

# Commercial Waste Diversion Implementation Guide

**The Maryland Department of the Environment**

**In Cooperation with**



**Northeast Maryland Waste Disposal Authority  
Baltimore County Department of Public Works  
Harford County Department of Public Works**

**Supported by EPA Grant X1-99396**  **United States  
Environmental Protection Agency**



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January 2000

# **COMMERCIAL WASTE DIVERSION IMPLEMENTATION GUIDE**

## **PURPOSES OF THIS GUIDE**

- This guide summarizes a commercial waste diversion program that was conducted in Baltimore and Harford Counties, Maryland.
- This guide is designed to provide information and suggestions that may be useful to anyone attempting to create a similar commercial waste diversion project.

## **ACKNOWLEDGMENTS**

The subject commercial waste diversion program was funded by a Solid Waste Management Assistance Grant from the Environmental Protection Agency (EPA), Region III. Clifton Dowling, the project manager, wrote the guide. Special thanks for editing to Charles Reighart, Baltimore County Recycling Coordinator; Robert Ernst, Harford County Recycling Coordinator; Virginia Lipscomb, State and County Recycling Section Head, Recycling Services Division, Maryland Department of the Environment; Robin Davidov, Executive Director, Northeast Maryland Waste Disposal Authority and Christopher Skaggs, Program Manager, Northeast Maryland Waste Disposal Authority.

## **PART ONE: SUMMARY OF THE EPA GRANT PROJECT**

### **BACKGROUND ON THE PROJECT**

A Commercial Waste Diversion Program was conducted in Baltimore and Harford Counties, Maryland from November 1998 through November 1999. The Environmental Protection Agency (EPA), Region III sponsored the program through a Solid Waste Management Assistance Grant. The Maryland Department of the Environment (MDE), Recycling Services Division; the Northeast Maryland Waste Disposal Authority; the Baltimore County Department of Public Works, Bureau of Solid Waste Management and the Harford County Department of Public Works, Division of Environmental Affairs partnered on the program to increase source reduction and recycling of materials from commercial sources. The goal of the project was to divert commercially generated recyclable materials from disposal to recycling facilities.

### **PROJECT DESIGN**

The basic concept of the project was to observe loads of commercial waste as they were being dumped and attempt to identify companies that were disposing of significant quantities of recyclable materials. The companies thus identified were contacted and a site visit was requested. The purpose of a site visit was to review the company's current waste

disposal practices and to suggest source reduction and recycling options that could improve the company's bottom line through avoided disposal costs and income from the sale of recyclable materials.

## **PROJECT RESULTS**

- 2,584 loads of trash were observed as they were tipped.
- 118 companies, institutions or government agencies were identified as potential organizations to visit.
- 40 companies were visited during the course of the project.
- 9 companies or organizations were helped to start new recycling programs or expand existing programs. 5 were in Baltimore County and 4 were in Harford County.
- It is estimated that more than 648 tons of material were diverted from disposal. Note that it proved extremely difficult to obtain tonnage figures from the companies assisted. Some of the companies have only recently initiated a new or expanded program, so their numbers are projections for a year. This is a very conservative estimate; the actual results may be considerably higher.
- It is estimated that the above tonnage diversion will result in a total savings to the participants of at least \$37,236.

## **LESSONS LEARNED**

- This program required a lot of salesmanship and persistence. You must be prepared to make very specific recommendations.
- Most of the large companies visited already were recycling. Many had a comprehensive, company-wide recycling program. Most had balers or compactors for cardboard. In particular, the recyclable cardboard in trash originating from these companies was the result of contamination, employee error or other aberrations.
- A lot of previously uncounted recycling was discovered as a result of this project. Many companies visited already had good recycling programs in place, but they were sending recyclable materials to processors previously unknown to local officials who are charged with forwarding recycling tonnage data to the Maryland Department of the Environment as a requirement of the Maryland Recycling Act of 1988.

## RECOMMENDATIONS

- Companies that already have strong recycling programs still need to reinforce their efforts on a regular basis. Managers who think that they have good recycling programs in place are frequently surprised to learn that significant amounts of the materials that they recycle still end up in the waste stream. Employees must be reminded periodically of the importance and value of their recycling efforts. Even good programs need to be reviewed from time to time to examine their potential for improvement.
- Company policy makers must be educated about the market value of materials that their companies are paying to discard. Some company managers are unaware of the value of the materials that they are paying to have disposed by conventional trash hauling services. For example, it was frequently observed during the course of the pilot project that companies were source separating cardboard and still paying to have it removed. They might be getting a discount for separating it into a separate container, but they were getting no rebate for it even when markets were strong. In October of 1999, local brokers were offering \$85 per ton for baled cardboard; in addition, they provided transportation. In spite of this relatively good price, many generators of large volumes were still paying to dispose of cardboard that they were source separating.
- Companies need to be informed that a good recycling program will be worth the effort in terms of their bottom lines. Enlightened self-interest may be the best motivator for change in waste handling practices. Sometimes businesses may need to invest in equipment such as a baler or a pallet jack, but the financial benefit can be significant. Suggest that companies can encourage employees to participate in recycling programs by dedicating part of the cost savings or income from recycling to a company picnic fund or other reward program.
- A constantly updated database of recycling companies serving local businesses is required to track the amounts of materials that are recycled. A current database is also a very useful tool for market development. It expedites the effort to help businesses to find markets for the materials that they generate. It needs to include processors, brokers, reuse companies and manufacturers who use large quantities of recycled materials. It can then help to match supply from recycling processors with demand from manufacturers who use recycled materials.

If a database of recycling businesses serving your jurisdiction does not exist, it is time to start building one. You can begin by consulting the local yellow pages, but note that some companies may deal with processors located out of state. Another strategy for adding to your list of processors is to ask your local economic development office for a list of the top 25 or 30 employers in your jurisdiction. Send them a form letter asking if they currently recycle and, if so, where the material is processed.

- Putting information about recycling businesses on the Internet can help to expand and update your database. Create a web site that lists categories of materials and the recycling companies that accept them. It can be used to refer business people and the public to recycling companies that handle specific materials. It also can incorporate a response feature to solicit additions and corrections concerning listed companies. A government recycling agency or a private sector organization can maintain this web site. (The web site used for this project was developed by the Northeast Maryland Waste Disposal Authority and used information provided by the Maryland Department of the Environment. You can check it out at [www.mdrecycles.org](http://www.mdrecycles.org).)

## CONCLUSIONS

If your jurisdiction has a well-established recycling program, most of the businesses identified through an inspection of commercial loads at a waste acceptance site will probably have recycling programs in place. This method may have more potential for use in localities with newer recycling programs. Working with local economic development offices to identify the largest employers in the jurisdiction may be a more efficient approach for older, well-established programs.

The subject project led to the discovery of significant amounts of unreported recycling tonnage and unknown markets, often out-of-state. An expanded effort to discover and document previously uncounted recycling can obviously contribute to an increase in current recycling rates. It also can provide useful insight for the development of new approaches that may be required to go significantly beyond the "plateau" that seems to develop in many jurisdictions as recycling rates go above the thirty percent mark.

The project provided significant insight into local market dynamics that can be used to develop a more sophisticated paradigm of the system that moves recyclable materials through our economy. Increased understanding of recycling market dynamics can be used to develop new strategies and programs to increase the current recycling rate.

The experience gained from this project indicates that the approach outlined above will probably reveal many new recycling processors to contact for MRA reports. It definitely will increase our understanding of the dynamics of local recycling markets. It also will increase the communication between local recycling offices and the business community. This becomes increasingly important, as we look more to the commercial sector to increase recycling rates.

# **PART TWO: HOW TO DO YOUR OWN COMMERCIAL WASTE DIVERSION PROJECT**

## **GETTING STARTED**

This Guide presents a six-step program to implement a commercial waste diversion program in your jurisdiction. The sequence and scope of the steps may vary according to your needs and resources. It is important to develop a flexible implementation plan that can readily adapt to unanticipated circumstances. The following sections include some notes and observations that may help you to get started.

### **STEP 1: RESEARCH PHASE**

Your chances to convince the appropriate personnel in a company or organization to cross the threshold from inertia to action increase as you increase your ability to provide detailed waste reduction and recycling options.

- **DO YOUR HOMEWORK**

Learn as much as possible about local processors and haulers. You will need a detailed list of the local recycling processors. It helps considerably if you know where they are located, the materials that they accept and the specific services that they can provide. For example, it helps to know which processors provide a pick-up service or which haulers can provide a separate container for cardboard. A computerized database is a major asset in this effort.

A Microsoft Access database listing recycling companies serving Maryland was used for the pilot program. The database lists recycling processors, brokers and reuse companies in alphabetical order. It contains their addresses, telephone numbers and fax numbers. It also lists the materials that they accept and other pertinent information, such as whether or not they provide pickup service.

It helps to be familiar with the different types of containers used to store and haul trash and recyclable materials. For example, learn to be able to identify a thirty cubic-yard self-contained compactor or an eight cubic-yard dumpster. This knowledge will help you to estimate tonnage figures. Frequently the person who escorts you on a site visit will not know specifics about the types of containers used for solid waste by their company.

- **BE PREPARED TO DO THEIR HOMEWORK**

Remember that you must make it as easy as possible for the businesses that you contact to take action. The more homework you can do for them the better. For example, if you determine that a company could profitably compact or bale cardboard, try to provide a detailed list of the closest processors that accept cardboard and that may lease or loan the appropriate equipment. Be able to explain when it becomes cost-effective to purchase a baler. Be prepared to explain how to find a baler vendor and how much balers cost.

## STEP 2: RESOURCES DEVELOPMENT PHASE

Information is your stock in trade for this project. Prepare for site visits by compiling the handouts that you will need to help a company to establish or improve a recycling program.

- **USE THE DATABASE LISTING LOCAL RECYCLING PROCESSORS**

An easily used database allows you to customize lists of recycling service providers for the specific needs of each company that you visit. Such lists are part of the resources that you can provide to a company to facilitate the development of a recycling program.

Use the database to prepare queries and reports that can be readily printed to list all of the companies that accept specific materials. Some reports can list the companies that provide specific services, such as paper pickup service for offices. (The database used for the project in Maryland also lists some manufacturing companies that are large volume users of recycled materials. That makes the database a useful, market development tool for matching supply with demand for recycled materials.) A sample report listing companies that provide a paper pickup service is included as Appendix A.

- **COLLECT ADDITIONAL MATERIALS FOR HANDOUTS**

Other resources developed for the pilot project included two short primers on how to recycle old corrugated containers and wood pallets. These were designed to help a layman to negotiate with recycling company personnel. Copies of these primers are included in this guide as Appendices B and C.

A pamphlet published by the EPA, Business Guide for Reducing Solid Waste, could be included in the resources package. This document contains a section on how to conduct a waste assessment and an appendix with a volume-to-weight conversion table for estimating weights of commonly recycled materials.

A brochure from The Millennium Exchange, Ltd., a regional industrial materials exchange was included in the resources package for manufacturing businesses.

## STEP 3: OBSERVATION PHASE

The close observation of loads of solid waste as they are being tipped is inherently a relatively dangerous activity. Every landfill, waste-to-energy facility and transfer station has a unique configuration and special safety concerns. They all, however, share basic hazards.

- **SAFETY FIRST!**

Proper safety equipment and training are necessary. Safety equipment includes steel-toed safety boots, a hardhat, an orange safety vest and heavy gloves. Hepatitis shots and a tetanus booster shot are advised. Training should include an orientation to the specific site or sites where inspections will be done. It should include familiarization with the kinds of maneuvers made by the heavy equipment used at the site.

The inspector is exposed to hazards generated by a variety of garbage trucks and heavy equipment maneuvering in close proximity. For example, it is important to know to which side a roll-off door will swing open. Frequently, several vehicles are moving simultaneously in close quarters on a landfill face or in a building where poor lighting, dust and high piles of trash may restrict an operator's view of the tipping floor. The inspector can not afford to be distracted when looking for an address in a pile of garbage.

- **IDENTIFY COMPANIES TO TARGET FOR A VISIT**

When you observe a significant amount of recyclable material in the waste stream, make an effort to determine the generating company. This effort can include talking to truck drivers and site personnel as well as looking for names and addresses on boxes or envelopes. Use telephone directories to find the telephone numbers and addresses of the companies identified.

Since most companies have their trash removed at least weekly, repetition quickly develops regarding individual companies observed to be consistent generators of significant amounts of recyclable materials in their waste streams. It is therefore relatively easy to compile a list of the companies that are the most likely candidates for a site visit. Relatively few companies, however, were observed to dispose of large quantities of recyclable materials on a steady basis.

More often, noticeable amounts of recyclable materials were observed to come from a specific company only once or infrequently. When visited, these companies usually had a strong recycling program in place. There were usually aberrations to explain occasional lapses by companies that already have recycling programs in place. Frequently the quantity of recyclable material observed in the trash is relatively small when compared to the total amount actually generated and the percentage recycled.

- **BUILD A DATABASE OF TARGETED COMPANIES**

Develop a second database to list the companies that were targeted for a site visit. List companies by name in alphabetical order. Include addresses, phone numbers and the amounts and kinds of recyclable materials observed in the waste stream. This database will help you to track the progress of the project.

## **STEP 4: CONTACT PHASE**

[Contact the companies identified in step three and request a site visit. This can be accomplished by writing them a letter explaining the project or by calling and asking to speak to the manager or recycling coordinator.](#)

- **SELL THEM ON RECYCLING**

Be clear from the start, this endeavor requires salesmanship. You are asking someone to give you some of their time so that you will have an opportunity to convince them to

change corporate habits. It will help if you prepare a clearly stated sales presentation. Remember that you are asking them to voluntarily institute change.

One of the best ways to get a company's attention is to tell the company management that you may be able to help them to improve their bottom line. The company may be paying to dispose of materials that can be sold to a recycling business. Even when the company cannot sell the material, avoiding waste disposal costs may save money. The opportunity to improve the company's bottom line is the greatest motivator you have.

- **TALK TO THE RIGHT PERSON**

Every site visit is different. You may eventually contact a large variety of businesses that will vary significantly in size, activity and the scope of operations. Sometimes the company representative will be well informed about the company's solid waste program; sometimes they will not. Attempt to deal with the manager or someone that they appoint as the company representative. Try to communicate directly with the person who ultimately decides how the company disposes of "waste" materials. Make an effort to meet with someone that understands the logistics involved and is familiar with or can access the billing information for solid waste services. You may want to send a preliminary recycling survey form to your contact person and ask them to complete it prior to your visit. A sample Recycling Survey Form for businesses is attached as Appendix D.

- **ASK TO DO A WASTE ASSESSMENT**

Ask for the opportunity to make a waste assessment of the facility. Try to arrange a walk-through of the facility. Ask the person who will serve as the company liaison for your visit to have recent invoices for solid waste disposal available. If you are going to help a company to improve their bottom line through avoided waste disposal costs, it helps considerably to know what those costs are. The invoices also will allow you to get an account of the total tonnage disposed. However, for a variety of reasons, solid waste invoices usually are not made available readily, so be prepared to estimate tonnage figures from the size of the containers and frequency of pickup.

## **STEP 5: SITE VISIT PHASE**

The success of your visit will be influenced by how readily you can develop the information required to make cost-effective recommendations.

- **KEEP YOUR VISIT SHORT AND FOCUSED**

A waste assessment can involve the examination of facility records, a facility walk-through or a waste sort. Frequently the person who agrees to meet with you will not have a great deal of time to spend with you, so keep your visit short and focused. A facility walk-through is a relatively quick way to evaluate a facility's waste-handling practices. It may help to have a form to fill out that lists the materials generated at the site visited. A sample Site Visit Form for Materials is attached as Appendix E.

- CHECK THE CONTAINERS

Be sure to note the types of containers used for solid waste. You probably won't have time to do an actual waste sort, but take a look in the containers to check for significant amounts of recyclable materials. Ask how frequently the containers are emptied. If the disposal invoices aren't forthcoming, this may be your only means of estimating the tonnage figures for materials disposed. The knowledge you gained from familiarizing yourself with the various types of containers during the research phase of the project will be useful in this effort.

- FOCUS ON MATERIALS OBSERVED

Since you may not be given a great deal of time for your site visit, try to focus on the materials previously observed in the waste stream that you want to see recycled. Take along information on recycling those specific materials. A short list of local processors will be useful. Try to customize your resources package to the needs of the company visited. Remember that you need to make this entire process as easy as possible for the company personnel involved if you want to maximize participation.

## STEP 6: FOLLOW-UP PHASE

Bear in mind that the business people that you contact are probably not experts in recycling or solid waste management. Let them know that you are available as a resource person.

- OFFER TO DO MORE HOMEWORK FOR THEM

Offer to do as much homework for them as possible. Make your recommendations as specific as possible. Make it simple and easy for them to follow up on your suggestions. Send a follow-up letter with specific recommendations and additional lists of processors in the area that handle the specific materials that they generate. Be even more specific if a particular processor offers a specialized service that could make it easier for a company to get started.

- STAY IN TOUCH

Call each company visited after one or two months to see how they are doing. Offer to visit again or to provide additional information. Call some of the companies that previously turned down a site visit. They may have had a change of heart or of personnel.

- MONITOR RESULTS

You will want to add new tonnage data to your collection system for recycling tonnage information.

## **APPENDICES**

**APPENDIX A**  
**PAPER PICKUP SERVICE COMPANIES**

APPENDIX A

# PAPER PICKUP SERVICE

NAME	BUSINESS TYPE	PRODUCT	MATERIALS ACCEPTED	OTHER INFORMATION
<b>Applegate Manufacturing, Inc.</b> PO Box 489 Scotland PA 17201 <b>PHONE</b> (717) 709-0533 <b>FAX</b> (717) 709-0870	Manufacturer	Cellulose insulation and hydroseeding mulch	Old News Paper	Accept only old newspaper. No Plastic bags or wet paper. Drop off. Will pick up trailer loads.
<b>Athelas National Recovery Institute</b> 9545 Gerwig Lane Columbia MD 21046 <b>PHONE</b> (410) 964-1241 <b>FAX</b> (410) 964-3140	Processor - Document Destruction Service	Document Destruction Service, P. C. White Ledger Paper, P. C. O. M.	Mixed Office Paper, High Grade Office Paper	They will help businesses to set up paper recycling. Pick-up service. Offer shredding service for confidential information.
<b>Browning Ferris Industries, Inc</b> 5800 Chemical Road Baltimore MD 21226 <b>PHONE</b> (410) 354-3000 <b>FAX</b>	Processor - Material Recovery Facility	Recycled Commodities	Mixed Paper, Old Corrugated Cardboard, High Grade Office Paper, Glass bottles and Jars, Plastic, Aluminum Cans	Material Recovery Facility and trash transfer station
<b>Browning Ferris Industries, Inc.</b> 11710 Green Castle Pike Hagerstown MD 21740 <b>PHONE</b> (301) 223-5952 <b>FAX</b> (301) 223-6091	Processor - Material Recovery Facility	ISRI Scrap Grades	Mixed Paper, Old Corrugated Cardboard, High Grade Office Paper, Aluminum Cans, Glass Bottles and Jars, Steel Cans, Plastic Bottles, HDPE, PET, Printers' Waste	Materials recovery facility.
<b>CANUSA Corporation</b> 1616 Shakespeare Street Baltimore MD 21231 <b>PHONE</b> (410) 522-0110 <b>FAX</b> (410) 732-8569	Broker - Paper - Processor	Service - Brokers Paper	All Paper Grades	Little pick up. Process and store paper at Canusa Recycling in Baltimore.

<b>NAME</b>	<b>BUSINESS TYPE</b>	<b>PRODUCT</b>	<b>MATERIALS ACCEPTED</b>	<b>OTHER INFORMATION</b>
<b>Cheek Industries</b> 2012 Reservoir Road Dundalk MD 21222 <b>PHONE</b> (410) 477-0100 <b>FAX</b>	Processor	Recycled Materials	Mixed Paper, Old Corrugated Cardboard, Aluminum Cans, Plastic, Scrap Metal	Pick-up from businesses
<b>Document Destructors, Inc.</b> 7370 C Lockport Place Lorton VA 22079 <b>PHONE</b> (410) 727-3010 <b>FAX</b> (703) 550-2435	Processor - Document Destruction Service	Document Destruction Service, Office Grade Paper	Office Paper, Microfiche, Hard Drives	Pick-up service. This is a document destruction service that shreds sensitive papers and recycles the paper through a broker. They also destroy documents on microfiche, diskettes and hard drives. Only paper is currently recycled.
<b>Eagle Management Systems, Inc.</b> 6130 N. Capitol Street NW Washington DC 20011 <b>PHONE</b> (202) 291-0200 <b>FAX</b> (202) 291-4715	Processor	Recycled Commodities, Paper, Glass, Plastic, Cardboard, Tin, Steel Cans, Aluminum Cans	Mixed Paper, Old Corrugated Cardboard, Phone Books, Steel Cans, Aluminum Cans, Aluminum Scrap, Glass Bottles and Jars, Plastic 1 and 2, CPO	Pick-up service
<b>Hanna Paper Recycling (Mid Atlantic), Inc.</b> 8840 Greenwood Place Savage MD 20763 <b>PHONE</b> (301) 604-3302 <b>FAX</b> (301) 604-0349	Processor - Paper Stock Dealer	PSI Paper Grades	High Grade Office Paper, Preconsumer Paper, Computer Printout, Old Corrugated Cardboard	Pick-up service. Provide recycling containers. No mixed paper.
<b>Metro Re-Uz-It</b> 3401 Kenilworth Avenue Hyattsville MD 20781 <b>PHONE</b> (301) 699-1616 <b>FAX</b> (301) 699-1619	Processor - Document Destruction Service	Mixed Paper, Old Corrugated Cardboard, Non-Ferrous Scrap, Document Destruction Service	Non-Ferrous Metals, Mixed Paper, Old Corrugated Cardboard	They accept small quantities of steel, under 1000 lbs. Document destruction service. Pick-up service.

NAME	BUSINESS TYPE	PRODUCT	MATERIALS ACCEPTED	OTHER INFORMATION
<b>Mon Recycle, Inc.</b> P.O. Box 996 Morgantown WV 26507 <b>PHONE</b> (304) 598-2852 <b>FAX</b> (304) 598-2852	Processor - Document Destruction Service	ISRI Paper Stock Grades. Glass, Plastic, Scrap Aluminum, Steel Cans, Document Destruction Service	Mixed Paper, Old Corrugated Cardboard, Glass Bottles and Jars, Plastic Bottles, Aluminum Cans, Steel Cans, Old Newspaper	Provide confidential destruction of records, shredding service. Pick-up Service
<b>Office Paper Systems, Inc.</b> 7650 Airpark Road Gaithersburg MD 20879-4156 <b>PHONE</b> (301) 948-6301 <b>FAX</b> (301) 948-6302	Processor - Paper Stock Dealer - Document Destruction Service	ISRI Scrap Paper Grades, Refurbished Pallets, Document Destruction Service	Mixed Paper, Old Corrugated Cardboard, High Grade Office Paper, Aluminum Cans, Steel Cans, Aluminum Scrap, Computer Print Out Paper, Wood Pallets	Third-party roll-off and pick- up service. New paper stock dealer. Offer document destruction service.
<b>Paper Stock Dealers, Inc.</b> 4501 46th St. P.O. Box 406 Bladensburg MD 20710 <b>PHONE</b> (301) 864-1200 <b>FAX</b> (301) 779-3746	Processor - Material Recovery Facility	Baled Paper and Cardboard	Old Corrugated Cardboard, Glass Bottles and Jars, Aluminum Cans, Mixed Paper, Old Newspaper, Print Shop Scrap	Some roll-off and pick-up service.
<b>Paper Stock Dealers, Inc.</b> 14820 Southlawn Lane Rockville MD 20850 <b>PHONE</b> (301) 762-6990 <b>FAX</b> (301) 762-3906	Service - Processor - Paper Stock Dealer	Baled Paper and Cardboard	Old Corrugated Cardboard, High Grade Office Paper, Commercial Pre-Consumer Paper Grades	Some roll-off and pick-up service.
<b>Shred-it</b> 9090 Junction Drive, Suite1 Annapolis Junction MD 20701 <b>PHONE</b> (410) 792-9984 <b>FAX</b> (410) 792-4996	Processor - Document Destruction Service	Document Destruction Service, Paper, Miscellaneous Materials	Paper, Miscellaneous Items for Shredding	Document destruction service. They have a mobile unit that can shred on site. Can shred practically anything that is not a liquid. They provide certificate of destruction.

NAME	BUSINESS TYPE	PRODUCT	MATERIALS ACCEPTED	OTHER INFORMATION
<b>Universal Recycling, Inc.</b> 5300 Tuxedo Road Hyattsville MD 20781 <b>PHONE</b> (301) 322-4200 <b>FAX</b> (301) 322-2626	Processor - Paper Stock Dealer	ISRI paper grades	Pre-Consumer Paper (Printers' Scrap), High Grade Office Paper, Old Corrugated Cardboard, Aluminum Cans	Drof-off, buy-back, some pick up.
<b>USA Waste Services</b> 9020 Edgewood Drive Capitol Heights MD 20743 <b>PHONE</b> (301) 336-5932 <b>FAX</b> (301) 336-5930	Processor - Material Recovery Facility	ISRI scrap grades	Mixed Paper, High Grade Office Paper, Old Corrugated Cardboard, Aluminum Cans, Glass Bottles and Jars, Steel Cans, Plastic Bottles, Copper, Brass, Aluminum	Materials recovery facility. Also serves commercial accounts. Pick-up.
<b>Vangel Paper, Inc.</b> 50 Alco Place Baltimore MD 21227-2004 <b>PHONE</b> (410) 536-4354 <b>FAX</b> (410) 536-0233	Processor - Paper Stock Dealer	ISRI paper stock grades	Mixed Paper, Old Corrugated Cardboard, High Grade Office Paper, Computer Print Out Paper, Aluminum Cans	Provides assistance in developing recycling programs to businesses, serves commercial printers and other industrial sources of paper.
<b>World Recycling, Inc.</b> 5600 Columbia Park Road Cheverly MD 20785 <b>PHONE</b> (301) 386-3010 <b>FAX</b> (301) 322-2896	Processor - Paper Stock Dealer	ISRI paper stock grades. Small quantities of aluminum & glass.	Office Paper, OCC, UBCs and Glass Containers. Min building size for office service: 75k SF or 300 employees	Min Building size for office service: 75K SF or 300 employees

**APPENDIX B**  
**OLD CORRUGATED CARDBOARD PRIMER**

## APPENDIX B

### OLD CORRUGATED CARDBOARD PRIMER

Here is some information about old corrugated cardboard (OCC) that will help you to recycle it in a cost-effective manner. Dealing with a company that specializes in the recycling of paper and cardboard may save you money. Keep in mind what you are currently paying in hauling charges and tipping fees for conventional trash disposal. You could be getting paid for your cardboard while at the same time saving money by reducing or eliminating hauling costs and avoiding disposal fees.

Many companies accept paper and cardboard, but the quantity and quality of the material, as well as the frequency with which a given quantity is generated, will determine the price and cost for transportation. Old Corrugated Cardboard is traded as a commodity, so the price will fluctuate. The financial arrangements for each transaction may be made on a case-by-case basis or you may negotiate a long-term contract. You will be better prepared to negotiate and expedite the best deal for yourself or your company if you know what the paper/cardboard company representatives want.

#### CONSTRUCTION

- Corrugated cardboard is made with two sheets forming the outer walls of a section which are held together and reinforced by a third sheet which is configured between them to form a series of small valleys and ridges. This construction produces the corrugated appearance inside a cross section. When you look into the edge of a section of corrugated cardboard you will see the wavy center sheet forming a series of alternately facing semicircles which are the edges of parallel half-tubes between the outer walls. This configuration gives corrugated cardboard its relative strength and thickness.

#### CONDITION

- The old corrugated cardboard (OCC) that you market should be free of all other materials, which are known in recycling jargon as contaminants. Your OCC also should be dry. It is best to store it indoors or at least under cover. Most recycling companies do not accept contaminated or wet cardboard. If it is damp, they may take it with a price reduction.

#### SHIPPING CONFIGURATION: LOOSE, COMPACTED OR BALED

- Buyers pay a premium price for compacted or baled OCC. Some companies will not deal in loose cardboard. Your OCC will be worth much more if you compress it with a compactor or bale it. You may choose to compact or bale your OCC if you regularly generate a sufficient quantity in a short enough time to make this a cost-effective choice. Depending on your volume, you may be able to negotiate with a recycling company to place a compactor or baler at your location. This could take the form of a lease arrangement or a reduction in the price per ton that

you are paid. A straight purchase of a compactor or baler also may work for you, again depending on the volume of OCC that you generate.

- One cubic yard of loose cardboard weighs approximately 50 to 150 pounds.  
One cubic yard of compacted cardboard weighs approximately 300 to 500 pounds.  
One cubic yard of baled cardboard weighs approximately 700 to 1,100 pounds.
- A standard waste hauling service can haul OCC that is compacted into a roll-off. A chute can be installed in the wall of your building so that it feeds the compactor from inside the building. The compactor may be separate from the roll-off that it feeds or it may be built into it. A unit that has the compactor built right into the roll-off is called a self-contained compactor. The compactor is part of the roll-off and the entire unit is picked up when it is emptied.
- If you elect to bale cardboard, you will need equipment to move the bales. Even the bales from a small baler may weigh approximately 800 pounds. You will need a forklift, skidloader or pallet jack to move them.

## **TRANSPORTATION**

- Transportation is a major consideration when establishing a market for your OCC. Many buyers will provide transportation for a minimum volume. If negotiating transportation for OCC by the trailer load, make sure you are clear about who is responsible to load and unload the trailer.

Written by Clifton M. Dowling

Supported by a Grant from the United States Environmental Protection Agency through the Maryland Department of the Environment

January 1999

**APPENDIX C**  
**WOOD PALLETS PRIMER**

## APPENDIX C

### WOOD PALLETS PRIMER

Here is some information about wood pallets that will help you to recycle them in a cost-effective manner. Dealing with a company that specializes in the recycling or reuse of wood pallets may save you money. Keep in mind what you are currently paying in hauling charges and tipping fees for conventional trash disposal. Even if you don't get paid for the pallets you may save money by reducing or eliminating hauling costs and reducing or avoiding disposal fees.

Many companies take wood pallets, but the size, condition and quantity of the pallets, as well as who sorts and transports them, may determine the difference between being paid a small amount for each pallet or having to pay a hauling or disposal fee. Since the variables just noted will determine the financial arrangements, each transaction involving wood pallets may be made on a case-by-case basis.

Reusable, standard-sized pallets have the most value. Damaged pallets are sometimes refurbished, but badly damaged, non-standard sizes and special-use pallets are generally good only for grinding into mulch. Some companies are simply not interested in broken or odd-sized pallets. You will be better prepared to negotiate and expedite the best deal for yourself or your company if you know what the pallet company representatives want.

#### CONSTRUCTION

- The pallet company people are looking for pallets constructed of hardwood, not pine.
- The basic components of wood pallets are deck boards and runners. Runners are also called stringers.
- Deck boards are the boards that comprise the tops and bottoms of the pallets. Deck boards should be three fourths (3/4") or five eighths (5/8") of an inch thick. Pallets with one half (1/2") inch thick deck boards are considered throwaway pallets.
- Runners (stringers) are usually two-by-four (2"x4") inch boards. They are the boards positioned on edge between the top and bottom deck boards. Ordinarily, there are three runners that are placed perpendicular to the deck boards. The deck boards are nailed to the runners to tie the pallet together. The deck boards should be flush with the outside edges of the outer two-by-four runners; they should not protrude over the edges. The runners support the deck boards like floor joists and are spaced with one on each end and one in the center. This configuration provides a space for the forks of a forklift to enter the pallet to lift it.
- A 4-way pallet is one which has two notches cut into the bottoms of each of the runners to

accommodate the forks of a forklift so that the pallet may be picked up by a forklift from any of the four sides. This feature increases the value of the pallet. Pallets that lack the notches in the runners are 2-way pallets.

## **SIZE**

- A wood pallet is measured by stating the length and width of the deck surface in inches. The dimension along the length of the runners (stringers) is always quoted first. Thus dimensions of 48"x40" means the pallet has 48" runners, while dimensions of 40"x48" means that the pallet has 40" runners.
- The industry standard for wood pallets is a 4-way 48"x40" pallet. Perhaps 90% of reusable pallets will be this size. Ordinarily a premium price will be paid for good reusable pallets of this size. Another standard size is 40"x48". The Government Printing Office uses pallets of this size, which are known in the trade as GPO pallets. 48"x48" is another standard size. 48"x48" pallets are sometimes referred to as drum pallets because they are used to support 55-gallon drums. Ordinarily, pallets that are not these sizes or are 2-way pallets are worth considerably less.
- Other, less common, sizes include 48"x42", 48"x40" 2-way, 42"x42", 40"x40", 36"x36" and 36"x42". Other odd sizes are considered special-use pallets and are not considered reusable. Some pallet companies may still take them for grinding into mulch.

## **TRANSPORTATION**

- Most pallet companies will expect you to transport the pallets to them. They may provide transportation for minimum amounts. The minimum amount may be 100 or 200 pallets or perhaps a tractor-trailer load. The minimum could be less. Transportation is frequently negotiable depending on the quantity and quality of the pallets and the frequency with which a given quantity and quality is shipped.

## **SORTING**

- Since size and condition are important factors in determining the value of pallets, pallet companies place a premium value on pre-sorted loads. A company will probably charge transportation costs and/or a disposal fee to haul mixed loads. Even if you haul a mixed load yourself there may be a disposal fee. It still may prove cheaper to deal with a pallet company than pay conventional solid waste disposal costs.

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January 1999

**APPENDIX D**  
**RECYCLING SURVEY FORM FOR BUSINESSES**

**APPENDIX D**

**RECYCLING SURVEY FORM FOR BUSINESSES**

FIRM NAME:

ADDRESS:

CONTACT PERSON:

PHONE:

1. Does your company currently recycle any waste materials?

2. Current Waste Hauler (Circle one):

Self haul using company vehicles

Contract with hauler

3. How do you pay for trash removal? (Circle one)

By the pull

By the ton

A different billing system

4. Where are any recycled materials sent?

5. Approximately how much waste is generated at your site? Please state in volume and frequency, such as "30 cubic yards per week" or "5 tons per month"

6. Does your company purchase any recycled materials? If so, please list.

**RECYCLING SURVEY FORM FOR BUSINESSES  
MATERIALS SECTION**

1. If you currently recycle, please estimate approximate quantities (in pounds per week, per month or per year)

	Weekly	Monthly	Yearly
Cardboard	_____	_____	_____
Office/Computer Paper	_____	_____	_____
Mixed Paper	_____	_____	_____
Newspaper	_____	_____	_____
Glass	_____	_____	_____
Ferrous Metals (Iron/Steel)	_____	_____	_____
Aluminum	_____	_____	_____
Other Non-Ferrous Metals (Copper/Brass)	_____	_____	_____
Plastics	_____	_____	_____
Wood Pallets	_____	_____	_____
Yard Waste	_____	_____	_____
Rubber	_____	_____	_____
Textiles	_____	_____	_____
Other	_____	_____	_____

2. Whether or not your company recycles, please estimate the approximate percentage of your total waste that is composed of each of the following recyclable materials:

Cardboard	_____ %
Office/Computer Paper	_____ %
Mixed Paper	_____ %
Newspaper	_____ %
Glass	_____ %
Ferrous Metals (Iron/Steel)	_____ %
Aluminum	_____ %
Other Non-Ferrous Metals (Copper/Brass)	_____ %
Plastics	_____ %
Wood Pallets	_____ %
Yard Waste	_____ %
Rubber	_____ %
Textiles	_____ %
Other Recyclables	_____ %
Non-Recyclable Material	_____ %

TOTAL 100 %

**APPENDIX E**  
**WASTE REVIEW SITE VISIT FOR MATERIALS**

**APPENDIX E**

**WASTE REVIEW  
SITE VISIT FORM FOR MATERIALS**

COMPANY:  
ADDRESS:

CONTACT PERSON:  
PHONE NUMBER:  
DATE OF VISIT:

MATERIAL	LOCATION GENERATED	APPROXIMATE AMOUNT/FREQUENCY

HAULER: