

TELEPHONE DIRECTORY RECYCLING FEASIBILITY STUDY
for the Metropolitan Washington Region

Prepared by the Department of Environmental Programs
Metropolitan Washington Council of Governments
with the assistance of
the Department of Environmental Services,
Northern Virginia Planning District Commission

August 1991



Table of Contents

I.	EXECUTIVE SUMMARY	1
II.	Background	3
III.	Supply of Used Telephone Directories in the Region	3
IV.	Recyclability of Telephone Books	6
V.	Telephone Directory Recycling Programs: National Survey	6
	Telephone Directory Recycling Programs: Metropolitan Washington	7
VI.	Telephone Directory Markets in the Region	9
	Variability in Markets	11
	Processing and Transportation Costs	12
VII.	A Regional Approach to Recycling Telephone Directories	15
	Option 1: Regional Marketing Arrangement	15
	Option 2: Volunteer/Private Approach	16
	Option 3: Public/Private Partnership Approach	17
	Option 4: Mandatory Legislative Requirements	17
VIII.	Conclusions	18
IX.	Recommendations	19
	Public/Private Partnership	19
	Future Legislative Approaches	19
	Appendix A: Survey of Markets in the Metropolitan Washington Region	22

List of Tables

Table 1:	1990-1991 Distribution of Telephone Directories in Metropolitan Washington	4
Table 2:	Telephone Directory Collection Programs in the U.S.	8
Table 3:	Markets for Telephone Directories in Metropolitan Washington	9
Table 4:	Market Variables	11
Table 5:	Summary of Directory Recycling Costs, Metropolitan Washington, 1991	14

List of Charts

Chart 1:	Directory Distribution: Metropolitan Washington 1990-91	5
Chart 2:	Telephone Directory Recycling Process	10

TELEPHONE DIRECTORY RECYCLING FEASIBILITY STUDY

I. EXECUTIVE SUMMARY

At the request of its respective memberships, COG and NVPDC staff investigated the feasibility of telephone directory recycling for the Washington region, and options for implementation. The feasibility study included a review of directory production, assessment of markets, directory recyclability, a national survey of directory recycling programs, and options for implementation of a regional recycling program in Washington.

Research indicates that telephone directories are not widely collected for recycling in the Metropolitan Washington region at present. An estimated 17,000 tons of telephone books are distributed annually by three major telephone book publishers in the region. At the time of distribution, outdated books are usually discarded, and they go to the landfills. Distribution of directories occurs throughout the year in the Washington region, a schedule which may be attractive to potential end-users because of the even supply of material.

MWCOG Staff worked with staff from the Northern Virginia Planning District Commission to investigate the markets and the costs of processing and transporting directories to end-users or brokers for reuse. The survey indicates that there are vendors in the Metropolitan Washington region who will take the directories for recycling, but the price they will pay or charge for handling ranges from +\$12 per ton to -\$60 per ton.

The recyclability of the directory is a critical factor in designing a recycling program. Books using hot-melt glue adhesives in the binding, for example, are considered hard to recycle. If hard-to-recycle books are collected and mixed with books that use water-soluble adhesives, the hard-to-recycle books will contaminate the whole amount of the books and lower their value to the lowest reuse, which is for hydromulch or animal bedding.

A MWCOG survey of recycling programs around the country reveals that some directory publishers have taken an active role in organizing recycling programs for directories they distribute. Local programs in the Washington region have been organized by volunteers, or they have been included in mixed paper collection by some local communities.

The result of the survey of markets for telephone directories and a survey of processing and transportation costs is that a program to recycle directories will cost money, and that the cost will be from \$12 to \$60 per ton, including processing and transportation.

Reviewing alternative approaches, MWCOG staff finds that the most feasible alternative is some form of a public/private partnership between government and directory publishers, with publishers taking responsibility for recycling the directories. Staff recommends that COG seek a commitment from local directory publishers to recycle a certain percentage of directories distributed in the Metropolitan Washington region each year. COG and member local governments can work with directory publishers to develop programs to collect books in the region, as well as give assistance with public relations and providing information to the public.

An alternative approach would be to seek state and District legislation requiring publishers to recycle directories. Ideally, similar legislation should be introduced in Maryland, Virginia, and the District, which would establish a recycling incentive fee to encourage distributors to implement collection and recycling programs.

II. Background

The Metropolitan Washington Council of Governments Department of Environmental Protection was requested to study the possibility of a regional marketing arrangement for telephone directories. The study was conducted over a period of two months in conjunction with the Northern Virginia Planning District Commission. The goal of this study was to investigate the potential for a regional market for used telephone directories, and the feasibility of a regional marketing arrangement for the material. In the course of investigating markets in the region, MWCOG staff worked with staff of the Northern Virginia Planning District Commission (NVPDC) to gather information about the recyclability of the books, to assess the markets, to survey directory recycling programs around the country, and to survey cost and transportation factors that should be considered in a regional effort. The following report summarizes the findings.

III. Supply of Used Telephone Directories in the Region

Telephone directories of varying sizes are distributed by large telephone directory publishers, real estate companies and institutions throughout the Metropolitan Washington region. Since new directories must be distributed every year to reflect the changing urban population, outdated directories are discarded every year. When they are discarded, they usually go to a landfill, although the opportunity exists in the Washington region to recycle them. There are endusers in the region who are willing to use the directories and brokers to find markets for them. Chart 2 demonstrates how directories move in the recycling process from collection to the endmarkets.

Telephone directories are not widely collected for recycling in the metropolitan region at present. Voluntary programs have been organized on a community level in the Town of Vienna, Virginia, by the Vienna Jaycees and by a private citizen, Mary Jewett, in parts of Maryland, Virginia and the District of Columbia during the Spring of 1991. The two programs collected 182 tons, and delivered the directories to buyers in the region. The volunteer efforts have been limited by the lack of resources of the sponsoring organizations and by the limited and seasonal capacity of buyers to take the books.

The distribution schedule of telephone directories, both yellow pages and white pages, is presented in Table 1. Four companies distribute an estimated 17,000 tons of books, or 9,319,000 directories in the region during the year. The period of heaviest distribution takes place during October in the Maryland suburbs of Montgomery County and Prince George's County. An estimated 5,000 tons are distributed during that one month; in January over 4,000 tons are distributed in Northern Virginia; and in April about 2,000 tons are distributed in the District of Columbia.

Most of the books distributed go to the jurisdictions on which they contain information, but the total distribution figure represents some overlap distribution to surrounding areas. The District's Bell Atlantic books, in particular, are sent to many customers in the Maryland and Virginia suburbs.

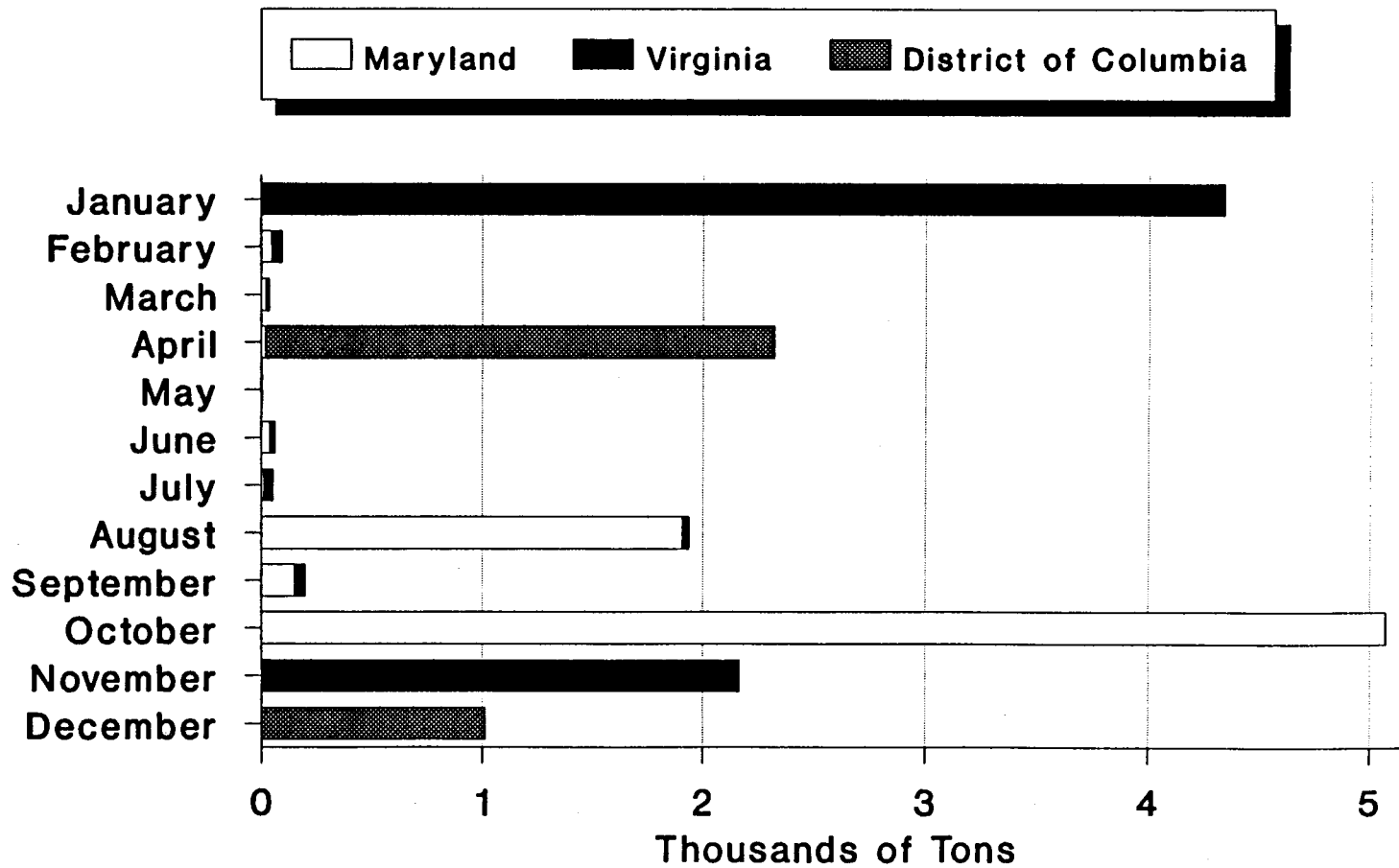
Table 1 - 1990-91 Distribution of Telephone Directories in Metropolitan Washington

Jurisdiction	Month	Distributor	Book Name	Vol.	Weight	Circulation	Books	Tons	20% Rcvry	25% Rcvry
Maryland										
Montgomery County	February	DataNational	Yellow Pages	1	0.75	124000	124000	47	9	12
Montgomery County	March	DataNational	Yellow Pages	1	0.75	59000	59000	22	4	6
Montgomery County	April	DataNational	Yellow Pages	1	0.75	55000	55000	21	4	5
Montgomery County	June	DataNational	Yellow Pages	1	0.75	84000	84000	32	6	8
Prince George's County	June	DataNational	Yellow Pages	1	0.75	16000	16000	6	1	2
Prince George's County	July	DataNational	Yellow Pages	1	0.75	31000	31000	12	2	3
Maryland Suburbs	August	Donnelley	Yellow Pages	1	5.78	660000	660000	1907	381	477
Prince George's County	September	DataNational	Yellow Pages	1	0.75	39000	39000	15	3	4
Frederick County	September	C&P	White & Yellow Page	1	2.66	100000	100000	133	27	33
Prince George's County	October	DataNational	Yellow Pages	1	0.75	80000	80000	30	6	8
Maryland Suburbs	October	C&P	Yellow Pages	2	8.66	803000	1606000	3477	695	869
Montgomery County	October	C&P	White Pages	1	3.22	530000	530000	853	171	213
Prince George's County	October	C&P	White Pages	1	2.72	524000	524000	713	143	178
TOTAL							3908000	7266	1453	1817
Virginia										
Northern Virginia	January	C&P	White Pages	1	4.06	762000	762000	1547	309	387
Northern Virginia	January	C&P	Yellow Pages	2	8.09	690000	1380000	2791	558	698
Loudoun County	February	C&P	White & Yellow Page	1	1.91	30000	30000	29	6	7
Fairfax County	February	DataNational	Yellow Pages	1	0.75	48000	48000	18	4	5
Fairfax County	March	DataNational	Yellow Pages	1	0.75	41000	41000	15	3	4
Alexandria	May	DataNational	Yellow Pages	1	0.75	5400	5400	2	0	1
Alexandria	June	DataNational	Yellow Pages	1	0.75	42000	42000	16	3	4
Loudoun County	June	DataNational	Yellow Pages	1	0.75	19000	19000	7	1	2
Fairfax County	July	DataNational	Yellow Pages	1	0.75	25000	25000	9	2	2
Arlington County	July	DataNational	Yellow Pages	1	0.75	86000	86000	32	6	8
Fairfax County	August	DataNational	Yellow Pages	1	0.75	79000	79000	30	6	7
Fairfax County	September	DataNational	Yellow Pages	1	0.75	126000	126000	47	9	12
Northern Virginia	November	Donnelley	Yellow Pages	1	6.53	550000	550000	1796	359	449
Prince William County	November	Contel	White & Yellow Page	1	3.56	208000	208000	370	74	93
TOTAL							3401400	6709	1342	1677
District of Columbia										
	April	C&P	Yellow Pages	2	6.53	480000	960000	1567	313	392
	April	C&P	White Pages	1	2.09	700000	700000	732	146	183
	December	Donnelley	Yellow Pages	1	5.78	350000	350000	1012	202	253
TOTAL							2010000	3310	662	828
METRO TOTAL				33	74	8319400	17286	3457	4321	

MWCOG 1991

Sources: Bell Atlantic Directory Services; R.R. Donnelley; Contel/GTE; DataNational, Inc.

Chart 1: Directory Distribution Metropolitan Washington 1990-91



IV. Recyclability of Telephone Books

Used telephone directories are currently recycled by paper mills into paper and boxboard products, wall board, cellulose insulation, molded pulp products, roofing paper, packing material, hydromulch, and animal bedding. Export markets for telephone directories are primarily paper and boxboard manufacturers, but the paper is also used as fruit wrap in some countries. These are all industries that have historically used old newspaper, for which telephone directories are a substitute.

The ability of directories to be used by these industries depends on several recyclability factors: type of glue used in the book's binding, the type of ink, the number of glossy inserts, and the amount of different colored paper in the book. The Yellow Pages Publishers Association (YPPA) is working to improve the recyclability of yellow pages by recommending that its members use soybean inks rather than petroleum-based inks, use water soluble glues rather than hot-melt glues which interfere with the recycling mill's equipment, and use covers coated with water-based varnishes instead of plastic. The Association is also promoting the use of recycled paper in the directories.

In the Metropolitan Washington region, not all directories currently meet the YPPA guidelines. The Bell Atlantic/C&P directory is printed with petroleum-based inks and uses water soluble glue and a non-plastic cover. Contel directory publishers say their books uses hot-melt adhesive, petroleum-based inks, and the cover has a water-based varnish. The publishers of the Donnelley directory (One Book) were unable to provide COG with information about the recyclability of their book. Bell Atlantic has tested its books with several paper mills, and has been told their book is recyclable. If hard-to-recycle books are collected and mixed with recyclable books, the hard-to-recycle books would contaminate the entire amount and lower the value and potential for reuse. The lowest reuse of books would be hydromulch or animal bedding.

V. Telephone Directory Recycling Programs: National Survey

A survey of telephone directory recycling programs around the country reveals several directory publishers have taken an active role in organizing recycling programs. Several programs in the West and Midwest were started by telephone directory publishers. In 1989 Southwestern Bell and US West took the lead in their areas to generate programs. They coordinated with local groups, such as Keep America Beautiful, haulers, and buyers to generate programs in cities in Missouri, Kansas, Oklahoma, Arizona, and Texas. Table 2 presents the results of the survey of programs.

Bell South was involved in a program initiated in Winston-Salem, NC, by Keep Winston-Salem Beautiful. The Winston-Salem effort was sponsored by a coalition including Bell South, Celotex Corp, Food Fair, Rite Aide Stores and Sears to recycle outdated directories. In Sarasota, FL, GTE South developed a program with the help of volunteers to collect and haul old directories from the Sarasota area to a buyer in Georgia.

The oldest telephone book recycling programs in Portland, Oregon, and Seattle, Washington, are examples of volunteer programs. Weyerhaeuser, which manufactures corrugated

cardboard and pulp substitutes in the Northwest, has been a buyer for both phone book recycling programs. Portland's twenty-year old program has also been sponsored by the Lion's Club and, more recently, by GTE Northwest, Weyerhaeuser, and city and county governments. Seattle's program has been operated by the Lion's Club for twelve years, and it is now being sponsored by US West in cooperation with the city of Seattle and King County. In both programs, the Lion's Club used the directory recycling program as a means to generate revenue. However, since the market for directories has dropped, the Club is unable to continue the collection.

Of the nine programs studied around the country, the only program which appears to have no telephone company involvement is that in Broward County, FL. The County and twenty-eight cities in the County organized dropoff collection points. The County received a state grant to transport the outdated directories to a buyer in Jacksonville. The cost of the program has recently become a concern, however, and County staff indicated an interest in working with the telephone companies to continue the program.

Telephone Directory Recycling Programs: Metropolitan Washington

Telephone directory collection efforts in the Washington region have primarily consisted of small community programs, for the most part. Three local governments have collected telephone directories as part of a mixed paper collection. The following is a brief description of existing directory collection efforts in the Washington, D.C. region.

Vienna, VA Jaycees

The Jaycees in Vienna, VA. organized a collection effort in the spring of 1990. Supermarket parking lots were used as collection sites. The Jaycees also assisted Falls Church with a one day collection in February. Over 100 tons of directories collected were taken to Manville, a manufacturer of cellulose insulation in Virginia.

The State Jaycees organization is considering doing a statewide program in 1991.

Prince George's County

Prince George's County collected telephone books as part of a mixed paper collection held on the County's Household Hazardous Waste Collection Day in June, 1991. Thirty tons of mixed paper were collected.

Takoma Park, Md.

The City of Takoma Park has collected telephone books as part of a mixed paper collection. The city collects mixed paper at a dropoff center located near City Hall. Takoma Park pays \$10-\$15 per ton to Southeast Recycling or Chesapeake Paper to take the paper. Mixed paper will be added to the list of materials collected curbside beginning in September, however, telephone directories will not be accepted.

Greenbelt, MD

The City of Greenbelt collects mixed paper at a city hall dropoff location. Telephone books are collected with office paper, and the City pays to haul the paper to Environmental Recycling in Alexandria, Virginia.

Table 2 – Telephone Directory Collection Programs in the U.S.

Area	Program Start	Sponsors	Pop.	1990 Tons Collected	Recovery Rate
AZ: Tucson	1989	Clean & Beautiful, Inc. US West Waste Management	380,000	500	25%
FL: Broward Cty	1989	Broward County High Schools City governments Local corporations	1,018,000	640	20%
MO: St. Louis	1991	Southwestern Bell Girl Scouts McDonalds Scott Paper BFI Waste Systems	404,000	NA	NA
NH: State	1990	NYNEX UNH Cooperative Extension	850,000	50	10%
NC: Winston-Salem	1989	Keep Winston-Salem Beautiful, BFI, Bell South Adv. & Publ. Co. Celotex Corp, Food Fair, Keiger Printing, Kroeger, Rite Aid Stores, Sears	143,485	50	20%
OK: Tulsa	1989	Southwestern Bell Tulsa County Waste Management	500,000	302	40%
OR: Portland	1971	GTE Northwest Lions Club Weyerhaeuser	1,500,000	600	15%
VA: Hampton	1990	WTKR-TV Tidewater Fibre Farm Fresh C & P Telephone Waste Management	131,000	350	17%
WA: Seattle	1979	King County US West City of Seattle	1,400,000	1200	NA

Source: MWCOG Survey, July/August 1991

Redirect/Mary Jewett

Mary Jewett, a resident of Alexandria, VA, organized an effort called "Redirect" to collect telephone directories. During a seven week period from May-June, 1991, Ms. Jewett and volunteers collected 82 tons of telephone directories which went to Manville Building Materials. Ms. Jewett organized seven collection sites in the metropolitan region. Ms. Jewett is seeking funding for another phone book drive in October. She estimates that \$74,000 will be needed to finance collection in Montgomery and Prince George's Counties.

VI. Telephone Directory Markets in the Region

The Recycling staff of COG and NVPDC conducted a survey of end-markets for used telephone directories that could serve the Washington area. The list of contacts was compiled from American Paper Institute, Yellow Pages Publishers Association, MWCOG Directory of Wastepaper Markets and Bell Atlantic sources. Markets for directories include manufacturers ("end-users") of recycled paper products and brokers who purchase the material for both domestic and international manufacturers. Chart 2 illustrates the recycling process from collection to final endmarkets.

The most promising markets for the Washington area are Cellin, Zuckerman, Tidewater Fibre, Owl Corporation, and Mid-Atlantic Recycling Corporation. Of these five, only Cellin is an endmarket, which, financially, is more desirable to deal with directly than through brokers. The other eligible markets are less attractive due to transportation, processing, and handling charges, or limited capacity. Listed in Table 3 are the prices/charges the top eleven markets for the area pay or charge per ton of delivered telephone directories. An explanation of the additional costs involved for markets follows and a summary table at the end of this section gives the total costs of dealing with each of the ten markets. Appendix A lists further details on the endusers and brokers who were contacted and their current interest in taking telephone directories from the metropolitan area.

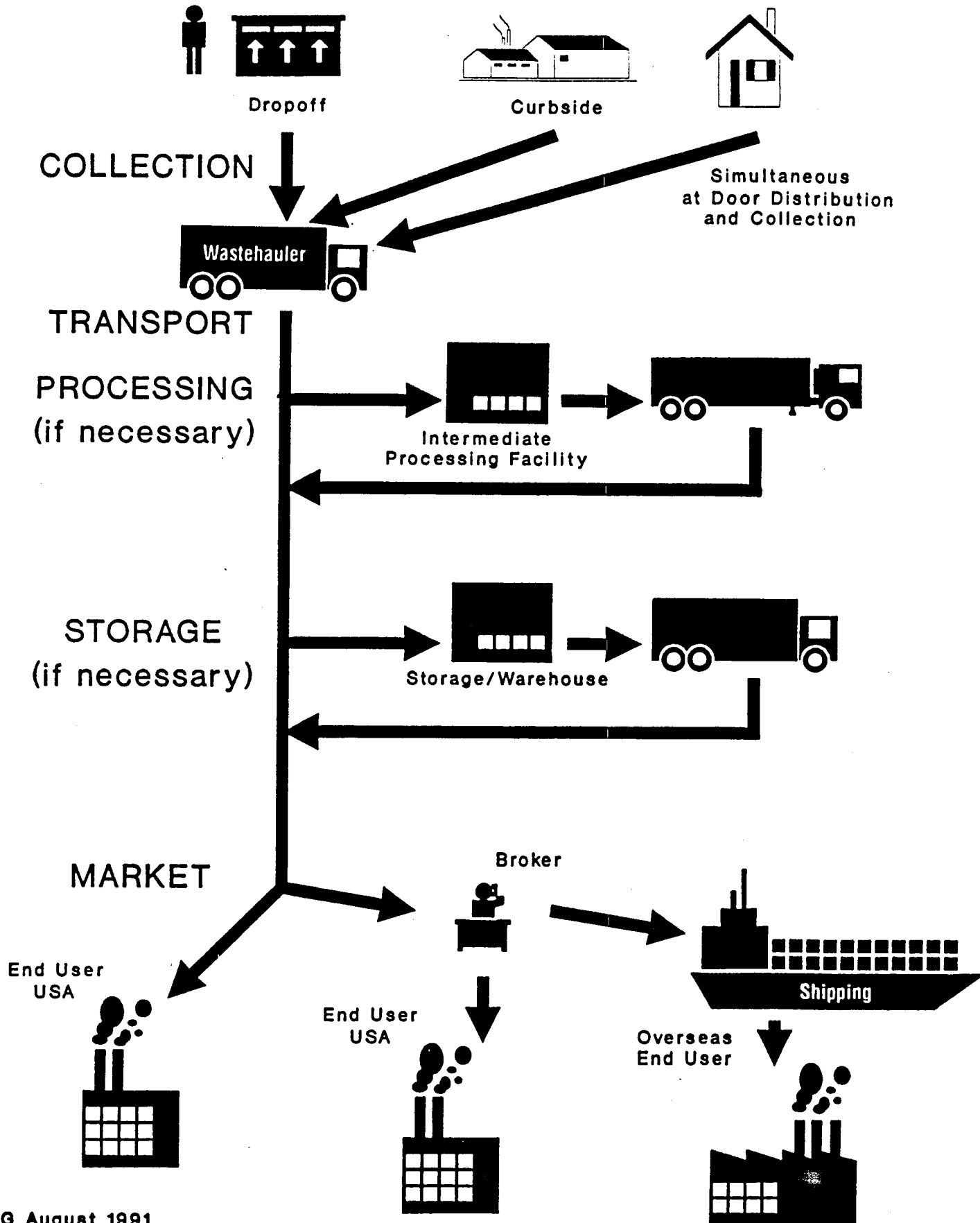
Table 3 – Markets for Telephone Directories
Metropolitan Washington 1991

Market	Destination	Price Paid per Ton*
Tidewater Fibres	Baltimore, MD	+\$14
Cutler	Baltimore, MD	+\$5 to \$0
Cellin	Elkwood, VA	\$0
Manville	Edinburg, VA	\$0
Commodity Recycling	Richmond, VA	\$0
Mid-Atlantic (on pallets)	Baltimore, MD	\$0
Zuckerman	Winchester, VA	-\$18
Cellin/Commonwealth	Elkwood, VA	-\$25
Owl	Dundalk, MD	-\$25
Mid-Atlantic (loose)	Baltimore, MD	-\$27.25
Chesapeake Paperboard	Baltimore, MD	-\$35
Canusa/Capitol Fibres	Baltimore, MD	-\$50 to -\$60
Federal Paper Stock	Wash., D.C.	-\$100

* during June, July, August 1991 – prices will vary due to market conditions

Source: MWCOG/NVPDC Survey, June/August 1991

Chart 2: Telephone Directory Recycling Process



Variability in Markets

The telephone directory markets for the Washington region display a broad range of requirements and costs. The list of variables in Table 4 illustrates the factors that determine collection program costs and logistics. Of these market specifications the price paid, material specifications, and demand schedule are the most significant because they have the greatest impact on program cost and collection size.

Table 4: Market Variables

Price
Material Specifications
Demand Schedule/Capacity
Handling/Processing
Transportation to Processor
Transportation to Market
Storage Capacity
Contractual Guarantee

The price paid by the markets investigated ranges from -\$35 per ton to as high as +\$14 per ton of phone books. The price/charge generally reflects the supply and demand conditions for the material. The fee is also related to the amount of handling a material requires. As a rule, the less handling and processing that is required of the collector, the higher the market's handling charge, or "tip fee" will be.

Buyers ("markets") have material specifications that cover how the material should be delivered and which contaminants must be excluded from the load. Brokers and endusers that use books in recycled paper products often have rules on the presence of hot melt glue and other book materials that may preclude recycling. Books recycled into building products, hydromulch, animal bedding, and fruit wrap, however, do not need to meet these strict requirements since they are usually shredded and not pulped.

Specifications covering delivery define whether the books should be wet, dry, baled, stacked on pallets, in gaylords, or loose. These requirements greatly affect processing, handling and transportation costs. Books that can be delivered loose may be taken from the collection point, a dropoff container for example, and transported directly to the market with no intermediate handling. Baling or palletizing requires transportation to an intermediate facility, the processing of the books, and transportation from there to market. If gaylords must be used, handling could perhaps occur at the initial collection point, but may need an intermediate point like baling and palletizing.

The demand schedule of a market affects how many books can be collected and the handling costs. The Washington region could provide a relatively constant supply of phone books to a market compared to other metropolitan areas that are covered by one telephone book distributed at the same time every year. While this steady supply is a plus for some markets, especially export, others have more sporadic demands that may not accommodate the books when they are collected even if the market can take them at a later date. If the market does not have any storage space for the books, the collector will have to arrange and pay for the storage. This requirement may necessitate that the books be loaded into a container such as gaylords (large cardboard boxes) to increase storage space and ease handling even if the market can eventually take the books in loose form.

Processing and Transportation Costs

Processing and transportation costs are just as important as the price a market pays per ton in determining the economics of recycling. Table 5 summarizes directory recycling costs which include the cost of processing and transportation with the price or charge per ton.

Palletizing

Palletizing is the most involved handling method and this fact is reflected in a high cost per ton. The best price currently available for this method is \$40 per ton. Books must be stacked neatly on wooden pallets and usually shrink wrapped. New books typically come from the printer this way and many brokers are more accustomed to handling the oversupply of these books than the used books on which this report focuses. Palletizing is especially preferred by exporters who want the books preserved in their original form to maximize the endmarket uses and to facilitate shipment. Most processors in the area are unfamiliar with palletizing phone books and, therefore, uncertain about how expensive this practice would be. It is definitely the most labor intensive and time consuming of the processing methods.

Baling

Baling is a much more common way to handle recyclables and many local firms have equipment to do this. Staff has found companies that can bale books for \$15 per ton. Due to the bulkiness of the books, some people in the industry have expressed concern over how well baling would work, but most processors say it would not be a problem.

Gaylords

Gaylords are the least labor intensive handling method. This process would involve placing books in large cardboard boxes for shipment or storage. Gaylords could be loaded at the collection site or at an intermediate processing area. No firm costs are currently available for this option, but it would be less expensive than baling. Staff estimated for the purposes of this report that handling would cost \$5-\$15 per ton.

Transportation

The telephone books could either be transported directly to the buyer/market from the dropoff center or in two stages through an intermediate processing point. Hauling costs from dropoffs to local processor or endmarket generally include the rental of dropoff containers and run \$12-\$15 per ton to the markets and processors under consideration. Obviously, transportation costs about half if books do not require intermediate processing.

The transportation costs expressed in this report assume collection of telephone directories through dropoff locations. It would also be possible to collect directories in curbside recycling programs, although costs would likely be higher than dropoffs if every citizen received this service. Another collection option is door-to-door collection at the time of distribution. Bell Atlantic used this type of program in the early 1970's when directories were a much more valuable commodity. Cellin along with local distributor Commonwealth Trucking has proposed using this type of collection today. Information on this option appears under the Cellin/Commonwealth heading in Table 5.

The costs listed in Table 5 range from \$12 to \$112 per ton, depending on processing,

collection and transportation. The reasonableness of these costs is a function of what the alternative costs are, and those costs are the tip fees, or the charge for dumping, at the landfill or resource recovery facility. Tip fees in the Washington region range from \$10 to \$70 per ton. Thus a total cost per ton which is less than the tip fee would be considered reasonable, but this would depend on the jurisdiction.

The national survey of directory recycling programs suggests that a 20 percent recovery rate is a reasonable recycling goal for the Metropolitan Washington region. Only one program, Tulsa, Oklahoma's, recovered as much as 40% of the directories distributed. If 20 percent of the directories were recovered in the Washington region, this would produce 3,400 tons of directories. Although the COG survey shows that there are end-users or markets for directories in the Washington region, a large volume collection could require that several vendors be involved, since some may have a limited capacity for directories.

**Table 5 – Summary of Directory Recycling Costs Per Ton
Metropolitan Washington 1991**

Market	Destination	Processing	Collection/Transport to Processor	Collection/Transport to Market	Price Paid by Market	Total Cost Per Ton
Cellin (w/o storage) (2)	Elkwood, VA	none	none	\$12-\$15	\$0	\$12-\$15
Manville (1)	Edinburg, VA	none	none	\$12-\$15	\$0	\$12-\$15
Tidewater Fibres	Baltimore, MD	bale: \$15	\$12	\$11	+\$14	\$24
Cellin/Commonwealth	Elkwood, VA	none	none	none	-\$25	\$25
Cellin (w/ storage) (2)	Elkwood, VA	gaylords: \$5-15	if needed: \$12	\$12-\$15	\$0	\$29-\$42
Zuckerman	Winchester, VA	none	none	\$12-\$15	-\$18	\$30-\$33
Owl	Dundalk, MD	none	none	\$12-\$15	-\$25	\$37-\$40
Mid-Atlantic (loose)	Baltimore, MD	none	none	\$12-\$15	-\$27.25	\$39-\$42
Chesapeake Paperboard	Baltimore, MD	none	none	\$12-\$15	-\$35	\$47-\$50
Canusa/Capitol Fibres	Baltimore, MD	none	none	none	-\$50 to -\$70	\$50-\$70
Mid-Atlantic (on pallets)	Baltimore	palletize: \$40	\$12	\$6 (3)	\$0	\$58
Cutler	Baltimore, MD	palletize: \$40	\$12	\$11	+\$5 to \$0	\$58-\$63
Commodity Recycling	Richmond, VA	palletize: \$40	\$12	none (4)	-\$10	\$62
Federal Paper Stock	Wash., D.C.	none	\$12	none	-\$100	\$112

Source: MWCOG/NVPDC Survey, June/August 1991

(1) Manville has very little capacity.

(2) Cellin is listed with and without storage due to an uncertain production schedule. Storage would involve processing costs, which are expressed.

The rental of storage space has not been included in the total cost.

(3) Hauled by Mid-Atlantic

(4) Hauled by Commodity Recycling

VII. A Regional Approach to Recycling Telephone Directories

The schedule of book distribution in the Metropolitan Washington region is the primary advantage to adopting a regional approach to recycling directories. The largest distributors of telephone directories, Bell Atlantic Directory Services, R.R. Donnelley, and Contel/GTE distribute throughout the metropolitan area during the year. The number of outdated directories available for collection would offer a supply of material over the course of twelve months.

The distribution area falls within the geographic area represented by the Council of Governments. COG's Recycling Committee which was formed in 1987, has as one of its major objectives the development of markets for recyclable materials. COG has studied the paper markets since 1988 when prices for old newspaper began to fall. Since then, COG has promoted measures to increase the use of recycled newsprint among area newspaper publishers. COG's Purchasing Officers Committee has implemented a cooperative purchase of recycled paper, and the Committee is reviewing other recycled products for cooperative purchase. COG studied cooperative regional marketing of recyclable materials modeled after the cooperative purchasing process.

A regional approach to recycling telephone books could take one of four directions: 1) regional marketing arrangement; 2) a volunteer/private collection effort; 3) public/private partnership; or 4) legislation. The survey of directory recycling efforts around the country indicates that the last three approaches are most common. There appears to be no case where telephone books are being marketed regionally, based upon a COG study in 1989.

Option 1: Regional Marketing Arrangement

In 1989 Resource Integration Systems (RIS), under contract to COG, recommended that COG or another "appropriate regional agency" serve as a broker of recyclable materials on behalf of its members. COG's Recycling Committee and the Environmental Policy Committee, endorsed the concept of using a regional broker if an opportunity arose.

According to the study, a COG marketing effort would offer COG local government members higher revenues, better transportation arrangements through combined loads, and it would free recycling personnel from marketing responsibilities. COG would coordinate member participation, conduct market research, develop Invitation to Bids (IFB), handle contract execution and monitoring, arrange transportation to end users, and would oversee billing and payment for program participants and for markets. Local governments would maintain full responsibility for collection, processing and storage of their own recyclables.

If COG were to operate a regional marketing arrangement for telephone directories, members would be given the opportunity to participate in a regional Invitation For Bid (IFB) process. The cost of the regional telephone directory recycling effort would depend to a large extent on the number of jurisdictions participating in the program, since that would determine the number of books to be recycled. COG would develop the IFB with the participation of the jurisdictions and member jurisdictions would be asked to evaluate the responses to

determine if they would participate in the contract. The IFB would offer options to the vendor to bid on: a package of services including collection, processing, and transportation to end-market, or parts of the package separately.

Following the consultant's proposed broker model, COG could identify the potential vendors or end-markets, procure bids, negotiate terms and pricing for members, and administer and monitor the contract's effectiveness. The actual contract could be between a lead jurisdiction or COG. If the COG cooperative purchasing model were used, a lead jurisdiction would issue the IFB, negotiate terms, and monitor the contract. In this case, the contract would be bilateral between the participating jurisdictions and the selected vendor(s).

Member jurisdictions which are developing material processing capability that include telephone directories may have contractual agreements which would prohibit them from participating in a regional marketing arrangement. If this were the case, COG, acting as a regional broker would be marketing materials from some, not all, of the jurisdictions, which would probably be the smaller jurisdictions.

If COG's broker role were limited to collecting information, contracting with a broker, and monitoring the collection of books in the region, the estimated cost of administration would cost in the range of \$10,000 to \$20,000 per year for staff, including overhead. The cost of COG brokering telephone directories would require more staff time, which would cost an estimated \$15,000 to \$25,000 per year. The COG administrative cost (\$1-\$5 per ton, depending on collection) would be added to the costs of collection, processing, and transportation to market. If a cooperative bid were used, there would be no additional administrative costs to participating members. The lead jurisdiction in the directory recycling bid would take the responsibility for developing the IFB, awarding the contract, and monitoring the vendor's performance.

The cost of operating a COG-broker regional marketing arrangement for telephone books could be financed through a service fee, or membership fee. The service fee could be a per capita rate to partially fund expenses, and there could be a per-ton fee which would be a percentage of materials sales, less costs of processing and transportation. Collection costs would vary among jurisdictions, if it were decided that individual jurisdictions would be responsible for collection.

Option 2: Volunteer/Private Approach

A coordinated effort between volunteers and private companies has been successful for many years in Seattle and Portland, where a local enduser has been committed to assist the directory recycling effort. A volunteer/private effort is being tried in the Hampton, Virginia, area where a local television station initiated a telephone directory recycling drive. In its second year, the drive is a coordinated effort between WTKR Channel 3, Farm Fresh Stores (collection points), Waste Management (transportation), C & P Telephone (public relations), and Tidewater Fibre, a broker who arranges export. In the first year of the program, 350 tons of used directories were collected.

The Metropolitan Washington region has many resources which could be coordinated into a similar volunteer/private effort. Businesses, such as telephone directory publishers, supermarket chains, hardware retail chain stores, and waste haulers could work with a volunteer group such as Redirect, or the Jaycees. Private and charitable funding could finance the program. The volunteer organization could coordinate the effort and assist in maintaining dropoff sites. A volunteer/private effort could be organized with minimal local government involvement. Local governments could assist by siting dropoff locations and by publicizing the effort.

The disadvantage to a volunteer approach is obvious in the Portland and Seattle experience. In both cases, volunteers relied on a favorable market for telephone directories to provide them with revenue for their organization. As the market for directories fell, the program became a liability, and the local governments and Weyerhaeuser assumed the program on a reduced scale. Sufficient manpower was also a problem in running the volunteer programs.

Option 3: Public/Private Partnership Approach

The two oldest volunteer programs in Portland and Seattle are being taken over by a public/private partnership between local government and the directory publishers. Local government/business partnerships in a number of communities appear to be a successful way to achieve directory recycling. In many of these drives, the partnership was initiated by the telephone directory publisher.

Southwestern Bell started a program in Tulsa, Oklahoma, which they called Project ReDirectory in 1989. The company introduced this program in seven other cities in 1990: Springfield, MO; Topeka and Wichita, KS; Oklahoma City, OK; and Austin and Fort Worth TX. The coalition formed by Southwestern Bell in St. Louis included McDonald's restaurants, the city fire department, the recycling center operated by the city, and Dierbergs Family Markets. Southwestern Bell completed the recycling by using the end products, tissue paper and building insulation and drywall. The company's 1991 goal is to recycle 30 percent of the outdated directories in each of the seven communities. The company announced that it collected 1.9 million books, or 3,600 tons of directories in 1990.

The critical ingredients for a similar public/private partnership exist in the Metropolitan Washington region. Local telephone directory publishers, Bell Atlantic Directory Services, R.R. Donnelley, and Contel could develop partnerships with haulers and retail merchants in the Washington area. Local governments have expressed a willingness to cooperate with a private recycling effort by publicizing the drive, helping to site collection points, arranging for storage, and locating interested markets.

Option 4: Mandatory Legislative Requirements

Some states have passed legislation which places the responsibility for recycling

directories on the telephone directory publishers, and requires the publishers to publish recyclable directories, and to use recycled content paper. Connecticut legislation requires directory publishers which distribute 50 tons or more of books to file a plan with the state which provides for collecting and recycling the directories distributed. The law requires the publisher to recycle 10 percent in 1991, with the amount increasing by 5 percent annually until a 50 percent goal is reached. The law also establishes a schedule for the use of recycled content paper, beginning with 10 percent by 1995 increasing to forty percent after the year 2000. Expenses incurred by the telephone directory company are deemed allowable expenses in rate determination procedures.

Rhode Island's legislation requires the telephone directory distributor to either provide for collection and recycling of directories or to reimburse the state for its costs in collecting and recycling. The law becomes effective October 1991.

In California, proposed SB1066 would require the state to study the feasibility of requiring all directories to be made of recyclable materials by 1995, and it establishes a schedule that 30 percent of the directories distributed be recycled by 1994, with the percentage increasing until 50 percent are recycled in the year 2000. The California Legislature is also considering a proposal by the California Integrated Waste Management Board to impose an Advance Disposal Fee on recyclable materials distributed in the state.

Legislation enacted in the District of Columbia and in Maryland requires telephone directory publishers to print directories on recycled content paper. Maryland legislation, HB1148, applies to directory publishers distributing 50 tons or more of directories, and requires them to use recycled content of 12 percent by 1994, increasing to 40 percent by the year 2000. A directory recycling incentive fee of \$10 is imposed on each ton of recycled content deficiency.

In the District of Columbia, the "Newspaper, Paper, and Paper Products Recycling Incentive Amendment Act of 1989," Bill 8-418, requires publishers with a circulation of 30,000 or more to use newsprint containing 12% recycled content beginning in 1992. A recycling surcharge is imposed for failure to comply. The District interprets this law to apply to telephone directory publishers. Regulations to implement the law are being developed by the Department of Public Works.

VIII. Conclusions

Legislated waste management recycling goals in Maryland, Virginia, and the District of Columbia create pressure for local governments to recycle every material that can be recovered that has potential for reuse. Telephone directories are a highly visible element of the waste stream which have eluded general recycling programs due to lack of end users, the low value of the book, and the costs of collection and transportation. The market information gathered in this study suggests there are opportunities to reuse telephone directories in the Washington region, but there is a cost involved.

The cost of recycling directories in the Washington region ranges from \$12-\$60 per ton, depending on the enduser or buyer. The COG/NVPDC survey indicates that under the most favorable conditions, transporting books loose, no storage involved, to an enduser such as Cellin and receiving \$0 per ton, the result would be a net cost of about \$12 - \$15 per ton. Current fiscal constraints strongly suggest that local governments would be unwilling to bear much financial responsibility for the program. If the marketing of books were done through COG acting as a broker, there would be administrative costs involved. The present market for old directories is sufficiently depressed to make this option expensive as well.

IX. Recommendations

Considering the cost of recycling telephone directories, it appears that public/private partnerships and legislation are the most promising approaches for local governments in the Metropolitan Washington region. Both of these approaches place the responsibility for recycling on the directory publishers, yet offer local governments the opportunity to work with publishers to develop a collection program in their jurisdictions.

Public/Private Partnership

Staff recommends that COG seek a commitment from the directory publishers to recycle a twenty percent of the directories they distribute in the region in 1991, increasing each year until a 50 percent goal is reached. The Council of Governments membership would pledge its support of the program by offering public relations, a hot line service, possible collection sites, and possible storage.

A 20 percent recycling goal for directories would mean that 1,400 tons of Suburban Maryland books would be collected, 1,300 tons of Northern Virginia directories, and 662 tons of District books during the new book distribution period. Over a year, a goal of recovering 20 percent of used telephone books could produce a total of 3,400 tons in the metropolitan region.

The advantage of a partnership between local government and businesses to recycle books is that the effort could be financed privately, and it could be a continuing program. The program could use volunteer participation, but it would not necessarily depend on the availability of volunteers. Local directory publishers could organize a recycling effort such as Southwestern Bell has done in several areas of the country.

Future Legislative Approaches

Neither Maryland, Virginia, nor the District has legislation which addresses recycling telephone directories. Legislation could be developed that would place the responsibility for recycling directories on the large, 50 tons per year or more, directory publishers. The publishers could be required to recycle a certain percentage of the directories they distribute each year, with a recycling incentive fee for failure to meet the goals. The fee should be large enough to finance the administration of the bill and to pay for recycling the desired goal.

Legislation which is proposed in Maryland, Virginia, and the District should ideally be similar in intent and design. Uniform legislation throughout the area would be in the best interest of the large publishers effected, since they distribute in the three jurisdictions.

SOURCES

Bone, Willard W., "The Green Directory Choice for Collecting and Marketing Post-Consumer Directories," AMS International, Portland, OR, July 1991.

Directory of Wastepaper Markets for the Metropolitan Washington Area, MWCOG Dept. of Environmental Programs, Washington, D.C., November 1989.

"Executive Summary and Background Report of the Residential Mixed Waste Paper Task Force," Recycled Paper Committee, Recycling Advisory Council, April 1991.

1990 Lockwood-Post's Directory of the Pulp, Paper and Allied Trades, Pulp and Paper, Miller Freeman Publications, San Francisco, 1989.

PaperMatcher, A Directory of Paper Recycling Resource, American Paper Institute, New York, NY, December 1990.

Pulp and Paper Week

"Mixed paper recycling practices in North America," by Jeffrey Morris, Resource Recycling, January 1991, 84-91.

"Evaluation of Regional marketing Arrangements for Recycled Materials for the Washington Area," Resource Integration Systems, Ltd., Hartford, January 1990.

"The greening of the yellow pages," by Steve Apotheker, Resource Recycling, Secondary Fiber Supplement, November 1990.

YPPA Recycling Directory, Yellow Pages Publishers Association, Michigan, 1991.

YPPA Environmental Committee Action Plan, YPPA Environmental Technical Development Subcommittee, Michigan, May 1991.

Personal Communication:

Bill Babiarz, Bell Atlantic Directory Services, Bethesda, MD
Dwight Brooks, Bell Atlantic Directory Services, Bethesda, MD
Cecilia Brown, Keep Winston-Salem Beautiful, Winston-Salem, NC
Mike Digby, Southwestern Bell Yellow Pages, St. Louis, MO
Charles Gwaltney, C & P Telephone, Hampton, VA

Personal Communication (continued):

Al Jones, GTE Directory Services, Sarasota, FL
Joan Lionetti, Clean & Beautiful, Tucson, AZ
Deborah Maes, NYNEX, New Hampshire
Scott Maguire, Lions Club, Portland, OR
Alan Mahar, Broward County, FL
David Martin, Southwestern Bell, St. Louis, MO
Dan McKillop, GTE (Contel), Texas
Thelma Prince, Contel/GTE, Richmond, VA
Bill Reed, King County Div. of Solid Waste, Seattle, WA
Butch Ries, Southwestern Bell Tulsa, OK
Connie Scholz, Donnelley Publishers, PA
Alan Schwarz, Donnelley Publishers, Bethesda, MD
Scott Toyahara, US West, Portland, OR

Appendix A

Survey of Markets in the Metropolitan Washington Region

Telephone Directory Markets Contacted

Endmarkets

Interested		Not Interested	
Cellin	Elkwood, VA	Suburban Insulation	Hagarstown, MD
Manville	Edinburg, VA	Rock Tenn	Lynchburg, VA
Chesapeake Paperboard	Baltimore, MD	Chesapeake Recycling	Baltimore
Fort Howard	Rincon, GA	Chesapeake Recycling	West Point, VA
Celotex	Goldsboro, NC	Halltown Paperboard	Halltown, WV
Marcal Paper Mills	Elmwood Park, NJ	Manchester Board & Paper	Richmond, VA
		Homosote Company	West Trenton, NJ
		Tamko Asphalt Products	Frederick, MD

Brokers

Interested		Not Interested	
Zuckerman	Winchester, VA	Richmond Recycling	Richmond, VA
Owl	Baltimore, MD	Southeast Recycling	Silver Spring, MD
Federal Paper Stock	District of Columbia		
Tidewater Fibres	Chesapeake, VA		
AMS International	Portland, OR		
D.C. Intercell	Baltimore, MD		
Commodity Recycling	Richmond, VA		
Cutler	Tuscon, AZ		
Canusa/Capitol Fibres	Baltimore, MD		
Mid-Atlantic	Baltimore, MD		

Source: MWCOG Survey, July/August 1991

A survey of the following manufacturers and brokers produced this list of potentially interested buyers. The information presented for each buyer listed is the response communicated during telephone interviews during June and July, 1991. Prices and conditions may change, depending on the season, amount of directories, and other factors.

Cellin Manufacturing, Inc.
Elkwood, VA

Cellin manufactures cellulose insulation, hydromulch, and animal bedding. Cellin has taken telephone books in the past and is expanding their operations this fall. Books will be used in hydromulch production. The company's capacity for telephone directories is 15,000 to 20,000 tons per year beginning in October and their main demand occurs during the spring and fall growing seasons. The telephone directories may be delivered loose and must be dry; this is the key requirement. Cellin wants to take telephone books at zero cost. The company is very interested in working with anyone in the Washington Area that wants to collect directories.

Cellin has new warehouse space in which to store approximately 1000 tons of the hydromulch product. Other than this area, Cellin has no more storage space for additional mulch or directories. It seems very likely that this situation will necessitate storage of directories at an independent location until Cellin demands them. If storage is necessary, Cellin says that the books will probably need to be containerized to maximize storage space and lower handling costs. Gaylords may be able to serve this purpose.

Cellin along with Commonwealth Trucking, a local book distributor, has proposed to collect old directories as the new ones are distributed and backhaul them to Cellin for a total fee of \$25 per ton.

Manville Building Materials
Edinburg, VA

Manville produces cellulose insulation used in construction. Manville can take all phone books regardless of glue and cover material. Traditionally it has accepted books free of charge if they are delivered to the plant wet or dry. In the past, Manville has taken books from relatively small phone directory collection drives held in the Washington Area, most notably from the Vienna Jaycees in 1990 and Mary Jewett in Spring 1991. Both of these drives collected 100 tons or less over at least a one month period.

Experience has shown that Manville can be overwhelmed by these amounts and cannot store them on its property. The demand for building insulation has been low due to the building slump. A modest large scale dropoff collection drive in the Washington area would probably produce at least 200 tons per month over a nine month period. For this reason Manville, should not be considered a primary market for a major collection drive.

Chesapeake Paperboard
Baltimore, MD

Chesapeake Paperboard manufactures paperboard products. Chesapeake will take directories delivered loose to their property for a \$35 per ton tip fee. The books can be either wet or dry and storage is available. The company is not especially interested in directories,

but does use some in its paperboard mill.

Fort Howard Corporation
Rincon, GA

Fort Howard Corporation in Rincon manufactures tissue, towel and napkin products. This Fort Howard plant takes phone books sporadically as feedstock. Some months the plant can take 200 to 400 tons of books and other months none at all. Demand is very hard to predict and not much storage space is available.

The Georgia location currently takes books from other localities including Florida programs conducted by GTE. Books must be delivered to the plant where no tip fee is charged. Books can be in gaylords or on pallets. Most used books from collection drives are delivered in gaylords.

This plant would be interested in some books from the Washington Area, but it probably could not handle all of them. The Fort Howard plants in Oklahoma and Wisconsin have a higher demand for phone books.

Celotex Corporation
Goldsboro, NC

Celotex manufactures roofing felt for use primarily in the northeast. It takes telephone directories from local programs in North Carolina including Winston-Salem/Forsythe County and Wayne County. Currently, Celotex is paying these programs \$13.50 per ton of books. The plant cannot use very many of the directories in its mix, however, and could only take small amounts from our area since it does not have much storage space and is already taking directories from others. Celotex will probably only handle books from within North Carolina.

Marcal Paper Mills
Elmwood Park, NJ

Marcal makes tissue products at its mill. It can take only white pages since the mill does not employ the bleach needed to process yellow page books. Marcal will accept white page books as part of a mixed paper load where the books comprise no more than 5% of the load. The tip fee is zero for mixed paper processed into bales or gaylords. Marcal could pick the material up as part of a backhauling arrangement, though delivery schedules are not regular. Approximately one truck comes through the Washington area each month. This truck could haul 16 to 25 tons of mixed paper.

Homosote Company
West Trenton, NJ

Homosote Company manufactures insulation and building board, fiberboard, and wallboard from wastepaper. About 15-20 years ago Homosote paid \$30-\$36 per ton for over-issue and used telephone directories from brokers who handled the material for Bell Atlantic and R.R. Donnelley, directory publishers. In 1989 Homosote signed a contract with Mercer County, N.J. to purchase old newspaper from county recycling programs. Homosote's feedstock is now entirely old newspaper, instead of telephone directories.

Zuckerman
Winchester, VA

Zuckerman brokers telephone books to manufacturers of building insulation, hydromulch, and fiberboard. The company has participated in a phone book collection program in the Winchester area with C&P Telephone.

Zuckerman has a large operation and believes it could handle all of the books collected in the Washington area. The company has a flexible demand schedule and some storage capacity. Zuckerman currently charges a tip fee of \$18 per ton for books delivered loose, which it prefers. It anticipates that this price would go down with large amounts of books. The company has a truck that could pick up the phone books or they can take delivery.

Owl Corporation
Dundalk, MD

This broker will take delivery of phone books loose for a tip fee of \$25 dollars.

AMS International
Portland, Oregon

AMS is a broker specializing in managing phone book recycling programs for telephone book publishers. It can handle all phases of the effort including collection, transportation, processing and brokering. AMS could provide assistance in the Washington area if needed.

Federal Paper Stock Co.
Washington, D.C.

Federal Paper Stock, a local broker, will take delivery of loose telephone books for a tip fee of \$100 per ton.

Tidewater Fibre Co.
Chesapeake, VA

Tidewater Fibre exports books to South America for use in paper mills. Currently, the company takes 700 tons of books a year from the Tidewater collection program and would be interested in taking more for its South American client. All of the books collected in the Tidewater program are C&P, most of which have animal-based glue. Books with hot melt glues might present a problem for the enduser and would at least lower the price paid for the books.

Tidewater is paying \$14 per ton for books at the moment, but this price fluctuates. Phone books for export could be delivered to either the Baltimore or Norfolk pier in high-density bales. Tidewater currently bales the books it exports, but directories from the Washington area would have to be processed by an independent firm and taken to the Baltimore pier. The company believes that it could handle the volume that could be collected in the Washington area.

D.C. Intercell
Baltimore, MD

D.C. Intercell, a broker, has sporadically taken pre-consumer phone books from Donnelley and some from Bell Atlantic. It is interested in brokering post-consumer directories, but the phone companies have not been very helpful. It would prefer not to get involved in the logistics of collection.

D.C. Intercell says that it could handle the volume from the Washington Area through its export market connections primarily in the Far East. Its demand schedule dictates a steady supply throughout the year except for the summer months. This schedule is similar to book distribution in the Washington area. The directories should to be delivered on shrink-wrapped pallets. Bales are a possibility, but are not preferable. D.C. Intercell will have to do some more research before suggesting a price.

Commodity Recycling
Richmond, VA

Commodity Recycling brokers telephone directories primarily for export. It now has a long standing order for 7,000 tons of books and is very interested in Metropolitan Washington. The books must be shrink-wrapped on pallets for Commodity to take them. It can arrange to pick-up a minimum of 20 pallets (20 tons or one trailer load) from a central location in the Washington area for \$10 to \$15 per ton.

Cutler Salvage Co.
Tucson, Arizona

Cutler could broker the material overseas from either Norfolk or Baltimore or broker it domestically. It said the market is depressed right now and it could only pay a negative price for domestic endmarkets and little or nothing for export markets. Transporting and shipping costs would be the key determinants of tip fee. The material would have to be containerized in some fashion, though Cutler did not seem partial to any one type of container, so bales, pallets, and gaylords would be possibilities. Cutler's demand schedule is flexible enough to accommodate the Area.

Canusa/Capital Fibres
Baltimore, MD

Canusa is a firm dealing in wastepaper markets. Canusa staff said for a fee the firm could arrange to leave 20 cu. yd. containers at collection sites, pick up the containers when full and drop off another container, palletize the directories, and haul the pallets to the Port of Baltimore for shipping. Canusa would contract with export markets for the material. The fee for the service would be in the range of \$50-\$70 per ton.

Mid-Atlantic Recycling Corporation
Baltimore, MD

Mid-Atlantic, a broker, has just begun to accept telephone directories separately from mixed paper. This firm will take telephone books delivered loose for \$27.25 per ton. If the directories are shrink-wrapped and palletized the charge is \$0 delivered. Mid-Atlantic can use one of its trucks to pick-up a full load, 22 tons, of palletized books at a Beltway location for approximately \$6 per ton.