Glass is also one of the most commonly recycled materials, and the market price for post-consumer glass has historically been steady. Glass is often separated by color to be re-processed, and three categories are used: clear, green and brown. Separation can take place in the office, at the drop-off center, or by hand-pickers or optical separators at materials recovery facilities. After collection (or drop-off) and separation, glass recycling involves crushing used bottles and jars into small pieces, forming a material called cullet that is sold to end-users who mix the cullet with sand, soda ash, and limestone to form new glass containers. Glass crushing can take place at recycling centers, intermediate processing centers, or material recovery facilities. Most glass brokers require that the glass be clean and free of contaminants such as metal caps, ceramics, rocks and dirt.

Ferrous Metals (Iron and Steel)

According to the Steel Can Recycling Institute, steel is the number one recycled material in the world, as over 55 million tons of iron and steel were recycled in the U.S. and Canada alone in 1987 (Steel Can Recycling Institute). The largest amount of recycled steel has traditionally come from large items such as cars and appliances. Many communities have large scrap metal piles at the local landfill or transfer station. In many cases, the piles are unorganized, and different metals are mixed together, making them unattractive to scrap metal buyers. Recycling programs will benefit from procedures

COMMONLY RECYCLED MATERIALS

keeping scrap metal piles orderly and free of contaminants.

Steel can recycling is also becoming more popular. Steel cans are used as juice and food containers, and are easily separated from mixed recyclables or municipal solid waste using large magnets (which also separate other ferrous metals).

The overall market for ferrous metals is well-established, and the demand for scrap metal is expected to remain steady or increase as processing technologies develop.

Plastics

Plastics recycling is a relatively young industry, and only one percent of plastics is currently recycled. But as processing technologies are developed, plastics recycling is expected to expand. The availability of materials has spawned the search for new processing techniques and product uses, and new markets are expected to develop in the near future. Although plastics recycling is not an established money-maker in many areas, the plastics recycling industry is in a stage of rapid growth.

PET (polyethylene teraphtalate). Most plastic soft drink bottles are made of this material, which is the most commonly recycled plastic. The Plastic Bottle Institute reports a 20-percent rise in the number of plastic bottle recycling companies between 1987 and 1988. 150 million pounds of plastic soft drink bottles were recycled in 1987 (PBI, 1988). End-uses for recycled PET include plastic fibers (for sleeping bags, vests, etc.), injection molding, non-food-grade containers, structural foam molding, and chemicals.

HDPE (high-density polyethylene). Milk jugs and detergent bottles are the easily identified HPDE products in the waste stream. Like PET bottles, this type of plastic is currently recycled and the HDPE market is growing as processing technologies

APPENDIX E

COMMONLY RECYCLED MATERIALS

are developed. End-uses for reclaimed HDPE include non-food bottles, drums, pails, toys, pipe, sheet plastic, crates and plastic pallets.

Mixed Plastics. Mixed, or commingled, plastics are unsorted materials including combinations of several plastic resins and "contaminants" such as paper, wood, metals, and glass. Mixed plastics processing is a developing technology, and markets for the material are expected to increase. Mixed plastic is being used to make "wooden" park benches, trash containers, car stops, etc.

Other Plastics. Other plastics that could be recycled in greater quantities in the future include: polystyrene, Polyvinyl chloride (PVC), polypropylene (PP), and low-density polyethylene (LDPE). Because plastics recycling is such a new field, the recycling loop is not yet complete in many parts of the country. Significant progress must still be made in the collection, separation, and processing of plastics.

An example of initial progress is a large fast-food chain which has begun a polystyrene recycling program at its New England locations. 450 restaurants are recycling their "throwaway" polystyrene packaging and a plastics manufacturer is making VCR casings and insulation board from that program.

Batteries

Battery recycling is not only a response to market conditions (i.e., the price of lead), it is also attractive due to concern over the toxic components found in many batteries, including lead, cadmium, and mercury. These metals are contaminants in incinerator air emissions and ash, and can cause ground water contamination through leaching at landfills and composting facilities. Pressure to remove them from the waste stream is becoming more intense. Collection of batteries, however, does not constitute recycling -- it is only the first step. Like other

COMMONLY RECYCLED MATERIALS

materials, battery recy[illegible]s largely on market conditions, and requires consistent collection and processing. It can be argued, however, that even when markets are down, batteries should be be separated and collected, because disposal as hazardous waste is more environmentally sound than landfilling as municipal solid waste.

Lead-Acid Batteries. Automobiles use lead-acid batteries, each of which contain approximately 18 pounds of lead and a gallon of sulfuric acid, both hazardous materials. Automotive batteries are the largest source of lead in the municipal solid waste stream. Battery reprocessing involves breaking open the batteries, neutralizing the acid, chipping the polypropylene containers for recycling, and smelting the lead and lead oxides, to produce reusable lead. Recycled lead must compete with virgin lead suppliers and markets, which can fluctuate greatly. When virgin lead prices are low, less recycling takes place. Another consideration in lead-acid battery recycling is potential liability associated with the storage and processing of hazardous materials.

Household Batteries. Household batteries come in a variety of types, including: alkaline, carbon zinc, mercury, silver, zinc and nickel cadmium. Not all household batteries are recyclable and, in fact, only those containing mercury and silver are usually marketed to end users who extract the metals. Most batteries are handled as hazardous wastes once they are segregated from the waste stream. The metals found in household batteries can contaminate incinerator air emissions and ash and cause ground water contaminations through leachate, so removal from the waste stream is environmentally sound, regardless of the market value.

CONTAMINANTS IN THE RECYCLING STREAM

High & Low Grade Office Paper

Contamination of high and low grade office paper causes serious problems in the paper manufacturing process, and substantially lowers the value. The most frequently found contaminants are:

- Glossy paper
- Post-Its
- Tape
- Carbon paper
- Blueprints
- Cardboard
- Pressure-sensitive labels
- Paper with insoluble glue (e.g., wrapping for copier paper)
- Envelopes with plastic windows
- Envelopes with pressure-sensitive flaps and labels
- Binder clips, metal fasteners, rubber bands (save for re-use)
- Food wrappings, cups, napkins, tissues

Corrugated Cardboard

Corrugated cardboard should be kept free of contaminants, which adversely affect production efficiency and product quality. Contaminant-free corrugated waste paper also increases its value. Common contaminants include: polystyrene packing materials, plastic bags, wrap and film, trays used to package food items, and plastic cups.

Newspapers

In order to maximize the price that can be obtained for newspapers, they should be kept clean, dry, out of direct sunlight, tied in bundles or placed in paper bags, and free of

CONTAMINANTS IN THE RECYCLING STREAM

contaminants. Contaminants include:

- Wire hangers or other metal objects
- Wax paper
- Aluminum foil
- Food
- Plastic bags
- Clothing
- Glass
- Wood and yard waste

Glass

Glass has a number of processing and handling requirements that have to be followed in order to produce cullet (crushed glass) that is furnace ready (i.e., color-sorted and free of contaminants).

Separate material by color (green, brown, clear): Color sorting is essential to guarantee color consistency in containers being made from recycled glass. Occasionally, markets can be found for mixed-color glass, but prices paid may be lower than these for color-sorted glass. No equipment in the glass container industry can effectively color-sort glass in the processing phase. Sorting of glass can be done easily by providing three separate, central containers clearly marked to specify which type of glass should be put where.

Separate contaminants from the glass: Contamination is a serious concern of the glass container industry. Sources of contamination include:

- Metals (such as aluminum caps and steel lids)
- Stones and dirt
- Neck rings from bottles

APPENDIX F

CONTAMINANTS IN THE RECYCLING STREAM

- Ceramic cups, dishes and ovenware
- Light bulbs
- Plate glass, safety and window glass
- Heat-resistant glass
- Lead-based glass such as crystal or TV tubes

These materials can create serious problems for glass container manufacture for the following reasons: Glass furnaces operate at temperatures of about 2700°F. Both lead and aluminum melt at this temperature. Iron, steel, and lead will settle to the bottom of a furnace and attack its refractory lining. Aluminum melts into small balls called "stones" or bubbles called "seeds." These can appear in the containers being made, causing both structural and aesthetic problems. Ceramics and stones can create similar problems.

Glass plants are equipped with cullet processing systems, which can remove a portion of the metal caps and rings from the cullet. This processing machinery, however, cannot remove non-metallic material.

RECYCALBLES WEIGHT TO VOLUME CONVERSIONS

Material	Volume	Wt. in lbs.
Newsprint, loose	one cubic yard	360-800
Newsprint, compacted	one cubic yard	720-1,000
Newsprint	12" stack	35
Glass, whole bottles	one cubic yard	600-1,000
Glass, semi-crushed	one cubic yard	1,000-1,800
Glass, crushed (mechanically)	one cubic yard	800-2,700
Glass, whole bottles	one full grocery bag	16
Glass, uncrushed to manually broken	55 gallon drum	125-500
PET, soda bottles, whole, loose	one cubic yard	30-40
PET, soda bottles, whole, loose	gaylord [1]	40-53
PET, soda bottles, baled	30" x 62"	500
PET, soda bottles, granulated	gaylord	700-750
PET, soda bottles, granulated	semi-load	30,000
Film, baled	30" x 42" x 48"	1,100
Film, baled	semi-load	44,000
HDPE (dairy only), whole, loose	one cubic yard	24
HDPE (dairy only), baled	32" x 60"	400-500
HDPE (mixed), baled	32" x 60"	900
HDPE (mixed), granulated	gaylord	800-1,000
HDPE (mixed), granulated	semi-load	42,000
Mixed PET & dairy, whole, loose	one cubic yard	avg. 32
Mixed PET, dairy, and other rigid, whole, loose	one cubic yard	avg. 38
Mixed rigid, no film or dairy, whole loose	one cubic yard	avg. 49
Mixed rigid, no film, granulated	gaylord	500-1,000
Mixed rigid & film, densified by mixed plastic mold technology	one cubic foot	avg. 60
Aluminum cans, whole	one cubic yard	50-74
Aluminum cans, flattened	one cubic yard	250
Aluminum cans	one full grocery bag	1.5
Aluminum cans	one large plastic grocery bag	300-500
Ferrous cans, whole	one cubic yard	150
Ferrous cans, flattened	one cubic yard	850

[1] Gaylord size most commonly used 40" x 48" x 36"

DRAFT National Recycling Coalition Measurement Standards and Reporting Guidelines presented to NRC Membership October 31, 1989

APPENDIX G

RECYCALBLES WEIGHT TO VOLUME CONVERSIONS

Material	Volume	Wt. in lbs.
Corrugated cardboard, loose	one cubic yard	300
Corrugated cardboard, baled	one cubic yard	1,000-1,200
Leaves, uncompacted [1]	one cubic yard	250-500
Leaves, compacted	one cubic yard	320-450
Leaves, vacuumed	one cubic yard	350
Wood chips	one cubic yard	500
Grass clippings [1]	one cubic yard	400-1,500
Used motor oil	one gallon	7
Tire - Passenger car	one	12
Tire - Truck	one	60
Food waste, solid and liquid fats	55-gallon drum	412

[1] Yard waste densities are especially variable between communities, and in different seasons within a community because of differences in types of foliage, moisture and humidity. The 1500 density factor for grass is based on program experience in Minnesota.

DRAFT National Recycling Coalition Measurement Standards and Reporting Guidelines presented to NRC Membership October 31, 1989

SAMPLE KICKOFF MEMOS

TO: (Company Name) Employees
FROM: Jane Doe, Regional Administrator
DATE: June 15, 1990
SUBJECT: Office Paper Recycling at (Agency Name)

HOW THE PROGRAM WORKS:

You will be given a desk-top container to go on or near your desk. When you are through using any white paper or computer paper, simply put it into your desk-top container instead of the trash can. When your desk-top container is full, empty the contents into one of the central containers stationed on your floor. Paper is much more valuable when it is separated by grade so please put the white paper into the "white paper only" container and computer paper into the "computer paper only" container. All central containers will be clearly marked. That's the end of your involvement-it's that easy!

Because we all have a lifelong habit of just throwing something away when we're finished using it, it may take some time to remember not to throw the recyclable paper into the trash can. You have to think about it at first, but in a very short time it will become just another one of those things you do.

Please keep all colored paper, magazines, glossy paper, carbon paper, newspapers, soda cans, half-eaten sandwiches, etc., out of the recycling containers. If you're recycling an old report, please remove the covers, any colored paper, or plastic bindings. Metal staples and small clips do not need to be removed. Check the list on your desk-top container if you are not sure about what items are acceptable.

If you are "cleaning house" and getting rid of a lot of old forms or files, let your program coordinator know ahead of time so that the waste paper dealer can be called to bring extra containers or to do extra pickups. If the central containers fill up before the scheduled pickup, try pushing the paper down, the container may just be full of a lot of air. If the container is definitely full, find a box to use for the overflow and ask the coordinator to call for a pick up.

JUST A FEW REASONS FOR RECYCLING:

. Solid Waste: It has been estimated that each man, woman, or child produces an average of four pounds of trash every day, almost 1,500 pounds a year. Most of this garbage gets buried in a landfill, and we are running out of land space at an alarming rate. Paper makes up about 25% of landfilled garbage, much of which could be diverted through office paper recycling programs.

. Paper Production: As many of seventeen small trees are required to make one tone of paper. Recycling slows the demand for virgin timber and lessens the strain on our forest resources.

. Energy Conservation: Up to 64% less energy is required to produce paper from waste paper instead of virgin wood pulp. In the case of office paper, the equivalent of almost three barrels of oils is saved for every ton of paper recycled.

. Air and Water Pollution: The manufacturing of paper from used paper instead of from trees produced almost 60% less water and air pollution.

. Water Conservation: The manufacturing of recycled paper uses only half of the water that is required in the manufacturing of virgin paper.

APPENDIX H

SAMPLE KICKOFF MEMOS

TO: (Company Name) Employees
FROM: Jane Doe, Regional Administrator
DATE: June 15, 1990
SUBJECT: Office Paper Recycling at (Agency Name)

Studies show that each office worker throws away an average of a half-pound of recyclable paper everyday. That's the equivalent of (___ tons) a year from our office alone. This means that over (__ trees) and (___ gallons of oil) are needed each year just to keep our office afloat in paper. We're starting a recycling program to put this paper to better use. By recycling, we'll lower our garbage disposal costs, earn revenue from the sale of our paper, and do our part to improve the environment. In addition, a portion of the revenued earned from our program will go to ABC Charity.

Participation in this program will require only small changes in your daily habit. You will be given a desk-top container for storing white paper and computer paper. When your desk-top container is full, simply empty the contents into the central container nearest to your desk. The location of the central containers will be:

NEXT TO ALL OF THE COPY MACHINES
ROOMS 200, 319 AND 452
OUTSIDE THE COFFEE ROOM

Please attend a short orientation to learn more about how the program works. Three fifteen-minute sessions have been scheduled for June 15, 1989. The sessions will start at 9:30 AM, 10:30 AM, and 1:30 PM. Your supervisor has a sign up sheet.

Your participation in this program does make a difference! For every piece of paper you recycle, you will:

. Protect the environment and save natural resources;

. Conserve scarce landfill space; and

. Get the Federal Community involved in Recycling!

If you have any questions about the program, please contact JOHN SMITH AT X-4635. Thanks for your cooperation.

APPENDIX H

SAMPLE KICKOFF MEMOS

TO: (Agency Name) Employees
FROM: Jane Doe, Regional Administrator
DATE: June 15, 1990
SUBJECT: Office Paper Recycling at (Agency Name)

Effective_____, 1990, a recycling program will be implemented in _____(agency name). This program will be very visible to both Federal employees and the citizens that visit this building. Your employees will be given instructions of how you can participate and I trust you will encourage them in this endeavor.

The crisis in landfill availability, the waste disposal crisis, and the Resource Conservation & Recovery Act of 1976, mandating separation of office paper and newspapers require that all Federal agencies support a recycling effort. This program also presents an opportunity for every individual to participate in protecting our environment.

By separating high grade office paper, this agency can recover more than 50% of all waste leaving this building. By selling the paper, the taxpayers, us, will benefit by having the proceeds returned to the Government, and all citizens will benefit by reducing the volume of waste in our landfills and the waste streams, thus protecting the environment.

The program will be simple and effortless. A more detailed presentation of what constitutes a high grade paper will be scheduled later with attractive containers distributed to each employee to facilitate the source separation.

It is requested that you, as a _____ (manager) of your division, appoint a responsible monitor and an alternate as your contact with the agency recycling coordinator. The coordinator will be available to provide guidance and training. Please provide guidance and training. Please provide this coordination with the support he/she needs to make this program a success.

The _____ (agency name) Office Paper Recycling Program needs your full support to succeed. I look forward to your cooperation and a successful recycling program in this (our) building(s).

ROUTING SLIP

- ✔ JAY
- ✔ AL
- ✔ KIM
- ✔ BRANDT
- ✔ AMY

References

Remember that office bond is also valuable recyclable resource. Be sure to remove paper clips, staples, and rubber bands before throwing out paper!

REFERENCES

"Cashing-In Through Recycling and A Multi-Material Recycling Theme Center," State of California Department of Conservation, Division of Recycling, 1025 P Street, Sacramento, CA 95814

"Decision Maker's Guide to Solid Waste Management," U.S. Environmental Protection Agency, Office of Solid Waste, Washington, D.C. 20460

"McDonald's And The Environment," McDonald's Environmental Affairs, McDonald's Corporation, McDonald's Plaza, Oak Brook, IL 60521

"The National Recycling Coalition Measurement Standards and Reporting Guideline," National Recycling Coalition, Suite 305, 1101 30th Street, N.W., Washington, D.C. 20007

"Office Paper Recycling: An Implemental Manual," U.S. Environmental Protection Agency, Office of Solid Waste Management, 401 M Street, SW, Washington, D.C. 20460

"Office Paper Recycling Program," Office of Energy Conservation, 112 E. 14th Avenue, Denver, CO 80203

"Office Paper Recycling Program" and "Buy-Recycled Campaign," Minnesota Office of Waste Management, St. Paul, MN 55108

"Office Recycling Handbook," Metropolitan Services District, 2000 S.W. First Avenue, Portland, OR 97201-5398

"Office Wastepaper Recycling Program (I-Cycle)," Illinois Department of Energy and Natural Resources, 325 W. Adams Street, Room 300, Springfield, IL 62704-1892

"A Proposal For Waste Recycling At The Hyatt Regency Chicago," Hyatt Regency of Chicago, Product Development Division, 151 East Wacker Drive, Chicago, IL, 60601

"Recycling Works! State and Local Solutions to Solid Waste Management Problems," U.S. Environmental Protection Agency, Washington, D.C. 20460

"Starting an Office Recycling Program," Illinois Environmental Protection Agency, 2200 Churchill Road, P.O. Box 19276, Springfield, IL 62794-9276

Waste Age's Recycling Times, National Wastes Management Association, Suite 1000, 1720 Rhode Island Avenue, N.W. Washington, D.C. 20036-3196

"Your Office Paper Recycling Guide," The San Francisco Recycling Program, Division of Solid Waste Management Programs, San Francisco, CA 94102

REFERENCES

Information Contacts	Procurement	Marketing	Collection	Monitoring and Evaluation	Education
RCRA Procurement Hotline (703) 941-4452 M-F 8:30 To 5:30 (EST)	✔				
GSA, Public Building Service POC: Beverly Goldblatt, Recycling Coordinator - Federal Recycling Program (202) 501-0348		✔	✔	✔	
GSA, Building Services Branch - National Capital Region POC: Stanley M. Ismart, (202) 708-6948		✔	✔	✔	
U.S. EPA, Office of Solid Waste, POC: Terry Grist (202) 475-8518			✔	✔	✔
U.S. EPA Region 5, Waste Management Division POC: William MacDowell (312) 886-0976		✔	✔	✔	✔
U.S. EPA Headquarters, RCRA Procurement POC: Richard Braddock (202) 382-2780	✔				

ENVIRONMENTAL GROUPS

NATIONAL RECYCLING COALITION
Suite 305
1101 30th Street, NW
Washington, D.C. 20007
(202) 625-6406

ENVIRONMENTAL DEFENSE FUND
1616 P Street, NW
Suite 150
Washington, D.C. 20036
(202) 387-3500

NATURAL RESOURCES DEFENSE COUNCIL
1350 New York Avenue, NW
Washington, D.C. 20005
(202) 783-7800

KEEP AMERICA BEAUTIFUL
9 West Broad Street
Stamford, CT 06902
(203) 323-8987

CITIZENS FOR A BETTER ENVIRONMENT
407 South Dearborn Street
Suite 1775
Chicago, IL 60605
(312) 939-1530

Errata
This page supersedes "Region 5 State Solid Waste Offices" located in the appendices section

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES
Office of Solid Waste and Renewable Resources
Tim Warren, Director
325 West Adams Street
Room 300
Springfield, IL 62704-1892
(217) 524-5454

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Special Projects
Joanne Joyce, Director
P.O. Box 6015
Indianapolis, IN 46206-6015
(317) 232-5964

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
Waste Management Division
Tim Wright, Solid Waste Management Coordinator
P.O. Box 30241
Lansing, MI 48909
(517) 373-0540

MINNESOTA OFFICE OF WASTE MANAGEMENT
Michael Robertson, Director
1350 Energy Lane
Saint Paul, MN 55108
(612) 649-5403

OHIO DEPARTMENT OF NATURAL RESOURCES
Division of Litter Prevention and Recycling
Mary Ward, Chief
Fountain Square Building F-2
Columbus, OH 43224
(614) 265-6353

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
Bureau of Solid Waste Management
Kate Cooper, Recycling Coordinator
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921
(608) 267-7566

LAWS AND REGULATIONS

The Solid Waste Disposal Act, as amended, 1987

District of Columbia Bill 7-378, the "District of Columbia Solid Waste Management and Multi-Material Recycling Act of 1988"

Procurement Guideline for Cement and Concrete Containing Fly Ash, 40 CFR Part 249, January 1983

Procurement Guideline for Paper and Paper Products, 40 CFR Part 250, June 1988

Procurement Guideline for Lubricating Oils Containing Refined Oil, 40 CFR Part 252, June 1988

Procurement Guideline for Retread Tires, 40 CFR Part 253, November 1988

Procurement Guideline for Building Insulation Products, 40 CFR Part 248, February 1989

Public Utilities Regulatory and Policy Act (PURPA)

Safe Drinking Water Act (SDWA)

Clean Water Act (CWA)

Resource Conservation and Recovery Act (RCRA)

RCRA - Subtitle D (Solid Waste Management)

RCRA - Subtitle F (Procurement of Recycled Materials and Energy)

RCRA - Subtitle C - (Hazardous Waste)

Clean Air Act (CAA)

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

INDUSTRY CONTACTS

Aluminum Association, 900 19th Street, NW, Washington, D.C. 20006 (202) 862-5100

Aluminum Recycling Association, 1000 16th Street, NW, Suite 603, Washington, D.C. 20036 (202) 785-0951

American Paper Institute, 260 Madison Avenue, New York, NY 10016 (212) 340-0654

Association of State and Territorial Solid Waste Management Officials, 444 North Capitol Street, Washington, D.C. 20001 (202) 624-5828

Council on Plastic and Packaging in the Environment, 1275 K Street, NW, Suite 300, Washington, D.C. 20005 (202) 789-1310

Environmental Defense Fund, 257 Park Avenue, South, New York, NY 10010 (212) 505-2100

Environmental Institute, a division of the Institute for International Research, 331 Madison Avenue, 6th Floor, New York, NY 10017 (212) 883-1770

Food Service and Packaging Institute, 1025 Connecticut Avenue, NW, Suite 513, Washington, D.C. 20036 (202) 347-3756

Glass Packaging Institute, 1801 K Street, NW, Suite 1105-L, Washington, D.C. 20006 (202) 887-4850

Governmental Advisory Associates, Inc., 177 East 87th Street, Room 404, New York, NY 10128 (212) 410-4165

Governmental Refuse Collection and Disposal Association, 8750 Georgia Avenue, Suite 123, P.O. Box 7219, Silver Spring, MD 20910 (301) 585-2898

Institute for Local Self-Reliance, 2425 18th Street, NW, Washington, D.C. 20009 (202) 232-4108

Institute of Scrap Recycling Industries, Inc., 1627 K Street, NW, Washington, D.C. 20006 (202) 466-4050

Keep America Beautiful, Inc., Mill River Plaza, 9 West Broad Street, Stamford, CT 06902 (203) 323-9897

National Association for Plastic Container Recovery, 5024 Parkway Plaza Boulevard, Suite 200, Charlotte, NC 28217 (704) 357-3250

National Association of Counties, 440 First Street, NW, Washington, D.C. 20001 (202) 393-6226

National Association of Towns and Townships, 1522 K Street, NW Suite 730, Washington, D.C. 20005 (202) 737-5200

National League of Cities, 1301 Pennsylvania Avenue, NW, Washington, D.C. 20004 (202) 626-3000

National Oil Recyclers Association, 2600 Virginia Avenue, NW, Suite 1000, Washington, D.C. 20037 (202) 333-8800

National Soft Drink Association, Solid Waste Management Department, 1101 16th Street, NW, Washington, D.C. 20036 (202) 463-6740

National Solid Waste Institute, 10928 North 56th Street, Tampa, FL 33617 (813) 985-3208

National Solid Waste Management Association, 1730 Rhode Island Avenue, NW, Suite 1000, Washington, D.C. 20036 (202) 659-4613

National Tire Dealers and Retreaders Association, 1250 I Street, NW, Suite 4000, Washington, D.C. 20005 (202) 789-2300

Polystyrene Packaging Council, Inc., 1025 Connecticut Avenue, NW, Washington, D.C. 20036 (202) 822-6424

RCRA Information Center, Office of Solid Waste (OS-305), U.S. Environmental Protection Agency, 401 M Street, SW, Washington, D.C. 20460 (202) 475-9327

RCRA/Superfund Hotline: (800) 424-9346 (FTS) 8-382-3000

Recycled Products Guide, American Recycling Market, Inc., P.O. Box 577, Ogdensburg, NY 13669 (800) 267-0707

Society of the Plastics Industry, 1275 K Street, NW, Suite 400, Washington, D.C. 20005 (202) 371-5200. Also, the Council for Solid Waste Solutions, a program of SPI.

Steel Can Recycling Institute, Foster Plaza X, 680 Andersen Drive, Pittsburgh, PA 15220 (800) 876-SCRI

Technical Association for the Pulp and Paper Industry, 15 Technology Parkway South, Norcross, GA 30092, (800) 332-8686

U.S. Conference of Mayors, 1620 I Street, NW, 4th Floor, Washington, D.C. 20006 (202) 293-7330. Affiliate group: National Resource Recovery Association

INDUSTRY CONTACTS

SOLID WASTE ACRONYMS

ANSI	American National Standards Institute
BAN	Bond Anticipation Note
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CSWMP	County Solid Waste Management Plan
EIS	Environmental Impact Statement
EPA	(United States) Environmental Protection Agency
ESP	Electrostatic Precipitator
GO bond	General Obligation Bond
HDPE	High-Density Polyethylene
HHW	Household Hazardous Waste
HSWA	Hazardous and Solid Waste Amendments
IRB	Industrial Revenue Bond
IPC	Intermediate Processing Center
LDPE	Low-Density Polyethylene
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
MWC	Municipal Waste Combustor
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NIMBY	Not In My Back Yard
NSPS	New Source Performance Standards
NSWMA	National Solid Wastes Management Association
ONP	Old Newspaper
PCB	Polychlorinated Biphenyl
PCRB	Pollution Control Revenue Bond
PET	Polyethylene Terphthalate
PP	Polypropylene
PSD	Prevention of Significant Deterioration
PVC	Polyvinyl Chloride
RAN	Revenue Anticipation Note
RCRA	Resource Conservation and Recovery Act
RDF	Refused-Derived Fuels
SQG	Small Quantity Generator
SWDA	Solid Waste Disposal Act
TAN	Tax Anticipation Note
VOC	Volatile Organic Compound

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(Several of the definitions included here are drawn from Garbage Solutions: A Public Official's Guide to Recycling and Alternative Solid Waste Management Technologies, by Marian Chertow (1989).)

Aeration - The process of exposing bulk material, such as compost, to air. Forced Aeration refers to the use of blowers in compost piles.

Aerobic - A biochemical process or condition occurring in the presence of oxygen.

Air Classification - A process in which a stream of air is used to separate mixed material according to the size, density and aerodynamic drag of the pieces.

Algal Bloom - Population explosion of algae (simple one-celled or many-celled, usually aquatic, plants) in surface water. Algal blooms are associated with nutrient-rich runoff from composing facilities or landfills.

Anaerobic - A biochemical process or condition occurring in the absence of oxygen.

Baghouse - A municipal waste combustion facility air emission control device consisting of a series of fabric filters through which MWC flue gases are passed to remove particulates prior to atmospheric dispersion

Baler - A machine used to compress recyclables into bundles to reduce volume. Balers are often used on newspaper, plastics and corrugated cardboard.

Biodegradable Material - Waste material which is capable of being broken down by microorganisms into simple, stable compounds such as carbon dioxide and water. Most organic wastes, such as food wastes and paper, are biodegradable.

Bottle Bill - A law requiring deposits on beverage containers (see Container Deposit Legislation).

Broker - An individual or group of individuals that act as an agent or intermediary between the sellers and buyers of recyclable materials.

Btu (British Thermal Unit) - Used as a unit of measure for the amount of energy a given material contains (e.g., energy released as heat during combustion is measured in Btus. Technically, one Btu is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit.

Buffer Zone - Neutral area which acts as a protective barrier separating two conflicting forces. An area which acts to minimize the impact of pollutants on the environment or public welfare. For example, a buffer zone is established between a composting facility and neighboring residents to minimize odor problems.

Bulking Agent - A material used to add volume to another material to make it more porous to air flow. For example, municipal solid waste may act as a bulking agent when mixed with water treatment sludge.

Bulky Waste - Large items of refuse, including but not limited to appliances, furniture, large auto parts, non-hazardous construction and demolition materials, trees, branches and stumps which cannot be handled by normal solid waste processing, collection and disposal methods.

Buy-Back Center - A facility where individuals bring recyclables in exchange for payment.

Centralized Yard Waste Composting - System utilizing a central facility within a politically defined area with the purpose of composting yard wastes.

Clean Air Act - Act passed by Congress to have the air "safe enough to protect the public's health" by May 31, 1975. Required the setting of National Ambient Air Quality Standards (NAAQS) for major primary air pollutants.

Clean Water Act - Act passed by Congress to protect the nation's water resources. Requires EPA to establish a system of national effluent standards for major water pollutants, requires all municipalities to use secondary sewage treatment by 1988, sets interim goals of making all U.S. waters safe for fishing and swimming, allows point source discharges of pollutants into waterways only with a permit from EPA, requires all industries to use the best practicable technology (BTP) for control of conventional and non-conventional pollutants and to use the best available technology (BAT) that is reasonable or affordable.

Co-composting - Simultaneous composting of two or more diverse water streams.

Commercial Waste - Waste materials originating in wholesale, retail, institutional or service establishments such as office buildings, stores, markets, theaters, hotels and warehouses.

Commingled Recyclables - A mixture of several recyclable materials into one container.

Compactor - Power-driven device used to compress materials to a smaller volume.

Compost - The relatively stable decomposed organic material resulting from the composting process. Also referred to as humus.

Composting - Controlled biological decomposition of organic waste under conditions.

Construction and Demolition Waste - Materials resulting from the construction, remodeling, repair or demolition of buildings, bridges, pavements and other structures.

Container Deposit Legislation - Laws that require monetary deposits to be placed on beverage containers. The money is returned to the consumer when the containers are returned to the retailer. Also called "Bottle Bills."

Corrugated - Paper or cardboard manufactured in a series of wrinkles that form alternating ridges and grooves.

Cullet - Clear, usually color-sorted, crushed glass used to make new glass products.

Curbside Collection - Programs where recyclable materials are collected at the curb, often from special containers, to be brought to various processing facilities.

Decomposition - Breaking down into component parts or basic elements

Densified Refuse-Derived Fuel (d-RDF) - A refuse-derived fuel that has been processed to produce briquettes, pellets or cubes.

Detinning - Recovering tin from "tin" cans by a chemical process which makes the remaining steel more easily recycled.

Dioxins - Heterocyclic hydrocarbons that occur as toxic impurities, especially in herbicides.

Diversion Rate - A measure of the amount of waste material being diverted for recycling compared with the total amount that was previously thrown away.

Drop-off Center - A method of collecting recyclable or compostible materials in which the materials are taken by individuals to collection sites and deposited into designated containers.

Electrostatic Precipitator - Device for removing particulate matter from MWC facility air emissions. It works by causing the particles to become electrostatically charged and then attracting them to an oppositely charged plate, where they are precipitated out of the air.

Emission - Discharge of a gas into atmospheric circulation.

Energy Recovery - Conversion of waste energy, generally through the combustion of processed or raw refuse to produce steam. See also "Municipal Waste Combustion," and Incineration.

Enterprise Fund - A fund for a specific purpose that is self-supporting from the revenue it generates.

Ferrous Metals - Metals that are derived from iron. They can be removed using large magnets at separation facilities.

Fly Ash (flyash) - Small, solid particles of ash and soot generated when coal, oil, or waste materials are burned. Fly ash is suspended in the flue gas after combustion and is removed by the pollution control equipment.

Flow Control - A legal or economic means by which waste is directed to particular destinations. For example, an ordinance requiring that certain wastes be sent to a combustion facility is waste flow control.

Garbage - Spoiled or waste food that is thrown away, generally defined as wet food waste. It is used as a general term for all products discarded.

Ground water - Water beneath the earth's surface that fills underground pockets (known as aquifers) and moves between soil particles and rock, supplying wells and springs.

Hammermill - A type of crusher or shredder used to break up waste materials into smaller pieces.

Hazardous Waste - Waste material that may pose a threat to human health or the environment, the disposal and handling of which is regulated by federal law.

Heavy Metals - Hazardous elements including cadmium, mercury, and lead which may be found in the waste stream as part of discarded items such as batteries, lighting fixtures, colorants and inks.

High Grade Paper - Relatively valuable types of paper such as computer printout, white ledger, and tab cards. Also used to refer to industrial trimmings at paper mills that are recycled.

Humus - Organic materials resulting from decay of plant or animal matter. Also referred to as compost.

Hydrogeology - The study of surface and subsurface water.

Incinerator - Facility in which the combustion of solid waste takes place.

Incinerator Ash - The remnants of solid waste after combustion, including non-combustibles (e.g., metals) and soot.

Industrial Waste - Materials discarded from industrial operations or derived from manufacturing processes.

Inorganic Waste - Waste composed of matter other than plant or animal (i.e., contains no carbon).

Institutional Waste - Waste materials originating in schools, hospitals, prisons, research institutions and other public buildings.

Integrated Solid Waste Management - A practice of using several alternative waste management techniques to manage and dispose of specific components of the municipal solid waste stream. Waste management alternatives include source reduction, recycling, composting, energy recovery and landfilling.

In-Vessel Composting - A composting method in which the compost is continuously and mechanically mixed and aerated in a large, contained area.

IPC - Intermediate Processing Center - Usually refers to the type of materials recovery facility (MRF) that processes residentially collected mixed recyclables into new products available for market; often used interchangeably with MRF.

Leachate - Liquid that has percolated through solid waste or another medium and has extracted, dissolved, or suspended materials from it, which may include potentially harmful materials. Leachate collection and treatment is of primary concern at municipal waste landfills.

Magnetic Separation - A system to remove ferrous materials from other materials in a mixed municipal waste stream. Magnets are used to attract the ferrous materials.

Mandatory Recycling - Programs which by law require consumers to separate trash so that some or all recyclable materials are not burned or dumped in landfills.

Manual Separation - The separation of recyclable or compostible materials from waste by hand sorting.

Mass Burn - A municipal waste combustion technology in which solid waste is burned in a controlled system without prior sorting or processing.

Mechanical separation - The separation of waste into various components using mechanical means, such as cyclones, trammels, and screens.

Methane - An odorless, colorless, flammable, and explosive gas produced by municipal solid waste undergoing anaerobic decomposition. Methane is emitted from municipal solid waste landfills.

Microorganisms - Microscopically small living organisms that digest decomposable materials through metabolic activity. Microorganisms are active in the composting process.

Modular Incinerator - Smaller-scale waste combustion units prefabricated at a manufacturing facility and transported to the MWC facility site.

MSW Composting - Municipal Solid Waste Composting - The controlled degradation of municipal solid waste including after some form of preprocessing to remove non-compostible inorganic materials.

Mulch - Ground or mixed yard wastes placed around plants to prevent evaporation of moisture and freezing of roots and to nourish the soil.

Municipal Solid Waste (MSW) - Includes non-hazardous waste generated in households, commercial and business establishments, institutions, and light industrial process wastes, agricultural wastes, mining waste and sewage sludge. In practice, specific definitions vary across jurisdictions.

GLOSSARY

NIMBY - Acronym for "Not In My Back Yard" - expression of resident opposition to the siting of a solid waste facility based on the particular location proposed.

Organic Waste - Waste material containing carbon. The organic fraction of municipal solid waste includes paper, wood, food wastes, plastics and yard wastes.

Particulate Matter (PM) - Tiny pieces of matter resulting from the combustion process that can have harmful health effects on those who breathe them. Pollution control at MWC facilities is designed to limit particulate emissions.

Participation Rate - A measure of the number of people participating in a program compared to the total number that could be participating.

Pathogen - An organism capable of causing disease.

Percolate - To ooze or trickle through a permeable substance. Ground water may percolate into the bottom of an unlined landfill.

Permeable - Having pores or openings that permit liquids or gases to pass through.

Post-Consumer Recycling - The reuse of materials generated from residential and commercial waste, excluding recycling of material from industrial processes that has not reached the consumer, such as glass broken in the manufacturing process.

Recyclables - Materials that still have useful physical or chemical properties after serving their original purpose which can, therefore, be reused or remanufactured into additional products.

Recycling - The process by which materials otherwise destined for disposal are collected, reprocessed or remanufactured, and reused.

Refractory - A material that can withstand dramatic heat variations. Used to construct conventional combustion chambers in incinerators. Currently, waterwall systems are becoming more common.

Refuse-Derived Fuel (RDF) -Product of a mixed waste processing system in which certain recyclable and non-combustible materials are removed, and the remaining combustible material is converted for use as a fuel to create energy.

Residential Waste - Waste materials generated in single- and multiple-family homes.

Residue - Materials remaining after processing, incineration and utilization of materials and energy from the waste stream. The term is sometimes used synonymously with energy recovery.

Resource Recovery - A term describing the extractionand utilization of materials and energy from the waste stream. The term is sometimes used synonymously with energy recovery.

Retention Basin - An area designed to retain runoff and prevent erosion and pollution.

Reuse - The use of a product more than once in its same form for the same purpose; e.g., a soft-drink bottle is reused when it is refined in the bottling company for refilling.

Roll-off Container - A large waste container that fits onto a tractor trailer that can be dropped off and picked up hydraulically.

Sanitary Landfill - Land waste disposal site that is located to minimize water pollution from runoff and leaching. Waste is spread in thin layers, compacted, and covered with a fresh layer of soil each day to minimize pest, aesthetic, disease, air pollution, and water pollution problems.

Scavenger - One who illegally removes materials at any point in the solid waste management system.

Scrap - Discarded or rejected industrial waste material often suitable for recycling.

Scrubber - Common anti-pollution device that uses a liquid or slurry spray to remove acid gases and particulates from municipal waste combustion facility flue gases.

Secondary Material - A material that is used in place of a primary or raw material in manufacturing a product.

Sludge - A semi-liquid residue remaining from the treatment of municipal and industrial water and wastewater.

Soil Liner - Landfill liner composed of compacted soil used for the containment of leachate.

Source Reduction - The design, manufacture, acquisition and reuse of materials so as to minimize the quantity and/or toxicity of waste produced. Source reduction prevents waste either by redesigning products or by otherwise changing societal patterns of consumption, use, and waste generation.

Source Separation - The segregation of specific materials at the point of generation for separate collection. Residences source separate recyclables as part of a curbside recycling program.

Special Waste - Refers to items that require special or separate handling, such as household hazardous wastes, bulky wastes, tires, and used oil.

Stack Emissions - Air emissions from a combustion facility's stacks.

Subtitle C - The hazardous waste section of the Resource Conservation and Recovery Act (RCRA).

Subtitle D - The solid, non-hazardous waste section of the Resource Conservation and Recovery Act (RCRA).

Subtitle F - Section of the Resource Conservation and Recovery Act (RCRA) requiring the federal government to actively participate in procurement programs fostering the recovery and use of recycled materials and energy.

Superfund - Common name for the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to clean up abandoned or inactive hazardous waste dump sites.

Tipping Fee - A fee, usually dollars per ton, for the unloading or dumping of waste at a landfill, transfer station, recycling center, or waste-to-energy facility, usually stated in dollars per ton; also called a disposal or service fee.

Tipping Floor - Unloading area for vehicles that are delivering municipal solid waste to a transfer station or municipal waste combustion facility.

Transfer Station - A permanent location where waste materials are taken from smaller collection vehicles and placed in larger vehicles for transport including truck trailers, railroad cars, or barges. Recycling and some processing may also take place at transfer stations.

Trash - Material considered worthless, unnecessary or offensive that is usually thrown away. Generally defined as dry waste material, but in common usage it is a synonym for garbage, rubbish or refuse.

Tub Grinder - Machine to grind or chip wood wastes for mulching, composting or size reduction.

Variable Container Rate - A charge for solid waste services based on the volume of waste generated measured by the number of containers set out for collection.

Volume Reduction - The processing of waste materials so as to decrease the amount of space the materials occupy, usually by compacting or shredding (mechanical), incineration (thermal), or composting (biological).

Waste Exchange - A computer and catalog network that redirects waste materials back into the manufacturing or reuse process by matching companies generating specific wastes with companies that use those wastes as manufacturing inputs.

Waste Reduction - Reducing the amount or type of waste generated. Sometimes used synonymously with Source Reduction.

Waste Stream - A term describing the total flow of solid waste from homes, businesses, institutions and manufacturing plants that must be recycled, burned or disposed of in landfills; or any segment thereof, such as the "residential waste stream" or the "recyclable waste stream."

Water Table - Level below the earth's surface at which the ground becomes saturated with water. Landfills and composting facilities are designed with respect to the water table in order to minimize potential contamination.

Waterwall Incinerator - Waste combustion facility utilizing lined steel tubes filled with circulating water to cool the combustion chamber. Heat from the combustion gases is transferred to the water. The resultant steam is sold or used to generate electricity.

Wetland - Area that is regularly wet or flooded and has a water table that stands at or above the land surface for at least part of the year. Coastal wetlands extend back from estuaries and include salt marshes, tidal basins, marshes, and mangrove swamps. Inland freshwater wetlands consist of swamps, marshes, and bogs. Federal regulations apply to landfills sited at or near wetlands.

Wet Scrubber - Anti-pollution device in which a lime slurry (dry lime mixed with water) is injected into the flue gas stream to remove acid gases and particulates.

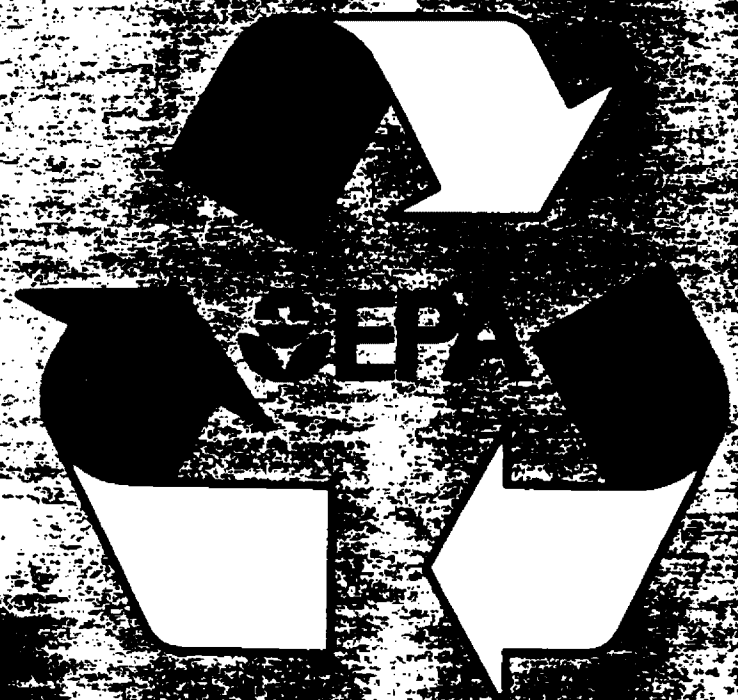
White Goods - Large household appliances such as refrigerators, stoves, air conditioners and washing machines.

Windrow - A large, elongated pile of composting material.

Yard Waste - Leaves, grass clippings, prunings, and other natural organic matter discarded from yards and gardens. Yard wastes may also include stumps and brush, but these materials are not normally handled at composting facilities.

EPA

Developing a Federal Office Recycling Program



on Recycled Paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
ADMINISTRATION
AND RESOURCES
MANAGEMENT

The Environmental Protection Agency (EPA) has published various documents covering the waste management crisis facing this country. Developing A Comprehensive Federal Recycling Program is produced by the Office of Administration and Resources Management primarily for government agencies. The purpose of this document is to develop a broader understanding of the term "recycling program". Recycling must include education, collection, marketing, procurement, monitoring and evaluation. This document stresses the importance of each of the activities in establishing and maintaining an effective program.

While this is not a detailed operating manual, it does outline the necessary steps for designing and implementing a comprehensive office recycling program in a federal agency. Flexibility is a key factor when designing a recycling program. A program that works for a large agency located in or near a major city with good markets for recylables, may have to be altered for a small agency located away from a major city. Mandatory recycling laws, such as the one covering all commercial and federal buildings in Washington, D. C., will also impact the scope, priorities and timing of your program.

Finally, we wanted to share with you our experience and information and to encourage you to get involved. Recycling is the "right thing to do" if we are to conserve our natural resources and preserve our land for future generations.

We have provided an Information Sheet at the back of this publication. Please use it to let us know about your accomplishments. We wish you every success in your recycling efforts.

Charles L. Grizzle
Assistant Administrator

DEVELOPING A COMPREHENSIVE FEDERAL OFFICE RECYCLING PROGRAM: WHAT YOU NEED TO KNOW

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INTRODUCTION

Office Recycling - Why Should My Agency Get Involved?

Through the early 1980s, solid waste management programs in the United States relied heavily on traditional waste disposal methods such as landfills and, to some extent, incineration. As a consequence, the environment and the economy were affected by contamination from under-designed and poorly located landfills and by losses of valuable land and material resources. Early conservation and recycling regulations written in the 1970's and the Resource Conservation and Recovery Act (RCRA) amendments of 1984 called for a new direction in managing solid and hazardous waste including source reduction, resource conservation, and recycling. However, national attention has been focused on the more threatening hazardous waste management issues. Intensified problems with managing solid waste have re-focused the nation's attention on the importance of waste minimization, recycling and conservation . Government leaders and representatives from all sectors of our society have come to realize that success in protecting the environment requires not only sound management of wastes and pollutants, but also an absolute reduction in the amount of waste generated.

Recycling, therefore, has moved to the forefront as an environmentally protective, technically feasible, cost-effective approach to solid waste management. In 1989, the U.S. Environmental Protection Agency (EPA) published its "Agenda for Action," a plan for addressing the nation's waste management issues. The plan was produced with the help of a consortium of leaders representing state agencies, local governments, industry, other Federal agencies, and environmental organizations. Waste reduction and recycling are two of the top priorities in the plan. This plan calls for at least a 25% reduction by 1992 in the volume of solid waste currently disposed in landfills by enhanced source reduction and recycling efforts.

There is a groundswell of recycling activity at the grassroots level, evident by the formation of numerous voluntary programs and a push to make recycling the public policy. By the end of 1989, at least 38 states and hundreds of local governments had enacted recycling laws. Furthermore, federal agency offices located in some of these states and local jurisdictions, such as those in the District of Columbia, must comply with the recycling ordinances of those jurisdictions.

Because office recycling is recognized as an important opportunity for furthering waste reduction aims, the Federal government increasingly has taken steps to set up and facilitate recycling programs in its offices nationwide. Various agencies have initiated recycling programs and formed interagency committees to promote recycling activities. For example, EPA, the General Services Administration (GSA), the Department of the Interior (DOI), the Department of Energy (DOE), and the Government Printing Office (GPO) have shared information and jointly designed procedures to promote recycling achievements. This handbook was prepared by the EPA Office of Administration and Resources Management, Facilities Management and Services Division, as a continuation of these efforts.

Other EPA agency offices have produced materials focusing on specific aspects of recycling. The EPA Office of Solid Waste (OSW), for example, recently updated its implementation manual on recycling high-grade office paper. The OSW manual provides extensive technical and programmatic detail on high grade office paper recycling. Because much of the information can be adapted to organizing a comprehensive office recycling program, you will find direct references to the manual in this handbook. Furthermore, **Appendix A** lists additional reference materials available through other Federal, State, and local agencies, and private organizations. **Appendix B** lists contacts for recycling information.

How Can This Handbook Help Me Design And Implement A Comprehensive Office Recycling Program?

This handbook is designed to help you:

- Identify the basic recycling program components necessary for a comprehensive office recycling program.
- Understand the factors to consider when putting program components into place.
- Develop a step-by-step plan for designing and implementing a comprehensive office recycling program in your agency.

A key aspect of this handbook is its emphasis on flexibility and being able to adapt to changing conditions. The technology and procedures for recycling are still in the developmental stage.

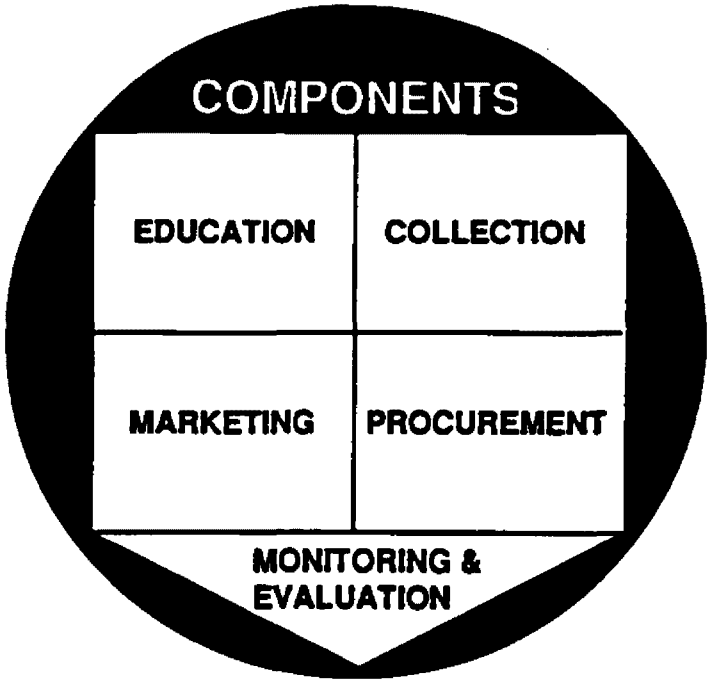
The content of this handbook includes:

- **An Overview** of the basic components of a comprehensive office recycling program, and the procedural steps involved in program design and implementation.
- **Detailed Program Components**, including a definition, design options, special factors to consider when designing the component, people who should be involved in designing and implementing the component, tips on how to design and implement the component.
- **Implementation Suggestions**, which include procedural steps for designing and implementing the entire program.

Where appropriate, the handbook uses a question and answer format to guide you through the pertinent information.

SUGGESTION:

If you are responsible for designing and implementing a comprehensive office recycling program at your agency, you may find it useful to read the entire handbook sequentially. If, on the other hand, your agency's program is already operating, individual chapters may provide you with ideas for fine-tuning your program.



What Is A Comprehensive Office Recycling Program?

A comprehensive recycling program consists of five basic, interrelated components:

- **Education** : Agency staff are prepared for the initiation of the recycling program, encouraged to participate, informed of program achievements, and asked for ideas on improving the program or broadcasting information.
- **Collection**: Recyclable materials are separated, gathered, and stored for transport from your agency.
- **Marketing**: Contracts to sell the recyclable material are identified and secured.
- **Procurement**: Contracts to buy agency supplies made from recycled materials are identified and secured. External procurement by State and local agencies using Federal funds, or by Federal agency contractors are monitored.
- **Monitoring and Evaluation**: Each facet of the program is surveyed, measured, and then rated to assess efficiency and progress, enabling agency leaders and staff to see program strengths, accomplishments, and weaknesses.

Each component is essential to a comprehensive recycling program but must be custom-tailored to your agency's unique characteristics and needs.

Why Are All Of The Components Important?

Education is crucial to initiate and support a behavioral change. Research demonstrates that people tend to change behavior when it is clear how the change serves our best interest or that of our children, and when new behaviors are easy to adopt. An ongoing education component of your recycling program provides this needed information. Without a strong educational component, your recycling effort will be invisible, participation in it will be weak, and the program will suffer or fail.

Collection is necessary to remove recyclable materials from the waste stream.

Marketing returns the recyclable materials to the economy where they become raw materials for new products or alternative products.

Procurement distinguishes recycling programs from collection programs. As the component that completes the recycling loop, procurement builds demand for the recyclable materials you collect. Failure to procure recycled materials eventually leads to a collapse of the system because of over supply. Many areas of the U.S. currently are experiencing a severe weakening of the newsprint market due to over supply.

Monitoring and Evaluation keeps the program on track. By assessing where you are, where you want to go, and how you will measure your progress, and then performing regular checks, you can keep your recycling program attuned to your agency's needs, market conditions, and program objectives.

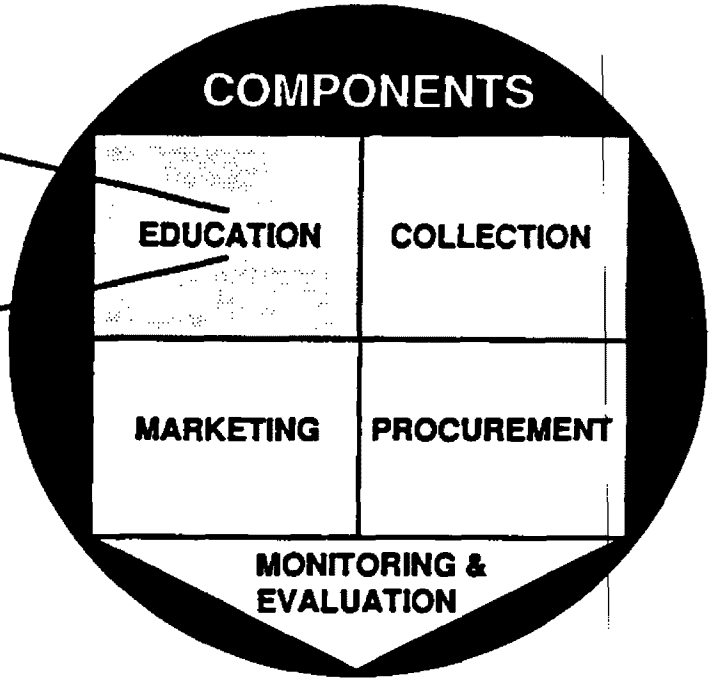
Who Is Responsible For Designing And Implementing A Comprehensive Office Recycling Program?

Recycling is a multi-faceted effort involving the agency's top managers, building management staff, program managers, procurement staff, public information specialists, volunteers — in short — your entire agency and the contractors who support your efforts.

To design and implement a program that fits your agency and receives the support necessary for success, strong intra-agency cooperation is needed. Many agencies have launched successful recycling programs based on the strength of volunteer commitment. Most recycling program representatives report, however, that dedicating at least part-time staff to the effort pays high dividends in terms of the time and effort saved in launching and maintaining a program. In particular, agency representatives stress the importance of a **recycling coordinator** who can help organize a recycling committee and direct personnel in performing the many individual functions that comprise recycling program components.

EDUCATION

What is education?
What education options exist?
What factors should I consider in designing my agency's education component?
Who is responsible for designing and implementing my agency's education component?
How do I design and implement my agency's education component?



What Is Education?

Education for your agency's recycling program is a **planned, ongoing**, and **multi-faceted information exchange** that **involves agency-wide staff**, recycling and other agency program leaders, and top managers within your agency.

A **planned** effort is important because it enables you to take stock of the:

- Awareness and commitment your agency staff have regarding recycling.
- Information needed throughout the agency to encourage staff participation.
- Audiences existing within your agency .
- Messages and channels you can use to reach those audiences.

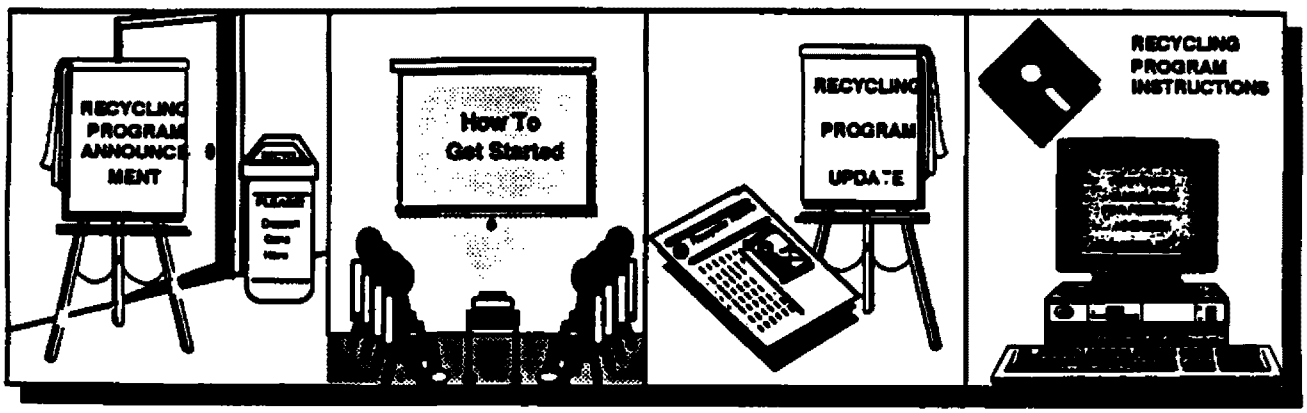
The time spent planning who you want to reach, and how, will pay off in an educational effort that encourages participation, promotes the success of your recycling programs and builds satisfaction in the agency.

Experienced recycling coordinators stress that an **ongoing** educational program is a must; that it simply will not be sufficient to broadcast information about recycling once or even infrequently.

Once you have interested your co-workers in recycling, you need to maintain their interest by designing a **multi-faceted** educational program. From memos to recycling events and awareness weeks, you can plan a variety of techniques that pay off with recycling participation and create a positive environment and esprit de corps in the agency.

Finally, **agency-wide involvement** in designing and implementing your educational program is as important as agency-wide involvement in recycling itself. As you plan your educational efforts, consult people from all sectors of the agency. They are important in shaping the type of information you need to convey. Equally important, everyone from your agency's top executive to entry-level staff should bring visibility to your agency's recycling program. And don't forget to include recycling in your new employee orientation, it's important to get new employees involved in the program immediately. EPA has prepared a brochure on recycling in the agency that is distributed to all of its new employees, which enables education to begin on an employee's first-day on the job.

EDUCATION: Interacting with agency staff to organize and convey information on recycling:



What Education Options Exist?

The Chart on the following page illustrates a variety of educational techniques and their applications according to various agency characteristics.

TOOLS FOR MOBILIZING STAFF SUPPORT THROUGH EDUCATION

TECHNIQUE	BENEFITS	TRADE-OFFS	TIMING
Memos	Reflects agency policy; can reach every employee inexpensively	Good initial/supplemental communication; NOTE: insufficient motivators as sole communication tool	Major Milestones
Display, Charts, Graphs, Facility Model Examples	Creates interest; pictures and words strengthens information conveyance; can be transported; offers range of cost	Attention-holders for limited time periods, depending on style, content; should be circulated around facility/agency	2 weeks prior to start and periodically
Flyers	Attention-getting; quickly distributed for announcements; pictures and words informative		2 weeks prior to start and periodically
Demonstrations Show and Tell	High powered for interest enables exchange of information	Good opportunity to obtain feedback on program	Periodically
Instructional Materials: Handbook, Cards	Staff can refer to repeatedly; equips employees to participate and to train others to participate		2 weeks prior to start and periodically
Posters	Good attention-getters; high creative potential		Start + Achievements
Agency Newsletters	Can convey detailed explanation that can be referred to repeatedly; illustrates program legitimacy	Lends credibility to program; varied messages can be conveyed in regular publication	2 months prior to start and monthly
PA Announcements	Adds diversity; good attention-getter	Voice feature plus other techniques stimulates interest	2 weeks prior to start and periodically
Buttons/ Bumper Stickers/ Banners	Good to gain/illustrate program participation; promotes good spirit	Helps program visibility and positive image	1 month prior to start and ongoing
Special Events: Kick-off, Talent Show, Awards Ceremonies, Awareness Week	Promotes good spirit; promotes fun	Good capability for creating interest, involving agency-wide support, attracting volunteers, promoting recycling, and conveying wide range of information	Start and periodically
Multi-media Shows	Creates high interest; can impart detailed information	Provide capability for wide distribution	Start and periodically
Speeches	Good to demonstrate management support, foster participation	Strong leadership and effective speaking can invigorate the program	Major Milestones
Conferences/ Trade Shows	Excellent source of ideas; information exchange		Early and as Needed

What Factors Should I Consider in Designing And Implementing My Agency's Education Component?

Consider the awareness and commitment to recycling that exists among staff and managers in your agency. Their attitude and involvement plays a crucial role in helping you decide the educational approach your agency will take in promoting recycling.

For example, if your recycling organizers and top managers agree, that the agency's goal will be to show leadership in recycling efforts by recycling the majority of materials in the waste stream, this implies certain educational messages. Agency values implicit in these objectives are pride of leadership, ambitious effort, and environmental conservation. If your agency is small, efforts to rally staff participation around these values can include frequent small gatherings for demonstrations, activities, or audio-visual presentations on recycling. Having top management behind your recycling efforts, can mean that your agency director contributes regularly to or is an active spokesperson for agency recycling efforts.

A small office also might link recycling efforts with other offices or departments. This would imply ongoing communication with staff and program leaders in these agencies to develop appropriate messages regarding the recycling program, including status reports on the project. The following chart provides additional examples of how various factors can shape your recycling program's educational component.

FACTOR:	IMPACT ON EDUCATION SYSTEM DESIGN:
Program Objectives: Expand agency's marginal, voluntary recycling program to full-fledged agency-wide program	Initiate development of multi-faceted communication strategy identifying opinion leaders throughout agency and current impediments to recycling popularity
Agency Characteristics: 20 story urban headquarters office with ten regional facilities of 40-50 staff members	Organize headquarters recycling committee; establish contacts in each regional office; prepare agency-wide news article announcing plans to expand recycling, and explaining recycling concepts
Commitment to Recycling: Motivate core group and top agency director, otherwise you will have unfamiliarity with recycling concept	Engage agency director to meet with recycling program leaders at headquarters and in each region; broadcast director's position on recycling; discuss recycling education concepts with program directors and staff throughout agency

Who Is Responsible for Designing And Implementing My Agency's Education Component?

Regardless of the size of your agency, you will have diversity among your staff and probably among the programs handled by the agency. In order to reflect that diversity, it is best for more than one person to work on education. Three to seven people can best stimulate creativity, enable good outreach within the agency, and divide up the responsibilities. When you set up your recycling program organization, select people who are interested and who will plan to devote regular time to the recycling effort. Developing ongoing communication and good rapport with people throughout this network from the start will lay invaluable groundwork for your recycling committee's ongoing efforts. Your education subcommittee can benefit if you:

- **Involve as many employees as possible.** This not only will ensure diversity in what and how you tell employees about recycling, it will catalyze agency-wide support and participation in your program.

- **Stress volunteerism.** Use periodic recruiting campaigns to enlist volunteers and even more importantly, publicize the contributions to recycling achievements made by volunteers.

Recycling is, in a real sense, an activity that appropriately involves your entire agency, therefore your educational activities should have the broadest outreach possible.

How Do I Design And Implement My Agency's Education Component?

To design and implement your educational program, you will need some basic and important tools which best can be thought of in terms of:

- **Who - should relay and receive information?** One of the recycling committee's first responsibilities will be to develop a network of communication by identifying:

  - The formal and informal communication paths within the agency, for example, the agency's organizational structure, ongoing staff meetings, newsletters, or procedures for distributing memos.

  - Key contact personnel such as the agency's top managers, information office staff, program directors, facilities service directors, waste management staff , grants administration, and procurement staff.

  - Various audiences within the agency, for example, program divisions, technical staff, administrative staff, support services staff, clubs or social organizations within the agency.

- **What - needs to be said about recycling?** This is where your education subcommittee or staff analyzes your agency's overall and specific objectives, the status of your recycling program, needs that staff can fill to help the program succeed, and the agency audiences. This analysis tells you what messages to convey.

- **How to best spread the word?** The education techniques chart presents a variety of **communication techniques or channels.** Your education committee or staff, no doubt, will create many more which fit your agency. Deciding upon your techniques will involve a bit of research to determine:

  - Available funding for education materials.

  - Scheduling requirements for broadcasting information or planning events.

  - Procedures necessary to produce and coordinate multi-media events.

- **When - should you schedule your educational activities?** The educational campaign for your recycling program needs to begin well in advance of your first collection day. The education subcommittee should begin its work at the start of your recycling program effort. One of the first activities should be to let the agency know that the recycling project is under way and that it is backed by the agency's top management. With respect to procurement, schedule recycling orientation sessions with procurement staff well in advance of the commencement of the fiscal year when your grants and contract schedules will be determined.

The "why" of your tool kit already has been established by your agency's commitment to recycling. Working with the rest of these tools should help your staff set realistic goals and effectively focus their efforts.

In addition, you may find a few **rules of thumb** useful in designing your agency's educational program. For example:

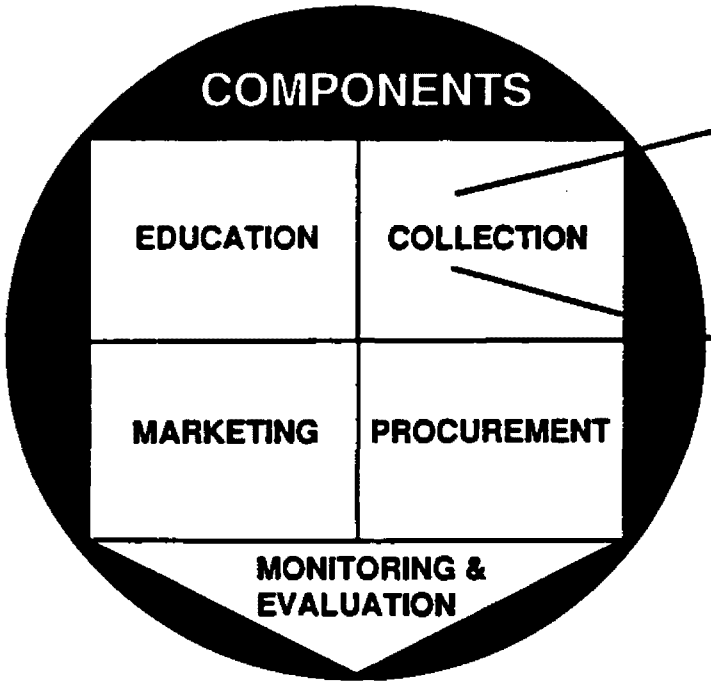
- **Strike a balance between programmed educational events and spontaneity.** If you establish a pattern of agency reporting (for example keeping employees abreast of recycling progress via a monthly newsletter or by giving quarterly briefings to upper management). Also hold special events such as an awards program or celebration of an achieved milestone, or on-the-spot cash awards, you will show that the program is established within the agency, and help keep interest alive.

- **Stress the positive.** Until recycling becomes the way of life in our society, initiating a recycling program involves converting people's behavior and this requires regular encouragement. Your educational program can help by focusing on the efforts people make, celebrating the gains that are made, and incorporating humor in your events and promotional materials whenever possible. Elevate the potential for fun and creativity! It will rejuvenate the whole program.

- **Make recycling convenient.** Keep emphasizing that it is just as easy to throw materials into a recycling container as it is a trash can. This will help make it easier to change employee's habits.

- **Reflect the diversity of your agency staff.** In addition to making use of a variety of educational techniques, such as those presented in this handbook, you can build interest and involvement in recycling by learning about the employees in the agency and the work they perform. Target your information to their agency interests.

- **Have fun!** You will find that, by and large, employees WANT to recycle. This fact, and the active, participatory nature of the effort lend themselves to spirited innovative educational activities. Don't hold back on the opportunity to create and to enjoy the whole process.



What is collection?
What collection options exist?
What factors should I consider in designin my agency's collection component?
Who is responsible for designing and implementing my agency's collection component?
How do I design and implement my agency's collection component?

What Is Collection?

Collection, defined in the Code of Federal Regulations, Title 40, Part 246, is "the act of removing solid waste (or materials which have been separated for the purpose of recycling) from a central storage point."

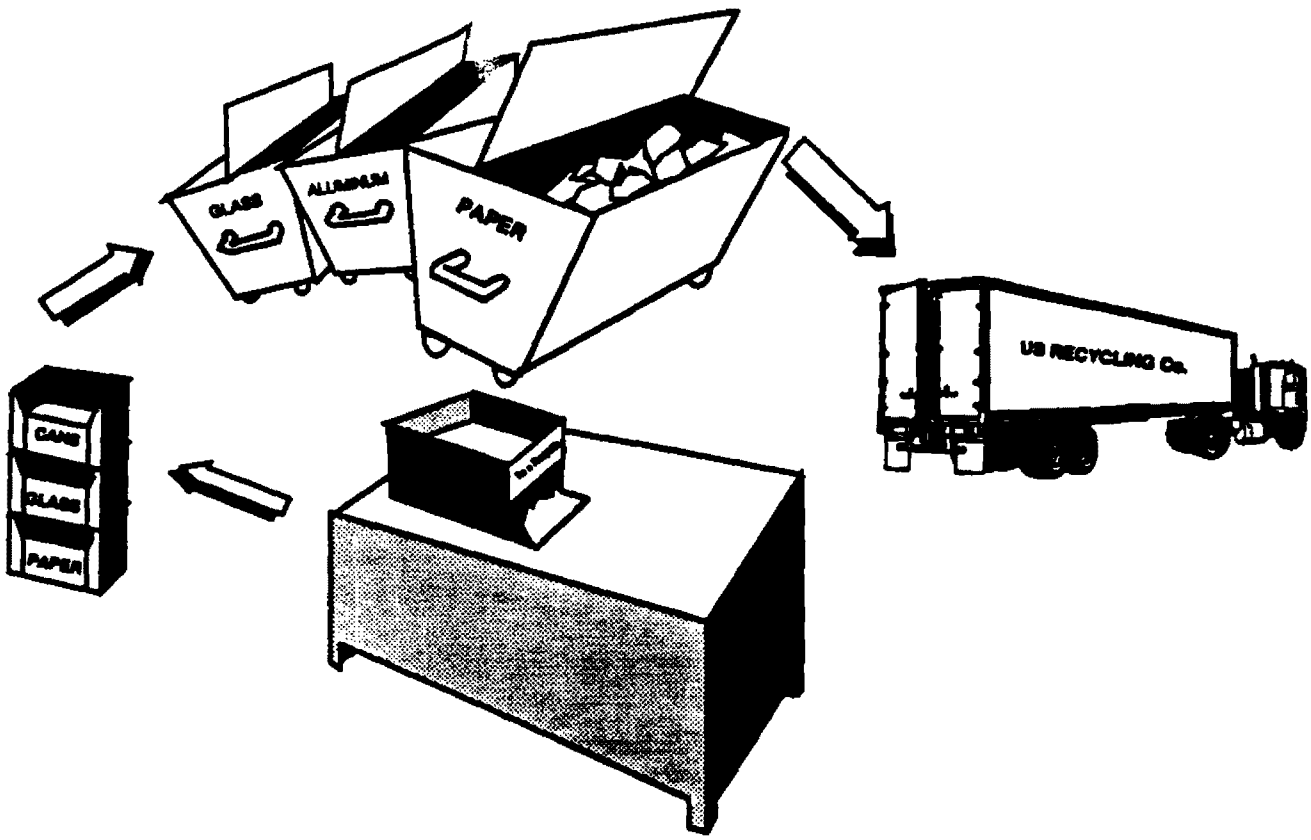
Within the context of an office recycling program, collection involves several steps:

- **Separating recyclable materials**
- **Depositing separated materials at collection points**
- **Transferring separated materials from collection points to designated storage bins**
- **Pickup by hauler and/or recycling company for transport to processing facility**

The efforts of numerous people and organizations must be integrated, including:

- Managers
- Employees
- Health & Safety officers
- Contractors for building services
- Haulers.

Collection: **Gathering designated recyclables and moving to storage areas over systematic routes:**



What Collection System Options Exist?

Your agency's collection options will vary based on four decisions:

- What you choose to collect
- Which transfer system is used, including where containers are located
- Who moves the collected materials to the storage area
- What storage space and handling equipment are available.

Government agency and private sector organization recycling programs typically use one of a few basic methods to move materials from the individual to office collection points. These include the :

- **Desk-top system** where the user places recyclable paper in a container on the desk and discards non-recyclable waste in a waste basket.
- **Two-waste basket** system where one basket is used for recyclable paper and the second for discarding waste.

As either of these individual office units become full, each employee or a custodian deposits the materials in appropriate central collection containers. As a variation to the options above, vendors may offer services which enable mixed recyclables to be collectively stored for dealer pick-up and transported to processing centers.

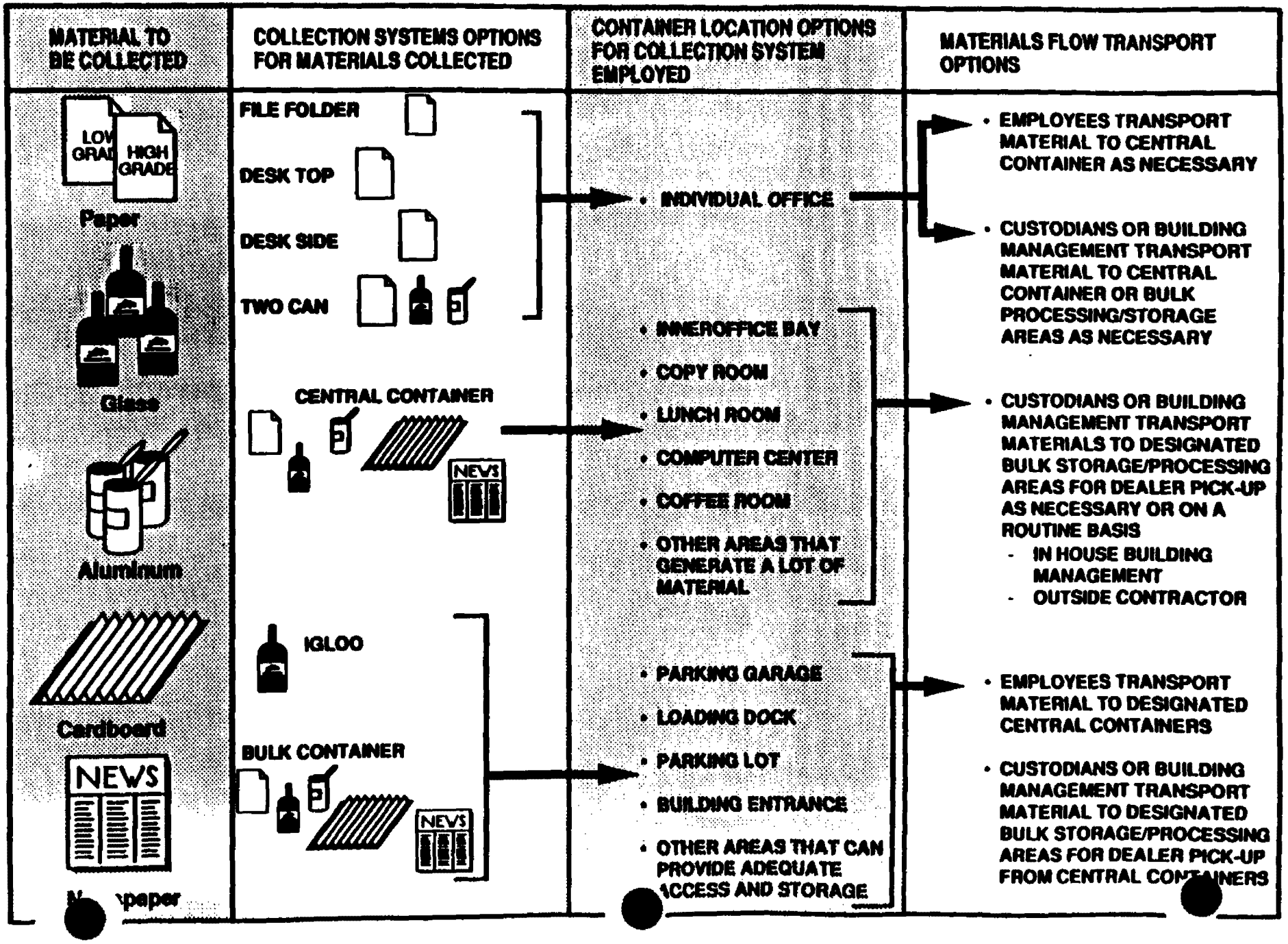
Centralized office containers accommodate a wide variety of office recyclables including paper, glass, and aluminum. Central collection containers are clearly identified bins, located in copy rooms or within individual office bay areas serving 15 to 25 persons.

Other central location options for materials such as glass or aluminum include large containers (often called "igloos") located outside of the building, or containers located in lunchrooms or adjacent to employee travel paths. You can expand this central container concept to collect newspapers or corrugated cardboard. Custodians or building management staff, or in some cases outside contractors, move the materials from the centralized containers to bulk storage areas. The main storage area should be organized to minimize the accidental mixing of trash with segregated recyclables. Ask your building manager and/or the recycling vendor to help you select your main storage site. Keep in mind the following points when selecting your site:

- Is it large enough?
- Can the site be locked?
- Is the site protected with sprinklers?
- Is there a freight elevator easily accessible?

The following exhibit illustrates commonly grouped collection systems for five specific recyclable materials. The systems include transport for specific materials, personnel who perform the transport function, and container locations. For in-depth information about paper collection containers and transport equipment you can refer to the EPA Office of Solid Waste Paper Recycling Handbook (copyright 1977, reissued 1990) referred to in the introduction.

Exhibit A
COLLECTION OPTION DIAGRAM



What Factors Should I Consider In Designing My Agency's Collection Component?

When designing and implementing your collection component, it is important to consider the number of employees and facility ownership. For example:

- **The Number of employees** affects the quantity of waste materials generated for disposal or recycling. The quantity in turn influences the kind of collection system you will employ. A sizeable agency office of several hundreds employees will have paper recyclables in the range of several tons per week in contrast to an office with less than 100 people where it may take a few weeks to accumulate such quantities of material. Larger offices may be scheduled for weekly pick-ups, smaller offices biweekly or monthly.

- **Whether your agency or another agency owns your facility** can influence how you design the flow pattern and staffing for your collection system. Typically, your agency will have greater leeway to select locations for collection containers, and assign staff with collection duties if the building is yours. If your agency is a tenant, these decisions must be negotiated with the building owner and managers.

In addition, **program objectives and agency commitment** are factors that play a part in design decisions, for example:

- If your agency objective is to recycle a high percentage of three major volume materials, if you are a large agency and if your leadership and staff demonstrate an interest in recycling, you may design a decentralized collection system that relies on strong employee involvement and organization. Change one of the factors, and you may alter the design of your collection system.

- If your agency is not aware of recycling and therefore the commitment to recycling is weak, it may be better to select only one material for recycling in order to get your program underway. Other materials can be added to your collection program on a phased-in basis as resources, time and experience permit.

The chart presented on the next page indicates examples of major factors and potential impact on collection system design.

FACTOR:	IMPACT ON COLLECTION SYSTEM DESIGN:
Program Objectives:	
- Type and number of materials to be collected	Number, type, and location of collection equipment
- Amount to be collected	Number of employees involved in process, waste stream composition
- Proposed extent of program participation	Education program employed, convenience of transfer system
Agency Characteristics:	
- Size of facility	Volume of materials, cost-effectiveness of program
- Number of employees	
- Facility ownership	Collection schedule, type of transfer system
Commitment to Recycling:	
- Degree of management support	Participation mandate, unity of effort
- Extent of resources	Development approach, implementation strategy

Who Is Responsible For Designing And Implementing My Agency's Collection Component?

Collection system design involves a detailed series of procedures and sequential steps that require personal oversight, problem-solving and schedule adjustments. To ensure successful collection, the **program coordinator** must:

- Supervise education of staffs
- Supervise data gathering
- Arrange pick-up schedules
- Secure storage areas for collected materials.

In addition, the coordinator must meet with custodial supervisors in all buildings to explain the operation and to gain their support.

Consider these points when deciding who can best consolidate your recyclables most efficiently and transport them from the central containers to the main storage area:

- How many custodians service your building?
- Are the custodians in-house, contract, or union?
- Is there a daytime shift and a nighttime shift? If so, which crew could best handle the consolidation duties?

Most office paper recycling programs work best when integrated with existing janitorial operations. Many agencies add the responsibility of picking up the recyclable material into the janitorial contract when it is up for renewal.

If custodians are not involved in the collection of the recyclable materials, make sure that they are informed about the program so that they don't accidentally mix the recyclables in with the trash and throw them away.

How Do I Design And Implement My Agency's Collection Component?

Designing the collection component requires answering basic questions about:

- Which type of equipment and flow path, and what kind of contract support are most convenient for your agency.
- Types of waste materials that make up your agency's waste stream and manner in which these waste materials currently are discarded.
- The contract(s) for space and services currently in place and whether they meet your anticipated program needs.
- Types of collection containers to be used and where to locate them.

- Suitable locations for collection containers
- Suitable area(s) to use as loading dock or central transfer points
- Handling requirements for the materials your agency will recycle (See Appendix D)
- Secured offices

Based on your research findings, you are equipped to take the following steps:

- **Secure clearances with the appropriate building and/or management staff to use space for collection areas**
- **Select and procure collection containers**
- **Place collection containers in designated areas**
- **Collect recyclable materials**
- **Transport materials to the loading dock or centralized collection point for dealer pick-up**
- **Weigh and record your recyclables and**
- **Collect payment for the recyclables from the dealer.**

Remember that the collection component of your recycling program needs to be integrated with the other program components. Planning and launching the collection activity, therefore, should be done in concert with the marketing, procurement, education, and monitoring and evaluation activities. Lessons learned from other agencies and a waste stream analysis sample sheet are provided on the following pages to assist your planning process.

Summary of Lessons Learned From Various Agencies

• Collection

-When considering who will collect and transport recyclables through the collection system, keep in mind three general options: the collection will be carried out by staff members, contracted out, or assigned to new and additional staff hired for that collection purpose. As you consider starting up for collection remember that educating your staff about the recycling program and training them in the specific tasks relating to the collection process will get your program off to a strong start.

- Your collection containers should be consistent in style and color, and clearly labeled with lists of acceptable and unacceptable items. Also post the lists near each container location. Be sure to use clear symbols and multi-lingual labeling wherever you have personnel, and especially collection staff whose primary language is not English. Choose your containers for durability, and if they are the desk-top variety make sure they require the least amount of your desk space. You also can find containers that your collection staff can handle easily.

- If your agency does not generate enough recyclable material, you can ask your building manager if another company in the building is recycling. You might try to enlist a neighboring agency to join with you and it is quite possible that together you will generate enough recyclable material to start a program. Consolidated Administration Support Unit (CASU), sponsored by the General Services Administration (GSA) are the administrative mechanisms by which you and other agencies can pool efforts. Combined volumes may attract more buyers, and prices and transportation options may improve.

-At the other extreme, some recycling programs have had problems because the volume of material to be processed has been seriously underestimated. This may sound like a problem everyone would like to have but the ensuing problems may permanently damage the program. Very quickly after the beginning of the collection operation, the program may be overwhelmed with the quantity of material and unable to cope with the continuing stream of material coming in from the agency.

• Storage

- Storage problems can result when the volume of recycled materials expected is significantly underestimated or the demand for materials already on hand is significantly overestimated.

- A convenient loading dock, readily accessible to large trucks is important; it should provide protection from inclement weather. If space is unavailable near loading docks your agency's recyclable materials may be stored in central containers (convenient to freight elevators) located in temporary storage areas or outdoors in large bulk containers protected from the elements.

- Asking managers of existing recycling operations in the area may be the best method for accurately predicting your storage needs.

• Transport

- The inability to move material from central collection spaces to designated dealer pick-up locations can cause a serious disruption in the recycling operation. You may want to consider back-up transport equipment.

- In designing a recycling materials flow path be sure to allow sufficient aisle room for easy and efficient movement of transport equipment. In addition your collection schedule should not disrupt your staff's daily office routine, nor should it lessen employee productivity.

• Processing

- Processing recyclables is packaging, cleaning, or organizing the material in the most economical form for transport or to meet buyer specifications. Before designing your collection system, check with firms that buy your type of recyclables to assess any processing requirements that may affect your space, flow patterns, or schedules.

Useful information on markets and on procurement purchasing is available in various trade publications. Also ask your area recycling dealers what containers they will supply as part of a marketing contract. GSA can supply individual containers and central containers with a lid and slit in the top to Federal agencies through the Catalog and the Customer Supply Center in Washington, D.C. GSA is increasing the availability of these supplies nationwide.

PERFORMING A WASTE STREAM ANALYSIS

Performing a waste stream analysis is the first key step in clarifying the basic needs and goals of your recycling program. Such an analysis is an in-depth look at the waste materials your agency currently discards. The majority of office waste stream analyses reviewed demonstrated that 90 percent of the typical office waste stream is composed of paper products (e.g., white paper, computer paper). Obtaining an estimate of the percentage of materials that can be diverted from your waste establishes a baseline for program design and future monitoring and evaluation. Following are suggested options for conducting your waste stream analysis and a sample waste stream analysis worksheet:

- Assume generation rates based on general statistics (see [b] and [g] below).
- Work with a materials recycling company to obtain estimates based on:
  - Number of employees
  - General review of facilities operation
- Conduct a one-to-two week study of the office waste actually discarded in your agency.

When you have the facts about your agency's waste composition, you are better able to implement the collection system and to manage recyclable materials.

SAMPLE WASTE ANALYSIS WORKSHEET

A. Total Refuse Generation:

a _____ (No. Employees) X [b] 1.55 lbs. (lbs./employee/day) = [c] _____ lbs (Trash/day)

c _____ X [d] 20 days (Work days/mo.) •/• [e] 2,000 lbs. (Lbs./ton) = [f] _____ Tons (Mo.)

B. Recyclable Paper Generation:

a _____ X [g] .51 lbs. (paper/empl/day) = [h] _____ lbs. (Recyclable paper/day)

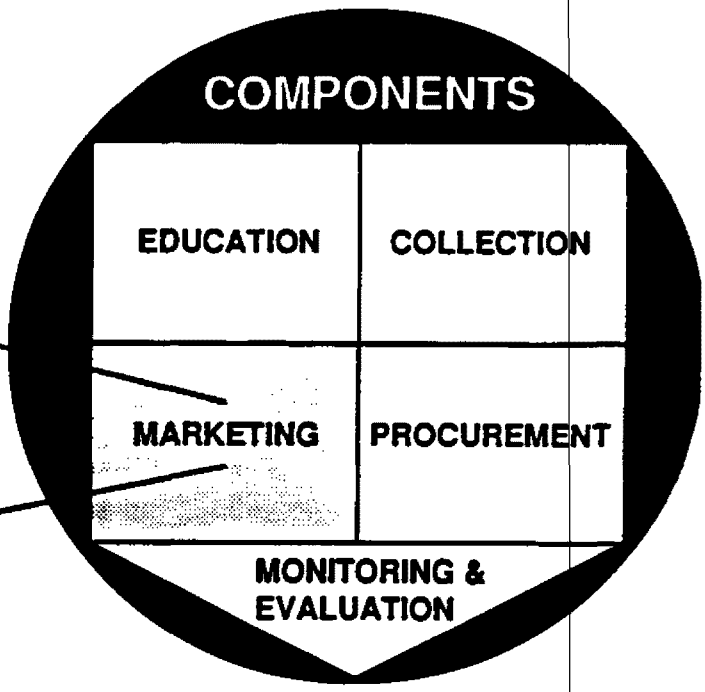
h _____ X [d] 20 days •/• [e] 2,000 lbs. = [j] _____ Tons (Recyclable paper/Mo)

j _____ X [k] 65% (example) (participation rate) = [l] _____ tons (Recycled paper/mo.)

In general, for a standard office paper recycling program, five hundred to one thousand pounds of high-grade paper is the minimum amount required for pickup. The average office worker throws away at least a half-pound of high-grade recyclable paper each day. **Agencies with fifty or more employees should generate enough paper to set up a workable program.**

MARKETING

- **What is marketing?**
- **What marketing options exist?**
- **What factors should I consider in designing and implementing my agency's marketing component?**
- **Who is responsible for designing and implementing my agency's marketing component?**
- **How do I design and implement my agency's marketing component?**



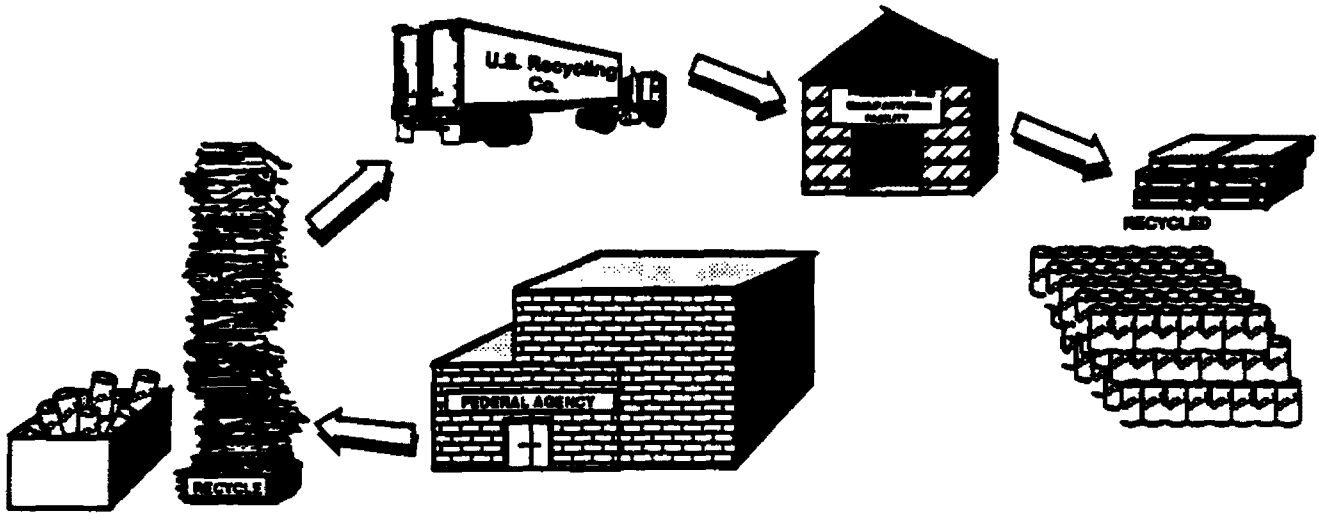
What Is Marketing?

Marketing is finding purchasers for your agency's recyclable materials so they can be reused in manufacturing new products. In most cases, you will need to market different types of recyclable materials to different vendors. The key components used to describe the marketing effort include:

- Identifying and contracting with a vendor or broker of recycled materials.
- Arranging for regular pick-up of the recycled materials from your agency by the vendor.
- Ensuring that the materials are collected, separated and processed in a way appropriate for the manufacturing process, if necessary.

The materials you target for recycling, how you want to channel the proceeds from the sale of materials, available markets, the characteristics of your agency such as number of employees and geographic location, and the level of management support will all shape your marketing effort.

MARKETING: **Directing recyclable materials t. manufacturers who use those materials in making new products:**



What Marketing Options Exist?

You can develop your marketing component using three basic approaches. You may elect to use:

- **In-house resources** -where your recycling committee or facilities service staff undertake the research and negotiations needed to:
  - -- Identify potential markets and vendors qualified to purchase your recyclable materials.
  - -- Execute the contracts.
- **An interagency cooperative marketing plan** - whereby several agencies combine their recyclables. This enables an agency to reap benefits of a large quantity of marketable materials and to take advantage of shared responsibility for contracting with a vendor.
- **GSA support services** - that screens vendors and negotiates contract packages which individual agencies can access for needed services.

Work with your recycling committee to assess your agency's operating environment and recycling program goals. Then decide upon your best marketing approach. The following example illustrates one method of choosing a marketing plan based on specific agency factors.

Design of the Marketing Plan: A Case Study

The administrator of the Motor Vehicle Loan Department for the ___ Agency wanted to develop a recycling program. A consultant hired to do the waste stream analysis found that 75% of the agency's waste stream was composed of recyclable materials and that tires and oil comprised the greatest percentage of materials, followed by newspapers and white paper (carbonless forms). The administrator hired a recycling coordinator to lead a task force. The purpose of the task force was to assess the feasibility of developing a self-sufficient Departmental recycling program. A subcommittee was appointed for each of the activities of the program. The marketing subcommittee, led by the purchasing officer for the Department:

- Determined how much material could be sent to a vendor in any given week.
- Developed a list of vendors for each material comprising more than 10% of the department's waste stream.
- Conducted a cost-benefit analysis to determine the net recovery of funds for the collection.

These objectives reflected the relationship (implications) of this department's operating environment (factors) on the marketing approach. Therefore, information gained from these activities was the foundation for the department's marketing plan.

What Factors Should I Consider In Designing and Implementing My Agency's Marketing Component?

In designing your approach, consider the support resources available to assist your marketing efforts, such as GSA or other in-house expertise, and the type and quantity of recyclable materials that comprise your waste stream, as learned in the waste stream analysis. The chart on the next page illustrates how additional factors impact the design of your marketing strategy.

FACTOR:	IMPACT ON MARKETING SYSTEM DESIGN:
Program Objectives:	
- Multi-material recycling program	- Develop separate vendor lists
- Large quantity of recyclables	- Accelerate vendor pick-up schedule
Agency Characteristics:	
- GSA operated facility	- Work with GSA to develop marketing plan
- Non-GSA operated facility	- Develop plan with in-house resources
Commitment to Recycling:	
- High agency commitment evident in staff	- Provides staff to identify potential markets and good contract options
- Resources assigned to recycling	

Who Is Responsible For Designing And Implementing My Agency's Marketing Component?

The marketing coordinator should lead the marketing effort, acting as liaison for agency management, GSA (if appropriate), and the recycling committee or subcommittee. The primary responsibilities of the marketing subcommittee are to:

- Assist the recycling coordinator in developing an assessment of the current situation, as a basis for the design of the marketing plan.
- Design a marketing plan for review by agency management, including developing a list of potential purchasers.
- Work with the Education subcommittee to develop outreach materials explaining the overall concept and goals of marketing to the program participants.

Always investigate Federal, State and local laws for applicability to your program so as to be aware of mandatory recycling laws that may affect your marketing strategy.

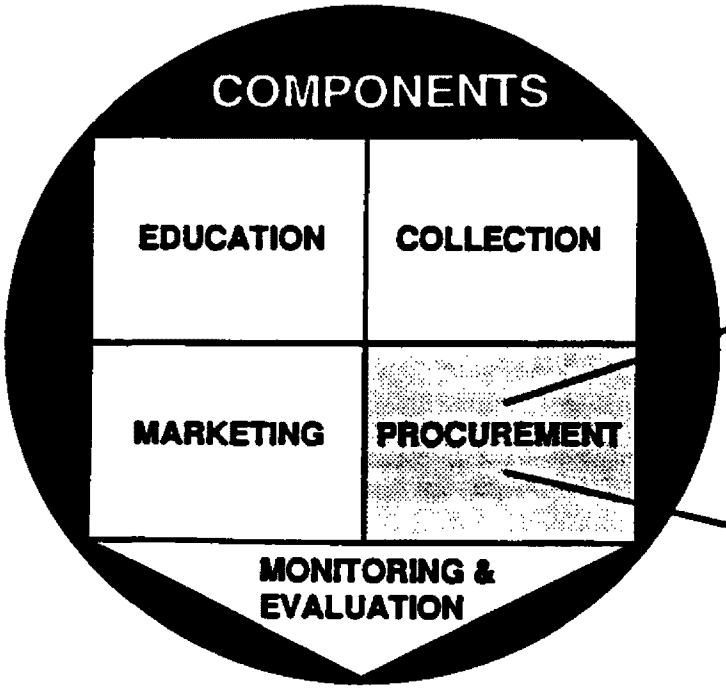
How Do I Design and Implement My Agency's Marketing Component?

When designing and implementing your marketing component focus on the following basic steps:

1. **Organize in-house resources, such as a marketing subcommittee in your recycling committee, to help design and implement the marketing plan.**
2. **Develop a profile of the market for each recyclable material identified in your waste stream.**
3. **Evaluate the market profiles to determine costs and benefits of the marketing plan for each material.**
4. **Determine which materials are to be marketed based on your cost benefit analysis. The analysis should include the cost for transporting and disposing of waste in landfills.**
5. **Identify the role of in-house agency staff and other support resources, such as GSA or contractor support in marketing materials.**
6. **Solicit Invitations for bids.**
7. **Negotiate agreement(s) with the prospective buyer(s) for each material.**

Each of the steps defined above is necessary to ensure a marketing plan that is responsive to recycling program needs and market conditions.

PROCUREMENT



What is procurement?
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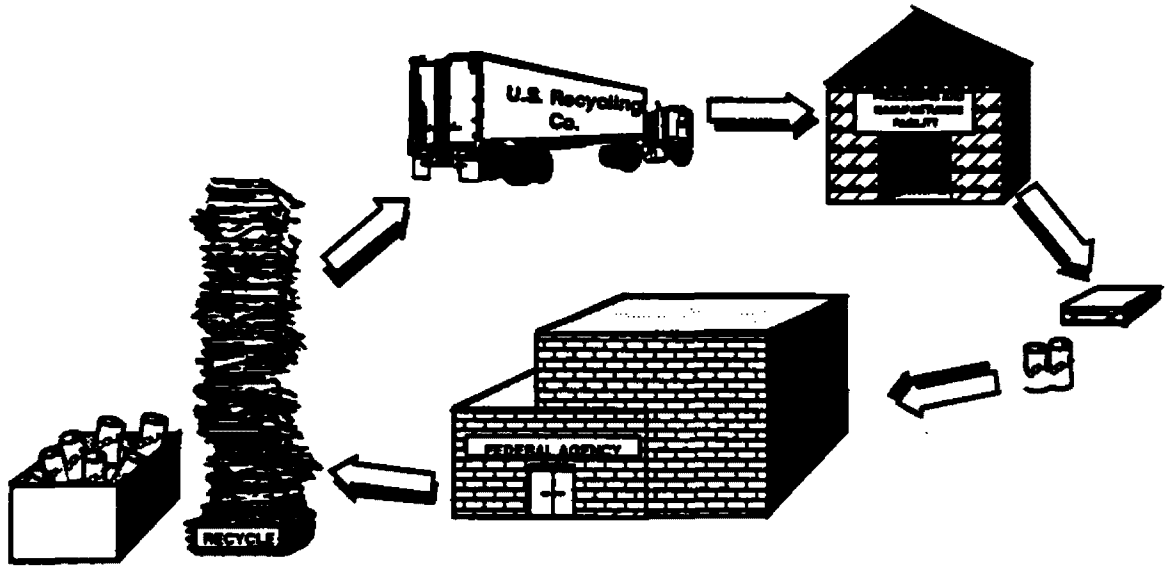
How do I design and implement my agency's procurement component?

What Is Procurement?

Unless a recycling program includes actually buying products made from recycled materials, it stops short of being a recycling program. Recycling occurs when the materials that were collected and sold to recycling operators re-enter the economy via procurement. Ordering, purchasing, and using supplies made from recycled materials is your agency's contribution to ensuring that a market will exist for the recyclables you collect and sell. Procurement for most Federal agency offices notably includes paper products, but it also should include any other products that are made from recycled materials.



Over the past several years, the U.S. Environmental Protection Agency (EPA) issued several procurement guidelines, which are regulations that require government agencies to buy products made of recycled materials. The guidelines implement Section 6002 of the Resource Conservation and Recovery Act (RCRA). Their purpose is to encourage recycling and reduce the amount of materials that must be thrown away. Each guideline designates specific items containing recovered materials, which governments must procure, and it provides recommendations for implementing RCRA requirements. The **RCRA Procurement Hotline** number is 703-941-4452 for copies of the guidelines and more detailed information concerning implementation.

EPA has issued five such guidelines which cover:

- **Fly ash in cement and concrete**
- **Paper and paper products**
- **Lubricating oils**
- **Retread tires, and**
- **Building insulation products.**

Regardless of whether or not a Federal agency institutes its own recycling program, RCRA mandates all Federal agencies and procuring agencies procure these items containing recovered materials. To do so agencies must:

- **Review and, as necessary, revise their specifications to allow for the purchase of recycled materials. Identify the performance expected of the product so that acceptance or rejection is based on a verifiable test.**
- **Design affirmative procurement programs.**

The table on the next page summarizes this information. In addition, **Appendix C** of this handbook includes the RCRA procurement guidelines.

REQUIREMENTS TO INCREASE FEDERAL AGENCY PROCUREMENT OF RECYCLED PRODUCTS		
GUIDELINES	**WHO**	**HOW TO COMPLY**
Paper/Paper Products Lubricating Oils Retread Tires Building Insulation Materials Fly ash in cement and concrete	• Federal Agencies • State and local agencies using appropriated Federal funds and spending more than $10,000 per year on the item • Firms contracting with federal agencies or with affected state or local agencies and that spend more than $10,000 annually on the item	• Review and Revise Specifications • Build Affirmative Procurement Program

What Procurement Options Exist?

Two general arenas for procuring recycled products include intra-agency purchases and external procurement by State or local governments receiving funds from, or firms which operate under contract to, your agency. Strengthening your agency's procurement program, therefore, will entail focusing on both these arenas.

Although many products are manufactured from recyclable materials, some of the major products purchased by Federal agency offices are addressed in the existing procurement guidelines. Your agency can either purchase these items through GSA or directly, if your agency is located outside a GSA-service area. When considering items for purchase consult your agency's GSA procurement office for a list of the recycled materials available.

What Factors Should I Consider in Designing My Agency's Procurement Component?

When designing your agency's procurement program, consider the:

- **Types of materials your agency buys**
- **Size of the agency**
- **Level of funding activity for State and local government programs, and contractor services to the agency**
- **Your Contract and Grants staffs level of awareness about recycling and especially the role procurement plays**
- **Inherent prejudice you will have to overcome that recycled content is inferior**
- **Proximity to and communication between your agency and GSA**
- **Opportunities to combine your purchase orders with those of other organizations.**

These factors and others will influence the priorities you set when developing a strategy for procuring recycled products. Most agencies will have their highest demand in paper products and therefore will concentrate some of their efforts on establishing which recycled products provide the service required. Agencies with extensive grant programs, or those administering large contracts to firms providing government support service, on the other hand, will focus part of their strategy on how to ensure that these entities comply with EPA procurement guidelines. All agencies are likely to encounter the attitude that recycled products are deficient. A concerted effort is needed to work with personnel throughout the agency to overcome this recycling roadblock. The chart on the next page indicates some additional examples of how various factors can influence the design of your procurement program.

FACTOR:	IMPACT ON PROCUREMENT COMPONENT
Program Objective: Increase type and quantity of recycled materials procured	- Active involvement of procurement staff in education of employees and vendors - Close cooperation with purchasing personnel/analysts - Evaluation of current purchases for expansion - Evaluation of recycled products availability and performance
Agency Characteristic: Number of employees	- Potential for joint purchasing agreements to achieve economies of scale - Need for updated source list of recycled products suppliers
Commitment to Recycling: Agency director mandates aggressive affirmative procurement program	- Intensive coordination with procurement staff required - Extensive research and educational efforts required - Involvement of several persons required for procurement sub-committee

Who Is Responsible For Designing and Implementing My Agency's Procurement Component?

The successful design and implementation of your agency's procurement program calls for the involvement of several key agency leaders, among them your:

- Recycling coordinator
- Chief executive
- Facilities management staff
- Contracts/Procurement and Grants staffs
- Program managers
- Procurement sub-committee of your recycling committee.

Successful procurement of recycled products will rely extensively on management support because procurement is an integral function of the agency's daily operations. After the recycling coordinator and agency managers explore options, the procurement sub-committee should develop a strategy. The testing and implementation of this strategy should be based on ongoing communication between all the sub-committees of the recycling committee, the agency's procurement staff, top executive and program staff, and information officers within the agency .

How Do I Design and Implement My Agency's Procurement Component ?

The personnel designated above can design and implement a procurement strategy for recycled products by following the basic requirements of RCRA. RCRA requires each agency to analyze its current procurement specifications, revise those which unnecessarily exclude recycled products, eliminate restrictions for virgin materials only, provide for use of recycled materials to the maximum extent possible, and put into place an affirmative procurement program. The affirmative procurement program components are shown in the chart below.

AFFIRMATIVE PROCUREMENT PROGRAM COMPONENTS

Recovered Material Preference Program: **Agencies must establish:** • **Minimum Content Standards** • **Recommended levels** • **Quality Performance levels**	***Promotion Program:*** • **Explicit statements in Requests for proposal** • **Mention at pre-bidders conferences** • **General publicity** • **Recycling statement or logo on agency literature printed on recycled paper**
Establish Procedures to Obtain Estimates, Verify and Certify Quantity of Recovered Material Content: • **When vendors must provide infomation** • **Who should provide information** • **How to obtain information** • **How to verify information**	***Annual Review and Monitoring :*** • **Range of estimates and certifications provided by vendors** • **Check for significant variations and percentages of recovered materials** • **Analysis of barriers (e.g. technical, economic, resistance to use)**

Your agency's approach to designing and implementing a procurement strategy can be summarized in the following basic steps:

Active Procurement Program Steps

1. Organize in-house resources, such as a procurement subcommittee in your recycling committee, to help design and implement the procurement plan. Work with your procurement staff, contract administrators, and grant program administrators from the start. Enlist the support of other in-house agency staff and support resources, such as GSA, to define your agency's procurement strategy.

2. Review existing procurement specifications for agency supplies. Survey program units and other components of the agency to determine volumes and uses of the materials, in order to plan and consolidate your procurement program.

3. Develop a profile of standards for recycled products and a list of definitions for those products. (Consult RCRA Guidelines)

4. Develop a profile of the capability for a recycled material to meet the specifications of each item on your agency's list of purchased materials. Include information such as cost, availability, and potential vendors.

5. Test the recycled material to determine its replacement ability for certain products in your procurement program. Especially evaluate over-specified products (e. g. inter-office notepaper), and determine which recycled materials are to be purchased based on your analysis and other agency environmental factors, such as cost and management support.

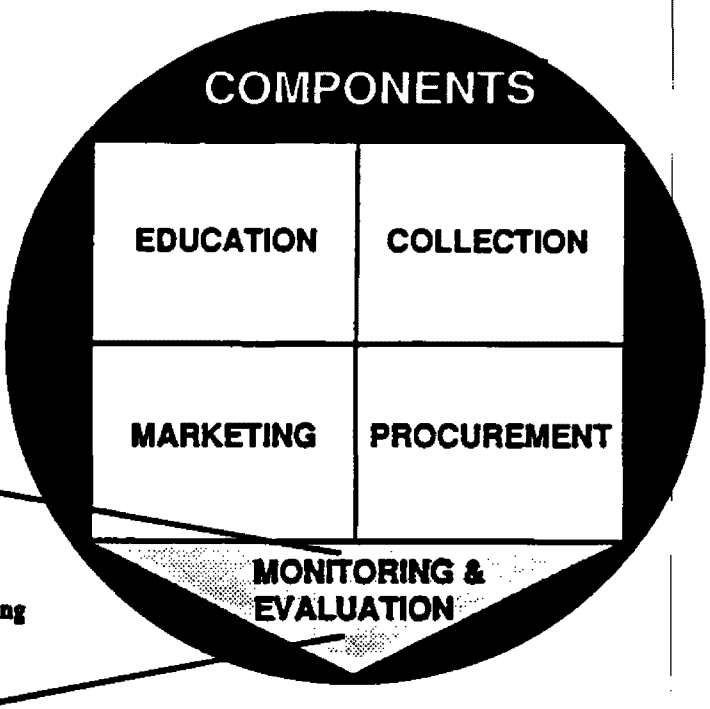
6. Get the word out throughout the agency to "BUY RECYCLED."

7. Advertise and promote program with vendors early and often.

8. Negotiate agreement(s) with the prospective vendor(s) for each material.

In building a comprehensive recycling program, use your collection, marketing, and education systems to support the procurement process.

MONITORING AND EVALUATION



What is monitoring and evaluation?
What program options exist?
What factors should I consider in designing my agency's monitoring and evaluation program?
Who is responsible for designing and implementing my agency's program?
How do I design and implement my agency's monitoring and evaluation component?

What Is Monitoring And Evaluation?

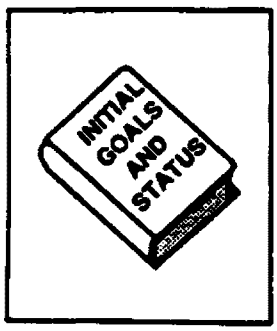
Monitoring and evaluation of your recycling program is a tracking process in which you measure your agency's progress toward the recycling objectives you have established. This process can help your agency:

- **Set realistic goals and expectations**
- **Measure implementation options**
- **Anticipate and resolve problems due to changes in your agency's environment or operating objectives.**

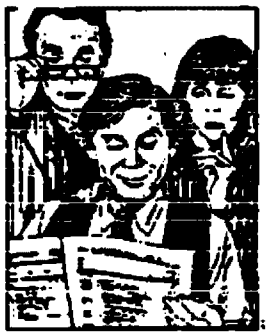
Successful monitoring and evaluation programs are built on plans designed to measure each program activity. The chart on the following page illustrates some critical measures of program performance.

ACTIVITY	PERFORMANCE MEASURE
Education	Employee participation--how many, how often, and how well employees recycle
Collection	Material recovery -- percentage of waste stream recovered for recycling Efficiency -- employees, custodians, and vendors adhere to collection schedules and collection proceeds smoothly
Marketing	Competitive prices for recyclables, available vendor services, and sale of collected materials.
Procurement	Agency procurement roster lists many recycled products options Widespread, visible promotion of "buy recycled" Purchase orders reflect high rate of usage of recycled products
Monitoring & Evaluation	System checks are sufficiently frequent and thorough Supply information needed

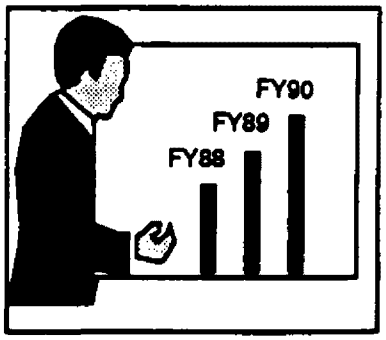
MONITORING AND EVALUATION: Performing periodic checks to measure and report the quantity of materials recycled and the efficiency of the operation



Determining a baseline for reporting



Recordkeeping of costs and revenues



Monitoring recovery rates and participation

Reporting successes and problems to management and employees

Monitoring your recycling program means keeping accurate and up to date statistics, including records of tonnage figures, dollars received from recycling vendors, and estimated cost avoidance figures for removing recyclables from the waste stream.

What Monitoring And Evaluation Options Exist?

Many monitoring and evaluation options can be integrated into your program, depending on your agency's objectives and the information resources available to assist you in tracking activities. Some options include, for example:

- **Education** -- Surveying employees in advance of the recycling program start-date, then periodically thereafter to determine the level of knowledge or awareness throughout the agency about program components.
- **Collection** -- Recording weight slips for collected materials and comparing this information with the materials volumes data recorded during your waste stream analysis to determine level of participation.
- **Marketing** -- Recording and comparing revenues for recyclables to evaluate best-price vendors, and recording and comparing overall waste disposal costs to determine the rate of decrease because of diverting materials from the waste stream.
- **Procurement** -- Reviewing your agency's procurement contracts, grants, and interagency agreement requisitions to evaluate the rate of procurement of recycled materials.
- **Monitoring and Evaluation** -- Surveying agency leaders and employees for ideas on measurements of success for the recycling program, developing a monitoring and evaluation plan to measure success rates, re-surveying on a smaller scale and re-evaluating whether the monitoring and evaluation plan has provided the information desired.

Just as there are many measurement options, there are many methods for implementing these options. Your choices will depend on your agency's resources and the scope of your program. You may, for example, maintain records in a handwritten form, or log information in a computer database. Staff could be assigned to conduct your evaluation or your monitoring and evaluation subcommittee members may provide the service on a volunteer basis. **A simple procedure for gathering data is as follows:**

- Require the recycling company that you contract with to develop and maintain an accounting system for each waste stream for the period of the contract.
- The recycling company will provide a statement each month to the agency recycling program coordinator which:
  - -- Outlines the total weight of each material collected.
  - -- States the grade assigned to each load of recyclable material and the price paid per pound for each material.

With this information, a program operating with even minimal staffing is equipped to track program progress.

What Factors Should I Consider In Designing My Agency's Monitoring And Evaluation Component?

Your recycling objectives, agency commitment to recycling, and many of your agency's specific characteristics, which you will document in your waste stream analysis, will help you establish the framework within which you can monitor and evaluate your recycling program. If your agency's objective, for example, is to reduce its landfilling of waste through a 30% reduction in the amount paid for hauling refuse to a landfill, this suggests parameters within which you can measure your recycling program performance. The chart on the next page indicates a few additional monitoring and evaluation implications which arise from considering certain factors.

FACTOR:	IMPACT ON MONITORING AND EVALUATION COMPONENT:
Program Objectives: Maintain simple data-gathering and accounting system Increase procurement of recyclable materials	- Require monthly statements from recycling company, outlining total weight of each material collected, and file statements - Periodically review your agency's procurement activities
Agency Characteristics: Agency with multiple facilities	- Focus on regular reporting methods to apprise staff and employees of results and convey support from agency management
Commitment to Recycling: Agency leaders require internal program to comply with local recycling laws	- Enforcement strategy to ensure compliance

Recycling-generated funds: Consider also that you will be monitoring the use of recycling-generated income which implies certain responsibilities for the use of those funds. These responsibilities are noted as follows:

RECYCLING REVENUES DERIVED FROM:	*WHERE THE REVENUES MUST GO:*
Materials the agency procures to fulfill its operating mission, e.g., paper. **These materials are the property of the government.**	**U.S. Treasury (Unless agencies have specific appropiration authority for return to a Working Capital or Revolving Fund)**
Materials purchased by non-government funds, e.g. employee purchases such as soda cans, glass bottles, newspapers. **These are not government materials.**	**Discretion of the recycling program. May be used, for example, for ongoing program costs or contributed to charities.**

Pending legislation would enable agencies to keep and use their recycling-derived revenues for recycling program support. Enactment of this legislation could catalyze all Federal agencies to move forward rapidly with their recycling programs.

Enforcement: Any standardized program implies requirements which, in turn, usually raise the subject of enforcement. How can or should you attempt to enforce your agency's recycling policies? For the most part, program participation is voluntary and the success rises or falls on the quality of your educational efforts. Mandatory recycling, however, is becoming the policy of many state and local governments. If the State and/or local government in which your office is located has implemented such a law, your agency must comply. Even if it is not a State or local law, there are effective ways to enforce recycling policy. One of the most effective is a clear and forceful policy statement from your agency head. Sometimes enforcement can be tied to a service sanction as illustrated on the following page.

Enforcement sample notice:

WE ARE SORRY

- The janitorial staff was unable to empty your trash can because it contained recyclable materials.
- Materials that may be thrown into "Garbage Only" trash cans include:

  . Air freight envelopes
  . Carbon paper
  . Cellophane
  . Damaged binders (recycle the papers)
  . Foam cups, plates, and trays
  . Food waste
  . Waxed paper
  . Writing implements (old pencils, pens, markers)

- **Contact building services regarding on-site recycling procedures for office paper, newspaper, aluminum, cardboard and glass. Thank you in advance for helping to abide by our State law.**

Who Is Responsible For Designing And Implementing My Agency's Monitoring and Evaluation Component?

Your **recycling coordinator and committee** will play key roles in the design and implementation of your agency's monitoring and evaluation program component but they cannot do an effective job alone. EPA's experience demonstrates that for this and other aspects of a recycling program, it is important to house responsibilities within the **building management component** of an agency. Institutionalization of the program in this way ensures that someone has authority to sign off on program decisions and that documentation of recycling activities will be forwarded to an agency official.

In addition, most effective recycling programs have **appointed and trained monitors.** The monitors can be agency-wide volunteers or staff of the agency's building service division. Program monitors should:

- **Periodically inspect office areas** to determine if employees are properly disposing of recyclable materials.
- **Post recycling statistics** in each building so that employees can follow the progress of the program.

- **Field questions** regarding program operation or pass along staff suggestions.
- **Contribute to articles** in Agency bulletins and newsletters.
- **Ensure that recycling posters are displayed** throughout the year.

Monitoring is not a job that can be passed off routinely, or rotated through. To provide consistency and reliability there must be regular evaluations by regular monitors. The recycling program coordinator should meet with program monitors on a monthly basis to readjust the program as needed.

How Do I Design And Implement My Agency's Monitoring And Evaluation Component?

To track the benefits and improvements of your recycling program, first develop a clear picture of your starting point, a baseline measure of where you are early in the program. To assess your baseline, you should:

- Address the following questions:
  - there an active program already in place?
  - there currently a program under development (other than your own)?
  - What do you consider key items in your recycling agenda?
  - What do your co-workers want to see accomplished?
- Circulate a staff questionnaire and document the staff's current knowledge of and attitude toward recycling.

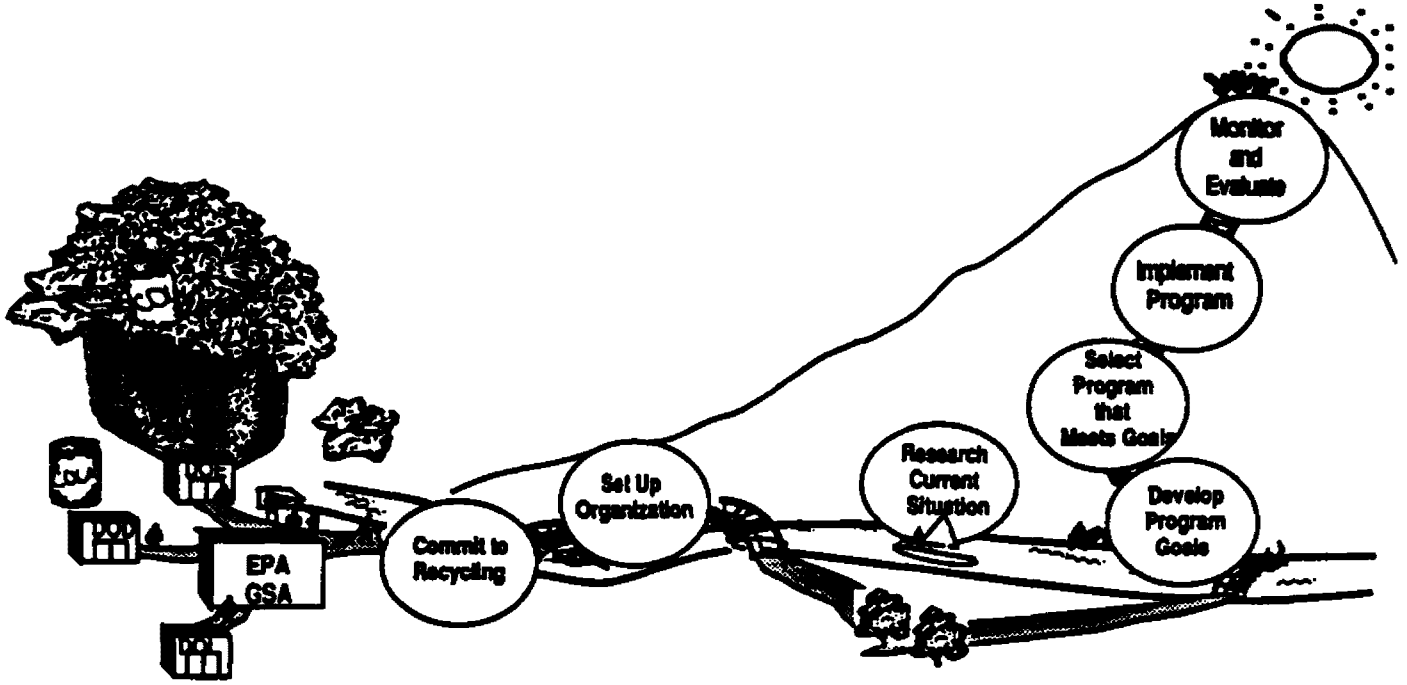
This information provides a background for deciding appropriate measures to use in assessing your program as it goes forward.

The next step is actually performing periodic checks and assessing all program activities, using these measures. It is essential that an analysis is performed and records are kept on each activity. The box on the next page provides some suggestions.

COMPONENT	MONITORING & EVALUATION TIPS
Education	A pre-program questionnaire and periodic updates can indicate increased knowledge and support of the program. Your program's end-results are probably the best measure of your education component.
Collection	Compare collection actions with goals. Check whether: • Bins are emptied when full • Correct recyclables are collected • Contaminants are present in recyclables Also check which recyclable items are not collected and why.
Marketing	Keep vendor receipts for recyclables sold or document volumes of recyclables at the loading dock prior to sale. Periodically compare rates with other vendor rates. Document time and method of pick-up to check efficiency. Investigate opportunities for joint-sales with other agencies.
Procurement	Review purchase orders periodically to ensure that your agency is buying products made from recycled materials, whenever possible. Schedule periodic discussions with representatives of all agency departments to review their product needs and encourage them to "buy recycled."
Monitoring & Evaluation	Distribute findings, report accomplishments and stumbling blocks to management and employees. Provide follow-up information so people can see their efforts are productive. Provide a feedback mechanism for employee suggestions.

IMPLEMENTATION

How Do I Put My Agency's Comprehensive Office Recycling Program In Place?



This section outlines three major phases of activity, which included seven key steps that your agency may follow in putting your comprehensive recycling program in place. Please keep in mind as you review these steps that not all programs will follow this exact format for program development and that flexibility will be the key to your success. The majority of the successful programs reviewed for this handbook did, however, use most, if not all of these steps.

The seven steps of the process usually occur in three phases:

- **PHASE 1--GETTING STARTED**
- **PHASE 2--PROGRAM DEVELOPMENT**
- **PHASE 3-- MAINTAINING YOUR PROGRAM**

Phase 1 - Getting Started

In this phase, you set your direction, gather resources, and research your agency's situation. These steps are explained in more detail below.

Step 1 - Commit to Recycling

Critical to the successful implementation of any recycling program is the support and endorsement of senior agency managers. The go-ahead to establish a recycling program must come from top level agency management. It should be clear that management supports the program, and that it is to be implemented throughout the agency. Without this support, it is not likely your program will be successful. Remember the success of any office recycling program depends on the support and cooperation from every employee, from the highest levels of management to the personnel who carry out the actual collection procedures. Considering all of the above you must also be sure that your agency puts forth a truly unified effort and that all groups within the agency are represented.

When you talk about commitment you may be wondering, " What costs are the agency committing to". Costs for setting up a program vary according to its size, implementation strategy, and resources available in-house. Cost components include:

- Portion of salary paid to recycling coordinator
- Promotion and education campaigns
- Containers (main cost)
- Increased janitorial costs (if any)
- Procurement changes, for example higher prices for recycled paper
- Monitoring and evaluation

Those responsible for establishing a recycling program are aware of the importance of cost effectiveness. The net effect of such programs, though, often includes more than costs because of important benefits from recycling that do not result in revenue such as:

- Conservation of natural resources and energy
- Savings in landfill disposal costs
- Savings in landfill space
- Savings in hauling costs
- Currently, return of funds to the U. S. Treasury from the sale of collected materials.

When you consider the costs versus the benefits of a recycling program, it should be readily apparent why more and more Federal, State and local governments are committing to recycling.

Step 2 - Set Up Your Organization

The effectiveness of your recycling program will depend, in part, on adequate staffing. Prior to initiating a recycling program, senior agency management must designate a Recycling Program Coordinator. For a large program, a paid manager or staff may be necessary. Depending on the size of your agency, the coordinator will spend anywhere from a week or two to several months getting a recycling program off the ground. Hours required to oversee the program, once it is running, can range from a few each week to full time.

The **Recycling Program Coordinator** will be responsible for overseeing the recycling program and staffing the recycling program team. Staffing the team entails bringing in interested and knowledgeable individuals to assist in the development and implementation of the recycling program. It consists of three steps: establishing a recycling committee, assigning monitors, and using consulting experts.

Establishing a recycling committee. The first official duty of the new recycling program coordinator should be to establish a recycling committee to assist in the research, program design, and program implementation. A committee can be essential to the smooth initiation of a recycling program. Your newly appointed Recycling Program Coordinator can manage the efforts of the committee members to ensure that the project and events progress well. The establishment of subcommittees within the committee will allow your group to focus on the specific components of a recycling program (e.g, education, collection, procurement, marketing, and monitoring and evaluation).

These committees should include people who are both interested and dedicated to the program and have leadership/communication experience. While committee members do not need to be recycling "experts," specialty areas such as contracts specialists, lawyers, scientists, and facilities staff will reduce the amount of research that needs to be done to get up to speed on many of the issues. For example, staff from the procurement division, facilities division, technical staff, and program staff should be involved. The committees should include representatives of all the offices/buildings that are part of the program.

Assigning monitors. The Recycling Program Coordinator and the Recycling Committee should ask for volunteers to be monitors for the recycling program. One monitor for each division or floor, or for every 25-50 employees, is optimal. Monitors do not need to be experts, but should have a good rapport with the staff and a thorough understanding of how the recycling program works. They may be responsible for: ensuring that the containers are relatively free of non-recycled trash, notifying the coordinator if a container overflows, and encouraging employees to participate in the program. Monitors must also be aware of the importance of promoting the procurement of recovered materials.

Using Consulting experts. You may want to consider using an outside "expert," such as a consultant who has set up recycling programs in other facilities. It's possible that your agency will require new services to get your recycling program off the ground.

Once help is aboard for developing the program, the first order of business is to take stock of the agency's current situation.

Step 3 - Research Your Current Situation

Researching the current situation will enable your group to develop a set of options and evaluation criteria to guide the design of your recycling program. Before you start designing and implementing the recycling program identify:

- **Waste stream characteristics of the agency**. These include the types and quantities of materials the agency discards. This can be determined by conducting a "waste stream analysis," as a first step in determining which materials are viable for recycling **(See example in collection section of this handbook.)**.

- **Any current recycling initiatives in place.** Prior to implementing a comprehensive recycling program, determine if any other recycling efforts already exist at your agency. Such efforts may be "grass roots" in nature and may comprise only a few offices, floors, or staff members. Contact these staff members and determine the scope of their activities, including: the number of people involved, the types and amounts of materials being collected, vendors they are using, the processes they use for collection and marketing, pitfalls and lessons learned, and the location of their activities. This information should be useful to you in setting up a larger, more comprehensive program. In addition, since the ongoing program can be expected to be merged with the larger effort, it is helpful to work together to make integration go smoothly.

- **Current contracts for space and services.** Identify your agency's existing contractual agreements for building space and services in order to select the recycling option that best meets the parameters in which you must operate. **First, meet with your office's facility personnel** to gather information on building and service agreements. Determine who is responsible for collecting and hauling trash to a disposal facility. Is it a GSA contractor or operated by the building owner? Who contracts for services, GSA or your agency? Find out what the current level of service provides? Determine if your building is leased from GSA or a private owner. **Second, determine whether the trash collection staff can add collecting** recycled materials to their job. Determine whether this would require an amendment to their contract or additional funding. How would recycling affect current services? Is the waste hauled at a fixed rate or at cost plus fixed fee?

- **Current procurement specifications, plans, guidelines** to determine if your agency is purchasing recycled materials or plans to do so.

- **Applicable components of Federal/State/local laws.** An increasing number of States and localities have requirements for recycling certain materials. In most cases, Federal agencies are required to meet State and local laws. **Appendix C** includes Federal procurement and recycling requirements. You should review these requirements and EPA guidelines to ensure that your agency is in compliance. For further assistance on Federal recycling requirements, call **the RCRA Procurement Hotline at (703) 941-4452 or the RCRA Program Hotline at 1-800-424-9346.**

- **State and local requirements that apply to your agency** by contacting the following resources:

    - Local and county planning agencies
    - State planning agencies
    - State departments of natural resources or environmental protection

- State laws and regulations
- Local codes and ordinances.

You may want to ask staff at the State or local offices to assist you in designing and implementing a program that meets their requirements. Regardless of whether State or local requirements exist, you must comply with RCRA .

- **Marketability of collected materials.** Knowing what materials can be marketed to a recycler is critical, so you need to identify:
  - Potential vendors/recyclers
  - Materials the vendors/recyclers recycle
  - Whether there are sufficient materials to warrant recycling; and
  - Whether the purchase price is sufficient to warrant recycling

Once the materials to be recycled are determined, you can begin to design your program.

Phase 2 - Program Development

During the second phase of your program activity, you re-examine initial goals in light of the synthesized information your group has gathered to compose plausible options.

Step 4 - Develop Program Goals

After assessing your current recycling activities, it is helpful to set program goals commensurate with the current legal, contractual, and environmental goals identified above. These program goals form the **criteria** with which to evaluate different options for the recycling program. Typical goals include:

- **Ease of implementation**
- **Meets Federal/State/local requirements**
- **Increases Agency's procurement of recycled materials**
- **Can be implemented with available resources (staff and cost)**

Costs of setting up a program vary according to its size, in-house resources, salaries for recycling staff (if any), containers for recyclable goods (the main cost), educational materials and increased janitorial costs (if any).

Step 5 - Select Program that Meets Goals

An agency considering recycling as a waste management tool must first decide whether to make recycling mandatory or voluntary. This decision is usually driven by economic realities such as diminishing and costly landfill space and/or increased distances to available disposal sites and/or local laws regarding recycling, if any. **Several decisions must be made before the program can be designed:**

- Is the program **mandatory or voluntary?** (If recycling, in the future, is mandated for federal agencies by law and regulation, some options need not be considered or evaluated.)
- Will the work be **conducted by staff** members voluntarily or will the work be **contracted** out or will **additional staff be hired** to do the work?
- What funding resources are available?
- Is this a **phased program**, starting with only some of the materials at first or including only some of the buildings initially?
- **Which buildings** will you consider? Will you plan on phasing in other buildings at a later date?
- Will you try a **pilot program** prior to initiation of a full-scale program?
- What **purchases** lend themselves to the acquisition of recycled materials?

- What is the **scope of the program**? Remember, this will be your first cut at the program scope and you should be realistic while at the same time optimistic. Will it include:

  -- Waste reduction only?

  -- Collection and marketing only?

  -- Procurement only?

  -- All of the above activities?

- In the Collection Component which **materials** will you want to recycle? Develop a list of recyclable materials and list them in priority order for recycling.

  -- High grade white office paper

  -- Glass

  -- Aluminum

  -- Computer paper

  -- Corrugated cardboard

  -- Newspaper

  -- Oil

  -- Other metals

  -- Plastics

  -- Laser printer cartridges

  -- Lab wastes (some)

In addition, you may want to consider recycling compost materials such as lawn clippings and other yard wastes, and agricultural wastes, as well as other wastes identified in the waste stream analysis. Select the materials to be recycled based on the availability of a vendor to buy them, the amount of that material in your waste stream analysis, and the benefits compared to the cost of collecting and marketing the material.

Now that you have considered the first two phases, you should have a pretty good idea about what your program will look like. As a committee you are well established and have the backing of management who you have kept informed throughout this process. In order to move the program forward, submit the committee's findings and recommendations to management for approval.

Phase 3 - Maintaining Your Program

Step 6 - Implement Program

So much has already been said regarding program development that this section is presented as a summary of design and implementation steps in the form of a checklist to help keep your program on track.

Program Design and Implementation Checklist

Your staffing team is ready and the comprehensive requirements analysis has been done. You have selectively designed a recycling program that is now ready to be implemented. But first check to make sure you have:

Education:

_____ Established lines of communication with employees
_____ Determined which types of education devices will be used by whom
_____ Announced the program and put up posters
_____ Distributed written recycling procedures for staff, maintenance personnel and management
_____ Trained the staff, maintenance personnel, and management who are directly involved

Collection:

_____ Determined whether your present contract meets your program needs
_____ Identified and secured space for collection and storage of materials
_____ Selected and procured collection containers
_____ Identified area(s) for loading dock use or other central point(s) of transfer for dealer pick-up
_____ Determined who will move materials to central transfer points
_____ Placed containers in appropriate areas

Marketing:

_____ Met with Agency contracts staff
_____ Identified dealer contract components
_____ Established funding needs to market materials
_____ Determined where income from recycle collection will go
_____ Solicited proposals from dealers
_____ Reviewed GSA contract availability
_____ Signed a contract

Procurement:

_____ Implemented procurement guidelines
_____ Organized in-house procurement resources
_____ Enlisted the support on in-house agency staff and other support resources
_____ Developed a profile of the availability of a recycled material
_____ Evaluated recycled material profiles
_____ Determined which recycled materials are to be purchased through procurement program
_____ Negotiated agreement(s) with prospective vendor(s) for each material.

Step 7 - Monitoring and Evaluation:

_____ Conducted waste stream analysis
_____ Established monitoring/evaluation timeframe
_____ Established methods of tracking, measuring and recording quantities of material recovered
_____ Established lines of communication between staff and management to convey program results
_____ Program monitors in place
_____ Established feedback mechanism
_____ Developed enforcement program if necessary

Your monitoring and evaluation sub-committee may find additional items to add to the checklist. Now you are really ready to go. Good luck, and enjoy a worthwhile project!

TEAR SHEET

Let Us Know How You Are Doing and What You Need

EPA recognizes that with the rapid advancements in recycling programs and technologies, guidelines such as those offered in this handbook may quickly become outdated. In order to provide your agency with the best information possible, EPA would like to know how the handbook has been useful to you, changes or other information you would find helpful, resources you can recommend, and suggestions or tips you can offer from your office recycling efforts. The tear sheet included at the end of the handbook has a two-fold design: to enable you to report back to EPA regarding the helpfulness of the handbook and any changes you recommend, and to provide you with a record of your program's goals and accomplishments. In order to maintain the completeness of this handbook, please photo-copy the page, complete the questionnaire, and return it to the address indicated on the form. The information you provide will be used in periodic updates of this handbook.

APPENDIX A: BIBLIOGRAPHY

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District of Columbia Bill 7-378, the "District of Columbia Solid Waste Management and Multi-Material Recycling Act of 1988"
Procurement Guideline for Cement and Concrete Containing Fly Ash, 40 CFR Part 249, January 1983
Procurement Guideline for Paper and Paper Products, 40 CFR Part 250, June 1988
Procurement Guideline for Lubricating Oils Containing Refined Oil, 40 CFR Part 252, June 1988
Procurement Guideline for Retread Tires, 40 CFR Part 253, November 1988
Procurement Guideline for Building Insulation Products, 40 CFR Part 248, February 1989

APPENDIX B: LIST OF INFORMATION CONTACTS

INFORMATION CONTACTS	PROCUREMENT	MARKETING	COLLECTION	MONITORING & EVALUATION	EDUCATION
RCRA PROCUREMENT HOTLINE (703) 941-4452 M-F 8:30 TO 5:30 (EST) RCRA PROGRAM HOTLINE 1-800-424-9346	✓	✓	✓	✓	✓
EPA RECYCLING RESOURCE STAFF POC: GAIL WRAY ROBERT KELLY and REBECCA HOCKMAN (202) 382-6980	✓	✓	✓	✓	✓
EPA, OFFICE OF SOLID WASTE POC: TRUETT DEGEARE TERRY GROGAN TERRY GRIST RICHARD BRADDOCK (202) 382-6261	✓		✓	✓	✓
GSA FEDERAL RECYCLING PROGRAM POC: BEVERLY GOLDBLATT (202)501-0348		✓	✓	✓	

APPENDIX C

PROCUREMENT GUIDELINES FOR FEDERAL PROCUREMENT OF RECYCLED MATERIALS

The statutory definition of a procuring agency identifies three types of agencies:

(1) Federal agencies
(2) State or local agencies using appropriated Federal funds
(3) Contractors.

Section 6002 of RCRA sets forth certain requirements for procuring agencies. These requirements include:

(1) Eliminating from specifications any discriminaiton against the use of recovered materials.
(2) Purchasing products which contain recovered material if reasonable levels of technical performance, cost, availability, and competition can be achieved.
(3) Obtaining certification from suppliers that they have met any minimum contractual requirements for including recovered materials in their products.

The exhibit on the following page outlines the procurement guidelines for:

(1) Building insulation materials
(2) Cement and concrete containing fly ash
(3) Paper and paper products
(4) Lubricating oils containing refined oil.
(5) Retread tires

PROCUREMENT GUIDELINES FOR FEDERAL PROCUREMENT OF RECYCLED MATERIALS

GUIDELINE FOR PROCUREMENT OF BUILDING INSULATION PRODUCTS CONTAINING RECOVERD MATERIALS; 40 CFR PART 248, FEBRUARY 1989.

This guideline applies to building insulation products. This term includes but is not limited to insulation products used in residential, commerical, and industrial type applicaitons and includes blanket, board, spray-in-place, and loose-fill insulations. Building insulation is used in four locations: ceilings, floors, foundations and walls. The types of materials from which these products are made include, but are not limited to cellulose fiber, fiberglass, rock wool, plastic rigid foams, and specialty materials. Composite products are also considered within the scope of this guideline.

GUIDELINE FOR PROCUREMENT OF CEMENT AND CONCRETE CONTAINING FLY ASH; 40 CFT PART 249, FEBRUARY 1983

This guideline designates cement and concrete products such as pipe and block, containing fly ash, as a product area for which procuring agencies must exercise affirmative procurement under Section 6002 of RCRA and presents recommendations for carrying out the requirements of Section 6002 with respect to fly ash used in cement and concrete.

GUIDELINE FOR PROCUREMENT OF PAPER AND PAPER PRODUCTS CONTAINING RECOVERED MATERIALS; 40 CFR PART 250, JUNE 1988

This guideline applies to the procurement of paper and paper products containing recovered materials. Included are all paper and paperboard categories except building and construction paper grades. EPA included as many items as possible within the scope of this guideline to encourage the paper industry to increase and improve the production of paper and paperboard categories falling within the scope of these guidelines incudes: high grade bleached papers, printing and writing papers, mailing envelopes, memo pads, form bond and manifold business forms, computer paper, newsprint, xerographic/copy paper, and tissue products.

GUIDELINE FOR FEDERAL PROCUREMENT OF LUBRICATING OILS CONTAINING REFINED OIL; 40 CFT PART 252, JUNE 1988

This guideline designates engine lubricating oils, hydraulic fluids, and gear oils which meet specificed military specifications (Mil Specs) as items which are subject to the procurement requirements of Section 6002 of RCRA. These oils were chosen because the Mil Specs allowed refined oils to be used. The oils represent large components of the annual Federal procurement of lubricating oils, and State, local and private purchasers commonly use the oils.

GUIDELINE FOR PROCUREMENT OF RETREAD TIRES; 40 CFR PART 253, NOVEMBER 1988

This guidelines applies to purchases of the following types of tires: high-speed industrial tires, bus tires, and special service tires (including Military, agricultural, off-the-road, and slow speed industrial). The guidelines do not apply to airplane tires or original equipment tires.

APPENDIX D: MATERIAL HANDLING REQUIREMENTS

BACKGROUND INFORMATION

The following provides basic information and handling requirements on the paper, glass, aluminum and plastics recycling programs.

Paper Program:

When assessing the potential for paper recycling, keep in mind that not all paper is the same. Different grades lend themselves to making different types of new products and, therefore, are not interchangeable. For example, old newspapers are used primarily to make newsprint and recycled paperboard, but cannot be used to make fine writing papers; old corrugated containers make linerboard, corrugating medium, and recycled paperboard, but not newsprint; high-grade deinking papers and pulp substitutes (e.g., trim or cuttings from converting plants that produce folding cartons, envelopes, bags) make tissue and printing/writing papers, but not corrugated boxes. Recycled paper can be used to create cereal boxes, writing pad bases, wall board, newsprint, corrugated containers and tissue paper. The four major grades of recyclable paper are:

1. **High Grade Office Paper:**

   The fourth largest source of waste paper is the high-grade deinking papers, of which 2.5 million tons were collected in 1988. This is estimated as 36% of the potential available. This is primarily disgarded as production printed waste, but also includes materials such as computer printout papers white paper/any color printing, white office stationary, white copier paper, white note/tablet paper, white envelopes with water-soluble glue(flaps that stick when moistened). Excluded from this category include: envelopes with non-soluble glue, carbon paper (sensitized paper), blueprint paper, film and photographs, all colored paper, and file folders.

2. **Low Grade Office Paper:**

   Mixed papers are collected from office buildings and industrial plants and are generally unsorted paper. Included in mixed paper is a significant percentage of high quality waste papers. These, if separated from other non-paper wastes, can be recycled into high quality products. In 1988, 3.0 million tons of mixed papers were collected, which represents a 10 percent collection rate overall and a 13 percent recovery rate of the uncontaminated supply. Additionally low-grade paper includes: colored paper, file folders(reuse if possible), brown envelopes, soft cover books with white paper(e.g., Code of Federal Regulations, phone books)-or remove binding and recycle as high grade white paper.

3. **Corrugated Cardboard:**

   The largest single source of waste paper collected for recycling is corrugated boxes, including corrugated box plant clippings. In 1988, approximately 10.5 million tons of used corrugated boxes (post consumer waste) and 1.8 million tons of box plant clippings (industrial waste) were collected. The nationwide collection rate for old corrugated containers in 1988 was 51 percent, with some metropolitan areas achieving a post-consumer collection rate estimated to be in excess of 60 percent.

4. **Old Newspapers:**

The second largest source of waste paper is newspaper, which constitutes the principal grade collected from private residence. In 1988, approximately 4.7 million tons were recovered, representing 34 percent of total U.S. consumption (the equivalent of 81 percent of the 5.8 million tons of U.S. newsprint production).

Glass Program:

Glass is 100% recyclable without any loss in quality to the new containers being manufactured. The average American uses approximately 85 pounds of glass per year. Recycled glass melts at a lower temperature, thereby reducing energy consumption and extending the life of melting furnaces. Every pound of melted glass can be recycled into a pound of new glass, and it can be recycled again and again. Recyclable glass containers include all types of food jars, beverage bottles (all glass), and cosmetic bottles. Excluded are light bulbs, ceramic glass, dishes or plate glass, safety and window glass, heat resistant glass, and lead-based glass (such as crystal or TV tubes).

Aluminum Program:

Approximately 55 percent of all aluminum cans sold are returned and recycled. In 1988, 1.5 million pounds of aluminum beverage containers (about 42.5 billion cans) were recycled. The actual number of aluminum cans recycled has increased every year since aluminum recycling became popular in the early 1970s. In most cases recycled aluminum is used to produce new cans.

Steel and Bi-Metallic Program:

Steel cans are purchased by the steel industry because they are a good source of scrap and because their tin coating can also be recovered and recycled. Some steel cans have aluminum tops and bottoms and are called bi-metal cans. A can is bi-metal if a magnet sticks to the sides but not the ends. If you collect a lot of cans, you might want to flatten them to save space. You will need to check the local marketability for bi-metal cans to determine if recycling them is viable.

Plastics Program:

A growing number of types of plastic products are being recycled. PET plastics (polyethylene terephthalate) are recycled at a rate of 20 percent. Other plastic products with favorable recycling potential are milk, water and juice containers, all of which are derived from high density polyethylene (HDPE). Recycling potential also exists for other types of plastics, such as polyvinyl chloride (PVC) or vinyl. Items made from polystyrene foam which can be recycled include plastic foam cups and plates, take-out containers used by the restaurant industry; cafeteria trays, fast-food containers, plastic cutlery and packaging materials. Recycled plastics are used in plastic wood products, flower pots, drainage pipes, toys, traffic barrier cones, carpet backing, and fiber for pillows, ski jackets and sleeping bags.

Tires:

Approximately 200 million tires are available for reuse or recycling each year. Since they are bulky, they take up valuable landfill space. Tires, which are very expensive to dispose of, can be used in asphalt pavement, industrial fuel, rubber mats and to hold soil erosion.

Yard Waste:

Yard waste comprised eighteen percent of the municipal waste stream. Yard wastes including leaves, grass clippings, branches, and twigs can be composted and used to enrich soil. For more information about composting you may wish to read EPA's Yard Waste Composting: A Study of Eight Programs (EPA/530-SW-89-038). This document is available through the RCRA Program Hotline 1-800-424-9346

HANDLING REQUIREMENTS

Each of the different types of recyclable materials have different handling and processing requirements, a few of which are outlined below. It will be important to work closely with your local recycling company who will stipulate requirements for materials other than those discussed below:

High And Low Grade Office Paper:

Contamination of high and low grade office paper causes serious problems in the paper manufacturing process and substantially lowers the value. The most frequently found contaminants are:

- Plastic covers
- Lithocoated paper
- Fax paper
- Glossy paper
- Post-its
- Tape
- Carbon paper
- Blueprints
- Cardboard
- Pressure-sensitive labels
- Paper with insoluble glue (e.g., wrapping for copier paper)
- Envelopes with plastic windows
- Envelopes with pressure-sensitive flaps and labels
- Binder clips, metal fasteners, rubber bands (save for reuse)
- Food wrappings, cups, napkins, tissues.

Corrugated Cardboard:

Corrugated cardboard should be kept free of contaminants, which adversely affect production efficiency and product quality. Contaminant-free corrugated waste paper also increases its value. Common contaminants include: styrofoam packing materials, plastic bags, wrap and film, trays used to package food items, and plastic cups.

Newspapers:

In order to maximize the price that can be obtained for newspapers, they should be kept clean, dry, out of direct sunlight, tied in bundles or placed in paper bags, and free of contaminants. Contaminants include:

- Wire hangers or other metal objects
- Wax and plastic paper
- Aluminum foil
- Food
- Plastic bags
- Clothing
- Glass
- Wood and yard waste.

Glass:

Glass has a number of processing and handling requirements that have to be followed in order to produce cullet (crushed glass) that is furnace ready (i.e., color-sorted and free of contaminants).

1. Separate material by color (green, brown or clear): Color sorting is essential to guarantee color consistency in containers being made from recycled glass. Occasionally, markets can be found for mixed-color glass, but prices paid may be lower than these for color-sorted glass. No equipment in the glass container industry can effectively color sort glass in the processing phase. Sorting of glass can be done easily by providing three separate, central containers clearly marked to specify which color of glass should be deposited in each container.

2. Separate contaminants from the glass: Contamination is a serious concern of the glass container industry. Sources of contamination include:

   - Stones and dirt
   - Ceramic cups, dishes and ovenware
   - Light bulbs
   - Plate glass, safety and window glass
   - Heat-resistant glass such as Pyrex
   - Lead-based glass such as crystal or TV tubes.

   These materials can create serious problems for the glass container manufacturer for the following reasons: glass furnaces operate at temperatures of about 2700 degrees Fahrenheit. Both lead and aluminum melt at this temperature. Iron, steel and lead will settle to the bottom of a furnace and attack its refractory lining. Aluminum melts into small balls called "stones" or bubbles called "seeds." These can appear in the containers being made, causing both structural and aesthetic problems. Ceramics and stones create similar problems.

   Glass plants are equipped with cullet processing systems which can remove metal caps, rings, and paper from the cullet. This means that all glass recycling programs must make quality control of collected material a high priority.

3. Crushing the glass. Glass does not need to be crushed to be sold. However, crushed glass (cullet) reduces the volume which makes transport simpler and more efficient.

Metal Cans:

Depending on your market, metal cans at some point will need to be separated into all aluminum, steel and/or bi-metal categories. If separation is required at the Agency, a magnet can be used to determine the alloy. It is suggested that the cans be crushed in order to reduce the volume and make transportation more efficient. Contaminants include:

- liquid in cans
- food wrappings
- cups, plastic and glass

It is important that the cans be empty of liquid and that such information be displayed on the collection container.

Plastics:

There are many varieties and combinations of plastic in offices. Plastic will usually have to be separated by types. This is a relatively new area and technology is advancing rapidly.

APPENDIX E: WASTE REDUCTION

Program staff can undertake steps to reduce waste and to foster the reuse of material goods. Activities include:

- Source elimination
- Source reduction
- Reuse

Suggestions for involving staff are presented in the following paragraphs.

A. Source Elimination

Educate staff to the choice of selecting and buying products that have recycling markets in your area. Selecting recyclable and recycled goods over other materials also could be applied to document production (e.g., Code of Federal Regulations) whereby the agency specifies that water soluble glues are used. At the same time, investigate alternative ways to bind documents so that when a document is no longer useful, it can be recycled as a high grade material with a minimal amount of labor involved. Other waste reduction examples include:

- Telephone directories should be stapled rather than glued
- Use of ceramic cups instead of disposable polystyrene foam

The aim of these efforts is to eliminate unnecessary non-recyclable waste.

B. Source Reduction

A Federal agency can assess its own way of doing business to encourage staff to reduce the amount of waste it helps generate. For example, requiring agency staff and contractors to copy on both sides of the paper can generate substantial savings in paper. Use the back of previously used paper for drafts or worksheets. Make only the number of copies of memos or reports needed to meet your requirements. Do not round up--making twenty copies when only eighteen are needed. This equals a 10% reduction in waste. See EPA document (EPA-530-SW-89-066) Promoting Source Reduction and Recycling in the Marketplace.

C. Reuse

One of the most critical components of waste reduction is the reuse of materials. Each time a material is reused, a new one need not be manufactured, purchased, and ultimately disposed of. Suggested items to reuse include:

- File folders
- Interoffice envelopes
- Binder clips, metal fasteners, paper clips
- Rubber bands.
- Three ring binders
- Staples
- Staple removers

An agency should stress that office supplies can often be reused instead of being thrown out. It is suggested that an area be identified for the display of used supplies within or near your agency's supply store.

TEAR SHEET

GENERAL INFORMATION:

AGENCY NAME: _____ Today's Date: _____

Address: _____

_____

_____

Contact Person/Division: _____

PROGRAM GOALS:

- **EDUCATION:**

Strategy_____

_____

_____

_____

Accomplishments_____

_____

_____

_____

- **COLLECTION:**

Materials: Estimated tonnage to be collected

____	High grade paper	____	Oil
____	Computer paper	____	Other metals
____	Other paper	____	Plastics
____	Newspaper	____	Printer Cartridges
____	Glass	____	Lab wastes
____	Aluminum	____	Other (please identify)
____	Corrugated cardbd.		

- **PROCUREMENT:**

Materials: Please check those recyclable materials regularly or those which which will be procured.

____	Paper	____	Building insulation products
____	Computer paper	____	Fly ash in cement
____	Photocopy paper	____	Other (please identify)
____	Oil		
____	Printer cartridges		
____	Lab products		
____	Retread tires		

- **MARKETING:**

Strategy_____

_____

_____

_____

Accomplishments_____

_____

_____

_____

- **MONITORING AND EVALUATION:**

Strategy_____

_____

_____

_____

Frequency_____

_____

_____

_____

PROGRESS TO DATE:

EDUCATION: What techniques have you used and how successful have they been?

Techniques	Frequency, Timing	Participation
_____	_____	_____
_____	_____	_____ _____
_____	_____	_____
_____	_____	
_____	_____	_____

How have you staffed your education program?

____ Volunteers ____ New Hires ____ Assigning tasks to existing employees

- **COLLECTION: What materials are regularly collected?**

Materials	Amount (in tons)
_____	_____
_____	_____
_____	_____
_____	_____

How have you staffed your collection program?
____ Volunteers ____ New Hires ____ Assigning tasks to existing employees

- **PROCUREMENT**: What recycled materials are regularly procured?

Materials	Amount (in tons or dollars)

- **ENTHUSIASM AND COMMITMENT**: How would you describe the enthusiasm and commitment of the following participants to your recycling program:

  - Senior Agency Management:

  - Program Staff:

  - Program Participants

- **GENERAL**: How has actual program experience differed from program goals? Why has experience been better or worse?

- Describe funding support and adequacy:

- **FUTURE**: What program improvements or changes do you plan?

HANDBOOK CRITIQUE:

1. What parts of the handbook were particularly helpful in setting up your recycling program?

2. In what areas was the handbook weak: (For example, have you encountered problems for which the handbook had no answer. Were there any areas where it was incorrect or misguiding? If so, please photocopy the pages and return with comment

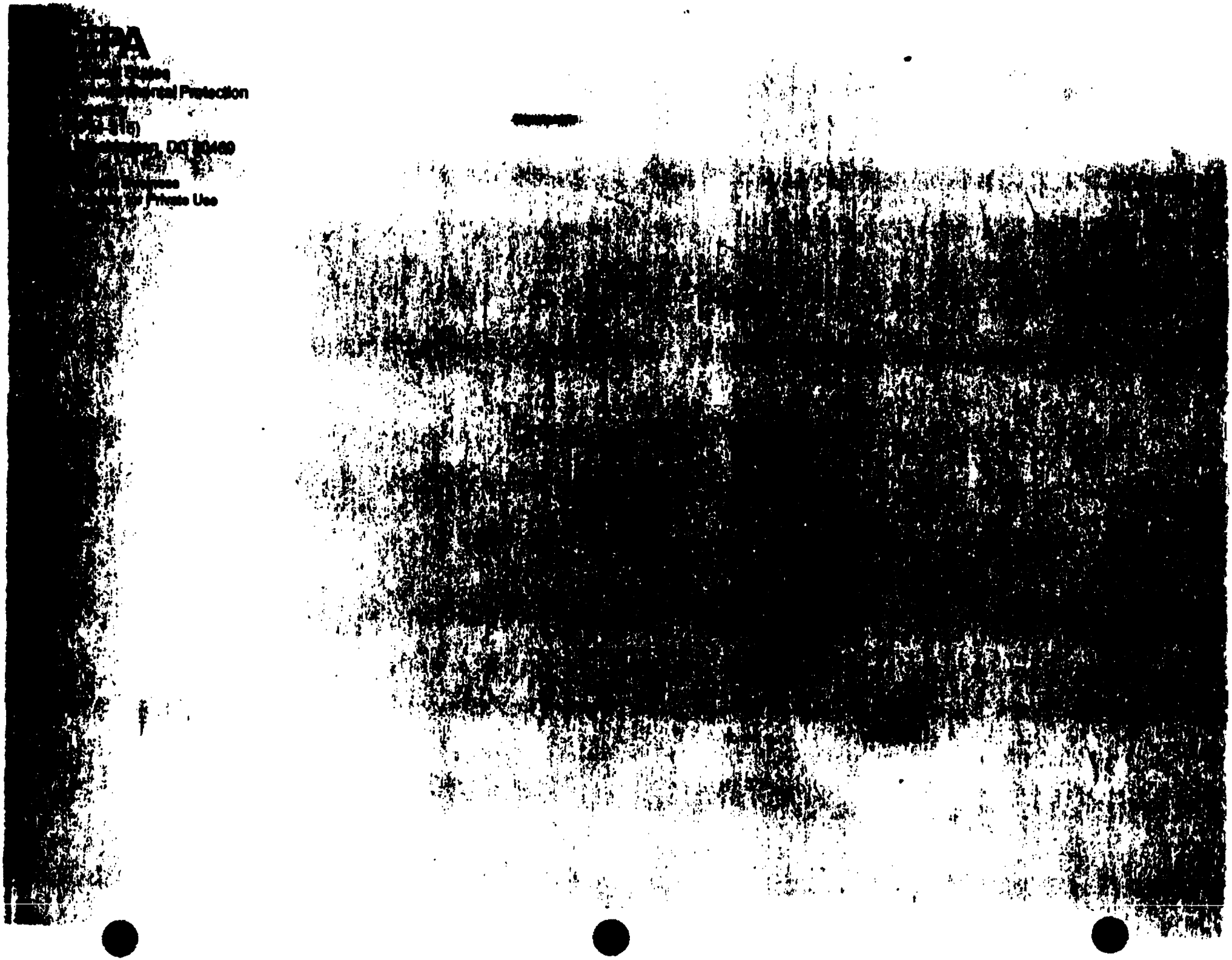
3. What guidance could we add that would make the handbook more useful?

4. What other references did you use to develop your program?

5. What advice would you give others wishing to develop a similar recycling program?

Please mail responses to:

U.S. Environmental Protection Agency
Office of Administration and Resources Management
Attention: Gail Miller Wray (PM-215)
401 M St., SW
Washington, DC 20460



Everybody has a Role

Everyone is responsible for creating – *and solving* – the garbage problem. Working together is the key to closing our national garbage gap.

Consumers need to be responsible for learning about the products and packaging they buy and the waste their households and offices *contribute*. Consumers can buy products with longer lives, that are recyclable or recycled, and with less packaging. Citizens can participate in *local* recycling of newspapers, cans and bottles, and they can compost their wastes. Consumers need to understand the real costs and be prepared to pay for their trash disposal. And they need to recognize the need for local garbage facilities.

Business and Industry are responsible for including source reduction, reuse, and recyclability in their product design and packaging. Manufacturers need to use recycled materials wherever possible. As large consumers, businesses and industries need to buy recycled and recyclable products. Moreover, corporations can be important leaders in community waste management programs.

Waste Management Companies are responsible for working with their communities to plan and carry out integrated waste management practices. Waste companies, including recyclers, must make sure they operate with the public safety and health in mind. They need to be sure that their operators are well trained. Waste companies can help develop markets for recycled materials and educate the public about ways to reduce the garbage problem.

Local Governments are responsible for managing the trash of their citizens. They should plan for the best combination of integrated waste management components to prevent or solve their own garbage dilemma. Recycling should play a key part in reducing dependence on landfills. Educating consumers is their responsibility, too.

State Governments are responsible for regulating, permitting, enforcing, and, in concert with local governments, planning for waste management.

The Federal Government is taking responsibility for leading the charge to solve the garbage problem through regulations, guidance, education, technical assistance, and by using its purchasing power.

A Challenge for Our Throw-Away Society

This brochure briefly describes EPA's recently issued report *The Solid Waste Dilemma: An Agenda for Action*. You are encouraged to get a free copy of the report by calling EPA's RCRA Hotline at 1-800-424-9346 or, in Washington, D.C., 382-3000. Find out what you can do to help make it work. For additional information, you may contact your EPA Regional Office solid waste representative.

Region I
JFK Federal Building
Boston, MA 02203
(617) 573-9687

Region II
26 Federal Plaza
New York, NY 10278
(212) 264-3384

Region III
841 Chestnut Building
Philadelphia, PA 19107
(215) 597-3158
(215) 597-8990

Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365
(404) 347-3433

Region V
230 S. Dearborn Street
13th Floor (HR-11)
Chicago, IL 60604
(312) 886-7452

Region VI
First International Bldg.
1201 Elm Street
Dallas, TX 75270
(214) 655-6760

Region VII
726 Minnesota Avenue
Kansas City, KS 66101
(913) 236-2852

Region VIII
999 18th Street
One Denver Pl., Suite 1300
Denver, CO 80202-2413
(303) 293-1498

Region IX
215 Fremont Street
San Francisco, CA 94105
(415) 974-8026

Region X
1200 Sixth Avenue
Seattle, WA 98101
(206) 442-1260

Office of Solid Waste
United States
Environmental Protection
Agency
401 M Street, S.W.
Washington, DC 20460

United States
Environmental Protection
Agency
Office of Solid Waste

EPA

The Garbage Problem

An Action Agenda

Printed on Recycled Paper

The Garbage Problem Defined

Each of us throws away over 1,300 pounds of garbage annually. In 1986, we Americans produced 158 million tons of waste – enough to fill a convoy of 10-ton garbage trucks reaching half way to the moon. And the convoy is getting longer!

At the same time, we are running out of places to dispose of our trash. The gap between what is produced and where to safely and efficiently dispose of it has become a national garbage problem.

What's in our garbage? Mostly it's ordinary paper and yard wastes – leaves and grass, brush, and tree clippings. Glass, metal, plastic, food, and organic wastes comprise the remainder. Our garbage comes from our homes, offices, and industries.

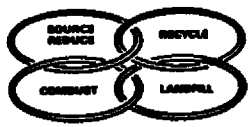
Currently almost all – 80% – of this garbage is landfilled. By 1993, however, more than one-third of our landfills will be full. Very few new landfills are being built because people are alarmed about health and environmental threats landfills may cause. The same fears have limited the construction of new combustors – or incinerators – and recycling facilities.

To add to the problem, only 10% of our waste is recycled, even though recycling can greatly reduce the amount of trash needing disposal. And efforts by product manufacturers to design products with built-in waste efficiency, including less packaging, have been minimal. Shoppers – all of us – continue to buy for convenience, giving little thought to what happens to the part we throw away. As a result, our trash problem is mounting.

As we continue to produce more and more trash and find fewer and fewer disposal sites, the cost of disposal is soaring. Unable to find local sites, some cities are even shipping their garbage elsewhere. Some communities are paying over $100 a ton to dispose of their garbage.

An Agenda for Action

Closing the growing gap between the increasing amount of garbage that we produce and the dwindling number of places to discard it is a national challenge. To meet that challenge, EPA has issued an action agenda to help form a national consensus on how we, as a nation, can deal with our growing garbage problem. The agenda, briefly summarized below, emphasizes that each of us has a key role in solving the problem. The agenda's success will require a partnership among consumers, manufacturers, waste managers, and all levels of government. EPA encourages everyone to help carry out the agenda. The centerpiece of the Agenda for Action is "integrated waste management."



What Is Integrated Waste Management?

Integrated waste management is a tool local communities can use to reduce the garbage gap. Its components are to

- Reduce the toxicity and amount of waste.
- Recycle, including composting.
- Combust, with energy recovery.
- Landfill.

In integrated waste management, each of the four parts complements the others. Using the combination that best addresses its own unique needs, each local community custom designs its own waste management system.

Guiding Principles

The action agenda also stems from strongly held EPA views that

- Planning and implementation of integrated waste management is best conducted at the state and local level.
- A safe and permanent way must be found to eliminate the gap between the amount of waste and the handling capacity in landfills, incinerators, and recycled material markets.
- Reduction and reuse, followed by recycling, are preferred methods for reducing the amount and toxicity of waste to be landfilled or burned. EPA even set a 25% goal for reducing and recycling trash by 1992.
- All waste management practices need to be safe.

Key Objectives

EPA has identified six key objectives to deal with the garbage problem.

1. **Encourage participation in solving the waste problem through increased informational and educational efforts, technical assistance, and research.** "How-to" guides for waste managers, educational materials for citizens, peer exchanges, and a national information clearinghouse are among the actions to improve decision making.

2. **Step up state and local integrated waste management planning.** Cooperative planning among industry, individuals, EPA, and state and local agencies can help close the gap.

3. **Increase "source reduction" activities.** Minimizing the volume of waste and toxicity of products and extending products' useful lives is what EPA means by "source reduction." Waste audits, reduced packaging, and the use of less toxic materials in products are called for. Also, federal procurement practices should reflect the source reduction objective.

4. **Increase recycling.** Recycling can divert a lot of waste from landfills and incinerators. To boost recycling, the Agenda for Action aims to stimulate stable markets for recyclables and compost, explore incentives, and promote buying recycled goods.

5. **Improve waste combustion safety.** Safe combustion of trash can be a useful technique for reducing waste volume and producing energy. Incineration will be made safer through operator training, plans for ash disposal, and upgraded performance standards.

6. **Improve landfill safety.** To increase landfill safety, EPA intends to require that landfill design and operating standards be met and the Agency encourages operator training. Technical assistance will help waste managers upgrade landfills. Of course, we will all need to reduce the amount of waste that needs to be landfilled.

May 16, 1991

GENERAL SERVICES ADMINISTRATION
FEDERAL RECYCLING PROGRAM
CONTRACT SPECIFICATIONS

RECYCLING CLAUSES TO BE INSERTED IN SERVICE CONTRACTS FOR THE COLLECTION AND SALE OF RECYCLABLE MATERIALS

A GUIDELINE

RECYCLING CLAUSES TO BE INSERTED IN SERVICE (I.E., JANITORIAL, TRASH REMOVAL) CONTRACTS FOR THE COLLECTION AND SALE OF RECYCLABLE MATERIALS

NOTE IN SECTION B:

All costs associated with the handling, transportation and sale of recyclable materials shall be included in the base price for the initial year and all option periods of the contract.

The Contractor shall retain any proceeds that result from the sale of recyclable materials covered by this contract. The bid price shall reflect any amount attributable to the value of recyclable materials.

SECTION C INSERTS:

Recyclable Materials. The Contractor shall handle, transport and ensure the recycling of all materials intended to be recycled. Materials intended to be recycled are: [complete as appropriate]. All materials that are intended to be recycled (i.e., materials in recycling containers or otherwise designated by the COR to be recycled) shall be recycled unless prior approval is received from the CO, or his/her designee. For example, materials intended to be recycled cannot be landfilled (or disposed of in any manner other than to recycle) without prior approval by the CO, or his/her designee.

All recyclable materials generated in the building shall be collected and removed from the areas designated in Part III, Section J, Exhibit [insert appropriate exhibit number] to an area designated by the COR. Recycling containers shall be free of residue and any plastic liners shall not be torn, worn or contain residue. Overflow of materials from containers shall be picked up from the floor of the area used to collect and consolidate the materials.

Additional or special pickups may be required on an irregular basis. Pickups shall be accomplished within 24 hours of notification by the COR. Payment for these pickups will be based on the hourly rate specified for additional services in this contract.

All work shall be coordinated and scheduled through the COR.

Locating and contracting with a recycling vendor (i.e., a processor or mill) is the sole responsibility of the Contractor.

The Contractor shall identify all recyclable materials by type (and grade, if appropriate) and quantity (i.e., number of containers and/or weight) prior to their being transported from the facility(s). Receipts for all materials shall be immediately obtained by the Contractor upon transfer of the materials to a recycling vendor.

Receipts shall identify all materials by type (and grade, if appropriate) and quantity. Records of what was transported from the facility(s) and receipts obtained shall be made available to the COR upon request. The method of identifying materials prior to transportation from the facility(s), obtaining receipts and keeping records of these transactions shall be approved by the CO, or his/her designee, prior to starting work.

Recyclable materials shall not be handled, stored or transported in any manner that promotes a safety or health hazard.

[Optional Insert:] All orders for pickups shall be coordinated by the COR, or his/her designee(s).

Storage Containers. The Contractor shall provide the necessary storage containers and other equipment for use in Government-designated storage areas in sufficient quantities for the removal and storage of the recyclable material accumulations prior to removal by the Contractor.

a. Container Type. [insert any specifics for storage containers] The COR shall approve all container styles and types prior to placement.

b. Container Responsibility. The Contractor shall be responsible for the delivery, maintenance, and removal of storage containers and equipment, throughout the contract period. The Contractor-supplied containers must be kept free from holes, vermin, or foreign matter which might cause injury, stain clothing or furniture, and the containers must not emit unpleasant odors. If any Contractor-provided container emits unpleasant odors, as identified by the COR, it shall be immediately corrected by the Contractor at his expense. All Contractor-supplied equipment and materials will remain the property of the Contractor during and subsequent to the contract period.

c. Container Exclusions. Canvas hampers will not be provided, delivered or picked up by the Contractor for the purpose of storage or transporting used beverage cans (UBCs) or used glass containers (UGCs).

d. Container Placement and Pickup Schedule. See Section J.

[Optional Insert if the Contractor is to supply recycling collection containers:] The Contractor shall furnish all containers utilized for the receipt and collection of recyclable materials. Containers provided for recycling shall conform to the following requirements:

- o Containers whose volume exceeds 10 gallons:
  - Construction
    - Nonmetallic and/or metal construction.
    - Equipped with tight fitting lid, cover or top.
    - The lid, cover or top may have opening(s). Opening(s) in the lid of the container may not exceed 40 percent of the surface area of the lid.
  - Location
    - Limited to general office space, lobbies, corridors and rest rooms.
    - Limited to nonsmoking areas.
    - Limited to areas where the containers do not interfere with occupant egress.
- o Containers whose volume is less than 10 gallons:
  - Construction
    - Nonmetallic and/or metal construction.
    - No lid, cover or top is required.
  - Location
    - Limited to general office space.
    - Limited to nonsmoking areas.
    - Limited to areas where the containers do not interfere with occupant egress.

The containers shall be composed of recycled material to the maximum extent practicable regardless of the material the containers are made of. The containers shall be approved by the CO, or his/her designee, prior to use. Damaged containers shall be replaced by the Contractor.

[insert the following paragraph (3) if recyclable paper is covered by this contract:]

Restriction on Use. Recyclable paper purchased under this contract shall be used or sold as recyclable paper only. The Contractor shall not use, allow access to, or offer for resale any papers, documents, file record material, or any other form of records as files, records, or for the information contained therein.

[optional insert (Paragraph 4) if classified documents are to be recycled]

Destruction of Material Covered Under the Privacy Act. Certain accumulations of recyclable paper sold under this contract will contain classified or confidential information which is covered by the Privacy Act of 1974 (Public Law 93-579). This material shall be shredded or pulped at no cost to the Government. Certification showing that the material has been destroyed shall be forwarded to the Custodian from where the records were moved within fifteen (15) days from the receipt of the file record material.

The Contractor shall install and maintain any equipment necessary for the destruction of the recyclable paper within the boundaries of the contract area(s), unless otherwise approved by the CO, or his/her designee. If temporary storage is necessary, the storage area shall be securely locked at all times and under the supervision of the Contractor or its representative. The Contractor shall be responsible for the security of the recyclable paper from the time of pickup until it has been destroyed. Any loss of recyclable paper due to Contractor neglect may result in termination of this contract. GSA reserves the right to inspect the Contractor's destruction equipment and facilities at any time.

Certain lots of material may require destruction under the supervision of a representative of the holding agency or GSA. This material shall be taken directly to the Contractor's destruction facility from the service location in conveyances sealed by the Government. These conveyances shall be opened only in the presence of the representative at the Contractor's facility and the contents destroyed without any undue delay. Pickups requiring a Government representative to be present for destruction shall be scheduled within his/her normal duty hours, including travel time.

Any national security information which has been classified under the provision of Executive Order 12356, or any subsequent order relating to the classification system for national security information, shall not be disposed of through the use of this contract.

NOTE: The Contractor will not be expected to shred or remove any shredded material cut into less than one-quarter inch strips or destroyed by a "crisscross" shredding devise [requirements under this NOTE may vary with local markets].

SECTION J INSERT: Recycling Material Collection/Pickup.

Container Location	Number of Containers	Capacity	Pickup Schedule

[If locations are apt to change frequently, you may want to state a number of containers per floor and state that a recycling sticker will be placed on each door or door plate identifying container location.]

RECYCLING CLAUSES TO BE INSERTED IN SERVICE CONTRACTS FOR THE COLLECTION OF RECYCLABLE MATERIALS

A GUIDELINE

RECYCLING CLAUSES TO BE INSERTED IN SERVICE (I.E., JANITORIAL, TRASH REMOVAL) CONTRACTS FOR THE COLLECTION OF RECYCLABLE MATERIALS

NOTE IN SECTION B:

All costs associated with the collection and handling of recyclable materials shall be included in the base price for the initial year and all option periods of the contract.

SECTION C INSERT:

Recyclable Materials. The Contractor shall collect and remove all materials intended to be recycled. Materials intended to be recycled are: [complete as appropriate].

All recyclable materials generated in the building shall be collected and removed from the areas designated in Part III, Section J, Exhibit [insert appropriate exhibit number] to an area designated by the COR. Recycling containers shall be free of residue and any plastic liners shall not be torn, worn or contain residue. Overflow of materials from containers shall be picked up from the floor of the area used to collect and consolidate the materials.

Additional or special pickups may be required on an irregular basis. Pickups shall be accomplished within 24 hours of notification by the COR. Payment for these pickups will be based on the rate specified for additional services [coordinate this with the existing additional services clause in the service contract] in this contract.

All work shall be coordinated and scheduled through the COR.

Recyclable materials shall not be handled, stored or transported in any manner that promotes a safety or health hazard.

[Optional Insert:] All orders for pickups shall be coordinated by the COR, or his/her designee(s).

[Optional Insert if the Contractor is to supply recycling collection containers:] The Contractor shall furnish all containers utilized for the receipt and collection of recyclable materials. Containers provided for recycling shall conform to the following requirements:

- o Containers whose volume exceeds 10 gallons:

  - Construction
    - Nonmetallic and/or metal construction.
    - Equipped with tight fitting lid, cover or top.
    - The lid, cover or top may have opening(s).

Opening(s) in the lid of the container may not exceed 40 percent of the surface area of the lid.

  - Location
    - Limited to general office space, lobbies, corridors and rest rooms.
    - Limited to nonsmoking areas.
    - Limited to areas where the containers do not interfere with occupant egress.

- o Containers whose volume is less than 10 gallons:

  - Construction
    - Nonmetallic and/or metal construction.
    - No lid, cover or top is required.

  - Location
    - Limited to general office space.
    - Limited to nonsmoking areas.
    - Limited to areas where the containers do not interfere with occupant egress.

The containers shall be composed of recycled material to the maximum extent practicable regardless of the material the containers are made of. The containers shall be approved by the CO, or his/her designee, prior to use. Damaged containers shall be replaced by the Contractor.

SECTION J INSERT: Recycling Material Collection/Pickup.

Container Location	Number of Containers	Capacity	Pickup Schedule

[If locations are apt to change frequently, you may want to state a number of containers per floor and state that a recycling sticker will be placed on each door or door plate identifying container location.]

RECYCLING CLAUSES TO BE INSERTED IN SALES CONTRACTS FOR THE COLLECTION OF RECYCLABLE MATERIALS

A GUIDELINE

RECYCLING CLAUSES TO BE INSERTED IN SALES CONTRACTS FOR THE COLLECTION OF RECYCLABLE MATERIALS

NOTE IN SECTION B:

All costs associated with the collection and handling of recyclable materials shall be included in the base price for the initial year and all option periods of the contract.

SECTION C INSERT:

Recyclable Materials. The Contractor shall collect and remove all materials intended to be recycled. Materials intended to be recycled are: **[complete as appropriate]**.

All recyclable materials generated in the building shall be collected and removed from the areas designated in Part III, Section J, Exhibit [insert appropriate exhibit number] to an area designated by the COR. Recycling containers shall be free of residue and any plastic liners shall not be torn, worn or contain residue. Overflow of materials from containers shall be picked up from the floor of the area used to collect and consolidate the materials.

Additional or special pickups may be required on an irregular basis. Pickups shall be accomplished within 24 hours of notification by the COR.

All work shall be coordinated and scheduled through the COR.

Recyclable materials shall not be handled, stored or transported in any manner that promotes a safety or health hazard.

[Optional Insert:] All orders for pickups shall be coordinated by the COR, or his/her designee(s).

SECTION J INSERT: Recycling Material Collection/Pickup.

Container Location	Number of Containers	Capacity	Pickup Schedule

[If locations are apt to change frequently, you may want to state a number of containers per floor and state that a recycling sticker will be placed on each door or door plate identifying container location.]

[D0]<RECYCLE.SPEC>INSERTS:SDT:05-16-91

SALE SPECIFICATION FOR RECYCLABLE MATERIALS

A GUIDELINE

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PART I - THE SCHEDULE

The information collection requirements contained in this solicitation/contract, that are not required by regulation, have been approved by the Office of Management and Budget pursuant to the Paperwork Reduction Act and assigned OMB Control No. 3090-0163.

PART I

SECTION A - SOLICITATION/CONTRACT FORM

[Insert SF 114, Sale of Government Property - Bid and Award (as modified)]

RETURN WITH BID

SALE OF GOVERNMENT PROPERTY—BID AND AWARD	INVITATION FOR BIDS NO	PAGE NO	FORM APPROVED OMB NO 29-R0022

ISSUED BY	ADDRESS YOUR BID TO

FOR INFORMATION CONTACT (Name & tel. no.)	BIDS WILL BE OPENED AT (Place, date and time)

Sealed bids in _____ copy(ies) for purchasing any or all items listed on the accompanying schedule, will be received at the place designated above until the date and time specified above and at that time publicly opened, subject to: (1) The General Sale Terms and Conditions, SF 114C, (edition) and Special Sealed Bid Conditions, SF 114C-1, (edition) ☐; Special Sealed Bid-Term Conditions SF 114C-2, (edition) ☐; all incorporated herein by reference; and such other special terms and conditions ☐ attached or ☐ incorporated herein by reference and identified as _____. (Copies of these forms, unless attached hereto, are on file at the issuing office and will be made available upon request.) (2) BID DEPOSIT ☐ IS NOT REQUIRED: ☐ IS REQUIRED IN AN AMOUNT NOT LESS THAN _____% OF THE TOTAL BID, MADE PAYABLE TO:

(3) Bidder is required to pay for any or all of the items listed on the Item Bid page(s) as part of this Bid, at the price set opposite each item, within _____calender days after date of award, and to remove the property within_____ calendar days after date of award by the Government.

BID *(This section to be completed by the Bidder)*

In compliance with the above, the undersigned offers and agrees, if this Bid is accepted within _____ calendar days (calendar days if no period ess than 10 calendar days in any ca after date of Bid opening, REFER TO PART IV, SECTION K of the Bid(s) is $_____ and attached is the bid deposit, which equals by the percentage, in the amount of $_____.

BIDDER REPRESENTS THAT: *(Check appropriate boxes)*

(1) He/She ☐ has, ☐ has not, inspected the property on which he/she is bidding.

(2) He/She ☐ is, ☐ is not, an ☐ individual or a ☐ small business concern. (See CFR, Title 13, Chapter I Part 121, Sec. 121.3-9, for the definition *(amount of the bid(s) exceeds $25,000.)*

(3) (a) He/She ☐ has, ☐ has not, employed or retained any person (other than a full-time, bona fide employee working solely REFER TO PART IV, SECTION K e/she ☐ has, ☐ has not, paid or agreed to pay any company or rking solely for the Bidder) any fee, commission, percentage or brokerage fee, contingent upon or resulting from the award of this contract; and agrees to furnish information relating to (a) and (b), above, as requested by the Contracting Officer. (For interpretation of the representation, including the term "bona fide employee," see CFR, Title 41, Subpart 101-45.3.)

NAME AND ADDRESS OF BIDDER (Street, city, state & ZIP Code) (Type or print)	SIGNATURE OF PERSON AUTHORIZED TO SIGN THIS BID	
	SIGNER'S NAME & TITLE (Type or print)	DATE OF BID
TELEPHONE NUMBER:		
BIDDER IDENTIFICATION NO. (If applicable):		

ACCEPTANCE BY THE GOVERNMENT *(This section for Government use only)*

ACCEPTED AS TO ITEM(S) NUMBERED	UNITED STATES OF AMERICA	DATE OF ACCEPTANCE
	BY (Contracting Officer)	
TOTAL AMOUNT / CONTRACT NUMBER(S)	NAME AND TITLE OF CONTRACTING OFFICER	

114-109

STANDARD FORM 114 (Rev. 5-85)
Prescribed by GSA FPMR (41 CFR) 101-45.3

PART I

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS

1. Description of Services. The Contractor shall provide all management, supervision, labor, materials, supplies and equipment (except as specifically designated "provided by the Government") and shall plan, schedule, coordinate and assure effective completion of all contract requirements described herein.

2. Bid/Offer. **[NOTE: In addition to considering situations A and B below, if market conditions will permit (i.e., if the market is stable), you may desire a flat unit price bid instead of a percentage factor. Also, the term of the contract (number of option periods) can vary depending on local market conditions and qualified vendor availability.]**

[SITUATION A:]

[Use the following if the price of the recyclable material(s) cannot be determined by a published index:] In order to determine stock prices for **[insert appropriate recyclable material]**, the Government will conduct a market survey with the following end users on the **[insert appropriate day of the month]**: **[complete as appropriate]**

The Government will divide the total stock prices obtained by **[insert appropriate number in accordance with the above number of end users surveyed]** in order to determine the "average" stock price for the preceding month. The percentage factor bid under Part I, Section B, below, will be applied to the "average" stock price to determine the unit price. The unit price will be multiplied by the estimated quantity to arrive at a total price per recyclable material. The totals will then be added together to arrive at the aggregate total.

[SITUATION B:]

[Use the following if the price of the recyclable material(s) can be determined by a published index:] In order to determine prices for **[insert appropriate recyclable material]**, the Government will use the highest announced price quoted in the **[insert appropriate index]**, on the **[insert appropriate day of the month]** for the previous month in which the pickup is accomplished. The percentage factor bid under Part 1, Section B will be applied to the highest announced price to determine the unit price. The unit price will be multiplied by the estimated quantity to arrive at a total price per recyclable material. The totals will then be added together to arrive at the aggregate total.

[NOTE: For bid purposes, the index value and/or end user survey value for each type of material covered by this contract should be clearly stated, valid and fixed at the time of solicitation.]

a. Base Bid for Initial 12 Month Period.

Type of Material	Estimated Yearly Weight Per [insert pound or ton]	Bid Price Per [insert pound or ton]
(1) [insert geographical area, or buildings (refer to III.J.1]		
(1a) [insert appropriate recyclable material]	_____	_____
(1b) [insert appropriate recyclable material]	_____	_____
(1c) [insert appropriate recyclable material]	_____	_____
(2) [insert geographical area]		
(2a) [insert appropriate recyclable material]	_____	_____
(2b) [insert appropriate recyclable material]	_____	_____
(2c) [insert appropriate recyclable material]	_____	_____

[NOTE: The above format is based on the use of a flat unit price. If you use a percentage factor format instead of the unit price format, your bid sheet should contain an additional column which addresses the stock price (for bid purposes only) provided by Situation A and/or Situation B as set forth on page I-B-1. The header for the final column should then be changed to read "Percentage Bid Per [insert pound or ton]" instead of "Bid Price Per [insert pound or ton]".]

b. Option Lot I - First Additional 12 Month Period.

[NOTE: insert additional line items, geographical categories and option years, as appropriate.]

3. Note to Offerors:

a. Offerors are not required to submit a bid for each geographical area. Instead, offerors have the option to bid on only one geographical area, more than one geographical area, or all geographical areas as desired. However, Offerors must submit a bid for each line item within a geographical area.

b. This solicitation should be read in its entirety to ensure that the Offeror is fully cognizant of contract requirements.

c. Offerors are cautioned to pay particular attention to the definitions provided at Part III, Section J, Exhibit 3.

d. Contractors should submit an offer for the removal of recyclable materials at indoor and/or outdoor pickup points.

e. You must quote a price for the initial 12 month period and [insert appropriate number] option periods in order to be considered for award.

PART I

SECTION C - DESCRIPTION/SPECIFICATIONS

General Note: The Contracting Officer and the Contracting Officer's Representative will hereafter be referred to as the CO and the COR, respectively.

1. General.

a. This solicitation is for interested parties who wish to submit offers for the purchase of recyclable materials generated by Government-owned and Government-operated premises and other locations in the [insert geographical area].

b. Contractors are invited, urged, and cautioned to inspect the locations prior to submitting an offer. Potential Offerors should contact [insert appropriate contact, including address and telephone number], for an on-site inspection of facilities to be serviced.

2. Scope of Work. The Government shall designate locations from which the Contractor is to remove accumulations of recyclable materials. Locations may be vacated or changed or other locations added, with the actual accumulation of recyclable materials varying in quality and quantity.

a. Recyclable Materials. The Contractor shall handle, transport and ensure the recycling of all materials intended to be recycled. Materials intended to be recycled are: [complete as appropriate]. All materials that are intended to be recycled (i.e., materials in recycling containers or otherwise designated by the COR to be recycled) shall be recycled unless prior approval is received by the CO, or his/her designee. For example, materials intended to be recycled cannot be landfilled (or disposed of in any manner other than to recycle) without prior approval by the CO, or his/her designee. A verbal request and approval is acceptable. Once a request is received, the CO, or his/her designee, will respond by close of business the following work day.

All work shall be coordinated and scheduled through the COR.

Recyclable materials shall not be handled, stored or transported in any manner that promotes a safety or health hazard.

[Optional Insert (paragraph b):]

b. All orders for pickups shall be coordinated by the COR, or his/her designee(s).

[Optional Insert (paragraph c) if the Contractor is to supply recycling collection containers:]

c. The Contractor shall furnish all containers utilized for the receipt and collection of recyclable materials. Containers provided for recycling shall conform to the following requirements:

o Containers whose volume exceeds 10 gallons:

- Construction
  - Nonmetallic and/or metal construction.
  - Equipped with tight fitting lid, cover or top.
  - The lid, cover or top may have opening(s). Opening(s) in the lid of the container may not exceed 40 percent of the surface area of the lid.

- Location
  - Limited to general office space, lobbies, corridors and rest rooms.
  - Limited to nonsmoking areas.
  - Limited to areas where the containers do not interfere with occupant egress.

o Containers whose volume is less than 10 gallons:

- Construction
  - Nonmetallic and/or metal construction.
  - No lid, cover or top is required.

- Location
  - Limited to general office space.
  - Limited to nonsmoking areas.
  - Limited to areas where the containers do not interfere with occupant egress.

The containers shall be composed of recycled material to the maximum extent practicable regardless of the material the containers are made of. The containers shall be approved by the CO, or his/her designee, prior to use. Damaged containers shall be replaced by the Contractor.

d. Estimated weights. Estimated weights of the recyclable materials are based on the best available Government information at the time of issuance of this solicitation. The Government does not guarantee these estimated weights. The Contractor will be billed by the General Services Administration (GSA) on the actual weight of recyclable materials removed from the designated pickup locations.

e. Storage Containers. The Contractor shall provide the necessary storage containers and other equipment for use in Government-designated storage areas in sufficient quantities for the storage of the recyclable material accumulations prior to removal by the Contractor. Recycling containers shall be free of residue and any plastic liners shall not be torn, worn or contain residue. Overflow of materials from containers shall be picked up from the floor of the area used to collect and consolidate the materials.

(1) Container Type. **[insert any specifics for storage containers]** The COR shall approve all container styles and types prior to placement.

(2) Container Responsibility. The Contractor shall be responsible for the delivery, maintenance, and removal of storage containers and equipment, throughout the contract period. The Contractor-supplied containers must be kept free from holes, vermin, or foreign matter which might cause injury, stain clothing or furniture, and the containers must not emit unpleasant odors. If any Contractor-provided container emits unpleasant odors, as identified by the COR, it shall be immediately corrected by the Contractor at his expense. Failure by the Contractor to take action to correct containers emitting odors will be grounds for finding the Contractor in default and could cause the termination of this contract. (See Section I.) All Contractor supplied equipment and materials will remain the property of the Contractor during and subsequent to the contract period.

(3) Container Exclusions. Canvas hampers will not be provided, delivered or picked up by the Contractor for the purpose of storage or transporting food and beverage containers (i.e., plastic, glass and metal).

(4) Container Placement. The Contractor shall submit all proposed container locations to the COR, for approval, prior to placement at each pickup site by the Contractor.

[Insert the following paragraph (3) if recyclable paper is covered by this contract:]

3. Restriction on Use. Recyclable paper purchased under this contract shall be used or sold as recyclable paper only. The Contractor shall not use, allow access to, or offer for resale any papers, documents, file record material, or any other form of records as files, records, or for the information contained therein.

[Optional insert (Paragraph 4) if classified documents are to be recycled - this can be made to apply only to specific buildings and not all, if appropriate]

4. Destruction of Material Covered Under the Privacy Act. Certain accumulations of recyclable paper sold under this contract will contain classified or confidential information which is covered by the Privacy Act of 1974 (Public Law 93-579). This material shall be shredded or pulped at no cost to the Government. Certification showing that the material has been destroyed shall be forwarded to the Custodian from where the records were moved within fifteen (15) days from the receipt of the file record material.

The Contractor shall install and maintain any equipment necessary for the destruction of the recyclable paper within the boundaries of the contract area(s), unless otherwise approved by the CO, or his/her designee. If temporary storage is necessary, the storage area shall be securely locked at all times and under the supervision of the Contractor or its representative. The Contractor shall be responsible for the security of the recyclable paper from the time of pickup until it has been destroyed. Any loss of recyclable paper due to Contractor neglect may result in termination of this contract. GSA reserves the right to inspect the Contractor's destruction equipment and facilities at any time.

Certain lots of material may require destruction under the supervision of a representative of the holding agency or GSA. This material shall be taken directly to the Contractor's destruction facility from the service location in conveyances sealed by the Government. These conveyances shall be opened only in the presence of the Government representative at the Contractor's facility and the contents destroyed without any undue delay. Pickups requiring a Government representative to be present for destruction shall be scheduled within his/her normal duty hours, including travel time.

Any national security information which has been classified under the provision of Executive Order 12356, or any subsequent order relating to the classification system for national security information, shall not be disposed of through the use of this contract.

NOTE: The Contractor will not be expected to shred or remove any shredded material cut into less than one-quarter inch strips or destroyed by a "crisscross" shredding devise **[requirements under this NOTE may vary with local markets]**.

5. Supervision.

a. The Contractor shall supervise the removal, transportation, weighing, and disposal of the property to ensure compliance with the terms and conditions of this contract.

b. The Contractor shall be responsible for maintaining satisfactory standards of employee competency, conduct, appearance, and integrity. The Contractor shall be responsible for taking disciplinary actions with respect to his employees as may be necessary.

c. The CO may require removal from the job site of Contractor's employees deemed to be unsuitable or otherwise objectionable or whose continued employment under the contract is deemed to be contrary to the public interest or inconsistent with the best interests of the Government.

6. Delivery, Loading, and Removal of Property. The Contractor shall accomplish removal of the recyclable materials within the prescribed time period, as shown under paragraph 6.d. below, and furnish all necessary labor, materials, and transportation for loading and removal of the recyclable materials.

a. Normal Pickups. Removal of recyclable materials will occur during normal operating hours of the holding agency, unless otherwise defined in this specification. There will be no pickups required on Saturdays, Sundays, and Federal holidays.

b. Special Pickups. Some locations may have limits on maximum truck height clearances which will require the Contractor to verify clearances at each pickup site.

c. Minimum Pickup Quantities. Each building identified in Part III, Section J, Exhibit 1, will have a minimum of [insert appropriate minimum quantity per each recyclable material - this may vary depending on the market] available for pickup prior to calling the Contractor for removal. However, the Contractor will have the option of removing smaller quantities of recyclable materials with the consent of the COR.

d. Pickup Schedules. The Contractor shall remove the recyclable materials within [insert minimum time frame - this may vary depending on the market] from the time of notice from the COR or the holding agency's authorized representative. A complete listing of holding agency's authorized representatives will be provided to the Contractor by contract start date. Failure by the Contractor to remove the recyclable materials within the time specified or to comply with all other terms of the contract may result in the Contractor's default in performance of this contract.

e. Contractor Equipment. The Government will not be held responsible for damage to the Contractor's equipment. All Contractor equipment shall be properly maintained by the Contractor so as to minimize mechanical problems and breakdowns.

f. Transporting Responsibility. All recyclable materials shall be secured in such a manner by the Contractor as to prevent such from dropping off the conveyance while being transported.

g. Building Loading Docks. The Contractor shall leave the service loading area at each building where recyclable materials are picked up in a clean and orderly condition (see Part III, Section J, Exhibit 1 for any site specific loading dock requirements).

7. Contractor Responsibilities for Government Properties.

a. Responsibility for Government Property. The Contractor assumes full responsibility for and shall indemnify the Government against all loss or damage to any and all Government property, including any equipment, supplies, accessories, or parts furnished to the Contractor while in the performance of this contract. This includes repairs or services performed under the terms of this contract, resulting in whole, or in part, from the negligent acts or omissions of the Contractor, any subcontractor, or any employee, agent, or representative of the Contractor or his subcontractors.

b. Hold Harmless and Indemnification Agreement. The Contractor shall save and hold harmless and indemnify the Government against any and all liability, claim, and cost of whatsoever kind and nature for injury to or death of any person or persons and for loss or damage to any property occurring in connection with or in any way incident to or arising out of the occupancy, use, service, operations, or performance of work under the terms of this contract, resulting in whole or in part from the negligent acts or omissions of the Contractor, any subcontractor, or any employee or agent, or representative of the Contractor or subcontractor.

c. Damage to Government Property from Causes Other than Contractor's Negligence. Nothing in paragraphs 7.a. and 7.b. above, shall be considered to preclude the Government from receiving the benefit of any insurance the Contractor may carry which provides for indemnification for loss or destruction of or damage to property in the custody and care of the Contractor where such loss, or destruction of, or damage to, Government property is not the fault of the Contractor. Upon request of the CO, the Contractor shall, at the Contractor's expense, furnish to the Government all reasonable assistance and cooperation (including assistance in the prosecution of suit and execution of instruments of assignments in favor of the Government) in obtaining recovery.

8. Monthly Billing Procedures.

a. Calculations for Monthly Statements. The Contractor will be billed by GSA and payment will be made by the Contractor on a monthly basis. The GSA Accounts Receivable Branch (6BCR) will send a statement to the Contractor for the total net weight of all property removed during the billing period from the using agency. A billing price per [insert ton or pound] will be determined for each type of recyclable material removed during that month using the procedure outlined in paragraph "b" below.

b. Unit Pricing.

[SITUATION A:]

[Use the following if the price of the recyclable material(s) cannot be determined by a published index:] In order to determine stock prices for [insert appropriate recyclable material], the Government will conduct a market survey with the following end users on the first [insert appropriate weekday] of each month: [complete as appropriate]

The Government will divide the total stock prices obtained by [insert appropriate number in accordance with the above number of end users surveyed] in order to determine the "average" stock price for the preceding month. The percentage factor bid under Part I, Section B, will be applied to the "average" stock price in order to determine the bid price per pound and/or ton, for the previous month in which the pickup is accomplished.

[SITUATION B:]

[Use the following if the price of the recyclable material(s) can be determined by a published index:] In order to determine prices for [insert appropriate recyclable material], the Government will multiply the appropriate percentage figure found under Part I, Section B, by the highest announced price quoted in the [insert appropriate index], on the first [insert appropriate weekday] of each month, for the previous month in which the pickup is accomplished.

[The following paragraph (c) is optional.]

c. Minimum Monthly Billing Amounts. [The purpose of this clause is so the Government will not have to pay if the Contractor submits a claim because that particular market has a negative published index price. Therefore, this would only apply if the material removed or sold is of a higher quality than the market index (e.g., if the market index is mixed paper, but the material removed or sold is actually partially composed of higher grade

paper.)] Regardless of the market conditions, the Government will not bill the Contractor less than $[insert appropriate amount per ton or pound for each recyclable material].

d. Determining Net Weight for Payment: The net weight per ticket will normally be determined by first weighing the loaded truck (gross weight) and then subtracting both the weight of the truck itself (tare weight) and the weight of any containers (container weight).

Net Weight = Gross Weight less Container Weight.

Tare Weight = Weight of the empty truck.

Gross Weight = Total Weight of the tare weight plus the weight of the truck's load.

Container Weight = Weight of any hampers, carts, trays or pallets used to contain the recyclable materials.

e. Receipt and Verification. The Contractor shall identify all recyclable materials by type (and grade, if appropriate) and quantity (i.e., number of containers and/or weight) prior to being transported from the facility(s). Receipts for all materials shall be obtained immediately by the Contractor upon transfer of the materials to a recycling vendor.

Receipts shall identify all materials by type (and grade, if appropriate), quantity and price paid for each. Records of what was transported from the facility(s) and receipts obtained shall be made available to the COR upon request. The method of identifying materials prior to transportation from the facility(s), obtaining receipts and keeping records of these transactions shall be approved by the CO, or his/her designee, prior to starting work.

[A procedure such as the following (f) can be used:]

f. Weighing Procedures. The Contractor shall weigh the recyclable materials within a maximum period of 24 hours after removal from the holding agency's building, excluding weekends and Federal holidays.

(1) Weighing shall be performed on Government scales whenever available. If Government scales are not available, the Contractor shall arrange for and pay all expenses for weighing the recyclable materials on certified scales or other scales acceptable to the CO.

(2) All Contractor trucks shall be weighed empty enroute to the designated pickup location and weighed again when loaded on return from the pickup location. These weights shall be recorded on the Recyclable Material Delivery Order Ticket by the weighmaster and supported by a certified scale ticket for each weighing.

(3) If a truck contains more than one type of recyclable container, the description and weight of each container shall be recorded on the Recyclable Delivery Order Ticket. The appropriate Recyclable Delivery Order Ticket number shall be stated on all scale tickets.

(4) A Recyclable Material Delivery Order Ticket shall be completed in original plus 4 copies for each pickup location. The Contractor shall indicate on the ticket his name, contract number, truck number, date, and container pickup location. At the pickup location, the Government representative shall record the type of material, based on his/her visual observation, and the number and types of containers. Both the authorized Government representative and the Contractor shall sign the ticket upon its completion and the Contractor shall leave copy 4 and copy 5 with the Government representative.

(5) The Government representative shall submit copy 4 of the signed Recyclable Material Delivery Order Ticket to [insert COR's appropriate title (name can be used, but it may change over the term of the contract) and address], within twenty-one (21) days after removal and shall retain copy 5 for agency records. Copy 1, 2 and 3 shall be signed and noted or stamped with the date and hour by the weighmaster subsequent to the weighing of the loaded truck. The Contractor shall send the original copy (copy 1) and copy 2, along with the appropriate scale tickets to the above address within twenty-one (21) days after removal and shall retain copy 3 for its records. THE INFORMATION ON EACH RECYCLABLE DELIVERY ORDER TICKET MUST BE COMPLETE TO ENSURE PROPER BILLING.

(6) The Contractor shall be accountable for the Recyclable Material Delivery Order Ticket once it is received by him or his representative. If a ticket is voided or lost, the Contractor shall furnish the CO with the voided ticket or a written explanation for the lost ticket. Failure by the Contractor to provide the CO with a satisfactory explanation for the lost ticket or continued loss of tickets may result in actions taken against the Contractor to recover monies and expenses due to the voided or lost Recyclable Material Delivery Order Tickets.

g. Contractor's Payment: The Contractor shall make full payment as prescribed in Section G.

h. Adjustment of Billing to the Contractor: The Contractor shall have 15 days from the invoice date to request any adjustment to his bill. A written letter, along with a copy of the invoice, shall be forwarded to [insert appropriate address]. No request for adjustment shall be accepted after this period.

9. Title. Title to the recyclable materials sold under this contract shall vest in the contractor when removal is effected.

PART I

SECTION D - PACKAGING AND MARKING

1. Payment of Postage and Fees. All postage and fees related to submitting information, including forms, reports, etc., to the CO or the COR shall be paid by the Contractor.

2. Marking. All information submitted to the CO or the COR shall clearly indicate the contract number of the contract for which the information is being submitted.

PART I

SECTION E - INSPECTION AND ACCEPTANCE

1. The Role of Government Personnel and Responsibilities for Contract Administration.

a. Contracting Officer (CO). The CO has the overall responsibility for the administration of this contract. The CO alone, without delegation, is authorized to take actions on behalf of the Government to amend, modify, or deviate from the contract terms, conditions, requirements, specifications, details and/or delivery schedules. However, the CO may delegate certain other responsibilities to the CO's authorized representative.

b. Contracting Officer's Representative (COR).

[insert appropriate contact, including address and telephone number]

is designated to assist the CO in the discharge of the CO's responsibilities when the CO is unable to be directly in touch with the contract work. The responsibilities of the COR include, but are not limited to: determining the adequacy of performance by the Contractor in accordance with the terms and conditions of this contract, taking into account any reports from the using agencies designated representatives; acting as liaison between the Contractor and using agencies, when necessary; ensuring compliance with the contract requirements through periodic visits to the Contractor's facilities; assisting in the resolution of any issues that arise with regard to Contractor performance; and, advising the CO of any factors which may prevent performance of work.

[the following (paragraph c) is an optional clause for use if a user agency is to have direct contact with the Contractor]

c. Using Agency Designated Representative. Unless otherwise specified, Government agencies using this contract have primary responsibility for the administration of the contract as it applies to the agency. As such, the using agency designated representative is the individual appointed by the COR as its authorized agent responsible for ensuring that all contract requirements are carried out as specified in the contract. The using agency designated representative's responsibilities include; responsibility for the administration of the contract as it applies to the agency, (i.e., placing pickup orders directly with the Contractor); inspecting, accepting, or rejecting the services performed; advising the CO, or the COR, of deficiencies in orders for material pickup; and, advising the CO, or the COR, of Contractor performance problems and any actions taken resulting from reported problems.

2. Inspection of Services.

(a) Definitions. "Services," as used in this clause, includes services performed, workmanship, and material furnished or utilized in the performance of services.

(b) The Contractor shall provide and maintain an inspection system acceptable to the Government covering the services under this contract. Complete records of all inspection work performed by the Contractor shall be maintained and made available to the Government during contract performance and for as long afterwards as the contract requires.

(c) The Government has the right to inspect and test all services called for by the contract, to the extent practicable at all times and places during the term of the contract. The Government shall perform inspections and tests in a manner that will not unduly delay the work.

(d) If any of the services do not conform with contract requirements, the Government may require the Contractor to perform the services again in conformity with contract requirements, at no cost to the Government.

(e) If the Contractor fails to promptly perform the services again or to take the necessary action to ensure future performance in conformity with contract requirements, the Government may (1) by contract or otherwise, perform the services and charge to the Contractor any cost incurred by the Government that is directly related to the performance of such service or (2) terminate the contract for default.

PART I

SECTION F - DELIVERIES OR PERFORMANCE

1. Place of Performance. This contract, once effective, shall provide service to the locations identified in Part III, Section J, Exhibit 1. **[insert the following, if appropriate: Potential service locations under this contract are identified at Part III, Section J, Exhibit 2. Services may be required at these locations at some future time, either during the initial 12 month contract period or any options periods, and will be incorporated into the contract as required. The locations added to the contract will be designated by the CO only. The Contractor will be notified in writing of locations being added, the effective date that pickups are to start, and the name of the using agency's authorized representative.]**

2. Term of the Contract. After award, the successful bidder will be given a written notice to proceed, and shall provide contractual services for a one (1) year period commencing on the day specified in the notice to proceed. Work under this contract is expected to commence on or about **[insert appropriate date]**. The Notice to Proceed will provide for at least **[insert appropriate time frame]** days preparation time before commencement of the work.

3. Option to Extend the Term of the Contract.

a. The Government shall have the unilateral option of extending the term of this contract for **[insert appropriate number]** consecutive additional periods of twelve (12) months each.

b. The Government may extend the term of this contract under the same terms and conditions by written notice to the Contractor; provided, that the Government shall give the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

c. If the Government exercises this option, the extended contract shall be considered to include this option provision.

d. The total duration of this contract, including the exercise of any options under this clause, shall not exceed **[insert appropriate number]** months.

4. Reporting Requirements. All reports, schedules, plans, receipts, tickets, or any other submittals provided by the Contractor are subject to approval by the CO or COR.

PART I

SECTION G - CONTRACT ADMINISTRATION DATA

1. Payment. The Contractor shall make payments on a monthly basis in arrears upon receipt of a monthly statement from the General Services Administration (GSA), Accounts Receivable Branch. Payment shall be due within fifteen (15) calendar days from the billing date following the period for which services were performed by the Contractor. In the event this contract begins or ends during the month, Contractor's payments will be for statements rendered to date. It is the objective of the Government to obtain complete and satisfactory performance in accordance with the terms of the specifications and requirements of this contract. In the event the Government is required to have another Contractor come in and perform contract requirements, as a result of the Contractor's nonperformance, the Contractor will be responsible for any and all additional costs generated as a result of his nonperformance.

Any inquiries regarding Contractor's monthly payment to the Government shall be directed to the following:

General Services Administration
Accounts Receivable Branch (6BCRC)
1500 East Bannister Road
Kansas, MO 64131-3088
Telephone: (816) 926-7552

Payments must be made in the form of cash, traveler's checks, certified checks, cashier's checks, postal or commercial money orders (including Canadian postal money orders designed for payment in the United States which are acceptable in U.S. dollars at the stated face value), Federal Home Loan Bank Money orders, properly endorsed Government checks (Federal, State, or local), irrevocable commercial letters of credit, Master Card and Visa Credit or any combination of the above. Uncertified personal or business checks are unacceptable.

[INSERT LANGUAGE SPECIFIC TO THE ITEM DESCRIPTION'S MARKET VALUE DETERMINATION AND ANY OTHER FACTORS HAVING A BEARING ON THIS MATTER, INCLUDING SITUATIONS IN WHICH A NEGATIVE MARKET VALUE OCCURS.]

Full payment must be made within fifteen (15) calendar days from the date of billing. If full payment is not made within the days specified, on the sixteenth (16th) calendar day forward interest will begin to be charged in accordance with the clause entitled "Interest" in Part II, Section I.

PART I

SECTION H - SPECIAL CONTRACT REQUIREMENTS

[The first two paragraphs are optional (#1 and 2) and may not need to be inserted if the Contractor will not enter any of the facilities - this can be made to apply to specific buildings and not all, if appropriate.]

1. Identification/Building Pass. The Contractor shall see that every new employee has a GSA/Contractor identification/building pass before the employee enters on duty. GSA personnel, designated by the COR, shall furnish and fill out these passes using GSA Form 15, Building Pass. The Contractor and the COR shall sign each pass issued. The Contractor shall see that all passes are returned to the COR as his employees are dismissed or terminated, and when the contract expires. All passes must contain an expiration date.

The Contractor shall see that all employees carry their passes with them during duty hours and show them upon request. The COR or other GSA personnel designated by him shall periodically verify passes of Contractor employees with their personal identification.

2. Security Clearance Requirements (Nonclassified Contract). Unless otherwise specified, the Contractor will submit to the COR at least 5 work days before the starting date of the contract, one completed Form FD-258, "Fingerprint Chart" and one completed GSA Form 176, "Statement of Personal History" for the Contractor and all employees who have access to the building in performance of the contract work.

These forms will be submitted for replacement employees before entrance on duty. Necessary forms will be furnished by the Government. If the CO receives an unsuitable report on any employee after processing of the forms, or if the COR finds a prospective employee to be unsuitable or unfit for his assigned duties, the Contractor shall be advised immediately that such employee cannot continue to work or be assigned to work under the contract.

For employees cleared through this process while employed by a Contractor who is subsequently replaced by another Contractor in the same building, the new Contractor shall only be required to submit another set of these forms if the employee has not been cleared within the last 3 years, or if required by the COR. All contract employees are required to be cleared every 3 years.

The Government shall have and exercise full and complete control over granting, denying, withholding or terminating clearances for employees. The Government may, as it deems appropriate, authorize and grant temporary clearance to employees of the Contractor. However, the granting of a temporary clearance to any such employee shall not be considered as assurance that full clearance will follow as a result or condition thereof, and the granting of either temporary or full clearance shall in no way prevent, preclude or bar the withdrawal or termination of any such clearance by the Government.

3. Criminal Liability

It is understood that disclosure of information relating to the work or services hereunder to any person not entitled to receive it, or failure to safeguard any classified information as defined in Executive Order Number 11652 that may come to the Contractor or any person under the Contractor's control in connection with the work under this contract, may subject the Contractor, his agents or employees to criminal liability under Title 18, Section 793, 794, and 798 of the United States Code.

4. Standards of Conduct

The Contractor shall be responsible for maintaining satisfactory standards of employee competency, conduct, appearance, and integrity and shall be responsible for taking such disciplinary action with respect to his employees as may be necessary.

5. Marking of Equipment

Trucks and containers shall be clearly marked with the Contractor's company name or logo.

6. Licensing of Drivers

Truck drivers are required to carry a valid drivers license that meets all state and local requirements.

PART II

SECTION I - CONTRACT CLAUSES

[The CO is responsible for including, in full text, the following clauses current at the time of solicitation without the FAR references cited. An example of this is included, in full text, as set forth in this section.

1. 52.202-1, Definitions

2. 52.214-29, 52.215-33, Order of Precedence

3. 52.203-3, Gratuities

4. 52.203-5, Covenant Against Contingent Fees

5. 52.222-1, Notice to the Government of Labor Disputes

6. 52.237-2, Protection of Government Buildings, Equipment, and Vegetation

7. 52.232-17, Interest

8. 52.233-1, Disputes

9. 52.228-5, Insurance - Work on a Government Installation

10. 52.249-8, Default

11. 52.209-6, Protecting the Government's Interests when Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment.]

12. SF 114C, Sale of Government Property General Sale Terms and Conditions

13. SF 114C-2, Sale of Government Property Special Sealed Bid - Term Conditions

[NOTE: The Affirmative Action for Special Disabled and Vietnam Era Veterans Clause (52.222-35), Employment Reports on Special Disabled Veterans and Veterans of the Vietnam Era (52.222-37), and the Equal Opportunity clause (52.222-26) and related certifications (52.222-21, 52.222-22, and 52.222-25) should be included (without citations) if the contract will involve payments to GSA in excess of $10,000 and the Contractor will perform an appreciable amount of work under the terms and conditions of the contract. The same rule would apply to the Affirmative Action for Handicapped Workers clause (52.222-36) except that the dollar threshold of $2,500 applies instead of $10,000. All of these requirements may be waived by the Secretary of Labor.]

1. DEFINITIONS

(a) "CO" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the CO acting within the limits of their authority as delegated by the CO.

(b) Except as otherwise provided in this contract, the term "subcontracts" includes, but is not limited to, purchase orders and changes and modifications to purchase orders under this contract.

2. ORDER OF PRECEDENCE

Any inconsistency in this solicitation or contract shall be resolved by giving precedence in the following order: (a) the Schedule (excluding the specifications); (b) representations and other instructions; (c) contract clauses; (d) other documents, exhibits, and attachments; and (e) the specifications.

3. GRATUITIES

(a) The right of the Contractor to proceed may be terminated by written notice if, after notice and hearing, the agency head or a designee determines that the Contractor, its agent, or another representative--

(1) Offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Government; and

(2) Intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

(b) The facts supporting this determination may be reviewed by any court having lawful jurisdiction.

(c) If this contract is terminated under paragraph (a) above, the Government is entitled--

(1) To pursue the same remedies as in a breach of the contract; and

(d) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

4. COVENANT AGAINST CONTINGENT FEES

(a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by the contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee," as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

5. NOTICE TO THE GOVERNMENT OF LABOR DISPUTES

(a) If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the CO.

(b) The Contractor agrees to insert the substance of this clause, including this paragraph (b), in any subcontract to which a labor dispute may delay the timely performance of this contract; except that each subcontract shall provide that in the event its timely performance is delayed or threatened by delay by any actual or potential labor dispute, the subcontractor shall immediately notify the next higher tier subcontractor or the prime Contractor, as the case may be, or all relevant information concerning the dispute.

6. PROTECTION OF GOVERNMENT BUILDINGS, EQUIPMENT, AND VEGETATION (Applies when services are performed on Government installation.)

The Contractor shall use reasonable care to avoid damaging existing buildings, equipment, and vegetation on the Government installation. If the Contractor's failure to use reasonable care causes damage to any of this property, the Contractor shall replace or repair the damage at no expense to the Government as the CO directs. If the Contractor fails or refuses to make such repair or replacement, the Contractor shall be liable for the cost.

7. INTEREST

(a) Notwithstanding any other clause of this contract, all amounts that become payable by the Contractor to the Government under this contract (net of any applicable tax credit under the Internal Revenue Code (26 U.S.C. 1481)) shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in Section 12 of the Contract Disputes Act of 1978 (Public Law 95-563), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until the amount is paid.

(b) Amounts shall be due at the earliest of the following dates:

(1) The date fixed under this contract.

(2) The date of the first written demand for payment consistent with this contract, including any demand resulting from a default termination.

(3) The date the Government transmits to the Contractor a proposed supplemental agreement to confirm completed negotiations establishing the amount of debt.

(4) If this contract provides for revision of prices, the date of written notice to the Contractor stating the amount of refund payable in connection with a pricing proposal or a negotiated pricing agreement not confirmed by contract modification.

8. DISPUTES

(a) This contract is subject to the Contract Disputes Act of 1978 (41 U.S.C. 601-613) (the Act).

(b) Except as provided in the Act all disputes arising under or relating to this contract shall be resolved under this clause.

(c) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a certain sum, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. A claim arising under a contract, unlike a claim relating to that contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding $50,000 is not a claim under the Act until certified as required by subparagraph (d)(2) below. A voucher, invoice, or other routine requests for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d) (1) A claim by the Contractor shall be made in writing and submitted to the CO for a written decision. A claim by the Government against the Contractor shall be subject to written decision by the CO.

(2) For Contractor claims exceeding $50,000, the Contractor shall submit with the claim a certification that --

(i) The claim is made in good faith;

(ii) Supporting data are accurate and complete to the best of the Contractor's knowledge and belief; and

(iii) The amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable.

(3)(i) If the Contractor is an individual, the certification shall be executed by that individual.

(ii) If the Contractor is not an individual, the certification shall be executed by:

(A) A senior company official in charge at the Contractor's plant or location involved; or

(B) An officer or general partner of the Contractor having overall responsibility for the conduct of the Contractor's affairs.

(e) For Contractor claims of $50,000 or less, the CO must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over $50,000, the CO must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The CO's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) The Government shall pay interest on the amount found due and unpaid from (1) the date the CO receives the claim (properly certified if required), or (2) the date payment otherwise would be due, if that date is later, until the date of payment. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the CO receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(h) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the CO.

9. INSURANCE - WORK ON A GOVERNMENT INSTALLATION

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(b) Before commencing work under this contract, the Contractor shall certify to the CO in writing that the required insurance has been obtained. The Policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contact is to be performed prescribe, or (2) until 30 days after the insurer or the Contractor gives written notice to the CO, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the CO upon request.

10. Default.

(a)(1) The Government may, subject to paragraphs (c) and (d) below, by written notice of default to the Contractor, terminate this contract in whole or in part if the Contractor fails to:

(i) Remove the property within the time specified or any extension thereof or make payment within the time required; or,

(ii) Make progress, so as to endanger performance of this contract (but see subparagraph (a)(2) below); or,

(iii) Perform any of the other provisions of this contract (but see subparagraph (a)(2) below).

(2) The Government's right to terminate this contract under subdivision (1)(i) above, may be exercised if the Contractor does not cure such failure within 24 hours after receipt of the notice from the Contracting Officer specifying the failure. The Government's right to terminate this contract under subdivisions (1)(ii) and (1)(iii) above, may be exercised if the Contractor does not cure such failure within 10 days (or more if authorized in writing by the Contracting Officer) after receipt of the notice from the Contracting Officer specifying the failure.

(b) In the event the government terminates this contract in whole or in part, it may sell the property covered by this contract to another purchaser and have the terminated portion of the contract performed by contract or otherwise under such terms and in such manner as the Contracting Officer may deem appropriate. The Contractor and its surety shall be liable for any loss occasioned the Government by such termination.

(c) Except for defaults of subcontractors at any tier, the Contractor shall not be liable for any excess costs if the failure to perform the contract arises from causes beyond the control and without the fault or negligence of the Contractor.

Examples of such causes include (1) acts of God or of the public enemy, (2) acts of the Government in either its sovereign or contractual capacity, (3) fires, (4) floods, (5) epidemics, (6)

quarantine restrictions, (7) strikes, (8) freight embargoes, and (9) unusually severe weather. In each instance the failure to perform must beyond the control and without the fault or negligence of the contractor.

(d) If the failure to perform is caused by the default of a subcontractor at any tier, and if the cause of the default is beyond the control of both the Contractor and subcontractor, and without the fault or negligence of either, the Contractor shall not be liable for any excess costs for failure to perform.

(e) If, after termination, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Government.

(f) The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

11. Protecting the Government's Interests when Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment.

The Government suspends or debars Contractors to protect the Government's interests. Contractors shall not enter into any subcontract equal to or in excess of $25,000 with a Contractor that has been debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the list of Parties Excluded from Procurement Programs), a corporate officer or designee of the Contractor shall notify the Contracting Officer, in writing, before entering into such subcontracts. The notice must include the following:

(a) The name of the subcontractor;

(b) The Contractor's knowledge of the reasons for the subcontractor being on the list of Parties Excluded from Procurement Programs;

(c) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the list of Parties Excluded from Procurement Programs; and

(d) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

DO NOT RETURN WITH BID

SALE OF GOVERNMENT PROPERTY
GENERAL SALE TERMS AND CONDITIONS

INVITATION FOR BIDS NO.

PAGE

1. INSPECTION.

REFER TO PART IV, SECTION L roperty at the

2. CONDITION AND LOCATION OF PROPERTY.

Unless otherwise provided in the Invitation, all property listed therein is offered for sale "as is" and "where is." Unless otherwise provided in the Invitation, the Government makes no warranty, express or implied, as to quantity, kind, character, quality, weight, size, or description of any of the property, or its fitness for any use or purpose. Except as provided in Conditions No. 12 and 14 or other special conditions of the Invitation, no request for adjustment in price or for rescission of the sale will be considered. *This is not a sale by sample.*

3. CONSIDERATION OF BIDS.

(a) Unless otherwise provided in the Invitation, telegraphic or telephonic bids will not be considered.

(b) The Bidder agrees that his bid will not be withdrawn within the period of time specified for the acceptance thereof following the opening

DELETED

specified by the Government or by the Bidder, to accept any one item or group of items in the bid, as may be in the best interest of the Government. Unless the Invitation otherwise provides, a bid covering any listed item must be submitted on the basis of the unit specified for that item and must cover the total number of units designated for that item.

4. FORMS OF BID DEPOSITS AND PAYMENTS.

Unless otherwise provided in the Invitation, bid deposits (when required by the Invitation) and payments shall be in U.S. currency or any form of credit instruments other than promissory notes, made payable on

SEE ATTACHED MODIFICATION

checks will not be an acceptable form of bid deposit or payment. Bids submitted after the effective date specified in the written notification referred to which are not accompanied by the property bid deposit will be summarily rejected.

5. BID PRICE DETERMINATION.

When bids are solicited on a unit price basis, Bidders will insert their unit prices and total prices in the space provided for each item.

(a) In the event the Bidder inserts a total price on the item but fails to

SEE ATTACHED MODIFICATION

single total price in the Total Price Bid column, he should not make any entry in the Unit Price Bid column. In the event a Bidder submits a total bid price and also a unit bid price which are not identical, the unit bid price will not be considered.

6. PAYMENT.

The Purchaser agrees to pay for property awarded to him in accordance with the prices quoted in his bid. Subject to any adjustment made pursuant to other provisions of this contract, payment of the full purchase

REFER TO PART I, SECTION G

becoming due to the Government from the Purchaser on account awarded to him under the Invitation is less than the total amount deposited with his bid, the difference will be promptly refunded and also, deposits accompanying bids which are not accepted will be promptly refunded to the Bidder. No refund or demands will be made for any amount less than one dollar ($1).

7. TITLE.

REFER TO PART I, SECTION C

8. DELIVERY, LOADING, AND REMOVAL OF PROPERTY.

(a) Unless otherwise provided in the Invitation, the Purchaser shall be entitled to obtain the property upon full payment therefor with delivery being made only from the exact place where the property is located within the installation. The Purchaser must make all arrangements necessary for packing, removal, and transportation of property. The Government will not act as liaison in any fashion between the Purchaser and carrier, nor will the Government recommend a specific common carrier. Loading will only be performed as set forth in the Invitation, and unless otherwise provided in the Invitation, loading will not be performed on Saturdays, Sundays, Federal holidays, or any day that the installation where the property is located is closed. Where it is provided that the Government will load, the Government will make the initial placement of the property on conveyance(s) furnished by the Purchaser and the initial placement on the Purchaser's conveyance shall be as determined by the Government. Unless otherwise provided in the Invitation, the Government will not block, chock, brace, lash, band or in any other manner secure the cargo on such conveyance(s) furnished by the Purchaser.

(b) Where it is provided in the Invitation that the Government will not load or that the Purchaser will load, the Purchaser will make all arrangements and perform all work necessary to effect removal of the

REFER TO PART I, SECTION C

shall be allowed. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather. If the Purchaser is permitted to remove the property after the expiration of the time originally allowed for removal or any additional time allowed by the Contracting Officer pursuant to this clause, the Government, without limiting any other rights which it may have, may require the Purchaser to pay a reasonable storage charge. The Purchaser shall reimburse the Government for any damage to Government property caused during the removal operations by the Purchaser or his authorized representative.

(c) Items purchased under the Invitation will be released only to the Purchaser or his authorized representative. The authorized representative must furnish authorization from the Purchaser to the Custodian of the property location before any delivery or release will be made. When property is described as being boxed, packed, crated, skidded, or in containers, the Government does not warrant that the property, as packaged, is suitable for shipment.

(d) Segregation, culling, or selection of property for the purpose of effecting partial or increment removals will not be permitted except as specifically authorized and prescribed by the Government.

9. DEFAULT.

If, after the award, the Purchaser breaches the contract by failure to make payment within the time allowed by the contract as required by Condition No. 6, or by failure to remove the property as required by Condition No. 8, then the Government may send the Purchaser a 15-day written notice to cure (calculated from date of mailing) and upon

REFER TO PART II, SECTION I

within the prescribed period(s) of time, the Government shall be entitled to retain (or collect) as liquidated damages a sum equal to the *greater* of (a) 20 percent of the purchase price of the item(s) as to which the default has occurred, or (b) $25, or the purchase price of such item(s) if the

purchase price is less than $25. *Provided*, That in the event of multiple awards of items under a single Invitation for Bids, the amounts to be charged, if the minimum charge provided for in (b) above is applicable, shall be determined by the total purchase price reflected in the award documents: *Provided further*, That the maximum sum which may be recovered by the Government as damages for failure of the Purchaser to pay for and remove the property shall be the formula amount. The Government shall specifically advise the Purchaser, either in its original notice of default (or in separate subsequent written notice), that upon the expiration of the period prescribed for curing the default, the formula amount will be retained (or collected) by the Government as liquidated damages. However, if the property was sold on a "per lot" basis and the Purchaser removes a portion of the lot but fails to remove the balance, no portion of the purchase price will be refunded. If the Purchaser otherwise fails in the performance of his obligations, the Government may exercise such rights and may pursue such remedies as are provided by law or under the contract.

10. SETOFF OF REFUNDS.

The Bidder or Purchaser agrees that the selling agency may use all or a portion of any bid deposit or refund due him to satisfy, in whole or in part, any debts arising out of prior transactions with the Government.

11. INTEREST.

[illegible] interest [illegible] unless paid [illegible] interest [illegible]

REFER TO PART II, SECTION I

demand until paid.

12. ADJUSTMENT FOR VARIATION IN QUANTITY OR WEIGHT.

Unless otherwise provided in the Invitation, when property is sold by a unit other than "weight," the Government reserves the right to vary the quantity tendered or delivered to the Purchaser by 10 percent; when the property is sold by "weight," the Government reserves the right to vary the weight tendered or delivered to the Purchaser by 25 percent. The purchase price will be adjusted upward or downward in accordance with the unit price and on the basis of the quantity or weight actually delivered. Unless otherwise specifically provided in the Invitation, no adjustment for such variation will be made where property is sold on a "price for the lot" basis.

13. WEIGHING, SWITCHING, AND SPOTTING.

Where weighing is necessary to determine the exact purchase price, the Purchaser shall arrange for and pay all expenses of weighing the property [illegible] All switching [illegible]

DELETED

both parties. When removal is by rail, weighing shall be on railroad track scales, or by other means acceptable to the railroad for freight purposes.

14. RISK OF LOSS.

Unless otherwise provided in the Invitation, the Government will be responsible for the care and protection of the property subsequent to it being available for inspection and prior to its removal. Any loss, damage, or destruction occurring during such period will be adjusted by the Contracting Officer to the extent it was not caused directly or indirectly by the Purchaser, its agents, or employees. At the discretion of the Contracting Officer, the adjustment may consist of rescission. With respect to losses only, in the event the property is offered for sale by the "lot," no adjustment will be authorized under this provision unless the Government is notified of the loss prior to removal from the installation of any portion of the lot with respect to which the loss is claimed.

15. LIMITATION ON GOVERNMENT'S LIABILITY.

Except for reasonable packing, loading, and transportation costs (such packing, loading, and transportation costs being recoverable only when a return of property at Government cost is specifically authorized in writing by the Contracting Officer) the measure of the Government's liability in any case where liability of the Government to the Purchaser has been established shall not exceed refund of such portion of the purchase price as the Government may have received.

16. ORAL STATEMENTS AND MODIFICATIONS.

Any oral statement or representation by any representative of the Government, changing or supplementing the Invitation or contract or any Condition thereof, is unauthorized and shall confer no right upon the Bidder or Purchaser. Further, no interpretation of any provision of the contract, including applicable performance requirements, shall be binding on the Government unless furnished or agreed to, in writing, by the Contracting Officer or his designated representative.

17. COVENANT AGAINST CONTINGENT FEES.

(a) The Purchaser warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by a Purchaser for the purpose of securing business, that neither exerts nor proposes to exert improper [illegible]

REFER TO PART II, SECTION I

nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

18. OFFICIALS NOT TO BENEFIT.

No member of or Delegate to Congress, or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit arising from it. However, this clause does not apply to this contract to the extent that this contract is made with a corporation for the corporation's general benefit.

19. CERTIFICATE OF INDEPENDENT PRICE DETERMINATION.

(a) The Purchaser certifies that—

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other Purchaser or competitor relating to (i) those prices, (ii) the intention to submit an offer, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this offer have not been and will not be knowingly disclosed by the Purchaser, directly or indirectly, to any other Purchaser or competitor before bid opening (in the case of a formally advertised solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the Purchaser to include any other concern to submit or not to submit an offer for the

REFER TO PART II, SECTION K

contrary to subparagraphs (a)(1) through (a)(3) above; or

(2)(i) Has been authorized, in writing, to act as agent for the principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(ii) As an authorized agent, does certify that the principals have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the Purchaser deletes or modifies subparagraph (a)(2) above, the Purchaser must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

20. ASSIGNMENTS OF CONTRACTS.

Any contract awarded under the Invitation is subject to the provisions of 41 U.S.C. 15 which generally precludes assignment of such contracts.

21. CLAIMS LIABILITY.

The Bidder or Purchaser agrees to save the Government harmless from any and all actions, claims, debts, demands, judgments, liabilities, costs and attorneys' fees arising out of, claimed on account of, or in any manner predicated upon loss of or damage to property and injuries, illness or disabilities to or death of any and all persons whatsoever, including

*U.S. GPO: 1969-241-175/90111

members of the general public, or to the property of any legal or political entity including State, local and interstate bodies, in any manner caused by or contributed to by the Bidder or Purchaser, its agents, servants, employees, or any person subject to its control while in, upon or about the sale site and/or the site on which the property is located, or while the property is in the possession of or subject to the control of the Bidder or Purchaser, its agents, servants or employees after the property has been removed from Government control.

22. WITHDRAWAL OF PROPERTY AFTER AWARD.

The Government reserves the right to withdraw for its use any or all of the property covered by this contract, if a bona fide requirement for the property develops or exists prior to actual removal of the property from Government control. In the event of a withdrawal under this condition, the Government shall be liable only for the refund of the contract price of the withdrawn property or such portion of the contract price as it may have received.

23. ELIGIBILITY OF BIDDERS.

The Bidder warrants that he is not: (a) under 18 years of age; (b) an employee of an agency of the Federal Government (either as a civilian or as a member of the Armed Forces of the United States, including the United States Coast Guard, on active duty) prohibited by the regulations of that agency from purchasing property sold hereunder; (c) an agent or immediate member of the household of the employee in (b), above. For breach of this warranty, the Government shall have the right to annul this contract without liability.

24. REQUIREMENTS TO COMPLY WITH APPLICABLE LAWS AND REGULATIONS.

It is the Bidder's responsibility to ascertain and comply with all applicable Federal, State, local, and multi-jurisdictional laws, ordinances, and regulations pertaining to the registration, licensing, handling, possession, transportation, transfer, export, processing, manufacture, sale, use or disposal of the property listed in the Invitation. Purchasers or users of this property are not excused from any violation of such laws or regulations either because the United States is a party to this sale or has had any interest in the property at any time.

25. DEFINITIONS.

As used herein, the following terms shall have the meaning set forth below:

(a) "Telegraphic bid" and "telegraphic notice" include bids and notices by telegram or by mailgram.

(b) "Contracting Officer" means the person accepting the bid in whole or in part on behalf of the Government, and any other officer or civilian employee who is a properly designated Contracting Officer; and includes, except as otherwise provided in this contract, the authorized representative of a Contracting Officer acting within the limits of the representative's authority.

(c) A "small business concern" for the purpose of the sale of Government-owned property is a concern which can qualify under the small business classification criteria referenced in 13 CFR § 121.3-9.

[INSERT AFTER SF 114C (as modified)]

MODIFICATION TO STANDARD FORM 114C (REVISED 6-86)

THE FOLLOWING PARAGRAPHS ARE MODIFIED TO READ AS FOLLOWS:

4. FORMS OF BID DEPOSITS AND PAYMENTS - This Article is deleted and substituted by the following:

BID GUARANTEE

(a) Each bid must be accompanied by a bid guarantee in the amount of [Contracting Officer will insert either a dollar amount or express the amount of the Bid Guarantee as a percentage of the bid price] which must be in the possession of the Contracting Officer by the time set for bid opening. Bid deposits shall be in the form prescribed in paragraph (c), below.

(b) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(c) The bidder shall furnish a bid guarantee in the form of a firm commitment, such as a bid bond, postal or commercial money orders (including Canadian postal money orders designed for payment in the United States which are acceptable in U.S. dollars at the stated face value), Federal Home Loan Bank Money orders, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States, or properly endorsed Federal, State, or local Government check. Payment may also be made in any combination of the above. Any credit instrument used shall be made payable in U.S. currency. Uncertified personal or business checks are unacceptable.

(d) The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.

(e) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or give a bond(s) as required by the solicitation within the time specified, the Contracting Officer may terminate the contract for default.

(f) Unless otherwise specified in the bid, the bidder will (1) allow 60 days for acceptance of its bid and (2) give bond within 10 days after receipt of the forms by the bidder.

(g) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

5. BID PRICE DETERMINATION - This Article is deleted and substituted by the following:

Bids will be solicited on a unit price or percentage factor basis. Bidders will insert their unit prices or percentage factors in the space provided for each item. These prices shall be used for the purposes of bid evaluation, award, and all phases of contract administration.

DO NOT RETURN WITH BID

SALE OF GOVERNMENT PROPERTY
SPECIAL SEALED BID—TERM CONDITIONS

INVITATION FOR BIDS NO.

PAGE

A. BID DEPOSITS.

All bids must be accompanied by a bid deposit which must be in the possession of the Contracting Officer by the time set for bid opening. Bid deposits shall be in the form prescribed in Condition No. 4, General Sale Terms and Conditions (Standard Form 114C). Unless otherwise provided in the Invitation, a bid deposit of 20% of the estimated total contract price is required on sales not exceeding one year; sales exceeding one year's duration will require a bid deposit computed at 20% of the total price estimated for one year's removal of property. Deposit Bond-Individual

SEE ATTACHED MODIFICATION

and deposit submitted by the successful bidder will be retained by the Government and applied against the last delivery effected under the contract. At the option of the successful bidder, a Performance Bond (Standard Form 25) may be substituted by the successful bidder for his bid deposit at any time after notification of award of the contract. Any bid which is not timely supported by a proper bid deposit may be rejected as non-responsive. Any bid deposit received after bid opening will be considered in the same manner as late bids.

B. MODIFICATION OR WITHDRAWAL OF BIDS.

Bids may be modified or withdrawn by written or telegraphic

REFER TO PART II, SECTION L

bid deposit.

C. CONSIDERATION OF LATE BIDS, MODIFICATIONS, OR WITHDRAWALS.

Bids and modifications or withdrawals thereof, must be in the

REFER TO PART II, SECTION L

the Contracting Officer by the time and date set forth in the invitation for the bid opening, and, except for delay attributable to personnel of the sales office or their designees, should have received on time. In no event will hand-carried bids or withdrawals be considered if delivered to the Contracting Officer after the exact time and date set for bid opening. However, a modification which makes the terms of the otherwise sucessful bid more favorable to the Government will be considered at any time it is received prior to award and may be accepted.

D. ADJUSTMENT FOR VARIATION IN QUANTITY OR WEIGHT.

DELETED

E. TERMINATION.

Unless otherwise provided in the Invitation, this contract may be terminated by either party without cost to the Government upon 30 days' written notice to the other, to be calculated from the date the notice is mailed.

F. FAILURE TO PERFORM.

In the event the Purchaser fails to make payment as required by Condition No. 6, General Sale Terms and Conditions (Standard Form 114C), or fails to remove the property as required by Condition No. 8, General Sale Terms and Conditions, and fails to cure the default within the time allowed by the notice given in accordance with Condition No. 9, General Sale Terms and Conditions, the Purchaser will lose all right, title and interest which he might otherwise have acquired in and to the property as to which the default occurred and said Condition No. 9, is modified to provide that the Government shall be entitled to retain or collect as liquidated damages a sum equal to 20% of the contract price for the quantity estimated to be generated within a 30-day period.

G. AWARD OF CONTRACT.

REFER TO PART II, SECTION I

party.

* U.S. Government Printing Office 1981—491-248/20586

STANDARD FORM 114C-2
JAN. 1978 EDITION
General Services Administration
FPMR (41 CFR) 101-45.3
114-406

[INSERT AFTER SF 114C-2 (as modified)]

MODIFICATIONS TO STANDARD FORM 114C-2

THE FOLLOWING PARAGRAPH IS MODIFIED TO READ AS FOLLOWS:

A. BID DEPOSITS - This Article is deleted and substituted by the following:

(1) Bid Deposit. Each bid must be accompanied by a bid deposit in the amount of [insert appropriate dollar amount], which must be in the possession of the CO by the time set for bid opening. Bid deposits shall be in the form prescribed in Article 4 of SF 114C as modified. Any bid which is not timely and supported by a proper bid deposit will be rejected as nonresponsive. Deposits of unsuccessful bidders will be returned when award is made; that of the successful bidder will be returned when his Performance Bond is received by the Government. Bid deposits received after bid opening will be considered in the same manner as a late bid.

(2) Performance Bond. Within 10 days after Notice of Award, the successful bidder shall furnish a Performance Bond (Standard Form 25), for the faithful performance of the contract. The bond amount shall be [insert appropriate percentage] percent of the total estimated dollar amount of the item awarded. In the event two or more items are awarded to a successful bidder, the amount of the Performance Bond shall be the aggregate amount of the Performance Bonds for each individual item. This bond shall remain in effect until 120 days after the final date of the contract period. The successful bidder shall not be permitted to begin performance until the bond has been received.

[Contracting Officer will ensure that a Performance Bond is obtained for any option years included in the contract.]

OFFERORS SHOULD NOTE THAT CONDITIONS 6, 8, AND 9 OF THE STANDARD FORM 114-C REFERRED TO IN ARTICLE F (FAILURE TO PERFORM) OF THE STANDARD FORM 114C-2 ARE MODIFIED FOR THE PURPOSES OF THIS SOLICITATION AS ANNOTATED ON PAGE II-I-9.

PART III

SECTION J - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

EXHIBIT 1

LIST OF KNOWN SERVICE LOCATIONS

	GEOGRAPHICAL LOCATION	AUTHORIZED REPRESENTATIVE
1.	[Insert geographical locations and buildings within each - or insert buildings coordinate this with I-B-2]	[Use this column if a representative other than the COR will be used]

[NOTE: Insert any site specific requirements for pickups.]

PART III, SECTION J

EXHIBIT 2

LIST OF POTENTIAL SERVICE LOCATIONS

IMPORTANT: THE LOCATIONS LISTED ON THIS EXHIBIT WILL BE ADDED TO THE CONTRACT BY THE CO ONLY, AS REQUIRED. THE CONTRACTOR WILL BE NOTIFIED, IN WRITING, OF LOCATIONS BEING ADDED, THE EFFECTIVE DATE THAT PICKUPS ARE TO START, AND THE NAME OF THE USING AGENCY'S AUTHORIZED REPRESENTATIVE, IF APPROPRIATE. NO PICKUPS ARE TO BE MADE AT THESE LOCATIONS UNLESS SO INFORMED BY THE CO.

GEOGRAPHICAL LOCATION

1. **[Insert geographical locations]**

[NOTE: Insert any site specific requirements for pickups.]

PART III, SECTION J

EXHIBIT 3

DEFINITIONS

[NOTE: When issuing this specification in final, incorporate local industry definitions or industry definitions from the Institute for Scrap Recycling Industries (ISRI), such as the PS 90 which deals with paper. The PS 90 is included in the accompanying desk guide.]

[Insert appropriate additional definitions - all recyclable materials covered by this contract should be defined. Acceptable contamination percentages and definitions of certain materials, such as grades of paper, will be determined by your local market.]

1. ALUMINUM CANS: Shall consist of old, decorated or clear, aluminum cans, which may contain some dirt, liquid and/or other foreign contamination. Contamination shall not consist of more than [insert appropriate percentage] of the total weight of any load picked up.

2. AMBER (BROWN) GLASS: Shall consist of old brown glass bottles, jars, and other containers, generally free of clear and green glass, and may contain some dirt, liquid and/or other foreign contamination. Contamination shall not consist of more than [insert appropriate percentage] of the total weight of any load picked up.

3. AUTHORIZED AGENCY REPRESENTATIVE: The individual(s) designated by the holding agency as having authorization to contact the Contractor as required by the contract.

4. CARBON INTERLEAF: Consists of sheets of computer printout with alternating carbon interleaf.

5. COMPUTER PRINTOUT: Consists of white sulfite or sulfate papers in forms manufactured for use in data processing machines. This grade may contain colored stripes and/or impact or non-impact (e.g., laser) computer printing, and may contain not more than [insert appropriate percentage] of groundwood in the packing. All stock must be untreated and uncoated.

6. CONTRACTOR CONTAINERS: Those containers provided by the Contractor and approved by the COR, to store and transport recyclable materials at the holding agency's storage area to the loading dock at each location identified in Exhibits 1 and 2.

7. CONTRACTOR PAYMENT: Payment, made by the Contractor to the U.S. Government, for the removal of UBCs and UGCs from locations identified in Exhibits 1 and 2.

8. CORRUGATED CONTAINERS: Consists of baled corrugated containers having liners of either test liners, jute or kraft.

9. CULLET: Crushed glass, any color.

10. EMERALD (GREEN) GLASS: Shall consist of old green glass bottles, jars, and other containers, generally free of clear and brown glass, and may contain some dirt, liquid and/or other foreign contamination. Contamination shall not consist of more than [insert appropriate percentage] of the total weight of any load picked up.

11. FILE STOCK: Consists of discarded correspondence files, record files as determined and developed by the Government without limitations as to prohibitive materials and/or outthrows.

12. FLINT (CLEAR) GLASS: Shall consist of old clear glass bottles, jars, and other containers, generally free of colored glass and may contain some dirt, liquid and/or other foreign contamination. Contamination shall not consist of more than [insert appropriate percentage] of the total weight of any load picked up.

13. HARD WHITE SHAVINGS: Consists of shavings or sheets of all untreated white bond ledger or writing papers. Must be free from printing and groundwood.

14. HEAVY BOOKS: Consists of dry, clean, used and overissued books and magazines; stitchless stock; quire waste; and similar printed matter. This category grade may contain such bleached sulfite and sulfate books and magazines adulterated with fine groundwood as are acceptable to the consumer.

15. HOLDING AGENCY: The Government agency and location which has been identified in Exhibits 1 and 2 and which has the right to store and request, by their authorized representative, pick up by the Contractor of UBCs and UGCs as required.

16. LOADING DOCK: The Government designated area at each building location identified in Exhibits 1 and 2 where the Contractor trucks are to pick up and empty the recyclable material storage containers.

17. MANILA TABULATING CARDS: Consists of manila-colored cards, predominantly sulfite or sulfate, which have been manufactured for use in tabulating machines. This grade may contain manila-colored tabulating cards with tinted margins.

18. MISCELLANEOUS LEDGER: Consists of printed or unprinted sheets, shavings and cuttings of colored or white sulfite or sulfate ledger, bond, writing and other papers which have a similar fiber and filler content. This grade must be free of treated, coated, padded or heavy printed stock.

19. NEWS: Consists of newspapers containing less than 5% of other papers.

20. NOTIFICATION: The request, by the authorized agency representative, to the Contractor for scheduling the removal of UBCs and UGCs from the holding agency.

21. OUTTHROWS FOR PAPER: All papers that are so manufactured, or treated, or are in such a form as to be unsuitable for consumption as the grade specified.

22. OUTTHROWS FOR USED BEVERAGE CONTAINERS (UBC): Outthrows for UBCs is any material that is not a used metal or aluminum beverage container.

23. OUTTHROWS FOR USED GLASS BEVERAGE CONTAINERS (UGC):

Outthrows for UGCs:

- Metals (aluminum caps and steel lids)
- Stones and dirt
- Neck rings from bottles
- Ceramic cups, dishes and ovenware
- Light bulbs
- Plate glass, safety and window glass
- Heat-resistant glass such as Pyrex
- Lead-based glass such as crystal or TV tubes

24. PAPER:

Grade 1: Computer printout, white ledger, hard white shavings, and manila tabulating cards or any combination thereof. No more than [insert appropriate percentage] total outthrows or prohibitive materials by volume.

Grade 2: Various grades of paper, including miscellaneous ledger, file stock, wet strength, corrugated containers, heavy books, carbon interleaf (computer printout only), groundwood computer printout, and contaminated Grade 1 paper or any combination thereof. No more than [insert appropriate percentage] total outthrows or prohibitive materials by volume.

Grade 3: News. No more than [insert appropriate percentage] total outthrows or prohibitive materials by volume.

25. PROHIBITIVE MATERIALS:

a. For Paper and Paper Products:

(1) Any materials which by their presence in packing of material in excess of the amount allowed, will make the packing unusable as the type of material specified.

(2) Any materials that may be damaging to equipment.

b. For Food and Beverage Containers:

(1) Any materials which by their presence in packing of material in excess of the amount allowed, will make the packing unusable as the type of material specified.

(2) Any materials that may be damaging to equipment.

(3) Excessive amounts of liquid.

26. TON: The term ton, as used in this contract, means short ton, which is equivalent to 2000 pounds.

27. UBCs: Also known as Used Beverage Cans (UBC); the old can stock shall consist of, for the most part, non-ferrous metals; however, some tin and other metals may be present. Used can stock shall be mainly clean used aluminum cans, decorated or clear, free of dirt, liquid and other foreign contamination. Contamination shall not consist of more than [insert appropriate percentage] of the total weight of any load picked up.

28. UGCs: Also known as Used Glass Containers (UGC); the old glass stock shall consist of clean used glass bottles and containers, decorated or free of labels of plastic or paper, free of dirt, liquid and other foreign contamination. Contamination shall not consist of more than [insert appropriate percentage] of the total weight of any load picked up. UGCs may consist of three (3) different colors of glass containers; however, all UGCs will be separated as to the type of color picked up.

29. WET STRENGTH: Consists of sheets and shavings of all white ledger or bond and wet-strength treated paper. This grade must be free from solid color printing and groundwood.

30. WHITE LEDGER: Consists of printed or unprinted sheets, shavings, guillotined books, quire waste, and cuttings of white sulfite or sulfate ledger, bond, writing paper, and all other papers which have a similar fiber and filler content. This grade must be free of treated, coated, padded or heavy printed stock.

PART IV

SECTION K - REPRESENTATIONS AND INSTRUCTIONS

MINIMUM BID ACCEPTANCE PERIOD

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the Government for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The Government requires a minimum acceptance period of ___ [the Contracting Officer shall insert the number of days] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the Government's minimum requirement. The bidder allows the following acceptance period:

_____calendar days.

(e) A bid allowing less than the Government's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within: (1) the acceptance period stated in paragraph (c) above; or, (2) any longer acceptance period stated in paragraph (d) above.

REPRESENTATIONS AND CERTIFICATIONS	REFERENCE
Name and Address of Offeror (Name, Street, City, State and Zip Code	Date of Offer

"SOLICITATION" MEANS "INVITATION FOR BIDS" IN SEALED BIDDING AND "REQUEST FOR PROPOSAL" OR "REQUEST FOR QUOTATION" IN NEGOTIATION.

"OFFER" MEANS "BID" IN SEALED BIDDING AND "PROPOSAL" IN NEGOTIATION.

"OFFEROR" MEANS THE PERSON OR FIRM SUBMITTING THE OFFER.

THE OFFEROR MAKES THE FOLLOWING REPRESENTATIONS AND CERTIFICATIONS AS A PART OF THE OFFER IDENTIFIED ABOVE. (CHECK APPROPRIATE BOXES AND FILL IN BLANKS.)

1. SMALL BUSINESS CONCERN REPRESENTATION

(a) Representation. The offeror represents and certifies as part of its offer that it [ ] is or [ ] is not a small business concern.

(b) Definition. Small business concern, as used in this provision, means a concern, including its affiliates that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria and size standards for SIC Code 4953, Refuse Systems, which is established at $6 million in annual receipts.

2. TYPE OF BUSINESS ORGANIZATION

The bidder/offeror or quoter, by checking the applicable box, represents that--

(a) it operates as [ ] a corporation incorporated under the laws of the State of , [ ] an individual, [ ] a partnership, [ ] a nonprofit organization, or [ ] a joint venture;

(b) If the bidder/offeror or quoter is a foreign entity, it operates as [ ] an individual, [ ] partnership, [ ] a nonprofit organization, [ ] a joint venture, or [ ] a corporation, registered for business in [Insert Country].

3. CERTIFICATE REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS

(a) (1) The offeror certifies, to the best of its knowledge and belief, that--

(i) The offeror and/or any of its Principals--

(A) Are [ ] are not [ ] presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have [ ] have not [ ], within a 3-year period preceding this offer, been convicted of a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statues relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; and

(C) Are [ ] are not [ ] presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The offeror has [ ] has not [ ], within a 3-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF ANY AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(b) The offeror shall provide immediate written notice to the CO if, at any time prior to contract award, the offeror learns that his certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the offeror's responsibility. Failure of the offeror to furnish a certification or provide such additional information as requested by the CO may render the offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an offer is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the CO may terminate the contract resulting from this solicitation for default.

4. CERTIFICATE OF INDEPENDENT PRICE DETERMINATION

(a) The offeror certifies that--

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to (i) those prices, (ii) the intention to submit an offer, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory--

(1) Is the person in the offeror's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2)(i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above_____[insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the offeror deletes or modifies subparagraph (a)(2) above, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

5. CONTINGENT FEE REPRESENTATION AND AGREEMENT

(a) Representation. The offeror represents that, except for full-time bona fide employees working solely for the offeror, the offeror--

[NOTE: For interpretation of the representation, including the term "bona fide employee," see CFR, Title 41, Subpart 101-45.313.]

(1) [ ] has, [ ] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [ ] has, [ ] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(b) Agreement. The offeror agrees to provide information relating to the above Representation as requested by the CO and, when subparagraph (a)(1) or (a)(2) is answered affirmatively, to promptly submit to the CO--

(1) A completed Standard Form 119, Statement of Contingent or Other Fees, (SF 119); or

(2) A signed statement indicating that the SF 119 was previously submitted to the same contracting office, including the date and applicable solicitation or contract number, and representing that the prior SF 119 applies to this offer or quotation.

PART IV

SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS

1. Insurance Requirement. Liability insurance coverage, written on the comprehensive form of policy, is required in the amount of $50,000 per occurrence for property damage and $500,000 per occurrence for bodily injury. (See paragraph entitled "Insurance-Work on a Government Installation" in Part II, Section I.)

2. Site Visit. Bidders are invited, urged and cautioned to inspect the site where services are to be performed and to satisfy themselves regarding all general and local conditions that may affect the cost of contract performance. Failure to inspect shall be at the risk of the bidder, and in no event shall failure to inspect the site constitute grounds for a claim after contract award. Potential bidders should contact [insert the name, title and telephone number of the person designated to coordinate site visits on behalf of the Government] to make necessary arrangements.

3. Qualifications of Offerors.

A. Each offeror submitting a bid/offer on the work required by this contract may be requested to submit evidence of their experience, qualifications, financial responsibility and ability to carry out the terms of the contract.

B. Failure to sufficiently document competency in performing comparable contracts and to demonstrate acceptable financial resources, personnel staffing, plant and equipment will be a factor in considering possible rejection of the offer on responsibility grounds.

4. Bidder Submissions. Each offeror submitting a bid/offer on the work required by this contract is required to submit with its bid the following:

A. Sale of Government Property - Bid and Award (Standard Form 114) (2 copies).

B. Bid/Offer for Basic Services (2 copies).

C. Representations and Certifications (Pages IV-K-2 through 11).

D. Minimum Bid Acceptance Period (Page IV-K-1).

E. Related Company Experience.

Failure to comply with the above may result in a determination by the CO that the bid is nonresponsive.

FIGURE L-1

RELATED COMPANY EXPERIENCE

1. Contract Information:

   a. Customer's Name: _____

   b. Customer's CO:

      Name: _____ Title: _____

      Address: _____

      Area Code/Telephone Number: _____

   c. Contract Number: _____

   d. Place of Performance: _____

   e. Period of Performance: _____

   f. Brief Description of Services Provided: _____

      _____

   g. Dollar Amount of Contract (Total): _____

2. Contract Information:

   a. Customer's Name: _____

   b. Customer's CO:

      Name: _____ Title: _____

      Address: _____

      Area Code/Telephone Number: _____

   c. Contract Number: _____

   d. Place of Performance: _____

   e. Period of Performance: _____

   f. Brief Description of Services Provided: _____

      _____

   g. Dollar Amount of Contract (Total): _____

3. Contract Information:

a. Customer's Name: _____

b. Customer's CO:

Name: _____ Title: _____

Address: _____

Area Code/Telephone Number: _____

c. Contract Number: _____

d. Place of Performance: _____

e. Period of Performance: _____

f. Brief Description of Services Provided: _____

_____

g. Dollar Amount of Contract (Total): _____

4. Contract Information:

a. Customer's Name: _____

b. Customer's CO:

Name: _____ Title: _____

Address: _____

Area Code/Telephone Number: _____

c. Contract Number: _____

d. Place of Performance: _____

e. Period of Performance: _____

f. Brief Description of Services Provided: _____

_____

g. Dollar Amount of Contract (Total): _____

5. Contract Information:

a. Customer's Name: _____

b. Customer's CO:

Name: _____ Title: _____

Address: _____

Area Code/Telephone Number: _____

c. Contract Number: _____

d. Place of Performance: _____

e. Period of Performance: _____

f. Brief Description of Services Provided: _____

_____

g. Dollar Amount of Contract (Total): _____

6. Contract Information:

a. Customer's Name: _____

b. Customer's CO:

Name: _____ Title: _____

Address: _____

Area Code/Telephone Number: _____

c. Contract Number: _____

d. Place of Performance: _____

e. Period of Performance: _____

f. Brief Description of Services Provided: _____

_____

g. Dollar Amount of Contract (Total): _____

SOLICITATION PROVISIONS

(SEALED BID)

1. SOLICITATION DEFINITIONS - SEALED BIDDING

"Government" means United States Government.

"Offer" means "bid" in sealed bidding.

"Solicitation" means an invitation for bids in sealed bidding.

2. EXPLANATION TO PROSPECTIVE BIDDERS

Any prospective bidder desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing soon enough to allow a reply to reach all prospective bidders before the submission of their bids. Oral explanations or instructions given before the award of a contract will not be binding. Any information given a prospective bidder concerning a solicitation will be furnished promptly to all other prospective bidders as an amendment to the solicitation, if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective bidders.

3. AMENDMENTS TO INVITATIONS FOR BIDS

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date in the space provided for this purpose on the form for submitting a bid, (3) by letter or telegram, or (4) by facsimile, if facsimile bids are authorized in the solicitation. The Government must receive the acknowledgment by the time and at the place specified for receipt of bids.

4. SUBMISSION OF BIDS

(a) Bids and bid modifications shall be submitted in sealed envelopes or packages (unless submitted by electronic means) (1) addressed to the office specified in the solicitation and (2) showing the time specified for receipt, the solicitation number, and the name and address of the bidder.

(b) Telegraphic bids will not be considered unless authorized by the solicitation; however, bids may be modified or withdrawn by written or telegraphic notice.

(c) Facsimile bids, modifications, or withdrawals, will not be considered unless authorized by the solicitation.

5. FAILURE TO SUBMIT BID

Recipients of this solicitation not responding with a bid should not return the solicitation, unless it specifies otherwise. Instead, they should advise the issuing office by letter or postcard whether they want to receive future solicitation for similar requirements. If a recipient does not submit a bid and does not notify the issuing office that future solicitations are desired, the recipient's name may be removed from the applicable mailing list.

6. LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF BIDS

(a) Any bid received at the office designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of bids (e.g., a bid submitted in response to a solicitation requiring receipt of bids by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail or, if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the Government that the late receipt was due solely to mishandling by the Government after receipt at the Government installation; or

(3) Was sent by U.S. Postal Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 P.M. at the place of mailing two working days prior to the date specified for receipt of bids. The term "working days" excludes weekends and U.S. Federal holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and

affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the Government installation is the time/date stamp of that installation on the bid wrapper or other documentary evidence of receipt maintained by the installation.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service - Post Office to Addressee" label and the postmark on the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, Bidders should request the postal clerk to place a legible hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice or telegram (including mailgram) received at any time before the exact time set for receipt of bids. If the solicitation authorizes facsimile bids, bids may be withdrawn via facsimile received at any time before the exact time set for receipt of bids, subject to the conditions specified in the provision entitled "Facsimile Bids." A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for receipt of bids, the identity of the person requesting withdrawal is established ad the person signs a receipt for the bid.

7. FALSE STATEMENTS IN BIDS

Bidders must provide full, accurate, and complete information as required by this solicitation and its attachments. The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

PART IV

SECTION M - EVALUATION FACTORS FOR AWARD

1. Evaluation of Options:

Except when it is determined not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the base year of the requirement. Evaluation of options will not obligate the Government to exercise the option(s).

2. Formula for Award:

The offeror has the option to submit an offer on (1) one geographical area, (2) more than one geographical area, or (3) all geographical areas, as desired. Offers will be evaluated by comparing one bid/offer for a geographical area against other offers for the same geographical area.

A. [insert geographic area]

1. The percentage factor from Section B, paragraph 2.a.(1), for the initial 12-month period will be applied to the stated [insert "Stock price based on user survey conducted on (date)" or "Announced price in the (insert index) on (date)"] in order to establish the unit price for evaluation per recyclable material. The unit price will be multiplied by the estimated quantity to arrive at a total price per recyclable material. The totals will then be added together to arrive at the aggregate total.

2. The percentage factor from Section B, paragraph 2.b.(1), for the Option Lot I renewal period will be applied to the stated [insert "Stock price based on User Survey conducted on (date)" or "Announced price in the (insert index) on (date)"] in order to establish the unit price for evaluation per recyclable material. The unit price will be multiplied by the estimated quantity to arrive at a total price per recyclable material. The totals will then be added together to arrive at the aggregate total.

[repeat, as necessary, in accordance with the number of option periods]

3. The total price to be used to establish the high offer for the [insert geographic area] geographical area shall be determined by adding 1. through [insert number] above to arrive at the [insert total number, including options] year aggregate contract price.

B. [repeat geographic areas, as necessary]

3. Contract Award - Sealed Bidding

(a) The Government will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will result in the highest dollar return or otherwise be most advantageous to the Government considering only price and the price-related factors specified elsewhere in the solicitation.

(b) The Government may (1) reject any or all bids, and (2) waive informalities or minor irregularities in bids received.

(c) A written award or acceptance of a bid mailed or otherwise furnished to the successful bidder within the time for acceptance specified in the bid shall result in a binding contract without further action by either party.

United States Environmental Protection Agency

Solid Waste and Emergency Response (OS-305)

EPA/530-SW-91-011
December 1990

EPA

Procurement Guidelines for Government Agencies

To foster markets for recovered materials and reduce the amount of solid waste requiring disposal, consumers, including corporations and government agencies, need to buy products made from recovered materials. Such a commitment is an important step in sending a message to industry that markets for recovered materials exist. The Environmental Protection Agency (EPA) has issued "procurement guidelines" requiring government agencies to buy products made with recovered materials. The guidelines provide recommendations for implementing certain requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA).

To date, EPA has published five guidelines, designating the following specific items containing recovered materials for procurement by government agencies:

- *Paper and paper products,*
- *Lubricating oils,*
- *Retreaded tires,*
- *Building insulation products, and*
- *Cement and concrete containing fly ash.*

Once EPA issues a procurement guideline designating a specific item, procuring agencies have one year to meet the guideline's requirements.

Procurement Guideline for Paper and Paper Products, 40 CFR Part 250, 53 *FR* 23546 (June 22, 1988)

Procurement Guideline for Lubricating Oils Containing Refined Oil, 40 CFR Part 252, 53 *FR* 24699 (June 30, 1988)

Procurement Guideline for Retread Tires, 40 CFR Part 253, 53 *FR* 46558 (November 17, 1988)

Procurement Guideline for Building Insulation Products Containing Recovered Materials, 40 CFR Part 248, 54 *FR* 7328 (February 17, 1989)

Procurement Guideline for Cement and Concrete Containing Fly Ash, 40 CFR Part 249, 48 *FR* 4230 (January 28, 1983)

Printed on Recycled Paper

To Whom Do the Guidelines Apply?

RCRA defines procuring agencies to include federal, state, and local agencies using appropriated federal funds, and their contractors. The requirements of a particular guideline apply only if the procuring agency purchases more than $10,000 a year worth of the guideline item. For example, if a county government agency spends more than $10,000 a year on paper, and part of that money is from appropriated federal funds, then the county government is a "procuring agency" for paper and must follow the procurement guideline for paper and paper products.

Purchases unrelated or incidental to the purpose of federal funding are not subject to RCRA Section 6002. Thus, they are not subject to the procurement guidelines. However, when it is not apparent whether a purchase is subject to RCRA, EPA encourages procuring agencies to follow the guidelines to help expand markets for products made of recovered materials.

What Are the RCRA Section 6002 Requirements?

Review and Revise Specifications

RCRA requires procuring agencies to review their specifications for the designated items and to revise them to allow procurement of products containing recovered material. Procuring agencies should eliminate requirements that specifically exclude the use of recovered materials. In addition, procuring agencies should revise performance standards that in effect exclude items containing recovered materials and that are more stringent than necessary to satisfy the agency's needs.

For example, if an agency has a specification that precludes the use of retreaded tires, it must be replaced, preferably with a performance standard that specifies relevant performance factors for tires, such as tread wear, burst strength, and stopping distance.

Establish an Affirmative Procurement Program

Each procurement guideline contains EPA's recommendations for establishing an effective affirmative procurement program. However, each procuring agency may design its own program, so long as it meets the RCRA requirements.

All affirmative procurement programs must have four components:

1. **a preference program,**
2. **a promotion program,**
3. **procedures for obtaining and verifying estimates and certifications of the content of recovered materials, and**
4. **annual review and monitoring.**

Preference Program

The statute provides three options for a preference program:

- *Minimum-content standards*, which identify the minimum content of recovered materials that an item should contain; procuring agencies may include these standards in their specifications for purchasing an item;

- *Case-by-case procurement*, open competition between products made of virgin materials and products made of recovered materials; procuring agencies must exercise a preference for the latter; or

- *Other*, any approach which is substantially equivalent to the above approaches.

The procurement guidelines *recommend* that agencies consider the following approaches for the five items designated thus far:

Paper and paper products: Specific minimum-content standards for paper and paper products. For newsprint, tissue packaging, and paperboard categories, postconsumer minimum-content standards are recommended. For printing and writing papers, "wastepaper" minimum content standards are recommended. ("Wastepaper" includes both postconsumer materials and certain preconsumer wastes.)

Lubricating oils: Minimum re-refined oil content standards for engine lubricating oils, hydraulic fluids, and gear oils at no lower than 25 percent of the basestock.

Retreaded tires: Case-by-case procurement programs consisting of two components—(1) procurement of retreading services for the agencies' used tire casings, and (2) procurement of replacement tires through competition among vendors of new and retreaded tires. If an agency is unable to carry out one component of the guideline—for example, because of unavailability—then it should implement the other component and continue to attempt to carry out the unrealized component.

Building insulation: Specific minimum-content standards for insulation materials commercially available with recovered materials, such as cellulose, perlite composite board, most of the plastic foams and boards, and rock wool. When purchasing insulation materials for which minimum-content standards have not been established (e.g., fiberglass and polystyrene rigid foam), agencies should use case-by-case procurement.

Cement and concrete containing fly ash: Inclusion of provisions in all construction contracts to allow for the use of cement or concrete containing fly ash.

Promotion Program

Agencies must actively promote their desire to buy recycled products. For example, they may choose to include explicit statements in solicitations for bids and proposals, discuss their commitment to recycling at prebidders' conferences, issue general announcements about their procurement preferences, and print a recycling statement or logo on official documents.

Estimation and Certification

Vendors must estimate the percentage of and certify the actual content of recovered material in their products. Such estimates and certifications are most easily expressed as a percentage of total content.

Vendors must certify the percentage of recovered material actually used in performance of the contract and must make their own arrangements for obtaining this information from the manufacturer. Vendors usually discuss product specifications and availability with manufacturers before submitting a bid; information for certification can be obtained at that time. The certification then becomes part of the contract awarded to the successful vendor.

Annual Review and Monitoring

During the year, procuring agencies should review the range of estimates and certifications they received to determine whether they are using the highest percentage of recovered materials.

While the EPA guidelines recommend minimum-content standards, procuring agencies should adjust the standards when market conditions warrant a change. For example, if the data suggest that a sufficient number of bids would have been submitted in response to higher standards, then agencies should consider raising their minimum-content standards. Conversely, if there is a lack of competition, agencies may consider lowering their standards.

When May an Agency Purchase Items Not Containing Recovery Materials?

Procuring agencies may choose not to purchase a guideline item containing recovered materials if:

- a guideline item's price is unreasonable;
- applying minimum-content standards results in inadequate competition;
- obtaining designated items results in unusual and unreasonable delays; or
- guideline items do not meet all reasonable performance specifications.

The word "reasonable" is key to the above conditions. A procuring agency cannot exclude guideline items based on unreasonable needs. For example, recycled paper cannot be excluded based on a brightness specification that is higher than needed.

How Are the Guidelines Enforced?

Anyone who is injured by the failure of an agency to carry out the law may take civil action, either through that agency's appeal procedures, the General Accounting Office's appeal procedures, or the federal courts. There are no provisions in RCRA for federal enforcement of the guidelines.

How Is EPA Helping to Implement the Guidelines?

EPA has established several mechanisms for assisting federal and non-federal agencies in setting up programs and for helping vendors market their recovered materials to procuring agencies. These include a telephone hotline and frequently updated lists of manufacturers and vendors of products designated in the guidelines.

Copies of the guidelines listed in the box on the front cover, lists of manufacturers and vendors, and information on purchasing guideline items can be obtained from the procurement hotline by calling (703) 941-4452.

SAMPLE LETTER

MEMORANDUM FOR ALL EMPLOYEES----------

FROM: ----------

SUBJECT: Office paper recycling program

The purpose of this letter is to introduce to all employees of the ----------(agency) an office paper recycling program for our building(s). Our agency will be promoting a resource recovery program by concentrating initially on separating high grade paper.

The crisis in landfill availability, the waste disposal crisis, and the new District of Columbia law mandating separation of office paper and newspapers require that all Federal agencies support a recycling effort. This program also presents an opportunity for every individual to participate in protecting our environment.

By separating high grade office paper this agency can recover more than 50% of all waste leaving this building. By selling the paper the taxpayers, us, will benefit by having the proceeds returned to the Government, and all citizens will benefit by reducing the volume of waste in our landfills and the waste stream, thus protecting the environment.

Effective ----------, 1989, a recycling program will be implemented in this building. You will be given instructions on how you can participate. The program will be simple and effortless. A more detailed presentation of what constitutes high grade paper will be scheduled later with attractive containers distributed to each employee to facilitate the source separation. A recycling coordinator will also be available to provide guidance and training.

I look forward to your cooperation and to a successful recycling program in this (our) building(s).

SAMPLE LETTER

MEMORANDUM FOR ALL BRANCH CHIEFS----------

FROM: ----------

SUBJECT: Office paper recycling program

Effective ----------, 1989, a recycling program will be implemented in _____(agency name). This program will be very visible to both Federal employees and the citizens that visit this building. Your employees will be given instructions on how you can participate and I trust you will encourage them in this endeavor.

The crisis in landfill availability, the waste disposal crisis, and the new District of Columbia law mandating separation of office paper and newspapers require that all Federal agencies support a recycling effort. This program also presents an opportunity for every individual to participate in protecting our environment.

By separating high grade office paper this agency can recover more than 50% of all waste leaving this building. By selling the paper the taxpayers, us, will benefit by having the proceeds returned to the Government, and all citizens will benefit by reducing the volume of waste in our landfills and the waste stream, thus protecting the environment.

The program will be simple and effortless. A more detailed presentation of what constitutes high grade paper will be scheduled later with attractive containers distributed to each employee to facilitate the source separation.

It is requested that you, as a _____(manager) of your division, appoint a responsible monitor and an alternate as a contact with the agency recycling coordinator. The coordinator will be available to provide guidance and training. Please provide this coordinator with the support he/she needs to make this program a success.

The _____(agency name) Office Paper Recyling Program needs your full support to succeed. I look forward to your cooperation and to a successful recycling program in this (our) building(s).

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
EPA PAPER RECYCLING: AN IMPLEMENTATION MANUAL Office of Solid Waste Management, EPA, January 1990 This manual is a revision of EPA's 1977 guide to office paper recycling and was designed to stimulate increased recycling of office paper by not only government, but also commercial businesses. The guide, directed at recycling coordinators, presents a step-by-step process for setting up a high-grade paper recovery program. Planning, implementation, and operation are all addressed in detail. Additionally, the economics of paper recovery are described at length. To illustrate how one program has become a success, a case study of EPA's recovery program is included. Appendices provide contacts for the Federal Supply Service Bureau's "Surplus Sales Program", a procedure for sampling waste composition and a list of paper grade definitions as well as EPA guidelines for source separation for materials recovery (40 CFR 246). (Manual, 52 pages)	√	√	√	√	√		√	√		

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
DEVELOPING A COMPREHENSIVE FEDERAL OFFICE RECYCLING PROGRAM: A HANDBOOK (REVISED DRAFT) US EPA, January 1990 This handbook discusses education, collection, marketing, procurement, monitoring, and evaluation aspects of office recycling programs. Information contacts, RCRA procurement guidelines and materials handling requirements are also provided. (Manual, 50 pages)	√	√	√	√	√	√				√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
OFFICE PAPER RECYCLING Recycling Information Center, Portland, Oregon Metropolitan Service District, 1987 This booklet reviews five steps in implementing an office paper recycling program. The five steps include: select a coordinator, survey who throws what away, decide what materials to recycle, choose recycling containers, educate employees. Source reduction strategies in the office are briefly discussed. A list of recyclable and nonrecyclable office papers is provided. Market information is included for corrugated cardboard, newspaper, high-grade waste paper, laser printout, and mixed paper. (Booklet, 25 pages)	√		√	√	√				√	

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
THE MULTI-TENANT BUILDING OFFICE PAPER RECYCLING PROGRAM IMPLEMENTATION MANUAL Recycling Services, Minneapolis, MN in conjunction with the Demonstration Project Grants Program of the Minneapolis Metropolitan Council This document provides practical tips on how to set up and maintain an office paper recycling program where many types of paper products are in use simultaneously. Statutory requirements are briefly described, as are summary statistics on office solid waste. (Manual, 28 pages)	√	√		√	√		√	√		

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
YOUR OFFICE PAPER RECOVERY GUIDE The San Fransisco Recycling Program, City and County of San Fransisco This guide was designed to assist businesses and municipal government offices with planning and implementing office paper recycling programs. The process of developing a profitable recycling program is described in six chapters: Assessing Your Paper Potential, Finding the Right Person to Run Your Program, Finding the Right Waste Paper Dealer, Keeping the Recyclable Paper Out of the Trash, Getting the Paper to the Storage Area, and Getting Your Staff to Participate. The guide also includes a waste audit worksheet, discussion of issues relating to confidential business information, a cost/benefit worksheet, and sample memos to publicize/inform staff of their recycling progress. (Manual, 16 pages)	√		√	√	√		√			

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
OFFICE PAPER RECYCLING GUIDE Virginia Department of Waste Management The brochure briefly dicusses benefits of recycling, selecting a program coordinator, selecting a waste paper dealer, and collecting recyclable paper. (Brochure, tri-fold)	√		√	√	√		√			

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
RECYCLING OFFICE PAPER Minnesota Office of Waste Management, March 1989 This brochure discusses reasons to recycle office paper, questions commonly asked and appropriate responses, types of paper to recycle, and types of paper that should not be recycled. A few interesting facts are provided along with tips for reducing office paper. (Brochure, once folded)							√	√	√	

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
REPORT ON STATE AGENCY RESOURCE RECOVERY AND RECYCLING PROGRAM Wisconsin Department of Administration, February 1990 Section I of this report describes how Wisconsin developed a recycling program to recycle 50% of its state agency office paper within a three year period. Information on how the system was developed, tested and evaluated at five pilot facilities (a mental health facility, a state park, a corrections facility, a university campus, and Department of Transportation waysides) is also included. (Report, 219 pages)	√	√	√	√	√	√	√	√	√	√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
REPORT TO THE MEMBERS OF THE EIGHTY-FIFTH GENERAL ASSEMBLY ON THE WASTEPAPER COLLECTION PILOT PROGRAM SOLID WASTE MANAGEMENT ACT OF 1986 Illinois Department of Energy and Natural Resources, January 1988 The report describes the State of Illinois paper recycling pilot project in its Chicago offices addressing collection, storage, vendor selection, employee participation, and results. A second recycling pilot program operating at the Willard Ice Building in Springfield, Illinois is also described. (Report, 26 pages)	√	√	√	√	√	√	√	√		

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
YOUR RECYCLED PAPER PROCUREMENT GUIDE Boulder Energy Conservation Center, Colorado The guide explains the need for stimulating the market for recycled paper goods. Methods of overcoming traditional obstacles, purchasing options, and factors to consider in terms of the intended use for the products are also described. EPA standards, definitions and guidelines relating to recycled paper procurement are summarized. (Manual, 12 pages)			√		√			√		

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
PAPER RECYCLING The New Hampshire Paper Marketing Program, New Hampshire Resource Recovery Association (NHRRA) This brochure presents interesting facts supporting paper recycling. Corrugated cardboard, newspaper, and mixed paper are discussed as well as unacceptable contaminants which render certain papers unsuitable for recycling. (Brochure, tri-fold)							√	√		

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
PAPER RECYCLING: THE VIEW TO 1995 (SUMMARY REPORT) **The American Paper Institute, February 1990** This report analyzes potential recovery and consumption of U.S. waste paper through 1995. (Report, 19 pages)							√			

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
TAME THE PAPER TIGER Seattle Solid Waste Utility, Seattle Engineering Department This booklet introduces several strategies for reducing office paper waste. (Booklet, 7 pages)									√	

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
HOW TO RECYCLE IN OFFICE BUILDINGS No Citation An approach for implementing an effective office recycling program is recommended based on the following six steps: establish a market for paper, announce the program to employees, separate recyclable papers at the desk, devise an efficient collection system, keep waste paper free of contaminants, and publicity and follow up on the program. Two example programs currently in operation are summarized. (5 pages)	√		√	√	√	√	√			

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
RECYCLING WORKS! STATE AND LOCAL SOLUTIONS TO SOLID WASTE MANAGEMENT PROBLEMS EPA, January 1989 This general overview of recycling discusses fourteen case studies of recycling programs across the nation addressing many types of municipal solid waste, including office paper. General statistics are presented concerning the volume and nature of the municipal solid waste stream. Each case study includes a valuable section on obstacles encountered in the recycling program, and how these obstacles were addressed and overcome. (Report, 52 pages)			√		√		√	√		√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
EPA REGION IV IN-HOUSE RECYCLING PROJECT PROPOSAL EPA Region IV/Recycling Project Committee, February 1989 This document outlines a proposed program for instituting an in-house recycling program for EPA Region IV offices. The proposal describes programs that have already been implemented, desk-top collectors, intermediate bins, central location, recycling company contracts, employee education, and a financial summary. Special studies to refine the program are proposed. Potentially 1100 employees of the State EPA would participate. The program initially focused on white paper and aluminum cans. (Proposal, 24 pages)	√	√	√	√	√	√	√	√		√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
STATE OF FLORIDA - GUIDE TO OFFICE RECYCLING PROGRAMS IN GOVERNMENTAL OFFICES Department of General Services/Bureau of Property Management, November 1989 This guide outlines hints for planning and implementing a recycling program suitable for all State offices. Information provided focuses on high grade office paper, aluminum and corrugated boxes. The guide is meant to service all Florida departmental offices. (Manual, 14 pages)	√	√		√	√		√	√		√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
RECYCLING PILOT PROGRAM ASSESSMENT REPORT EPA Region IV/Recycling Project Committee, April 1989 This study summarizes the background, procedures and results of the Region's Recycling Pilot Program where 158 of 1,016 employees participated. The study focuses on conclusions drawn from surveys and waste stream analyses. Exhibits attached include a performance questionnaire, collection data, graphs and charts. Categories of waste collected include white ledger, newsprint, corrugated cardboard, beverage cans, glass, plastics, ferrous/nonferrous metals, and food waste. (Report, 7 pages)						√				√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
EPA REGION IV RECYCLING PROJECT - FISCAL YEAR 1989 REPORT EPA Region IV/Recycling Project Committee/Annual Report Subcommittee, November 1989 This study summarizes the planning and implementation of the EPA Region IV recycling program. The study also discussed promotional activities; materials recovered and revenue generated from office waste; contaminant level and recovery rate studies; financial performance; and proposed plans for 1990. (Report, 25 pages)	√			√	√	√	√			√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
HANDBOOK FOR REDUCTION AND RECYCLING OF COMMERCIAL SOLID WASTE Rhode Island Department of Environmental Management, Ocean State Cleanup and Recycling, 1988 Elements of source reduction and recycling programs are addressed as well as related equipment needs. The Northeast Waste Exchange is discussed as an outlet for waste materials. Markets in Rhode Island for various recyclable materials, available recycling planning services and in-house recycling containers are also reviewed. (Manual, 48 pages)	√		√	√	√	√		√		

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
AN INTRODUCTION TO MATERIALS AND MARKETS Waste Age, April 1988 This article includes information on recycled materials markets, including information on waste paper. Other materials discussed include steel, glass, aluminum, nonferrous metals, and plastics. (Article, 6 pages)			√							√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION CONTRACT AGREEMENT FOR RECYCLING SERVICES Florida Department of Environmental Regulation/Solid Waste Section This agreement contracts a recycling company for a Florida Department of Environmental Regulation (DER) office building. The DER program is focused on computer printout paper, white ledger, newspaper, aluminum cans, and clear glass. (Contract, 6 pages)		✓								✓

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
RECYCLE NOW: THE POSSIBILITIES AND PRACTICALITIES OF BUSINESS WASTE RECYCLING Mecklenburg County, NC, 1988 This pamphlet is a basic primer on how to launch an in-house recycling program. A process is outlined and general instructions are provided for recycling office paper, corrugated cardboard, beverage containers, scrap metals, and scrap by-products. (Pamphlet, 12 pages)	√	√	√	√	√	√				√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
GETTING EARTH - FRIENDLY: HOW GSD&M IS DOING IT GSD&M, April 1990 This booklet details the recycling efforts of an advertising firm located in Austin, Texas that employs 202 people. Goals, and actions taken to achieve those goals, are detailed. Their recycling efforts focus on paper, plastic, newsprint, aluminum and glass. (Booklet, 33 pages)	√		√	√	√					√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
AMAZING ENVIRONMENTAL FACTS GSD&M, April 1990 This fact sheet provides facts on garbage generation, plastics, paper, and glass recycling, toxic wastes, land erosion/wetlands, air pollution, ozone depletion, global warming, deforestation, energy consumption, pesticides, and overpopulation. (Fact Sheet, 19 pages)							√			√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
AMERICA RECYCLES: AN OVERVIEW GSD&M, November 1989 This booklet presents staggering statistics on garbage generation and how recycling can relieve the landfill burden. The overview provides examples of local programs, opinion poll results, and lists instances of media coverage regarding recycling and the environment in general. (Booklet, 9 pages)							√			√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
OPERATING A RECYCLING PROGRAM: A CITIZEN'S GUIDE Portland Recycling Team (PRT) This manual aids businesses in implementing and operating recycling programs for papers, metals, and glass. The subjects covered are: locating markets and contacting buyers, operation models, site selection, collection and storage, processing requirements and methods, equipment required, and funding methods. A section on public outreach, benefits of recycling, and educating program participants is also included. (Manual, 96 pages)			√	√	√		√	√		√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
PROMOTING RECYCLING TO THE PUBLIC National Soft Drink Association, 1988 This document was created as a resource for state programs and for public relations and advertising agencies. Approaches to existing statewide recycling and litter control programs are discussed and a directory of statewide programs is provided. Most importantly, the document describes some of the principles of promoting recycling. A glossary of promotion terms is also included. (Manual, 103 pages)				√						√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
HOW TO "SELL" RECYCLING PROGRAMS Biocycle, October 1987 This brief article discusses ways to promote recycling. The article is general and presents the levels of acceptance a recycling program coordinator may encounter in establishing a program. (Article, 2 pages)	√			√						

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
COMMUNITY WASTE EDUCATION MANUAL Minnesota Waste Education Coalition, July 1989 This manual contains the components of a complete public education campaign. The manual discusses outreach techniques such as printed materials, slide presentations, and special events among others. Examples of advertisements and brochures are provided as well as checklists, and example budgets. Although this document is community oriented, many of the principles are applicable to a federal office paper recycling program. (Manual, 72 pages)	√			√			√	√		√

SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
PUBLIC EDUCATION AND SOLID WASTE MANAGEMENT PLANS (FACT SHEET) Minnesota Waste Management Board, January 1988 The fact sheet identifies how waste education must be addressed in county solid waste management plans, and identifies factors for consideration as the county implements its waste education programs. (Fact Sheet, 4 pages)				√		√				√

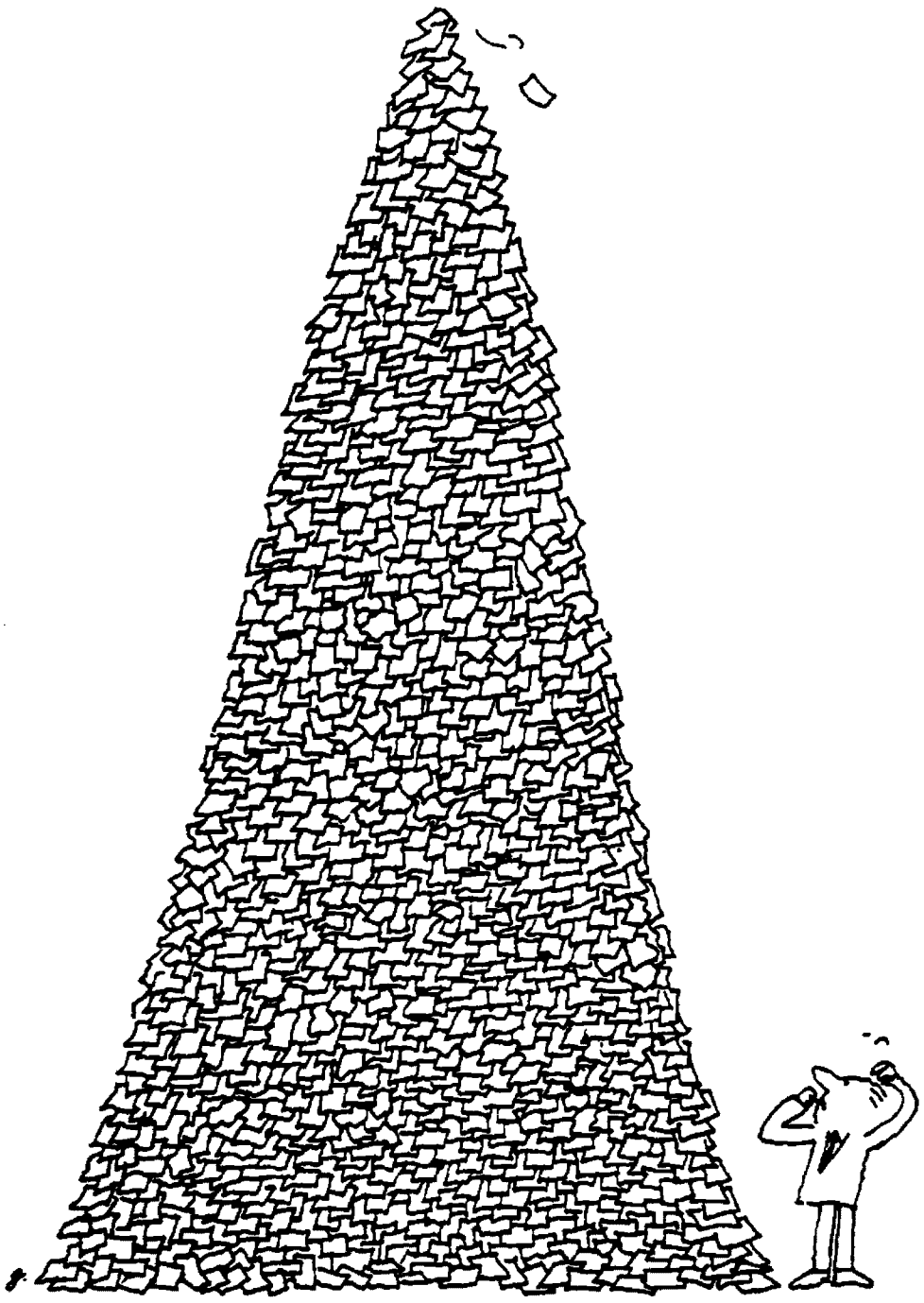
SUMMARY OF OFFICE PAPER RECYCLING MATERIALS (cont.)

SOURCE AND ABSTRACT	Training (for Program Coordinators)						Education (for Federal Employees)			Multimaterial Information
	Planning	Contracts	Markets	Education	Collection	Evaluation	Benefits	"How to"	Source Reduction	
RESOURCE RECOVERY - ENERGY AND ENVIRONMENT: TEACHER'S AID Florida Department of Environmental Regulation/Solid Waste Section and Florida Department of Education/ Office of Environmental Education, June 1980 This manual is a teaching aid package for instructors to inform students on the importance of resource recovery programs. The manual contains some useful instructional figures on recyclable material, constituents of municipal refuse, and market possibilities for recyclables. (Manual, 176 pages)			√				√			√

Federal Recycling Program

Your Office Paper Recycling Guide

Supplied by GSA Region 9 for the Federal Recycling Program



Acknowledgement is gratefully given to the San Francisco Recycling Program for materials and information used in this guide.

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Acknowledgment appreciated.

How We Can Reduce Waste

Recycle paper. By recycling at the office, we can save money on our garbage disposal bills, earn money from the sale of recyclable paper, and help alleviate our mounting garbage problem.

Buy Recycled Paper: Purchasing recycled paper is one area in which government offices can support markets and help utilize a growing surplus of waste paper. In many cases, high quality recycled office and computer paper are comparably priced to non-recycled paper. Recycled paper can be used for all your paper needs including annual reports, stationery, business cards, copier paper, advertising and direct mail.

Make your next report or memo two-sided and set an example. Making two-sided copies and reports will not only save a lot of paper, but money as well.

Buy coffee mugs for all your employees and replace the use of paper or styrofoam cups. The manufacture of styrofoam cups involves the use of blowing agents which are harmful to our environment. In a year's time you may recover the cost of the mugs from savings on disposable cups.

Turn your scrap paper into scratch pads. Ask your reproduction department to do this.

Write rough drafts or informal notes on the unused side of otherwise discarded paper.

Recycle your laser printer toner cartridges. Several companies will remanufacture these for reuse. All you have to do is save them. They will either pick them up or supply you with postage paid envelopes. Everyone benefits from this program.

Cut down on paper for memos by using routing slips instead of making multiple copies.

Use white paper Instead of colored. White paper is a higher grade than colored and can be recycled into more types of paper.

Look into the use of other recycled materials. Several types of quality building, insulation, and construction materials can be obtained with recycled content.

Ask your vendors to minimize unnecessary packaging for deliveries, and to take back reusable items such as styrofoam pellets and wood pallets.

Negotiate **good service contracts and warranties** for your office equipment.

Set up an in-house waste exchange program. Many businesses have employees in different departments at different worksites. Establish a centralized place to store items which one department does not want another might, such as file cabinets, file folders and old furniture, or set up a bulletin board to advertise need for and availability of such items.

Reduce use of your facsimile machine. "Fax" paper cannot be recycled.

Contact your coordinator or the GSA regional recycling coordinator at FTS 484-5215 for more information on any of the above tips.

1. Assessing Your Paper Potential

The GSA Region Nine Recycling Program staff is ready to help you set up an office paper recycling program tailored to meet the specific needs of your organization. In addition to this guide, we will supply desk-top recycling containers, sample contracts, and a variety of promotional materials such as slide shows, videos, posters and stickers–all free of charge. Upon request, we will come to your office to lead introductory sessions for your staff explaining the "Hows and Whys to Recycle at the Office."

What do we get out of all of this? . . . Less garbage to worry about. There is a limited amount of landfill capacity left. Two-thirds of the existing landfills will be full by 1995. As the problem grows, so will the cost to the tax payers in finding new landfill sites. Since paper makes up the largest portion (about 50%) of the waste stream, each organization that starts an office paper recycling program helps to alleviate the Country's garbage woes.

This guide takes you step by step through the process of setting up a profitable and successful office paper recycling program. Included are questionnaires, worksheets, and sample promotional materials, everything you should need to make the process as easy as possible. And remember, our staff is available to help you if you have any questions at all.

Almost all paper is recyclable, but in most office paper recycling programs, just *white paper* and *computer paper* (the high grades), are collected. These high grades command a much higher price, have more stable markets, and are available in larger quantities than all other grades of paper.

In general, for a standard office paper recycling program, *five hundred to one thousand pounds* of high grade paper is the minimum amount required for a pickup. Five hundred pounds may sound like a lot, but it adds up quickly given that the average office worker throws away at least a half-pound of high grade recyclable paper each day. Fifty or more employees will easily generate enough paper to set up an efficient program. Smaller offices can also set up successful programs, but usually a dealer who collects small amounts of paper will not pay for it.

If your office doesn't generate enough paper, you can ask your building manager if another office in the building is already recycling. Or, you might try to enlist a neighboring office to join with you–together your offices will most likely generate enough paper to start a program.

Complete the following Waste Audit and Cost Assessment worksheets to get a better idea of how much paper your office generates and the potential earnings and costs associated with starting an office paper recycling program.

Waste Audit

The questions in the Waste Audit will give you an overview of your office's disposal needs. You can refer back to your answers when you are ready to start designing your program. Be sure to check with the janitorial staff and the building manager to find out if any "informal" recycling programs are in place

A. Total Garbage Generation:

_____ (No. Employees (a)) X 1.35 lbs. (Ave. lbs. garbage/employee/day) = _____ lbs. (Garbage/day (b))

_____ lbs. (Garbage/day (b)) X 240 days (Working days/year) ÷ 12 months ÷ 2,000 lbs (Lbs./ton) = _____ (Tons/month)

Recyclable Paper Generation:

_____ (No. Employees (a)) X 51 lbs. (Ave. lbs. recyclable paper/employee/day) = _____ lbs. (Recyclable paper/day (c))

_____ lbs. (Recyclable paper/day) X 240 days (Working days/year) ÷ 12 months ÷ 2,000 lbs (Lbs./ton) = _____ (Tons/month recyclable paper (d))

Potential Paper Recovery Rates:

_____ (Tons/month recyclable paper (d)) X 55% (Employee participation rate (conservative rate)) = _____ (Tons/month recyclable paper recovered (e))

B. Visual Survey

Look through a random sample of trash cans on each floor; list the most common types of paper found.

_____

_____

_____

_____

C. Confidential Destruction:

If your agency is currently having its confidential materials destroyed, try to integrate these services with your office paper recycling program. You may be able to get a better price. Be wary, however, of very low prices–make sure the materials are really being destroyed.

Many agencies choose to recycle materials that are semi–confidential as a safer alternative to throwing them into the trash since the materials are destroyed in the recycling process. The semi–confidential materials can safely be kept in your office or building until the waste paper dealer picks them up.

Is your agency currently having its confidential materials destroyed? Will the destruction company offer you a better deal if you have them pick up both the confidential and non–confidential materials?

D. Waste Hauling Operations:

Complete this section ONLY if your agency is directly responsible for paying the disposal bills.

Garbage disposal company _____

Size and number of garbage container(s)?_____

Frequency of pickups?_____

Is garbage compacted?_____ Size of compactor?_____

Owned?_____ Leased?_____

Garbage disposal costs: per cubic yard?_____

Flat fee?_____ Other?_____

Check to see that your disposal bills reflect your actual services. You may be paying for more service than you need. Determine whether or not you could get by with less frequent service, and/or smaller garbage bins. Call your garbage company if you have questions about your disposal services. You may also want to ask about the possibility of installing a garbage compactor. Where installation is feasible, compactors may reduce a building's disposal costs.

The information gathered in this section gives you baseline information about your disposal needs. After a recycling program has been in operation for a few months, and your recyclable paper is no longer ending up in the trash bins, you'll be able to reassess your disposal needs.

Cost/Benefit Worksheet

This worksheet will give you a rough idea of the costs and savings associated with starting an office paper recycling program. You may want to read through the entire guide before filling out this sheet.

PRESENT DISPOSAL COSTS:

	MONTHLY	ANNUAL
Garbage Bill(s)		
Confidential Destruction Costs		
Equipment Costs (i.e., trash cans, compactors, etc.)		
Labor (janitorial)[1]		
<Revenue from any current recycling program>	< >	< >
TOTAL DISPOSAL COSTS		

REVENUES FROM WASTE PAPER SALES	PRICE/ TON[3]	TONS/ MONTH[4]	MONTHLY	ANNUAL
White Paper				
Computer Paper				
Mixed Waste				
Other Credits				
TOTAL CREDITS				
NET RECYCLING PROGRAM COSTS (TOTAL COSTS less TOTAL CREDITS				

DISPOSAL COSTS AFTER IMPLEMENTATION OF NEW RECYCLING PROGRAM:

	MONTHLY	ANNUAL
Disposal Costs adjusted downward to reflect reduced service[2]		
Reduced Confidential Destruction Costs, if any		
Coordinator's Time		
Central Recycling Containers		
Publicity		
Labor (extra janitorial or collection personnel costs)		
Compactor and Related Equipment Costs, if any		
Installation Costs (one time)		
TOTAL COSTS		

SAVINGS:

Present disposal costs	–	Net recycling program costs	=	Net Average <costs>

1 Assign only a percentage of your janitorial costs since the janitors provide other services besides waste removal.

2 Estimate how much your recycling program will reduce your waste stream, then call your disposal company to find the cost of less frequent service or smaller bins.

3 Call a few waste paper dealers to get the current price of waste paper. Be sure to ask the dealer for a price that includes pickup services.

4 Refer to the Waste Audit, Section A, Part (e) for the tons/month figure. Estimate how much of the total will be white paper, computer paper, and mixed paper.

CREDITS: This worksheet was adapted from the "Justification Worksheet" designed by George Luker of National Semi-Conductor, Santa Clara, California.

2. Finding the Right Person to Run Your Program

To run an effective office paper recycling program, you will need a program coordinator, and, depending on the size of your company, a few monitors. These people don't need a degree in recycling, but the coordinator should have organizational experience and good communication skills. Program monitors should have a good rapport with the staff and a thorough understanding of how the program works. Also, a little enthusiasm on the part of the coordinator and the monitors goes a long way! GSA's Recycling Staff can train both the coordinator and the program monitors.

Depending on the size of your agency, the coordinator will spend anywhere from a day or two to a couple of weeks getting a recycling program off the ground. After the program has started, the coordinator will need no more than a few hours each month to monitor the program.

The coordinator is responsible for selecting a waste paper dealer, developing the collection system, getting the employees involved, and tracking the progress of the program. To ensure the program's success, the coordinator will need support for the program from the senior officer of the agency. Although the job has many responsibilities, almost all coordinators find that the rewards of organizing a program far outweigh the work involved.

Monitors are responsible for making sure the containers are relatively free of non-recyclable trash, notifying the coordinator if a container overflows, and encouraging employees to participate in the program. One monitor for each division or floor, or for every 25–50 employees, is optimal.

3. Finding the Right Waste Paper Dealer

Choose a waste paper dealer who will provide your company with high quality service; price should be secondary to service when selecting a dealer because the price of paper can fluctuate dramatically from year to year, you want a dealer who will provide excellent service during the market changes. A current list of waste paper dealers who service your area is available from your GSA coordinator. Most dealers are also listed in the yellow pages under "Waste Paper." The following questions will help you select a waste paper dealer. Once you have selected a dealer, you can include this information in a written contract.

1. What grades of paper are to be collected and what is the minimum amount required for a pickup?

2. Will the dealer pay you for your paper? If so, which pricing structure does he use? Several types are available:

- A floating price that is tied to the paper industry market index with a minimum floor price. This method is most often used because it ensures the best deal for both the client and the dealer;
- A fixed price for the term of the contract; or,
- A periodic review and adjustment of prices.

3. Will the dealer help you organize and promote your program?

4. Is the dealer willing to sign a long-term contract? (A one-year minimum is recommended.)

5. What is the allowable level of contamination? (Anything other than the specified grade of paper to be purchased is a contaminant; colored paper is a contaminant if the dealer has specified the purchase of only white paper.)

6. Will the dealer collect the paper from each central recycling container in your office, or does the paper need to be consolidated into one main storage area? (You will receive a better price for your paper if your staff consolidates into one main storage area.)

7. Will the dealer supply central recycling containers to use throughout the office and large bins for the main storage area?

8. Will the dealer provide "scheduled" or "on call" pickups?

9. Does the dealer offer destruction services for confidential materials? Do these services meet your legal requirements for the materials' destruction?

Keep in mind that GSA may have an existing contract for waste paper disposal already in place in your area. Check with your coordinator.

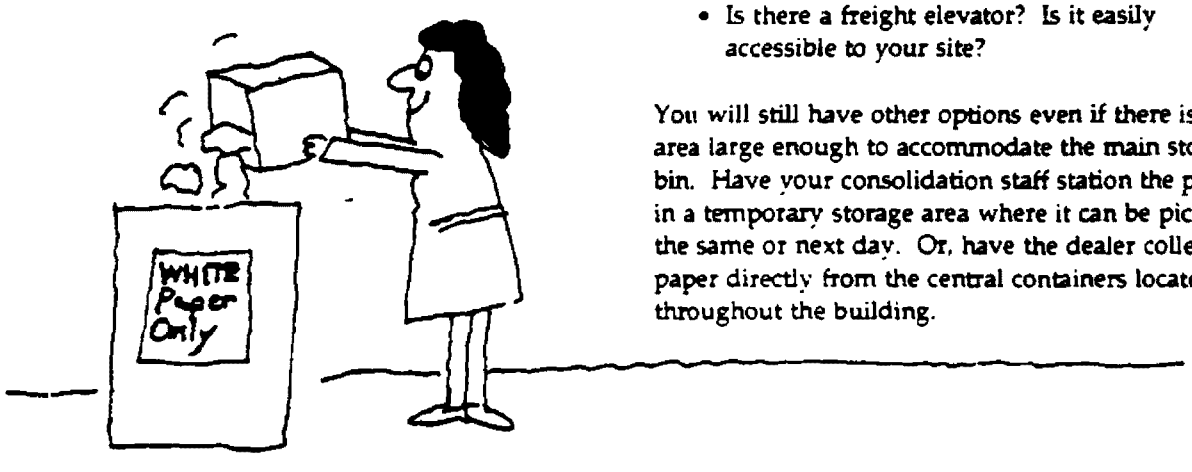
4. Keeping the Recyclable Paper Out of the Trash

1. A successful office paper recycling program begins at each employee's desk. The coordinator should give every employee a small sturdy desk-top container for storing recyclable paper at his or her desk. When the employee's desk-top container is full, he or she simply empties it into one of the larger central containers located throughout the office. *(Upon request, we can provide your agency with free identification stickers for your central containers and desk-top containers that list what can and can't be recycled.)*

Stationing one central container for every fifteen to twenty employees throughout your office is optimal. Clearly labeling the containers, "For White Paper Only" and "For Computer Paper Only", will help to prevent employees and visitors from using the central containers as trash cans. Placing regular trash cans near the central recycling containers will also help to minimize unwanted trash. It's best if the central containers look different than your trash cans. Most dealers will supply central recycling containers; however, you may want to purchase your own containers to match your office's decor.

Consider these points when deciding where to station your central recycling containers:

- Where are the copy machines and other paper generating equipment located?
- Are there any other common work areas that could accommodate the central recycling containers?



2. To get the most benefits from your recycling program, use in-house staff to consolidate the paper from the central containers into one main storage area. *(See Step 5 for consolidation tips.)* There are several benefits to using in-house staff to consolidate the paper:

- You will receive a better price for your paper because you will be able to accumulate larger loads;
- You will avoid overflowing central containers that may occur if the dealer cannot immediately respond to your call for a pickup; and,
- You will not need to have the dealer go through your office to remove the paper during working hours.

The main storage area should be organized to minimize accidental mixing of trash with recyclable paper and it must meet local fire requirements. the waste paper dealer will help you determine what size storage space is necessary; typically, you will need a space that is at least 4 feet by 2 feet. Ask your building manager and/or the waste paper dealer to help you select your main storage site. Most companies keep their main storage bin(s) in the basement or loading dock area of the building. *Keep in mind the following points when selecting your site:*

- Is the site large enough?
- Can the site be locked?
- Is the site protected with sprinklers?
- Is there a freight elevator? Is it easily accessible to your site?

You will still have other options even if there is no area large enough to accommodate the main storage bin. Have your consolidation staff station the paper in a temporary storage area where it can be picked up the same or next day. Or, have the dealer collect the paper directly from the central containers located throughout the building.

5. Getting the Paper to the Storage Area

Most office paper recycling programs work best when integrated with existing janitorial operations—janitors simply collect the paper from the central containers and transfer it to the main storage bin. Some companies use an alternating collection system in which the janitors collect the recyclable paper one night and the trash the next.

When introducing the janitors to the new recycling program, explain that they are handling the same amount of materials, they are simply emptying the regular trash and the recyclable paper into separate bins. Many companies add the responsibility of picking up the recyclable paper into the janitor's contract when it is up for renewal.

Other personnel such as mail room staff, equipment porters, or other under-utilized staff can also consolidate the recyclable paper.

If the janitors are not involved in the collection of the recyclable paper, make sure that they are informed about the program so that they don't accidentally mix the paper with the regular trash and throw it away.

Consider these points when deciding who can best consolidate your paper from the central containers to the area:

- How many custodians service your building?
- Are the custodians in-house, contract, or union?
- Is there a daytime shift and a nighttime shift? If so, which crew could best handle the consolidation duties?
- Are there porters, mail room staff, or other personnel who could handle the consolidation duties?

6. Getting Your Staff to Participate

Promotion is the key to all successful recycling programs. Employees will participate if they are well informed about the program and its benefits. We recommend three separate steps for your promotion campaign—a kick-off memo, educational sessions, and publicity. Sample memos to help you in all three stages of promoting your program are included in this section.

In addition, you may want to send out a short survey to your staff before you start your program to gauge the level of interest in recycling. Most people will agree that recycling is a good idea, and once they have done so, are more likely to participate. You may also be able to recruit a program coordinator and monitors by conducting a survey.

Kick-off Memo:
Send out a kick-off memo announcing the start of the program signed by a senior officer of the organization. (If the memo is not from the senior officer, be sure to indicate his or her support to give the program additional credibility.) In the memo, highlight the benefits of the program and explain the separation and collection procedures. Also, include information on where the revenue from the program will go. Adapt the following sample kick-off memo, (A.), for your company.

Educational Sessions:
Encourage all employees to attend a brief informational session about the program. The sessions have proven to be far more effective than memos in achieving both higher levels of participation and less confusion over what is, and what is not recyclable. The sessions can be incorporated into a regular staff meeting and the "do's and don'ts" as well as the benefits of the program can be thoroughly explained. The GSA Recycling Program staff is available to lead these sessions.

It's helpful to provide a "How-to" memo at the session. (See sample B.) Once your program is up and running, be sure to inform any new employees about the recycling program as part of their orientation.

Follow-up Publicity:
Reinforcing the new recycling habit is very important. Quantities recycled, revenue earned, disposal cost savings, and any problems such as putting trash into the central containers or low participation rates can all be highlighted in follow-up memos. Continual reminders will help maintain a successful program. We recommend that you send out "recycling updates" every quarter. Some ideas are provided in section C. to include in your follow-up memos. Call the GSA Recycling Program for additional ideas.

A. Sample Kick-off Memo

TO: ALL XYZ AGENCY EMPLOYEES

FROM: JANE DOE, PRESIDENT

DATE: MAY 24, 1989

SUBJECT: OFFICE PAPER RECYCLING AT XYZ AGENCY

Studies show that each office worker throws away an average of a half-pound of recyclable paper every day. That's the equivalent of (X TONS) a year from our office alone. This means that over (X trees) and (X gallons of oil) are needed each year just to keep our office afloat in paper.[1] We're starting a recycling program to put this paper to better use. By recycling, we'll lower our garbage disposal costs, earn revenue from the sale of our paper, and do our part to improve the environment.

Participation in this program will require only small changes in your daily habits. You will be given a desk-top container for storing white paper and computer paper. When your desk-top container is full, simply empty the contents into the central container nearest your desk. The locations of the central containers will be:

NEXT TO ALL OF THE COPY MACHINES,
ROOMS 200, 319, AND 452,
OUTSIDE THE COFFEE ROOM.

Please attend a short orientation session to learn more about how the program works. Three fifteen minute sessions have been scheduled for June 15, 1989. The sessions will start at 9:30 AM, 10:30 AM, and 1:30 PM. Your supervisor has a sign up sheet. Your participation in this program does make a difference! For every piece of paper you recycle, you will:

- Protect the environment and save natural resources;
- Conserve scarce landfill space; and,

If you have any questions about the program, please contact JOHN SMITH, at x-4635. Thanks for your cooperation.

(X TONS) = (X EMPLOYEES) x .5 LBS. x 240 WORKING DAYS/YR. ÷ 2,000 lbs.)
(X Trees) = 17 trees x (X tons) of paper
(X gallons of oil) = 682.5 gallons of oil x (X tons) of paper

B. Sample "How-To" Memo for Educational Sessions

TO: ALL XYZ AGENCY EMPLOYEES

FROM: JANE DOE, PRESIDENT

DATE: JUNE 15, 1989

SUBJECT: OFFICE PAPER RECYCLING AT XYZ AGENCY

HOW THE PROGRAM WORKS:

You will be given a desk-top container to go on or near your desk. When you're through using any white paper or computer paper, simply put it into your desk-top container instead of the trash can. When your desk-top container is full, empty the contents into one of the central containers stationed on your floor. Paper is much more valuable when it is separated by grade so please put the white paper into the "white paper only" container and computer paper into the "computer paper only" container. All central containers will be clearly marked. That's the end of your involvement—it's that easy!

Because we all have a lifelong habit of just throwing something away when we're finished using it, it may take some time to remember not to throw the recyclable paper into the trash can. You have to think about it at first, but in a very short time it will become just another one of those things you do.

Please keep all colored paper, magazines, glossy paper, carbon paper, newspapers, soda cans, half-eaten sandwiches, etc. out of the recycling containers. If you're recycling an old report, please remove the covers, any colored paper, and plastic bindings. Metal staples and small paper clips *do not* need to be removed. Check the list on your desk-top container if you are not sure about what items are acceptable.

If you are "cleaning house" and getting rid of a lot of old forms or files, let your program coordinator know ahead of time so that the waste paper dealer can be called to bring extra containers or to do extra pickups. If the central containers fill up before the scheduled pickup, try pushing the paper down, the container may just be full of a lot of air. If the container is definitely full, find a box to use for the overflow and ask the coordinator to call for a pick up.

JUST A FEW REASONS FOR RECYCLING:

- Solid Waste: It has been estimated that each man, woman, and child produces an average of four pounds of trash every day, almost 1,500 pounds a year. Most of this garbage gets buried in a landfill, and we are running out of landfill space at an alarming rate.

- Paper Production: As many as seventeen small trees are required to make one ton of paper. Recycling slows the demand for virgin timber fibers and lessens the strain on our forest resources.

- Energy Conservation: Up to 64% less energy is required to produce paper from waste paper instead of from virgin wood pulp. In the case of office paper, the equivalent of almost three barrels of oil is saved for every ton of paper recycled.

- Air and Water Pollution: The manufacturing of paper from used paper instead of from trees produces almost 60% less water and air pollution.

- Water Conservation: The manufacturing of recycled paper uses only half of the water that is required in the manufacturing of virgin paper.

C. Follow-Up Publicity

1. List the quantity of paper recycled by your company over a period of time. Divide the number of tons (pounds) recycled by the number of employees to get the amount of paper recycled per person.

2. Let employees know if too much of the wrong types of paper are being mixed in with the recyclable paper. Remind them of what is and what is not acceptable.

3. List the earnings from the program and where the proceeds are going.

4. List any garbage disposal cost savings if available.

5. Compute the energy and environmental savings from your company's recycling program:

tons recycled x 17 trees = # trees that don't need to be cut down

each ton of recycled paper produced requires approximately 4,102 KWH less energy than virgin paper production

tons recycled x 380 gallons of oil = # gallons oil saved

the manufacture of recycled paper requires 7,000 less gallons of water per ton compared to nonrecycled paper

= tons recycled x 3 = # Cubic yards of landfill space saved

6. Congratulate employees for a job well-done. You may even wish to offer specific incentives and/or rewards to the department or floor with the best participation.

7. Let the employees know how they can recycle in their homes. You can get free recycling guides from the GSA Recycling Program.

8. Circulate articles about recycling that appear in the paper. Let the employees know that recycling is something that is happening everywhere as a part of careful waste management.

Other Ideas:

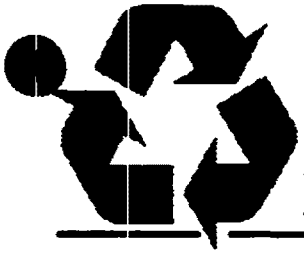
Once a successful recycling program is in operation, you may wish to take further steps in reducing your waste. Here are some of our ideas. You may create others. If you do, please let us know and we will share them with other organizations who recycle.

1. Recommend that the agency buy only white paper since colored paper is not collected in most programs. Also suggest that the agency buy recycled paper.

2. Encourage all your employees to follow these waste reduction hints:

- Make two-sided copies.
- When circulating memos, use a single copy with a routing ship instead of multiple copies for each person.
- Use the blank side of your used paper as scratch paper, then recycle it.

3. Set up programs to recycle other materials such as glass, aluminum, newspaper, and cardboard. Call the recycling divisions of your local garbage companies about recycling these materials (your waste paper dealer may pick up some of these materials as well). Often, programs to recycle these materials are run by the building manager for all of the tenants in the building.



Making it Work

Successful office paper recycling programs all have four elements in common:

A capable and enthusiastic program coordinator;

A secure market for recyclable paper;

A simple and reliable collection system; and

An effective employee education and publicity program.

Garbage disposal costs are continuing to escalate, forests continue to be depleted, and landfill space is becoming more and more scarce, so why not start a program today? Your investment in an office paper recycling program will pay off practically from the start, and the returns will increase with each year. Call the GSA Recycling Program and our staff will help you get started.

Look Who's Recycling:

AT&T
The Bank of California
Bronson, Bronson & McKinnon
California Bicyclist Magazine
California League of Conservation Voters
Chevron Chemical Co.
Crowley Maritime Corporation
Dinwiddie Construction Co.
Ecology & Environment
Federal Deposit Insurance Corporation – FDIC
Friends of the River
Home Insurance Company
Institute for Food and Development Policy
Levi Strauss & Co.
MacWeek Inc.
McKesson Corporation
People for Open Space
The Recorder
The San Francisco Foundation
Sierra Club Legal Defense Fund, Inc.
Unocal

Here's What Others Say About Office Paper Recycling:

"I was a 'casual' recycler until about six months ago. While working on a major copying project, I noticed just how much paper I was throwing away. Then it hit me how much waste must be occuring on my floor, in my building, and throughout the City—it boggled my mind. I am now an ardent recycler and fill my desk-top container almost daily."

Jolin Sage, McKesson Corporation

"I've been recycling paper at the office for at least five years. Recently I transferred to a new department and was shocked to learn that there were no recycling bins. I was so accustomed to recycling that I couldn't imagine just throwing away my paper. I called the City's Recycling Office and now everyone in my new office is recycling."

Mary Pat Downing, City and County of San Francisco

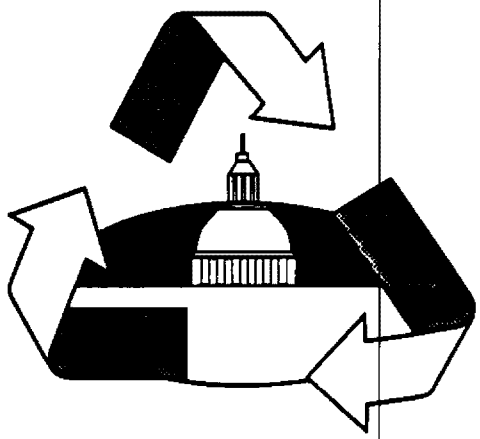
"We recycle because it makes good economic sense. We've cut our disposal costs in half. Recycling is good for the environment, good for the City, and good for our business."

Ray Quilicy, AT&T

"I began a recycling program at our firm about six months ago. It has taken some effort, but we finally hit our estimated 'one ton per month' mark. It's a great feeling to know that our company is doing its part to improve the environment, and on top of that raising sorely needed funds for the AIDS Foundation."

Marian Bilheimer, Bronson, Bronson & McKinnon

Section 5.0
Recycling in Federal Offices:
Educational Materials for Employees



INVEST IN THE ENVIRONMENT

U.S. GENERAL SERVICES ADMINISTRATION

THE DIVIDENDS WILL LAST A LIFETIME

Conserving Energy in Federal Buildings

From 1973 to 1985, GSA reduced energy consumption by 43 percent in buildings we own or operate. GSA's energy consumption rate is currently 38 percent below the governmentwide average. The Federal Energy Management Improvement Act of 1988 requires governmentwide cuts of another 10 percent by 1995. To meet this goal, GSA has established an ambitious energy reduction plan for the buildings we own, operate, and lease—without compromising tenant satisfaction.

GSA's Energy Usage Analysis System Management Center in Ft. Worth, Texas, is the hub of our energy conservation program. The center takes data from all utility bills paid by GSA nationwide, analyzes consumption, spots trends, and ensures that GSA is charged according to the correct rate structures. Using data supplied by the center, energy specialists target each building in the inventory for energy-saving capital improvements and changes in everyday building operations and maintenance.

In Fiscal Year 1990, GSA spent $10 million on 90 energy conservation projects. GSA is spending $30 million for 320 projects in FY 1991, and has planned projects costing another $30 million for FY 1992. Projects funded include the installation of:

- energy-efficient lighting
- computerized energy management and control systems
- insulation
- replacement windows
- improved heating and air conditioning systems

Buying Energy-Efficient Appliances

GSA contracts for refrigerators, freezers, ranges, washers and dryers, dishwashers, and window air conditioners to ensure the best energy value. In the contract year 1989-90, energy savings on these appliances totaled more than $900,000.

GSA—Investin

The Diu[illegible]nt

The U.S. General Services Administration—the government's business manager—is investing in the environment. Working closely with the Environmental Protection Agency, othe Federal agencies, and the private secto GSA helps the Federal government save energy, recycle used materials, and purchase products that contain recycle materials.

Managing the Federal Recycling Program

In September 1990, GSA established the national Federal Recycling Program to enable Federal agencies to recycle used office materials, inform other agencies of new developments in recycling, and promote the use of products made from recycled materials.

Aware that most States and the District of Columbia have enacted recycling laws, GSA als[illegible] believes that recycling pays environmental and economic dividends by conserving landfill space, energy, and raw materials, and protecting air and water quality.

Recycling Office Paper, Newspaper, Glass and Aluminum

GSA helps other Federal agencies recycle office paper, newspaper, glass and cans. GSA offers desktop containers for office paper and large containers to hold a variety of recyclable materials, sets aside areas within Federal buildings where recyclables can be stored, and lets contracts for pick-up and sale of recyclables. GSA also offers advice to any Federal agency interested in setting up its own program.

High-grade, white paper constitutes at least one-third of the waste in Federal offices and is, therefore, GSA's highest priority. GSA will establish recycling programs for office paper in all GSA-owned and operated facilities with 100 or more employees and where markets for the waste paper exist by January 1, 1992.

N THE ENVIRONMENT

'ill Last a Lifetime

BUYING RECYCLED PRODUCTS FOR FEDERAL CUSTOMERS

Every year GSA establishes contracts worth millions of dollars so that Federal civilian agencies, the military, and even the White House can buy recycled products. Products range from ordinary office supplies to shipping boxes and retread tires. With its multi-billion-dollar purchasing power, the Federal government has the opportunity to be both an important market for recycled goods and a strong influence in their development.

Because manufacturers will not produce large quantities of recycled materials without a good market and Federal procurement officials won't place orders unless they are assured of a steady supply, GSA's policy is to buy large quantities of recycled goods to stimulate the recycling industry. The next issue of GSA's supply catalog will identify those products that contain recycled material and the percentage of recycled content in each item.

PAPER—GSA currently buys 700 different recycled paper products totaling more than $140 million each year. Products include toilet paper, paper towels, cardboard boxes, office stationery, computer paper, and file folders. Copier paper will be added this year. The 120 Federal specifications for these products meet Environmental Protection Agency (EPA) guidelines for recycled material content. In the case of corrugated boxes, GSA requires 40 percent recycled content while EPA asks for only 35 percent. The prices we pay are in line with prices for new products—with no compromise in quality.

RETREAD TIRES—Using EPA guidelines, GSA has contracted for retread tires for light trucks and buses. Testing for passenger vehicle retread tires is in process. GSA has already established contracts in some areas of the country so that Federal agencies can have their own casings retread and will help other agencies develop individual contracts where they do not now exist.

INSULATION—Using EPA guidelines, GSA offers its customers building insulation containing from 9 to 50 percent recycled materials. Products include cellulose insulation—essentially ground newspaper with a chemical fire retardant—and mineral fiber insulation, commonly called rock wool and fiberglass.

TONER CARTRIDGES—GSA lets contracts with firms that market recharged toner cartridges for laser printers, small copiers, and micro-photographic equipment. They will recharge your empty cartridges or sell already recharged cartridges. Recycling cartridges saves almost 50 percent of the cost of buying new ones.

CARPETS—Transforming soda bottles and catsup bottles into carpets is the latest GSA project in the new world of recycling plastics. GSA contract specialists are working with manufacturers to develop performance and testing standards for resiliency, color fastness, fire retardancy, and durability. (It takes about 36 two-liter soda bottles to make one square yard of carpet.)

LICENSE PLATES—When cost-effective, GSA recycles old license plates and buys new ones for Federal vehicles from aluminum recycling plants.

FURNITURE—Instead of buying new furniture, GSA lets contracts worth millions of dollars with firms that repair and refurbish furniture for Federal offices.

INTRODUCING ALTERNATIVE-FUEL VEHICLES

GSA, because it manages about 25 percent of the entire Federal fleet, is working with the Department of Energy to introduce into the marketplace vehicles that run on alternative fuels. These Federal purchases are designed to stimulate the manufacture of these vehicles and collect data on their operation. Use of alternative fuels is expected to lessen dependence on imported oil and—because the fuels often burn cleaner than gasoline—improve air quality. So far, 65 sedans that operate on methanol or unleaded gasoline have been assigned to Federal agencies in San Diego, Los Angeles, Detroit, and Washington, DC. Fifty eight-passenger vans that run on compressed natural gas are on order for 1992. Plans are also underway for purchasing vehicles that will run on ethanol.

Overseeing a Nationwide Ridesharing Network

GSA heads a nationwide network that fosters energy conservation on the way to and from the office. Since 1980, the Federal Ridesharing Program has been promoting the use of carpools, van pools and public transportation to conserve gasoline, improve air quality, reduce traffic congestion, and reduce commuter expenses. Environmental experts estimate that if each person commuting to work would include another rider, the Nation would save 600,000 gallons of gasoline a day and would prevent the emission of 12 million pounds of carbon dioxide into the atmosphere.

Investing in the Environment Because the Dividends are Worth It

- The average office worker generates approximately 1.55 pounds of office waste per day. Without recycling, the paper would be sent to landfills.
- Each ton of paper recycled saves 3.3 cubic yards of landfill space, 17 mature trees, 7,000 gallons of water (half the amount required when making paper from wood pulp), 380 gallons of oil, 4,100 kilowatt hours of energy (enough to power the average home for 6 months), and 60 pounds of air pollutants. Manufacturing paper from recycled fiber uses 64 percent less energy and creates 74 percent less air pollution and 35 percent less water pollution than using virgin fiber.
- In the Washington area alone, GSA contracts cover removal and sale of high-grade paper and newspaper from more than 280 locations. In 1989, approximately 15,000 tons of paper were recycled under these contracts, saving approximately 50,000 cubic yards of landfill space, 250,000 trees, and 100 million gallons of water.
- There are nearly one million Federal employees in 7,000 GSA buildings nationwide. If all of them were to recycle high-grade paper, the United States would save 220,000 cubic yards of landfill space, 1 million trees, 465 million gallons of water, 25 million gallons of oil, and 272 million kilowatt hours of energy—enough to power 33,000 homes for a year.
- The returns for glass and aluminum recycling programs can be even greater. Both glass and aluminum are 100-percent recyclable; that is, there is no loss of quality when glass or aluminum is melted and reformed.
- Melting used glass saves 35 percent of the energy required to make glass from raw materials.
- Recycling aluminum cans saves 95 percent of the energy to produce aluminum from ore.
- Recycling one aluminum can saves enough energy to light a 100-watt bulb for 3.5 hours. Recycling aluminum saves time in the manufacturing process, and decreases our reliance on imported bauxite ore.

To Learn More About GSA's Environmental Programs, Call ...

- ***Recycling in Federal Buildings***
- ***Energy Conservation in Federal Buildings***

(202) 501-0971 or FTS 241-0971

- ***Ridesharing***

(202) 501-0507 or FTS 241-0507

- ***Buying or Selling Recycled Products***
- ***Alternative Fuel Vehicles***

(703) 557-8646 or FTS 557-8646

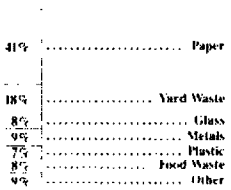
Federal Recycling Program

Printed on Recycled Paper

Recycle—It Makes Sense!

Call it garbage, solid waste, refuse, trash! It's the waste we produce in our homes and businesses. We throw it into cans and put it out for pickup. Our trash, plus our neighbors' and everyone else's, adds up to a massive pile of waste. In fact, each year our nation generates enough garbage to fill a convoy of trash trucks reaching half way to the moon. And the convoy keeps growing longer every year!

National averages show:



What happens to last night's empty soft drink cans and bottles? And where does this morning's discarded newspaper go? For many years, most have gone to landfills. Now, many of these landfills are almost full. This is causing landfilling costs to soar, forcing many of our communities to raise fees or taxes to pay the additional costs. Landfilling is no longer the easy answer. In some communities, the waste goes to an incinerator that burns it and recovers energy. Incinerators reduce the volume of waste, but landfills are still needed to bury the leftover ash that burning produces. Both incinerators and landfills are expensive and can take a long time to locate and build. In a growing number of communities, the morning newspaper is recycled, yard waste is composted, and cans and bottles are recycled or reused.

80% Landfilled **10% Incinerated** **10% Recycled**

Once Is Not Enough

The Solution

Because there's not one simple remedy for our trash problem, we need to consider a combination of solutions to manage it. Reducing waste, recycling, burning trash for energy recovery, and landfilling are all parts of the solution. Federal, state, and local governments are seeking answers as they study and plan for current and future needs. Citizens in every community need to be involved in finding the best solutions and making them work.

Recycling is just one important remedy for the garbage problem. It's an effective solution because it reduces the amount of waste for disposal. And individuals like you can be part of this solution by recycling at home and at work. You can buy recycled and recyclable products, organize recycling programs, and encourage your neighbors to recycle. Just as we contribute to our nation's increasing garbage problem, we can all contribute to its solution by recycling.

What Is Recycling?

"Recycling" means separating, collecting, processing, marketing, and ultimately using a material that was thrown away. This morning's newspaper can be recycled for another morning's news or other paper products. Cans and bottles can be crafted for other uses.

Why Should We Recycle?

Recycling reduces our reliance on landfills and incinerators.

Recycling can cost less than landfilling or incineration.

Recycling protects our health and environment when harmful substances are removed from the waste stream.

Recycling conserves our natural resources because it reduces the need for raw materials.

A Closer Look At Recycling

A National Goal Of 25%

With everybody's help, recycling offers great promise for improved management of our trash. EPA has set a national goal of reducing and recycling 25% of our waste by 1992. Some communities have set similar goals and are on their way to achieving them, and others are just beginning recycling programs. Your support and involvement is essential to meet these goals. To start, you can encourage your local government and businesses to start recycling programs or expand their current ones, and to use recycled materials.

What Can We Recycle?

Paper—Newspaper, high grade office paper, and cardboard are recycled.

Yard Wastes—Grass, leaves, shrub and tree clippings are recycled by composting.

Glass—Bottles and jars are often separated by color: clear, green, and amber.

Aluminum—Beverage containers are recycled.

Other Metals—Tin cans, auto bodies, refrigerators, stoves, and batteries are some examples.

Used Motor Oil—Truck, tractor, and automobile crank case oil are recycled.

Plastics—Soda bottles, milk jugs, and detergent containers can be recycled.

What Do We Do With Our Recyclables?

Several kinds of collection programs are run by local governments, nonprofit organizations, and private enterprises.

Curbside collection is the most convenient way for a household to recycle. These programs offer scheduled pickups of separated, recyclable products from the curb—like trash collection. Unfortunately, curbside pickup is not available in many of our communities. Drop-off centers are sites set up for us to leave materials for recycling. These centers serve as convenient central pickup locations for processors or recyclers. Buy-back centers pay consumers for recyclable materials. In some communities, waste companies buy trash from offices, businesses, institutions, schools, and industries.

Let's Clean Up Our Act!

Recycle At Home!

Find out if there is a recycling program in your community.

If so, participate in the program by separating recyclables and taking them to your local drop-off or buy-back center or put them out for curbside pickup.

Don't throw away what you can use again—plastic containers can be used many times.

Compost yard cuttings and leaves.

If you change your own auto oil, take it to a local service station or recycling center.

Shop Smarter!

Avoid buying overpackaged products.

Buy products in containers that are recycled in your community, and things that can be repaired or reused.

Look for a recycling symbol on products you buy. Such symbols identify recycled or recyclable products.

Support recycling markets by buying products made from recycled material.

Get Involved!

Get involved in planning for your state and local solid waste management.

Inform government officials about the benefits of recycling.

Encourage state and local governments and businesses to recycle and to buy recycled material or recyclables.

Participate in or start a voluntary recycling program with a local college, church, union, or community service organization.

Organize a recycling program where you work.

Help to create new markets for recyclables.

How To Start!

Call the EPA Solid Waste Hotline at 1-800-424-9346 (in D.C., 382-3000) for additional information on how to contact recycling coordinators in your area.

Or call your state or local government or local waste hauler directly.

Office of Solid Waste
United States
Environmental Protection
Agency
401 M Street, S.W.
Washington, DC 20460

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Environmental Protection
Agency

October
EPA/530-

Office of Solid Waste

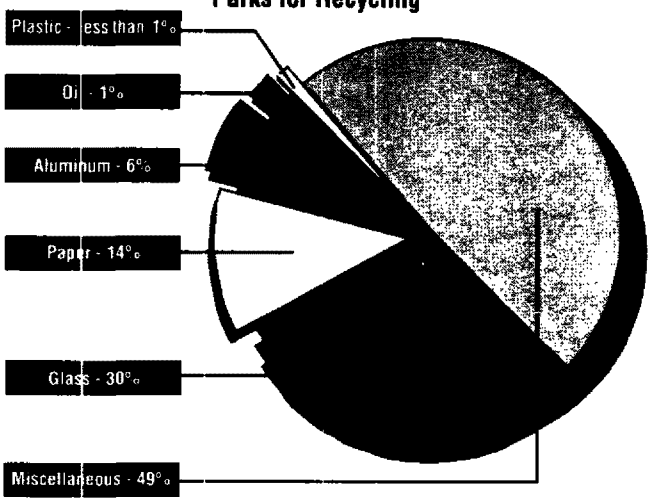
EPA Recycle

This brochure is printed on recycled paper.
The ink is free of lead and cadmium.

Recycling in National Parks

The U.S. Department of the Interior's National Park Service (NPS) has initiated recycling programs in national parks throughout the country. Over 100 national parks currently have recycling programs; this number is expected to grow as NPS implements a new, comprehensive solid waste management program. Materials collected at national parks each year include aluminum (over 76,000 pounds); glass (more than 345,000 pounds); paper (nearly 160,000 pounds); oil (over 12,000 pounds); plastic (730 pounds); and miscellaneous materials such as cardboard, chipboard, and newspaper (over 570,000 pounds). These recycling efforts are not only valuable to the Park Service, but also serve as excellent examples to the thousands of people who visit national parks each day.

Materials Collected Annually at National Parks for Recycling



Yosemite National Park, for example, has had an arrangement with its concessioner for over 12 years to jointly collect and recycle solid waste. The materials collected and recycled include aluminum, glass, paper, waste oil, plastics, and cardboard. The concessioner uses the profits from the recycling effort for special projects to benefit the park, such as revegetation of meadows. Another park, the Statue of Liberty National Monument (STLI), recently initiated a compost program for organic lawn wastes (such as grass clippings and leaves) which were previously sent to a landfill. The compost is an economical source of soil amendment for the park's horticultural needs, and reduces the solid waste generated at STLI by about 4 tons or 20 cubic yards per year.

In an innovative cooperative effort between government and industry, Dow Chemical Company is arranging for the collection, transportation, separation, and recycling of plastics, aluminum, and glass waste for selected national parks. Dow is also developing, in cooperation with NPS, a public education program aimed at encouraging park visitors to participate in the recycling effort. Pilot projects are beginning in 1990 at Acadia National Park, Great Smoky Mountains National Park, and Grand Canyon National Park.

Implementing Procurement Guidelines

To stimulate and strengthen the markets for recyclable materials, EPA has issued procurement guidelines requiring federal agencies, grantees, and contractors to buy certain products made of recycled materials. To date, guidelines have been issued for five product types: building insulation products, cement and concrete containing fly ash, paper and paper products, lubricating oils containing re-refined oils, and retread tires. Additional guidelines are also being planned. A number of federal agencies are now successfully implementing these procurement guidelines. For example, EPA buys recycled paper for printing 95 percent of all EPA publications. All of EPA's letterhead is also recycled paper.

The Joint Committee on Printing (JCP), the Congressional committee responsible for setting standards for printing paper bought by the federal government, recently issued specifications for government procurement of recycled paper. This action makes the federal government one of the largest purchasers of recycled photocopying, printing, and writing papers in the world. It also sends a message to the paper industry that the federal government (which buys about 2.5 percent of the paper industry's production, including 486,000 tons of printing paper each year) is a ready market for competitively priced recycled paper products. The first truckloads of newly purchased recycled copier paper will be delivered to EPA and several other federal agencies in the Washington, DC, area in the early fall of 1990.

Tools for Developing Successful Programs

A wealth of information and assistance is available to guide federal agencies that wish to begin or expand recycling efforts—collecting materials for recycling, procuring goods made with recycled materials, or both. The listing below describes several new resources that can help an agency make its recycling program a success.

Office Paper Recycling: An Implementation Manual

EPA Office of Solid Waste and Emergency Response

This EPA handbook provides detailed guidance for personnel responsible for developing and implementing office paper recovery programs. It includes information on assessing an agency's recycling potential, finding markets for paper, and educating employees. A case study of EPA's paper recovery program explains how that program became a success.

The manual is particularly useful for recycling coordinators in federal institutions and agencies since it explains federal regulations and policies, as well as the assistance available from the General Services Administration. In addition, the principles outlined in the manual would be helpful to anyone planning an office paper recovery program, including state and local government agencies, commercial businesses, and other private organizations.

To order, call the RCRA/Superfund Hotline at 1-800-424-9346 and ask for EPA/530-SW-90-001.

Developing a Comprehensive Federal Office Recycling Program

EPA Office of Administration and Resources Management

This handbook presents general information about developing and implementing an office recycling program (for paper, glass, aluminum, plastics, and other materials). It addresses the five key components of a comprehensive office recycling program: education, collection, marketing, procurement, and monitoring and evaluation. It

Many of EPA's regional offices also have active recycling programs. Region 4 (Atlanta, Georgia), for example, collected almost 139,000 pounds of paper, glass, and aluminum in the first year of its recycling program. Region 4 is also initiating a volunteer speakers program for outreach to schools and community and business groups. Region 7 (Kansas City, Kansas) is working to promote a "recycling ethic" through its program, which targets paper, aluminum, and laser toner cartridges.

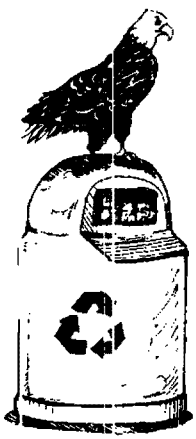
GSA's Federal Recycling Program

The General Services Administration (GSA) provides technical assistance to federal agencies in the Washington, DC, area in developing and implementing office recycling programs. GSA-assisted paper recycling programs are already operating, and programs for bottles and cans are planned to begin in the fall of 1990.

To date, GSA has assisted federal agencies establish paper recycling programs at over 140 locations. Employees use desktop collection containers to sort high-grade recyclable paper and empty these containers into centralized containers located in each office, copy center, or computer center. The custodial crew then takes the paper to a loading dock or appropriate storage area for pickup by a GSA contractor. Over 250,000 federal employees in the Washington, DC, area generate recyclable paper, and GSA expects to collect 25,000 to 30,000 tons of paper in FY 1990. As of May 1990, GSA had sold 212,000 desktop containers and 17,000 centralized containers for use by agencies in the DC area as well as several other regions. GSA also encourages agencies to collect lower grades of paper in large quantities, and will be expanding its program to include newspaper in the near future.

EPA's In-House Recycling Program

Since 1988, a group of volunteers at EPA Headquarters in Washington, DC, has worked to instill a recycling ethic in the Agency. EPA's office paper recovery program is now collecting an average of 65 tons of paper per month, sorted into *high-grade* (such as letterhead, publications, white copier, and computer paper), *low-grade* (such as colored paper and file folders), and *newspaper*. Each employee receives a two-part desktop container for the collection of high- and low-grade paper. Office areas are equipped with central collection bins where employees deposit the contents of their desktop containers. Copy centers are supplied with 44-gallon barrels for paper collection. Collection bins have also been set up for old newspapers.



A voluntary glass recycling program has also been initiated at EPA Headquarters. Seven glass collection containers or "igloos," provided to EPA by the DC Council of Churches and the Glass Packaging Institute, are located outside EPA's main building. These igloos are available for community as well as employee use; many residents drop off glass during the weekends. EPA is now the largest recycler of glass in the DC area, collecting 22,000 pounds of glass per month. Proceeds from the glass collection are shared by EPA and the Council of Churches. The funds received by EPA (about $2,500 in FY 1989) have been donated to EPA's Early Environments Child Daycare Center. Another component of EPA's in-house program is the aluminum can collection program begun in July 1990. An average of 500 pounds of aluminum cans are collected each month. Proceeds from aluminum can recycling also go to the daycare center.

The Agency also ran a 14-week program called "Operation Cleanup" during the spring/summer of 1990. Employees were asked to clean up their file cabinets and desks and separate their recyclables from the trash. Over 170 tons of recyclable paper were collected—more than twice the amount of trash collected during the cleanup. Reusable supplies (such as vinyl folders, computer paper, and file folders) also were collected and will be recycled through the Agency's supply store.

provides step-by-step guidance for beginning a recycling program as well as useful information for fine-tuning programs that are already operating.

To order, call the EPA Headquarters Recycling Office at (202) 382-6980.

Office Recycling Handbook

EPA and GSA – Region 5

This handbook provides a general introduction to office recycling, and describes the steps that make up a successful program: selecting a coordinator, evaluating the office's waste stream, deciding what materials to recycle, minimizing waste generation, and educating employees. Detailed appendices include information on topics such as waste collection options, waste hauling, commonly recycled materials, contaminants in the recycling stream, and sample kickoff memos. A list of helpful references and publications and a glossary of recycling terms are also included.

To order, contact the Waste Management Division of EPA Region 5 at (312) 886-0976.

Decision-maker's Guide to Solid Waste Management — Volume 1

EPA developed this Guide primarily to help state and local solid waste decision-makers. It should also assist managers of large federal installations and those interested in integrating federal recycling programs and local community programs. The Guide reflects the multi-faceted nature of today's evolving waste management technology. Volume 1, which is now available, contains information to help decision-makers understand and evaluate their current waste management problems. It also presents possible solutions, and describes the interrelationships among recycling and other waste management options. Volume 2, which is expected to be available in the winter of 1991, will

contain detailed information directed at managers responsible for implementing and integrating the chosen waste management approaches.

To order, call the RCRA/Superfund Hotline at 1-800-424-9346 and ask for EPA/530-SW-89-072.

Technical Assistance for Recycling Coordinators

EPA is developing training materials to educate recycling coordinators and building managers about what they need to know to develop, implement, and maintain a recycling program. These materials include course materials for seminars to train recycling coordinators and educational/promotional materials for individual employees, such as slide shows, posters, and brochures. In a series of pilot programs, EPA will help set up recycling programs in federal facilities and will monitor the success of the training and educational materials.

For more information, contact the U.S. EPA Office of Solid Waste at (202) 382-6261.

GSA Training Programs for Office Recycling

GSA provides technical assistance to federal agencies in the Washington, DC, area that are interested in developing recycling programs for office paper, newspaper, aluminum cans, and glass. GSA works one-on-one with federal agency representatives who wish to set up recycling programs, and provides additional training sessions, including a slide show and/or a video presentation, for individuals assigned to implement recycling within agency offices (or for all employees, if desired). GSA also offers use of existing waste hauling contracts for removal of recyclables.

For more information, contact GSA's Federal Recycling Program at (202) 501-0348.

Recycling: It Makes Sense...

In recent years, citizens, industry, and government at all levels have begun using innovative approaches to challenge the "throwaway" ethic that has dominated the nation's solid waste management practices. Recycling is an increasingly attractive option, and has gained support in communities across the country, because it can help conserve natural resources, reduce the amount of waste sent to landfills, reduce disposal costs, and provide an alternative source of raw materials for industry. As part of a nationwide strategy, the U.S. Environmental Protection Agency (EPA) set a goal of recycling and reducing at least 25 percent of the nation's solid waste by 1992. In many areas of the country, including the District of Columbia, state and local laws require that government agencies and private organizations recycle.

Federal agencies can play a strong leadership role in promoting recycling by setting up programs within their organizations that are positive examples for their local communities, other agencies, and the rest of the nation. The immediate benefits of such efforts can be impressive as well. Most federal offices, for example, could reduce their waste disposal costs by as much as 50 percent simply by separating out their high-grade office paper for recycling.

Collecting recyclable materials is only part of the recycling "loop," however. Procurement of recycled goods is also necessary to stimulate markets and complete the recycling "loop." EPA has established procurement guidelines requiring the federal government to buy certain products made from recycled materials. Many state and local governments are also actively procuring products made with recycled materials.

...And It Works

Many federal agencies have already implemented recycling programs; others are just beginning. This brochure describes several successful and innovative programs that have been initiated in the federal government, and lists some of the resources available to federal agencies to help them establish or expand a recycling program.

Federal Agency Recycling Conference

The Federal Agency Recycling Conference, cosponsored by EPA and GSA, is bringing together senior-level administrators from the 197 federal agencies in the Washington, DC, area to promote recycling, and to discuss regulations, policies, and issues regarding pollution prevention, waste management, and procurement of recycled goods in government agencies. A second conference will be held for directors of facilities and directors of procurement in federal agencies. It will provide detailed guidance for developing and implementing recycling and procurement programs.

For more information, contact the EPA Headquarters Recycling Office at (202) 382-6980.

Procurement Guidelines Hotline

EPA's procurement guidelines require the federal government to buy certain products made of recycled materials. EPA has established a telephone hotline to respond to questions about the guidelines from agencies, vendors, and the general public. Copies of the guidelines are also available through the hotline.

For more information, call the Procurement Guidelines Hotline at (703) 941-4452.

Recycling Is Doable!

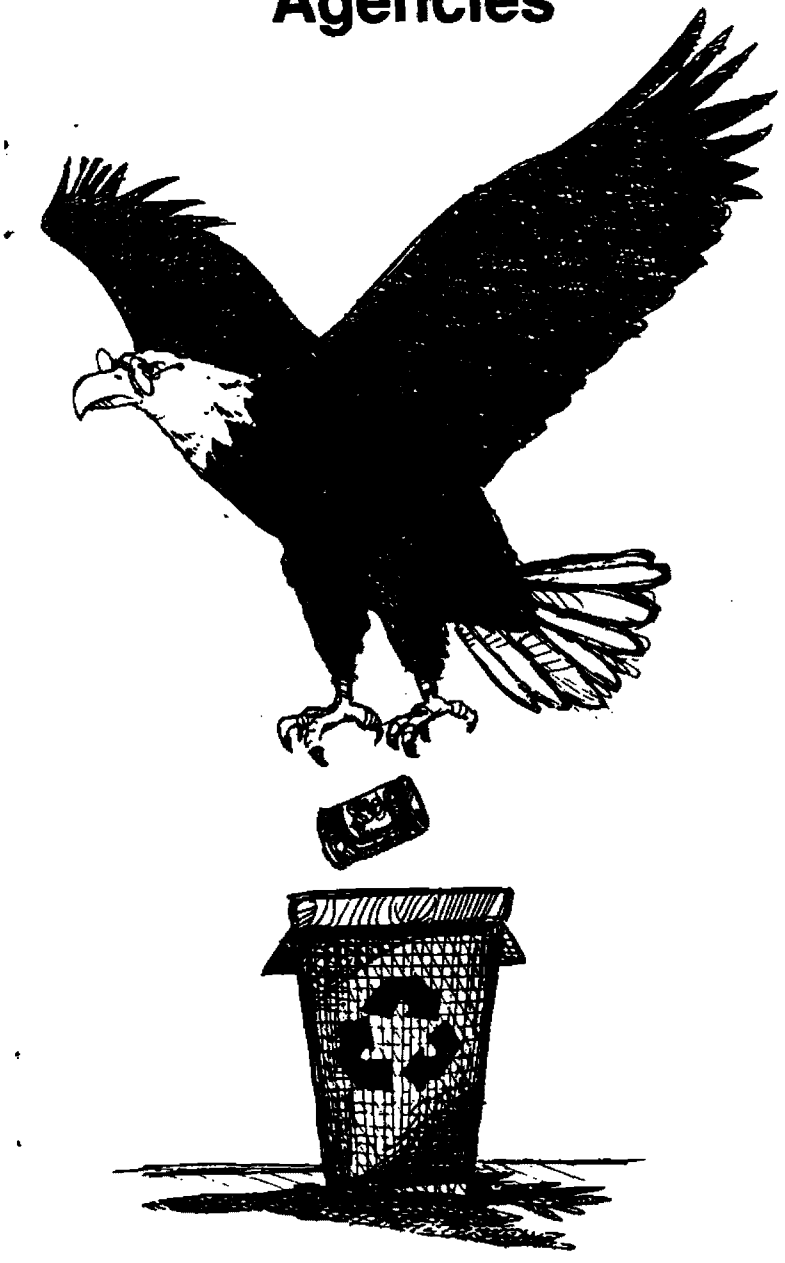
As demonstrated by the many successful programs being implemented in agencies across the country and the wealth of helpful resources, recycling can be done and done effectively. But collecting recyclable materials is not enough. Federal agencies must be knowledgeable about all aspects of developing, implementing, and operating a recycling program. They must also do their part to complete the recycling loop by buying products made from recycled materials. Through recycling and procurement, the federal community can lead the country in solving the solid waste dilemma.

United States
Environmental
Protection Agency

EPA/530-SW-90-082
October 1990

Solid Waste & Emergency Response (OS-305)

EPA Recycling in Federal Agencies



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