



Division of Solid Waste

RECYCLING
A Planning Guide
for
Communities
Appendices

January 1990

CHAPTER IV

Initiating and Expanding a Recycling Program

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This chapter is a step-by-step planning guide to help create a recycling program that will divert waste from disposal and will be acceptable to the community it serves. The planning guide provides a framework for organizing and validating information and for evaluating alternatives, so that planners and decisionmakers have all available information as background for designing a recycling program. The conceptual program design that results from following the steps in this chapter will take into account the full range of possible program elements and prevent communities from eliminating alternatives before fully considering them.

If the community already has a recycling program, the planning guide can be used to shape future growth of the program.

ABOUT THIS PLANNING GUIDE

Assumptions

The planning guide is built around three assumptions:

Assumption 1: Anything that can be recycled should be recycled.

The planning guide uses marketability as the only factor limiting consideration of wastes for possible recycling. Planners who wish to base their programs on different assumptions, such as that cost should limit choices of waste to be recycled, may wish to modify the worksheets accordingly. It is best, however, not to allow costs to limit possible choices while the program concept is being developed.

Assumption 2: A program developed with public involvement will be better suited to the needs and capabilities of the community than one developed without input from the people affected.

The planning guide is structured to encourage public involvement in setting recycling goals, gathering information and developing and evaluating possible actions in a recycling program. Because it is unnecessary to take positions on program structure until recommendations are actually made, the approach suggested here minimizes conflicts during program development.

Assumption 3: Each community has its own way of making decisions.

The planning guide provides opportunity to take into account the characteristics of each individual community.

Background for Decisionmaking

This planning guide is a framework for planners to use in developing a conceptual recycling program. The guide divides the planning process into four stages:

Stage 1: Setting recycling program goals—Goals chart.

Stage 2: Gathering information—Worksheets 1-11.

Stage 3: Evaluating feasibility of possible program elements—Worksheets 12-16.

Stage 4: Formulating waste-by-waste alternatives for program design decisions—Worksheet 17.

The outcome of these four stages is the conceptual recycling program.

RECYCLING PROGRAM: CONCEPT AND SETUP

Concept

The conceptual recycling program outlines how the community intends to recycle, providing guidance for a multitude of technical, scheduling and budgetary choices. Conceptual planning should be carried out with as much public involvement as possible.

Once the planning process set out in this manual has been completed, the recycling program must still be developed and evaluated in detail. For instance, once a conceptual decision has been made to collect certain wastes for recycling, the number of vehicles, the schedule for collection and other technical aspects need to be determined. This detailed analysis should be conducted by people expert in recycling technologies, waste stream assessment and other technical subjects. Where possible, technical decisions should be based on the conclusions and advice of experts. A community should use its conceptual program to direct consultants in doing this work and to help evaluate and make decisions on the advice of consultants.

Setup

Program setup steps include:

- Selection of techniques to accomplish separation, collection, storage, processing. (Chapter III of this manual outlines options from which to choose.)
- Preparation and approval of budgets.
- Implementation steps.

These program setup steps, carried out by the recycling planner or by a consultant, are outlined in a checklist at the end of this chapter. If technical analysis shows any element of the planned program to be infeasible, the conceptual program design can be adjusted.

Who are the Planners?

This chapter uses the term "recycling planners" or "planners" to refer to the people charged with the task of setting up a recycling program. Concept background and setup background are the responsibility of "planners"—the recycling coordinators, consultants, public works directors—who will recommend both conceptual and detailed program designs. The individual or group functioning as recycling planners should have the following characteristics:

- Experience in the solid waste field
- Credibility in the community
- Organizational ability
- Budgeting experience
- Experience in working toward consensus
- Communications and public education skills.

Planners should identify regulators and sources of help to guide them in their work. (See chapters VI and VII for state agency contacts who can advise on financing, technical matters, state laws and regulatory requirements.)

MAKING PROGRAM DESIGN DECISIONS

To design the recycling program, community decisionmakers have to make choices on the following issues:

Which wastes can be marketed?

Will recyclables be separated from other wastes? How?

Will recyclables be collected? How?

Will collected recyclables be stored or transferred? How?

Will recyclables be processed by the community and, if so, what processes will be used?

Recycling Program Elements

This planning guide provides a framework for determining marketability and for deciding whether and how to include the four elements of a recycling program:

- Separation
- Collection
- Storage/transfer and
- Processing.

A separate question for recycling decisionmakers is: Since source separation will become mandatory statewide in 1992, will the community begin with a voluntary or mandatory program? Will part of the program be mandatory and part voluntary?

Planners develop information, alternatives and recommendations to serve as the basis for decisionmakers' action on all these questions.

Who are the Decisionmakers?

Recycling programs affect virtually everyone in a community. For this reason, it is important that the decisionmaking process be made clear and the decisionmakers identified before recycling program design begins. In some communities, the mayor or other elected officials may be the recycling program decisionmakers. Other communities, however, may delegate this responsibility to the recycling coordinator, solid waste department or public works department head, full legislative body, authority set up by one or more communities, or some combination of these.

LISTENING TO THE PUBLIC

Planners are encouraged to involve technical advisors and the public in the conceptual stages of recycling program development.

It is vitally important that the people affected by the recycling program—taxpayers and anyone who generates waste—take the most active possible role in designing the recycling program. This planning guide envisions extensive public involvement in goal-setting, information gathering, development and evaluation of alternatives.

It is up to the recycling planner to facilitate public involvement, and to take into account the information and evaluations contributed by the public. This guide provides a basis for constructive public involvement early in the development of the recycling program.

When conceptual program design begins, recycling planners should consider

what kinds of citizen input they will seek. Householders, businesses, institutions and industries can provide important input in such areas as:

- Determining the community's recycling goals.
- Evaluating how recycling will affect different sectors of the community.
- Providing information about the people in the community or about technical matters.
- Suggesting possible program elements.

Citizens will seldom be able to provide technical advice for program setup, but should be informed and involved if technical evaluation leads to changes in program concept.

STAGE 1 SETTING GOALS AND OBJECTIVES FOR RECYCLING PROGRAMS

Solid Waste Management Planning Goals

Most communities undertake recycling programs for very pragmatic reasons—they are experiencing solid waste management problems which they believe recycling will help solve. Recycling planners, and the community as a whole, need to keep in mind that the underlying reason for recycling is always to solve the community's solid waste management problem.

This guide uses as planning goals broad, positive statements of outcomes that will solve solid waste management problems. For example, a very common solid waste management problem and related goal are:

- *Solid Waste Management Problem*—Landfill is running out of space.
- *Solid Waste Management Goal*—Prolong the life of the landfill.

In classical planning, the next step after formulating the solid waste management goal is to develop a set of objectives — measurable steps toward the goal. For the goal of prolonging landfill life, solid waste management objectives might include:

- Purchase enough land to increase landfill capacity by two years' waste.
- Reduce the waste stream by five percent of all waste now entering the landfill.
- Reuse five percent of all waste now entering the landfill.
- Recycle 30 percent of all waste now entering the landfill.

Note that only one of these solid waste management objectives relates to recycling. This objective, only one among many in a comprehensive solid waste management plan, will be a principal objective guiding development and operation of the recycling program. In this planning guide, we will refer to solid waste management objectives that relate to recycling as "recycling objectives."

Recycling Objectives

Recycling objectives follow from a community's overall solid waste management problems and goals. Examples of typical solid waste management problems, goals and recycling objectives include:

- *SWM Problem*: Landfill is running out of space.
- *SWM Goal*: To prolong the life of the landfill.
- *Recycling Objective*: To recycle a volume of waste equal to 30 percent of the waste stream.

EXPERIENCE SHOWS

A community program should start as soon as possible with at least two materials.

A recycling program should evolve over a period of time, from two recyclables to a few to several to every recyclable material.

- *SWM Problem:* Landfill pollutes
- *SWM Goal:* To keep pollution-causing wastes out of landfill.
- *Recycling Objectives:* To recycle all possible pollution-causing wastes; to encourage development of new recycling processes using these wastes.

- *SWM Problem:* Waste-to-energy facility damage or inefficiency.
- *SWM Goal:* To remove from the waste stream materials that damage the facility or inhibit its operation.
- *Recycling Objective:* To recycle all possible abrasive, explosive and unburnable wastes.

- *SWM Problem:* Too much being spent on tipping fees.
- *SWM Goal:* To reduce weight of waste sent to solid waste management facility.
- *Recycling Objective:* To recycle all heavy materials, such as white goods and batteries.

To begin your community's recycling plan, fill in a copy of the goals chart for each solid waste management goal and recycling objective in your community's solid waste management plan. If your community has no solid waste management plan, develop goals from known problems, as illustrated above.

It is vital that recycling planners and the community remain aware of recycling objectives in their context of overall solid waste management needs — as part of a web of interrelated goals, objectives, sub-objectives and actions that constitute a solid waste management plan. As detailed planning for the recycling program proceeds, it will become apparent that the same actions and sub-objectives will serve several different recycling objectives or goals.

Awareness of this web of actions, goals and objectives will give the recycling program flexibility, so that it can continue to fulfill solid waste management goals in the face of market fluctuations, waste stream changes and other variations in circumstances.

Using Objectives to Evaluate Recycling Proposals

This planning guide develops waste-by-waste "sub-objectives" and action alternatives, based on which wastes are feasible to market, separate, collect, store and process in the individual community. When the conceptual plan is finished, planners can return to the goals chart and fill in as sub-objectives their estimates of amounts of waste to be recycled, and as actions the related portions of their conceptual recycling programs. In this way, planners can check conceptual recycling programs against the community's solid waste management goals and problems. If solid waste management goals change, the goals chart can be used to guide and check expansions or changes to the recycling program.

We suggest that you xerox extra copies of the worksheets.

Goals and Objectives

Make one copy of this worksheet for each recycling-related objective in your community's Solid Waste Management (SWM) Plan. Fill in the objective **and** the goal it serves, leaving sub-objectives and actions blank. If your community has no SWM plan, formulate SWM goals and recycling-related objectives that will solve SWM problems.

Community
SWM Goals

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Recycling-
Related
SWM
Objectives

--

Sub-
Objectives

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Actions

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**STAGE 2
GATHERING INFORMATION**

Worksheets 1 through 11 are provided to help planners organize the extensive and detailed information required to develop a recycling program.

Waste Stream Information (Worksheets 1 and 2)

(Reference: Chapter III, Options For Recycling Programs)

Use worksheets 1 and 2 to record information about your community's waste stream and its components. Worksheet 1 will show total tonnage of all wastes, recyclable and non-recyclable. Total tonnages show the magnitude of the waste stream daily and yearly. Monthly or quarterly totals will indicate any seasonal variations.

Worksheet 2 focuses on recyclables in the waste stream to show the percentage of each type of waste generated by the community and which generators produce what types of waste. An analysis of this information will determine the tonnage that could be diverted from disposal by recycling each material. Planners can use this information to guide their thinking about possible choices of materials to recycle, waste collection needs and the location of transfer, drop-off and storage facilities.

Planners can choose from several methods of estimating or assessing the waste stream:

- To gauge tonnage and components, planners can prepare a waste stream estimate broadly based on the national averages of municipal solid waste or other data already developed by other planning units, particularly those that are economically and demographically similar. (A sample waste stream assessment based on national averages is in Appendix B.)
- To obtain a more precise total of waste being disposed of, planners can use counting trucks entering the disposal facility and/or weighing the trucks before and after unloading.
- To obtain tonnages from commercial, industrial or institutional generators of waste, planners can ask the generator for an estimate or, if the generator employs a private hauler, consult the hauler.
- To obtain the most accurate and complete assessment, the community can hire a consulting or engineering firm to ascertain components, amounts and percentages of each type of waste and total waste tonnages.

It is important to consult with residents, business and industry to validate information about the types and amounts of waste.

**Worksheet 1
Total Waste Generated**

Month _____ Year _____

WASTE	TONNAGE COLLECTED	PERCENT OF TOTAL (Weight)	POUNDS PER PER CAPITA	VOLUME COLLECTED*
RECYCLABLES				
PAPER:				
Newspaper				
Corrugated				
Office				
Magazine				
Other				
GLASS:				
METAL:				
Ferrous				
Non-Ferrous				
White Goods				
PLASTIC:				
PET				
HDPE				
YARD WASTE				
TIRES				
BATTERIES				
Household				
Vehicle				
TOTAL:				
NON—RECYCLABLES				
GRAND TOTAL				

* To convert weight to volume, consult the Conversion Factors Table in Appendix B.

Worksheet 2: Recyclables

Use this worksheet to display recyclable wastes by waste type and generator type. Use actual measurements where available, or, if total waste stream figures are all you have, complete the table with estimates based on the sample waste stream analysis in Appendix B. If you are not confident of the information you have, conduct a more detailed waste stream assessment.

Waste	GENERATOR AND AMOUNT									
	Household		Commercial		Institutional		Industrial		Total	
	%	Tons/Yr.	%	Tons/Yr.	%	Tons/Yr.	%	Tons/Yr.	%	Tons/Yr.
PAPER										
Newspaper										
Corrugated										
Office										
Magazine										
Other										
TOTAL										
GLASS										
Clear										
Green										
Amber										
TOTAL										
METAL										
Ferrous										
Non-Ferrous										
White Goods										
TOTAL										
PLASTIC										
PET										
HDPE										
TOTAL										
YARD WASTE (seasonal)										
TOTAL										
TIRES										
TOTAL										
BATTERIES										
Household										
Vehicle										
TOTAL										
KITCHEN WASTE (organic)										
TOTAL										
GRAND TOTAL										

It is important to update this matrix whenever new information about the waste stream becomes available.

Market Information (Worksheets 3 and 4)

(Reference: Chapter V, Marketing; contacts with markets)

The information learned from contacts with markets can be used to produce a "short list" of recyclables, consisting of the recyclables that are the most marketable. The short list is used in subsequent worksheets to evaluate the feasibility of recycling specific wastes, which will influence the formulation of alternatives. Fill out worksheet 4 for each waste and any time you hear about a new market.

Existing Solid Waste Management System (Worksheets 5, 6, 7 and 8)

(Reference: Municipal records; pilot program)

An inventory of the existing collection and storage system, public and private, will determine what vehicles, staff and storage capabilities are already available and how adaptable these are to recycling. Pilot programs can be useful in gathering information on the workability of collection and storage systems, as long as planners keep in mind that the information applies to a limited area and period of time. This information serves as a base for decisions on additional purchases and hiring and for scheduling pickup of recyclables. Planners will also discover what materials are not recycled by any group in the community.

Community Characteristics (Worksheets 9 and 10)

(Reference: Pilot program; community records)

Information about the community will guide decisions on what and how to separate, collection method and schedules, public information programs and incentives to promote interest and participation. Pilot programs can be a source of information on the acceptability of recycling, but planners should recognize that pilot results apply to a small segment of the community.

Present Solid Waste Management Costs (Worksheet 11)

(Reference: Community records)

Planners need collection and disposal cost breakdowns and totals to estimate how costs will change when a recycling program is added.

Worksheet 3: Marketing

(See Chapter III)

Use worksheets 3 and 4 to summarize the information obtained from calls or visits to recyclers or to industries that accept recyclables as raw materials. For each waste, try to find more than one market, write each name on the worksheet and the tonnage of recyclables the market will accept. Use a check mark in the last column to indicate whether bulk processing (baling, shredding or other processing that must be done after pickup) is required before the buyer will accept the material.

When seeking markets, be sure to contact users of large amounts of secondary materials or those who might be persuaded to use recycled rather than virgin materials. Some manufacturers can use materials from the commercial or industrial portions of the municipal waste streams which your community may be able to supply. Discuss whether to give away or even pay small amounts, if the secondary material user will take your recyclables.

In the case of yard waste, planners may not find a market but the community could compost it and distribute the product to residents or use the compost material on public lawns and gardens.

Types of Waste	Names and Locations of Markets	Amount Accepted (Tons/year)	Bulk Processing?	
			Yes	No
PAPER	Newspaper	1.		
		2.		
		3.		
	Corrugated	1.		
		2.		
		3.		
	Office	1.		
		2.		
		3.		
	Magazine	1.		
		2.		
		3.		
Other				
GLASS	Clear	1.		
		2.		
		3.		
	Green	1.		
		2.		
		3.		
	Amber	1.		
		2.		
		3.		
METAL	Ferrous	1.		
		2.		
		3.		
	Non-Ferrous	1.		
		2.		
		3.		

Worksheet 3: Marketing (Continued)

Types of Waste	Names and Locations of Markets	Amount Accepted (Tons/year)	Bulk Processing?	
			Yes	No
METAL Continued White Goods	1.			
	2.			
	3.			
PLASTIC PET HDPE	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
YARD WASTE (seasonal)	1.			
	2.			
	3.			
TIRES	1.			
	2.			
	3.			
BATTERIES Household Vehicle	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
OTHER				

Worksheet 4: Market Specifications

Make copies of this worksheet and fill one in for each waste for which you found markets. Each time you hear about a new a market, record the information on one of these worksheets for your file.

Type of Waste: _____

Identify each market and fill in the information required.

Market Name:

Who is the contact person? _____

How much of this material will the buyer take? _____

How often must that material be ready for transfer? _____

What condition must the material be in? _____

Will the market pay for the material? Yes No What amount? _____

Will the market charge to take the material? Yes No What amount? _____

How will the payment be made? _____

How long a contract will the market accept? _____

Notes:

Worksheet 5: Current Status of Recycling

Use the following worksheet to summarize information on what is being recycled in your community. "By whom" refers to the group or agency collecting and marketing the recyclables. Indicate whether materials are source separated or co-mingled. In the "How Collected" column, indicate whether materials are picked up or dropped off, or note locations for pickup or drop-off. Identify the market, and in the last column, note the tonnage marketed each year.

Waste	By Whom	How Separated	How Collected	Market	Tons/Yr.
PAPER					
Newspaper					
Corrugated					
Office					
Magazine					
Other					
TOTAL					
GLASS					
Clear					
Green					
Amber					
TOTAL					
METAL					
Ferrous					
Non-Ferrous					
White Goods					
TOTAL					
PLASTIC					
PET					
HDPE					
TOTAL					
YARD WASTE (seasonal)					
TOTAL					
TIRES					
TOTAL					
BATTERIES					
Household					
Vehicle					
TOTAL					
KITCHEN WASTE (organic)					
TOTAL					
GRAND TOTAL					

Worksheet 7: Storage Capacity

Identify all facilities now used to store your community's solid waste.

	NUMBER	TYPE OF WASTE STORED	CAPACITY	AREA SERVED
STORAGE FACILITIES				
Drop-off Stations				
Transfer Stations				
STORAGE EQUIPMENT				
Trailers				
Bins				
Weatherproof Areas				
TOTAL				

Worksheet 8: Collection and Storage Staffing

Count the number of employees presently involved in your collection system and enter below.

Number of employees in collection _____

Number of drivers _____

Number employed at transfer station(s), etc. _____

Number of employees in management _____

Worksheet 9: Community Information

Total area of community: _____

Total population of community: _____

Sources of Large Quantities of a Single Waste—List the names and locations (general area is sufficient). Ask each of them for the amount and types of waste they produce. A pilot program can be useful for collecting this kind of information.

WASTE GENERATOR	LOCATION	WASTE TYPE	AMOUNT OF WASTE
Factories			
Businesses			
Educational or Health Care Institutions			
		TOTAL	

Worksheet 10: Population Density

Use zoning maps and assessment records as sources for the information requested below. The percentages will be helpful in making decisions about collection and communications programs.

LAND USE	AREA	APPROXIMATE % OF TOTAL AREA	POPULATION	APPROXIMATE % OF TOTAL POPULATION	NUMBER OF DISTRICTS
Single-family Residential					
Multi-family Residential					
Business					
Industry					
Commercial					
TOTAL					

Population or cultural circumstances are important. For instance,

- Are there any changes in neighborhoods, such as deterioration causing people to move out?
- Or rehabilitation causing people to move in?
- Are there areas with an aging population where participation may be difficult?
- Are there any special factors dividing or uniting the community?

Incentives should be considered at this stage.

- What would stimulate interest in recycling by different sectors of the population?
- What would stimulate participation?
 - For individuals?
 - For businesses?

Worksheet 11: Current Solid Waste Management Annual Costs

Record overall **annual** costs (to taxpayers) for waste collection and disposal before recycling. Once recycling is established, avoided costs can be subtracted from solid waste management costs to show that recycling reduces overall costs.

ADMINISTRATION COSTS

- Salary and benefits for management and clerical workers \$ _____
- Equipment Purchases Vehicles \$ _____
- Finance Charge \$ _____
- Depreciation \$ _____

- Storage Equipment \$ _____
- Finance Charge \$ _____
- Depreciation \$ _____
- TOTAL: Administration Costs \$ _____

OPERATION COSTS

- Labor:
Wages and benefits for collection and delivery personnel \$ _____
- Equipment Operation:
Fuel (collection) \$ _____
- Fuel
(delivery to disposal facility) \$ _____
(Miles roundtrip X number of trips on collection day X number of collections days/year X price/gallon divided by miles/gallon)
- Maintenance, tires, repairs \$ _____
(Include percent of mechanic's wages and benefits for work on vehicles)
- Insurance, licenses, etc. \$ _____
- TOTAL: Equipment Operation \$ _____

DISPOSAL

- Tipping fees and facility operation \$ _____

TOTAL: Operation Costs \$ _____

TOTAL SOLID WASTE COLLECTION AND DISPOSAL COSTS \$ _____

STAGE 3 EVALUATING FEASIBILITY: PROGRAM ELEMENTS

Worksheets 12 through 16 record the planner's initial judgements about feasibility, for the planner to use in making a "first cut" determination of where to focus detailed planning.

After the program element feasibility evaluation, planners should develop alternative ways of carrying out each program element judged feasible. Stage 4 of this planning guide contains advice for developing alternatives.

Marketability (Worksheet 12)

(Reference: Worksheets 3 and 4)

Worksheet 12 uses the information gathered from markets to determine which wastes are marketable (the "short list"). In this guide, judgement of whether a waste is marketable shapes program design.

Feasibility of Separation, Collection, Storage/Transfer (Worksheets 13 through 15)

(Reference: Worksheets 5,6,7 and 8)

Worksheets 13 through 15 consider how feasible it is to include in the recycling program separation, collection and storage/transfer of the marketable wastes on the short list.

To avoid prematurely rejecting workable program elements, planners are encouraged to make independent evaluations of each possible program element for each waste, before working through how including each element will affect the feasibility of the others. The worksheets for each program element include space to record modifications of existing conditions that might increase feasibility. Modifications might include incentives to participation (or disincentives for non-participation), technical innovations, public education programs, increased taxpayer financing — the planner should think creatively and work with the public to develop modifications that might make important program elements work.

Feasibility of Processing (Worksheet 16)

(Reference: Worksheet 4)

Recycling programs can market a greater volume of materials, find new buyers and get a higher return by performing processing. The feasibility of processing for a particular waste depends on such factors as staff needed, whether the increased value of the materials justifies the purchase of processing equipment or whether the community will accept a processing plant.

Pilot Recycling Programs

Pilot recycling programs can help recycling planners gather information on recycling from a small segment of the community and are valuable in planning and implementing a full-scale recycling program.

Often, local governments choose to implement a pilot recycling program before committing to full-scale recycling. The pilot program serves as part of the planning process by providing planners with information on program elements and community acceptance. Planners should set up a pilot program to accomplish a specific purpose, for instance, to gather particular information, to promote acceptance of recycling or to arouse community interest in recycling.

Characteristics of a pilot recycling program:

Limited to a certain number of households, government buildings or businesses in a defined area. For example, 100 or 1000 households in a residential section, one or several government office buildings.

Limited types of recyclables. For example, newspaper and glass containers, glass and aluminum containers; newspaper and corrugated cardboard.

Limited period of time. For example, three months or six months.

Information can be collected about participation rates, amounts of waste collected and marketed, community acceptance, collection schedules, equipment and staff efficiency and any problems that develop.

At the close of the pilot period, the information is analyzed and evaluated. Planners can then use the evaluation of the pilot experience to make recommendations and adjustments for a full-scale recycling program.

PRO

- Pilot recycling programs allow municipalities to try out a recycling plan in a limited way to gather information for full-scale programs.
- Pilot recycling programs permit problems to surface so that adjustments or changes can be made before full-scale recycling is in place.
- Pilot recycling programs are less expensive for municipalities to implement than full-scale recycling programs.

CON

- Pilot recycling programs end after a brief period, allowing participants to return to old habits and leaving the community without a recycling program of any kind.
- Equipment used for curbside pickup in the pilot program often can be lost or misplaced when program ends.
- Because a pilot recycling program is perceived as experimental, high participation rates and a substantial volume of recyclables diverted from the disposal facility are not necessarily indicative of the same degree of success for a full-scale recycling program.

Worksheet 12: Marketable Wastes

Use the percentages and tonnage totals summarized on worksheet 2 and the information from columns 1 and 2 on worksheet 3 to determine whether particular materials are marketable.

On the following matrix, indicate the amount your community generates of each material per year and the amounts that markets will accept. The outcome of this matrix is a "short list" of marketable material your program should consider recycling. Compare the total amount marketable to the total amount generated. In the "Short List" column, check each waste that your community generates in quantity and that can be marketed. Be sure to include wastes that are generated at one easy-to-collect source, even if the amount generated is relatively small.

Short List	Waste	Total Generated By Community	Market 1 Amount	Market 2 Amount	Market 3 Amount	Total Marketable
	PAPER					
	Newspaper					
	Corrugated					
	Office					
	Magazine					
	Other					
	Mixed					
	GLASS					
	Clear					
	Green					
	Amber					
	METAL					
	Ferrous					
	Non-Ferrous					
	White Goods					
	PLASTIC					
	PET					
	HDPE					
	YARD WASTE (seasonal)					
	TIRES					
	BATTERIES					
	Household					
	Vehicle					
	KITCHEN WASTE (organic)					

Surveying

Opinion surveys can be a valuable source of information for planners and decisionmakers if they ask themselves these questions first:

Is a survey needed or is the information already available in the records?

Do we have the staff expertise to conduct the survey or should we hire a consultant? (Consider area colleges and universities for help from survey research professors.)

Will colleagues understand that we can get a solid reading on the audience by surveying only 400 people—whether the audience is 4,000 or 15,000,000? If not, be sure to have an expert's statement on this available.

Are you and your colleagues too close to the survey content to frame unbiased questions? (Again, an expert can help.)

If yours is a public agency, will you be comfortable sharing the results with the public? If not, don't invest the time and money on the survey.

Will you be willing to change your position on a recommendation if data generated indicate a direction other than the one you supported before the survey?

(Source: *Communication Briefings*, charter issue. Published by Encoders, Inc., Community Square, 403 Sicklerville-Williamstown Rd., Sicklerville, N.J. 08081.)

STAGE 4 FORMULATING AND EVALUATING ALTERNATIVES

Formulating Alternatives

Statements about possible program actions that seem to be feasible and useful are termed "alternatives" in the usage of this book. Alternatives are formulated for program elements judged to be feasible in worksheets 13 through 16, by writing sets of statements about separation, collection, storage and processing of each material on the "short list." Some people call this creative and open-minded process of formulating alternatives "brainstorming."

Examples of alternatives might look like this:

Element 1: Source Separation

- Separate newspapers in homes; with incentives or other modifications (such as a mandatory ordinance).
- Separate newspapers from co-mingled waste generated by businesses.
- Separate aluminum in homes and stores.
- Do not source separate "tin" cans.

Element 2: Collection (private, municipal or combination)

- Collect newspapers at curb from all sources.
- Collect newspapers at drop-off from all sources.

Element 3: Storage

- Store newspapers at existing facility.
- Store newspapers at facility to be rented or purchased.
- Send newspapers directly to market without storage.

Element 4: Processing

- Process newspapers by shredding and baling.
- Do not process newspapers.

Alternatives for each element can, and often will, be statements that are mutually contradictory. At this point, the planner is purposely keeping an open mind about alternatives; subsequent evaluation makes it clear which alternatives are workable.

Involving citizens in the formulation of alternatives often promotes creative thinking about possibilities, and helps citizens understand how program proposals were developed.

It is important not to become committed to any alternatives at this point, and to remind elected officials and citizens that alternatives need to be "formally" evaluated before program decisions can be made.

Evaluating Alternatives

The next step is to evaluate the alternatives. Keep in mind that evaluation is not decision. Public involvement in evaluating alternatives is very productive and gives citizens a sense of "ownership" of the developing program.

Cost should be part of the evaluation, using whatever approximate estimates can be made without detailed technical analysis.

Evaluate each alternative by asking yourself and your community questions such as:

What levels of participation will this alternative generate? How much waste will this alternative remove from the waste stream?

What would be the consequences of this alternative:

for taxpayers?

for businesses?

for hospitals? for schools?

for homeowners?

for apartment dwellers?

for industries?

for private solid waste management companies?

How does this alternative fit my recycling objectives and solid waste management goals? (See Goals Chart.)

How likely would each segment of the community be to participate?

What kinds of incentives can we use to build participation?

What effect would this alternative have on solid waste management costs?

What effect would this alternative have on collection schedules and other local solid waste management activities?

What effect would this alternative have on existing recycling efforts?

What effect would this alternative have on the material's marketability?

What effect would this alternative have on solid waste management costs and revenues?

Other pertinent questions will arise when alternatives are presented to the community. Responses to these and to other questions, as well as ideas generated from the public, can help in eliminating, modifying or generating additional alternatives. Don't be reluctant to innovate, to use common sense and to adapt elements to community needs, values and circumstances.

DEVELOPING A RECOMMENDATION

Having developed alternatives and evaluated them with maximum public involvement, planners now are ready to make recommendations about the program. It is important to realize that involving the public means that groups and individuals from the community contribute to the evaluation of the alternatives. They do not replace the officials who will actually make the decisions.

Designing the Community Recycling Program

Once the collection of information and the formulation and evaluation of alternatives are complete, the work of designing the recycling program can begin. There may be several good alternatives for some elements of the recycling program; for other elements, evaluation may reveal significant drawbacks to all alternatives.

To develop a conceptual recycling program, the planner makes combinations of alternatives and evaluates how well each combination might work. To do this, use the following steps:

For each waste on the short list, choose one or more alternatives for each of the four program elements—separation, collection, storage and processing—judged feasible. (More than one alternative may be needed for a particular waste if different markets for the same waste require different types of separation, col-

Worksheet 17: Alternatives

Make copies of this worksheet and use it to record alternatives for each type of waste on your short list.

Waste: _____

Source Separation Alternatives:

Collection Alternatives:

Storage Alternatives:

Processing Alternatives:

EXPERIENCE SHOWS

Source Separation:

The level of community interest and involvement in the planning process and in the pilot program are indications of the extent of source separation feasible.

Begin recycling with those materials that will divert the most waste from disposal, be the most marketable and cause the least trouble to source separate.

Don't overlook sources of large quantities of recyclables. The program's goals may be met more quickly and completely by, for example, recycling material from commercial sources generating a large volume in one place than from scattered homes.

Collection and storage:

Adapt the existing system, whether publicly or privately owned, to collect recyclables.

Use existing equipment and facilities, if possible.

Marketing:

Be flexible about price, or even consider paying a market to take the recyclables off your hands so that your program avoids disposal costs.

Processing:

If possible, use community resources already in place to meet market specifications.

lection or processing, or if waste from large single generators is to be handled outside the communitywide program.)

Evaluate feasibility and impacts of the combination, and list any special conditions and commitments (e.g. incentives, purchase of new equipment, passage of legislation) needed to make the combination work. When evaluating the conceptual program proposal, be sure to take into account avoided disposal and transportation costs and the overall effect on solid waste management costs.

Look for problems that might arise when alternatives previously considered separately are combined. If there are many workable alternatives for some program elements, develop and evaluate more than one different combination.

Prepare a recommended conceptual recycling program for decision-makers' consideration. For each marketable waste, the program should include all elements (separation, collection, storage and processing), if only to note that for certain wastes no program is recommended for a given element.

Decisionmakers may wish to explore the implications of the recommended program, or to experiment with other combinations of alternatives. Worksheets 12 through 16 and the planner's list of alternatives and evaluations clearly show the judgements underlying the recommended conceptual program and possible effects if decisionmakers accept or change the recommendation.

STARTING UP THE RECYCLING PROGRAM

After the conceptual recycling program has been selected, a number of additional tasks must be completed before the first wastes can be recycled. Since community circumstances vary greatly, this manual does not attempt to provide detailed guidance for selecting technical options. Chapter III provides a starting point for developing technical options—the basic catalog from which a planner can extract a list of techniques to investigate in detail.

Startup Checklist

Choose technical options.

- Select equipment, design, site and, if necessary, construct facilities for collection, storage and processing.
- Set schedules for collection and delivery.

Prepare a project schedule for the entire program.

- List each step, starting and completion dates for each step.
- Record time (in days, weeks or months) that each step will take.
- Record total time expected from start to completion of the project.

Prepare a budget for the recycling program.

Costs

- **Administration:** Personnel, office and equipment, supplies, public involvement and publicity campaign.
- **Collection and processing:** Additional equipment, storage and processing sites and facilities, utilities, licenses, permits, insurance, fuel.

Revenues

- Sale of recyclables.
- Income from state grants for planning, equipment, personnel and promotion.
- Other: Such as bonds, fees added to tax bill, sale of containers for recyclables or bags for garbage to participants, or a per bag garbage dumping fee.

Note: Avoided disposal and transportation costs should also be taken into account because they will reduce overall solid waste management costs.

Obtain necessary approvals and permits.

- Check DEC's Part 360 Regulations to determine regulated or exempt status and requirements for application.

Prepare legal measures. (Samples of ordinances are in Appendix A.)

- Source separation ordinance.
- Definition of penalties for non-compliance.
- Provision against vandalism of sites and scavenging of recyclables.

Take pre-implementation actions.

- Confirm market agreements.
- Acquire land, buildings and equipment.
- Hire and train additional staff.
- Prepare publications, advertisements, etc. for publicity campaign.
- Set implementation and collection schedules.
- Insure site security.
- Put recordkeeping system in place.

For pre-existing program:

Evaluate the recycling program.

- Amount of waste actually diverted from disposal facility.
- Accuracy of estimates of amounts of recyclables collected.
- Ability to meet market specifications.
- Extent of community interest and participation.
- Avoided costs.

Expand the recycling program.

- Institute incentives to increase levels of participation.
- Separate more types of recyclables.
- If voluntary, make program mandatory.
- Make adjustments in program elements as needed to run smoothly.

Local Factors Affecting Solid Waste Management Facility Siting

Are there existing land use and zoning restrictions that will affect the siting of a drop-off center or processing facility?

Does the community have laws against importing waste?

Is there local opposition to siting a solid waste facility nearby? Who is opposed? Where is the opposition located?

EXPERIENCE SHOWS

Before defining program goals, the planner should identify and consult with key segments of the public whose knowledge and involvement will be valuable in recognizing problems and proposing objectives.

To achieve fullest cooperation, consult with each group that generates waste (such as householders, businesses, industry, institutions) while gathering information and formulating and evaluating alternatives.

Save time and prevent omissions by gathering and evaluating information before making decisions.

The more a recycling program is tailored for a specific community or group of municipalities, the more effective it will be, because the nature of the solid waste problem is that it differs from place to place.

Early contact with possible markets is essential to guide program structure decisions, but do not expect commitment from markets until a few weeks before recyclables become available.

APARTMENT-HOUSE RECYCLING—NEW YORK CITY

Community type: large city

Community size: over seven million people

Special problem: Many apartment buildings with over four units

Programs for apartment buildings:

1. Department of Sanitation Curbside
2. Department of Sanitation Containerized

Status: On March 28, 1989, the City passed a mandatory citywide recycling bill which was signed into law by Mayor Koch on April 14. The law is scheduled to go into effect over a five-year period beginning in summer 1989.

Materials recycled: Newspapers, bottles and cans as of June 1989.

Curbside Program

Recyclables separated within a building are emptied into large bins and set out at the curb by building maintenance staff. In summer 1989 curbside program collects from 500,000 households in 13 districts once or twice a week.

Source separation: Yes. Residents separate newspapers, bottles and cans, take them to designated area on each floor where maintenance staff picks up recyclables and delivers to basement storage area. If there is no maintenance staff, residents deliver to storage area.

Storage: Bins in each building provided by Department of Sanitation for recyclables are kept in a designated storage area within the building.

Collection: Recyclables are emptied into larger bins and set out at curb by building maintenance people. Department of Sanitation collects curbside once or twice a week.

Processing: Currently at recycling center in East Harlem which has an estimated processing capacity of 100 tons a day of mixed glass and metal containers and newspaper. Some materials are sold to private vendors for processing.

Containerized Program

Cubic yard containers (dumpster-style) are provided by DOS for buildings under 150 units with access for the department's mechanized vehicles. In summer 1989, 200,000 households were being serviced.

Source separation: Yes. Tenants separate recyclables and deliver to designated area in building based on the usual method of handling garbage in each building.

Storage: DOS provides steel shelters or dumpster-style containers for recyclables which are kept in an area accessible to recycling trucks. Maintenance workers get the recyclables ready for collection.

Collection: Sanitation Department mechanized vehicles collect recyclables once a week.

Processing: Sold to private vendors or processed at East Harlem recycling center.

Results:

By June 1989 the program was recovering 400 tons of recyclable materials daily.

Future Plans:

Recycling has received an increase in funding for fiscal 1989. Over five years, the program will expand to all five boroughs and collect newspapers, magazines, cardboard, metal, glass and plastic containers from high-rises and from buildings with less than 150 units.

The law requires homeowners and tenants to separate metal, glass and plastic containers and place them in a blue and white trash container provided by the Sanitation Department. Newspapers must be tied into bundles. The Sanitation Department will collect recyclables on a separate day from regular garbage pickup.

Most recyclable materials will be collected directly by the DOS or indirectly through contract with organizations providing recycling services to government agencies and tax-exempt institutions.

A goal of five percent of total garbage recycled has been set for the first year, with increments of five percent yearly. By the fifth year, New York will be recycling 25 percent of its garbage. The city plans to build more recycling centers to process the recyclables.

RURAL RECYCLING—RODMAN, JEFFERSON COUNTY

Community type: Rural

Community size: 850 people

Program type: Drop-off

Program status: Mandatory

Materials recycled: Glass, newspapers, cardboard, plastics and cans

Source separation: Yes. Each family keeps five different bins to contain various recyclables and a sixth container for non-recyclable trash. Participants say the bins don't take up any more room than bags of unrecycled garbage used to. Recyclables must be separated into plastics, glass, cardboard, newspaper and cans. Garbage is put into the bins as it is created. For example, after opening a can of vegetables, a Rodman resident rinses it, removes the paper label and steps on the can to crush it before dropping it in its bin. The same is done for glass and plastics. Paper containers are flattened and stored in paper bags. Non-recyclable garbage has its own separate bag.

Storage: At transfer station/recycling center

Collection: None. In Rodman, each family has always taken its garbage to the town dump. Recycling has not caused much change in that system, except that residents transport both garbage and recyclables to the town's solid waste transfer/recycling station, dropping off the recyclables and putting the garbage into a dumpster. Residents say they do not make as many trips as they used to, and that they average one trip every two weeks. Because the recyclables are compacted, they take up less room and require fewer trips to the recycling center.

Processing: By market

EXPERIENCE SHOWS

Expect market fluctuations and be willing to pay markets to take recyclables. The recycling program will still benefit from avoided disposal costs.

Build the recycling program over time; that is, start with two materials, then expand. Expect the recycling program to evolve as needs and conditions change.

Expect to make adjustments and modifications to the program as you proceed.

Keep records

Of amounts separated and collected to compare with total of waste generated

Of costs avoided to inform citizens of their accomplishment

To chart progress toward New York State goal of 40-42 percent of waste recycled

For use in encouraging participation

To supply information needed by the state

Results

Almost all of the 270 families in Rodman participate in the community's recycling program which, officials say, has cut the amount of waste for disposal by 65 percent and cut the cost of waste disposal in half.

Future Plans

In 1988-89, Rodman hopes to recycle 80 percent of the waste stream.

SUBURBAN RECYCLING—HAMBURG, ERIE COUNTY

Community type: Suburban

Community size: 10,450

Status: Mandatory since 1981

Hamburg, a village in Erie County, has a model recycling program. Hamburg began a voluntary drop-off recycling system in the 1970s to save landfill costs. Response to the original program was good, even though homeowners were required to drop off recyclables.

Materials recycled: Paper, cardboard, bottles, cans and motor oil

Source separation: Yes. Residents separate recyclables from the rest of household trash. Rinsed cans and bottles are put in one container, garbage in another and newspapers separately. Even motor oil from changing the oil in their cars is saved and put out for recycling.

Collection: Curbside, weekly. Collection is accomplished by a crew of four per truck. Regular garbage goes into the garbage truck, recyclables are put in separate bins in a trailer towed by the truck. The recyclables are taken to a recycling building at the village complex.

Storage: At recycling building

Processing: By market. At recycling center three people from the Association for Retarded Children sort glass into clear and colored, cans into aluminum and tin and newspaper into newsprint and cardboard.

Costs and Financing

Expenses for recycling consisted of three trailers for \$7,500, bins for \$7,000, a loader at the recycling center for \$12,700 and the building plus a few other expenses another \$10,000. State grants covered part of the cost; the rest was paid over five years. Ongoing expenses are for utilities and the handicapped workers from ARC.

Results

Hamburg's recycling program has resulted in trash loads that are one-third smaller in volume.

From November 1986 to November 1987, the village made \$16,300 from the sale of paper, glass and metal. Savings in landfill costs were \$22,100, savings on fuel for transporting garbage to the landfill were \$1,700 because of smaller and fewer loads. Total savings amounted to \$40,100 compared with \$27,700 in expenses.

"The Hammer"

The village ran a strong publicity campaign to sell the idea of mandatory recycling and reinforced it by what they call "the hammer." "The hammer" refers to the part of the law that helped pound home the practice of recycling—if people don't separate their garbage, it does not get picked up.

Cooperative Programs

Adjacent municipalities sharing similar wastes and other characteristics can benefit from cooperation on a recycling program. Sharing collection equipment and staff, storage facilities, costs and markets benefits each member community by lowering operation and administration costs. A cooperative program has market leverage because larger and more reliable supplies of recyclables are more attractive to buyers.

Locate nearby communities with similar characteristics and problems. What similarities indicate that cooperation might be mutually beneficial?

- Communities with a low population;*
- Communities with a rural setting;*
- Communities with a low tax base or a low solid waste budget;*
- Communities with similar geographic or demographic factors;*
- Communities with shared interest in diverting waste from a landfill;*
- Communities with similar wastes.*

Do any nearby communities already have recycling programs?

What benefits can we share by cooperating in recycling?

- Sharing costs brings down expense for all.*
- Sharing equipment facilities and staff boosts efficiency and economy of program.*
- A recycling program is more likely to obtain state funding if communities cooperate.*
- Larger amounts of recyclables make markets easier to locate.*



CHAPTER

V

Marketing Recyclables

- **Finding Markets**
- **Developing Markets**
- **Negotiating Market Contracts**
- **Markets and the Local Economy**

Recyclables, or secondary materials, are those materials that have been bought and used for a specific purpose and are considered useless by the consumer. If free from contamination by food and other wastes, these "post-consumer" materials can be manufactured into new products.

The marketing of recyclables is the driving factor for all of the decisions shaping a municipal source separation program. Determining what materials to recycle, how to separate and collect the materials, how much preparation is required and how to accomplish it depends on the marketing options available.

This section explains the basic ideas planners must understand in order to design recycling programs that generate materials consistently accepted by manufacturers. It was prepared in cooperation with the Energy Conservation Services Unit of the New York State Department of Economic Development.

FINDING MARKETS

Marketing secondary materials involves contacting and coming to an agreement of sale with a business that can either take the material "as is" and manufacture it into a new product, or a buyer that can clean or otherwise process the material into commodities as useful to manufacturers as virgin materials.

Types of Markets

The recycling industry consists of many varied businesses, ranging from small-scale, one material outlets to multi-million dollar enterprises. Recycling businesses fall into the following types:

Collectors whose primary function is to identify recyclables and transport them from the customer's location.

Processors that buy materials, perform simple processing steps such as sorting or baling, then resell to a manufacturer. Some processors may perform extensive operations such as cleaning, shredding, crushing before selling materials to manufacturer.

Single-item market—Only takes one type of recyclable, such as paper or metal

Multi-item market—Will accept most recyclables

Independent brokers who buy or accept recyclables, then sell them to one or more end-users or arrange the transfer of materials for a fee. (This is an individual who is familiar with a wide range of market possibilities.)

End-user markets that accept and process larger quantities of specific recyclables for use in their manufacturing operation. For example, some paper mills buy waste paper and use it to make paper towels or blown-in insulation. Aluminum manufacturers have always reused scrap aluminum. Recently, plastics manufacturers have begun to recycle particular kinds of plastic.

Buyers, brokers and processors, known as "intermediates," take small, scattered, sometimes contaminated supplies of materials and make them into "mill-specification" manufacturing feedstock for end-users, who use the materials to produce new, useful products. Intermediates are often able to assimilate municipally collected recyclables into their facilities quite efficiently.

Each end-user has specialized requirements for the materials it consumes which are determined by the product manufactured and the process used. Precise quality specifications must be met and a steady supply assured.

Recycling businesses operate by the same motives as any other free market enterprise. Their decisions are based on the dictates of the marketplace: supply, demand, price and costs.

Sources of Information About Markets

The NYS Department of Economic Development's Energy Conservation Services Unit is a clearinghouse for secondary materials market information. Planners and recycling coordinators can call with any type of marketing question. Chapter VII of this manual lists the telephone number and address of the agency.

Consult the yellow pages of the telephone directory to identify local markets. (Marketing locally minimizes transportation costs). Look under:

- Waste Paper
- Scrap Metals
- Junk Dealers
- Recycling Centers
- Recycling Equipment & Services
- Compactors, Waste—Industrial & Commercial
- Rubbish & Garbage Removal

Manufacturers that might use recyclables, such as paper mills, plastics companies.

Consult directories such as the American Recycling Market Annual or the Northeast Industrial Waste Exchange which list markets nationwide for individual recyclable materials. More information about these publications is in Chapter VII of this manual.

Among the best sources of market information are nearby communities that have recycling programs. If a connection is already in place between a nearby seller and an existing market, you may be able to make use of it to market your recyclables as well. This contact could develop into a cooperative program, in which neighboring communities work together to recycle, sharing collection and marketing responsibility as well as cost avoidance benefits and any revenues which result. Local recycling coordinators are listed in Appendix D of this manual.

DEVELOPING MARKETS

Persuade end-users to substitute recycled materials for virgin raw materials, or brokers and processors to expand their operations.

Contacting Potential Buyers

Eventually, every recycling coordinator will be concerned with marketing several materials, which will require knowledge of available buyers. It is important to be resourceful and imaginative in locating and conferring with potential buyers who are a reliable source of general market information and may provide leads to other markets. It is important to know their needs, costs and limitations as buyers to compare with your program goals and limitations as the supplier of materials.

If recycling program planners intend to market several different recyclables, they will be negotiating with several markets. However, even if the program begins with two materials, contacting several markets is wise. It may be advantageous to split the materials among buyers so that the program has more than one outlet to minimize the effect of market fluctuations.

Market Survey. The person responsible for marketing recyclables should call or visit each potential market to identify a contact person and to determine what specific recyclables the market accepts. Keep a record of their requirements for recyclables and how differences in the form, cleanliness and quantity of the materials affects the price or fee for handling. Also note the services they offer, such as transportation and provision of containers, and their cost.

Waste Analysis. The results of your survey should be compared with an estimate of the types and amounts of wastes generated in the community. Evaluating what is recoverable in light of your market survey should narrow the available choices. Your decision to recycle certain materials should not depend on the program being financially self-sustaining. It should be based on the recycling program's ability to lower the community's overall solid waste management costs and on the resource value of the recyclable material.

NEGOTIATING MARKET CONTRACTS

Negotiating the "best deal" does not necessarily mean getting the highest price. Market contracts should contain specific agreements on a number of factors. The best marketing arrangement for a particular recycling program may mean achieving reliable transfer of recyclables, lowering overall cost for solid waste management or some other program benefit rather than expecting recycling to be a money-making enterprise.

All of the details agreed upon should appear in the written contract to prevent misunderstanding. In the case of multiple contracts, written records are especially important because factors can vary from contract to contract.

A sample market contract is included in Appendix C.

Contract Elements

To achieve the most advantageous contract agreement, communities will have to negotiate with buyers. Several contract elements may be negotiable, and they may differ from buyer to buyer. For instance, buyers may be willing to provide a service important to the program, such as an on-site container or a particular schedule for pickup, in exchange for a concession from the community on another aspect of the agreement.

As the seller, the program representative wants a reliable outlet for recyclables, a fair price, a long-term agreement and specifications which allow for preparation and transfer of recyclables at minimum cost to the program. The buyer wants a specified quantity of high quality materials on a regular basis and at a fair price. Negotiations should result in a market contract in which all of the terms of the agreement are spelled out for both seller and purchaser.

The application kit for EQBA funding provides further guidelines for market agreements. Kits are available from DEC's Bureau of Waste Reduction and Recycling, 50 Wolf Road, Albany, NY 12233. Telephone: (518) 457-7337.

Material Specification. One of the first questions recycling planners will want to ask each potential buyer is what specifications they require recyclable materials to meet. Buyers are primarily interested in a guaranteed quantity of recyclables which meet buyer standards for quality. The quality and quantity specifications agreed upon during negotiations should be included in any resulting contract.

Quality. The quality of materials to be supplied to the buyer should be spelled out in specific terms. Definitions should list prohibited contaminants as well as maximum allowable levels (expressed as a percentage or otherwise) of "acceptable" contaminants. If possible, buyer preferences, as opposed to requirements, should be stated. Price differences attributable to inconsistencies in material quality should be agreed upon and included in the contract.

Quantity. The quantities of any given material that will be accepted by the buyer should be defined in specific terms and included in the contract. Quantities are often expressed in either container units or by weight. Newspapers, for example could be sold loose at one price, loose in filled "gaylord" boxes at another price or baled in tractor-trailer loads with different prices for trailers weighing more than or less than an agreed upon weight. Because there are so many different ways to transport a product to market, it is important to clearly define terms of the agreement, such as:

Type of containers to be used and their minimum required weights;
Minimum total weight or number of containers that will constitute an acceptable delivery; Language establishing what adjustments will be made when deliveries vary from what is expected, including any difference in price paid.

Form. Materials that are processed in any way often command higher prices, since they can be transported more efficiently. The end-user usually receives material in very large quantities which requires that the material be very densely packed into a standard container, such as a 44 foot trailer, rail car or oversea container. Therefore, any work done by the seller which makes it easier for the intermediate handler to load a standard container raises the material's value. Any change in value should be clearly explained in the contract. For example, "loose aluminum cans—\$.50/lb., loose flattened cans—\$.58/lb., cans baled to Alcoa specifications—\$.71/lb." Any minimum form requirements should be defined. For example, the contract could include the statement "No loose corrugated will be accepted."

Transportation. One of the parties should be assigned responsibility for providing or arranging the transportation of the materials. The answers to a few questions will determine how arrangements for transporting the materials should be written in the contract:

Is the recycling program able to transport the materials?

How much will transportation cost the program?

Is the buyer able to provide transportation?

What will be the cost to the program?

(Lower transportation costs and ease of communication are the principal advantages of marketing locally.)

Timetables. The parties must agree on a schedule for having recyclables ready for pickup or delivery. Depending on each party's storage situation, the success of the relationship can turn on the smooth transfer of materials so that undue accumulations do not occur. Transfers can be pegged to time intervals, for example, the contract might say "To be picked up weekly upon confirmation by phone," or transfer might be based on accumulated quantities. All details and contingency procedures should be included in the contract.

Duration of Contract. Most sellers prefer a long-term contract to guarantee a market for their recyclables. Most buyers favor a term reflective of the market's

EXPERIENCE SHOWS

The recycling program should be planned to meet the specifications of several buyers and to take full advantage of the services markets provide when the cost is reasonable. Market specifications will help to determine which materials to recycle and the degree of separation and processing required. Services provided by buyers, such as storage containers or transport of recyclables, help keep costs down and facilitate an early start for the program. A recycling program's use of these services must be carefully evaluated to prevent a single buyer from gaining a monopoly on the program's material.

Marketing responsibility should be delegated to one person who will locate, contact and negotiate with potential markets, keep all records and have direct input in the design of the collection and education programs. This person may or may not be the recycling coordinator, but must have some control over the processing and other preparation of recyclables for sale.

All shipments of materials should be carefully prepared, inspected and delivered according to

normal cycles, or will agree to a longer term contract if allowance is made for price fluctuations. Buyers will usually specify lower prices on long-term contracts to protect themselves from price instability.

Price. Secondary materials are commodities. Like other commodities, the prices paid for various grades of these materials rise and fall in accordance with supply and demand. Planners can get an idea of current prices by calling the Department of Economic Development or by consulting market-tracking publications such as Materials Recycling Markets, Official Board Markets and others listed at the end of this chapter. Both parties might agree to use a particular independent source on prices so that swings in the overall market affect both parties fairly. The agreement should be explained clearly in the contract, including procedures to determine prices in extreme or upset conditions.

Payment. Buyers usually have a state-certified scale and/or truck scale that can be used to establish the amount of material being delivered. This weight is recorded on a "weigh slip," along with the date, grade, price and total value of the material. The weigh slip can serve as a record of the transaction. Agreement on this or any other system should be included in the contract. The contract should specify method of payment, whether by check upon transfer, a voucher system or by whatever means agreed upon, and include a specified amount of time for payment.

Special Services. Many buyers lend or rent containers and other equipment, including balers, to assist in the collection of materials. The advantage of such services is the short term lowered cost of equipment. The disadvantage is that such arrangements can make a program dependent upon a single buyer, thereby limiting market options. Use of such services generally makes more sense during a program's start-up phase.

Letter of Intent. Once you have selected a buyer and the most important contract elements have been agreed upon, a letter of intent including these contract elements should be required from the buyer. This letter commits both parties to a future sales and purchase agreement. Letters of intent are important because they allow a final clarification of the agreed upon terms before the legal process of drawing up a contract begins. The DEC requires a letter of intent with applications for recycling program grants and loans.

A sample letter of intent appears in Appendix C.

MARKETS AND THE LOCAL ECONOMY

Recycling produces many economic benefits for communities. Some are immediate; others accumulate over time as the recycling program grows.

Community Development

With the growth of a recycling program, the community gains some control over the volume of solid waste and costs for its management. Business and industry find good management of essential community services a powerful lure when deciding where to locate. Existing business and industry share the benefits when solid waste management costs are lower and essential services are reliable.

Using local buyers for recyclables has a significant positive effect on the community because dollars and expertise are kept within the area, especially if the buyer employs local labor, buys supplies locally and pays local taxes. In fact, en-

couraging recycling facilities or secondary materials manufacturers to locate in the community can add substantial revenue to the local economy. The New York State Department of Economic Development, along with county or city economic development agencies, should be consulted to help firms that process or use recycled products. These agencies have programs to assist with funding and siting as well as economic incentives for recycling businesses. (See Chapter VI and Chapter VII for more information on these programs.)

Long-Term Trends in Recyclables Markets

Handling the Volume. Current recycling markets may not have the capacity to deal with the volume of recyclables expected from mandatory recycling programs. Some manufacturers, glass and aluminum container makers, for example, are ready and able to consume all of the material that meets their specifications. Other industries, such as plastics and some sectors of papermaking, will require new technologies or large capital investments in order to consume the new material. Already entrepreneurs see that there is money to be made in recycling enterprises. New and more efficient technologies for processing recyclables are being developed which will stimulate interest and investment in salvage markets and in industries which remanufacture recyclables.

Encouraging Demand. The other side of the market growth coin is demand for recycled products. Governments can take the lead by purchasing products with recycled content, such as asphalt containing waste glass, paper and curbside recycling containers. In the long run, procurement policies that favor reusable products and products with recycled content can demonstrate the usefulness of such products to other consumers, while expanding the immediate demand. These policies can encourage industries to manufacture more products from secondary feedstocks and help existing products become more competitive.

Uses for Recyclable Materials

Newspaper (Used newspapers, telephone books without covers)

- Repulped for lower-grade uses including boxboard, chipboard, pad backing, file dividers, book covers, legal pads
- De-inked to produce recycled newsprint (can be sold as many different grades, depending on fiber content & brightness)
- Processed into cellulose insulation
- Shredded for use as animal bedding

Corrugated Cardboard (Used packing boxes)

- Reprocessed into cardboard

Computer and Office Paper (Used letter quality computer and copy machine sheets)

- Makes a better grade recycled paper used for printing documents
- Tissue products
- Paper towels
- Newsprint

specifications. If the seller consistently meets specifications, there will be buyers even during periods of low demand. Local recycling programs must overcome the industry perception that their materials are very low quality and, therefore, undesirable. High quality and dependable quantity of materials can ensure a number of stable outlets.

The "best deal" for marketing recyclables may not be synonymous with the highest price. Few communities make a profit from selling recyclables. The goal of marketing efforts is to consistently remove recyclables from the waste stream, not to obtain income. Look for contract terms and services that meet your program's need for reliable outlets for materials.

In some areas of the state, private waste collection companies collect a community's recyclables and handle marketing and any necessary processing as a service. Municipalities that choose to take advantage of such services are still responsible for the success of their recycling program and must have someone knowledgeable about marketing to evaluate potential service providers.

Recycling program planners may be dealing with many different markets and should keep careful records of all agreements and transactions.

Glass (Any glass container. Before processing, containers are usually separated according to color: clear, amber (or brown) and green.)

- Cleaned, crushed, melted and used to make new bottles
- Sterilized and refilled
- Crushed & combined with other materials, such as: sand, to make sand-blasting aggregate; asphalt, and other materials, for road surfacing; cement, for paving.

Aluminum (Food cans, aluminum foil, frozen food containers, storm windows, lawn furniture)

- Reprocessed into aluminum. (Used aluminum requires much less electricity to process, therefore recycling aluminum saves 95 percent of the energy required to extract the metal from bauxite. Recyclers pay highest prices for used aluminum.)

Ferrous Metal (Tin, iron, white goods such as used refrigerators, washing machines, stoves)

- Melted down to make new metal.

Used Asphalt—ground up & used in road surfacing

Tires (Worn automobile and truck tires)

- Shredded, compounded with other polymers and used in road paving or tire-derived fuel (has BTU content higher than coal)
- Remanufactured into new rubber items

Waste Oil— impurities removed and used as heating oil or re-refined and sold to industry as a motor lubricant

PET Plastic (carbonated beverage bottles)—Chipped into small pieces, melted and used to make:

- Fiber for carpet backing, twine, filter material, apparel, rope
- Fiberfill for fiber insulation in down jackets, sleeping bags, pillows, cushions, automobile seats
- Tape for carton strapping
- Paint brushes
- Scouring pads
- Shower stalls
- Audio cassette tape cases
- Non-food containers, six-pack carriers
- Biodegradable plastic bags
- Plastic foam shredded and added to compost to improve soil texture
- Textiles for belts, webbing, sails, woven bags, tire cord

State Agencies Can Help

New York State agencies are involved in identifying and developing markets for recyclables. The Department of Economic Development collects, updates and distributes information about suppliers and consumers of secondary materials. State agencies, the help they offer and how they can be reached are presented in Chapter VII of this book.

- Polyol (chemical component used by urethane foam manufacturers) for laminated board stocks for both wall and roof insulation, refrigeration truck paneling, home and commercial freezer insulation, storage tank insulation, automobile bumpers, furniture, skis and surfboards
- Polyester for bath tubs, boat hulls, swimming pools, corrugated awnings, marbelized material, automobile exterior panels

HDPE Plastic (milk bottles and the black bottom cover of large soda bottles)-Chipped and/or pelletized and used to make:

- Fatigue mats, plastic runners
- Soil stabilizer in embankments and to improve roadbeds
- Landfill liners
- Fiberglass
- The base cup of PET soda bottles

Plastic of all types can be formed into plastic lumber

Fabric—Recycled polyester fabric scraps are used for carpet pads

Solvents—Recycled and used to clean equipment

Concrete—Pulverized and used as aggregate in new concrete construction or as sub-base or structural fill (valuable to contractors)

Coal Fly Ash—Can be used as aggregate in cement

Gypsum—(This is calcium sulfate, a waste by-product from “scrubbing” smokestacks to prevent acid rain.) Used in construction and as a valuable soil amendment.

Yard Waste

- Composted to make soil amendment
- Composted with sludge to produce soil enricher or fuel pellets
- Sawdust & powder sold to nurseries as compost
- Shredded into chips for fuel

For further information Contact: Tom Kacandes, Secondary Materials Marketing Specialist.

Sources Of Information About Specifications

Recycling industries operate according to generally accepted rules. The following guides are important sources of market information and are available from the publishers and the Department of Economic Development.

Paper, Ferrous and Non-Ferrous Metals

ISRI (Institute of Scrap Recycling Industries) Scrap Specification Circular 1988.— A compendium of specification and transaction information including:

Paper Stock Institute Circular—Lists and defines standard paper grades and maximum allowable contamination; provides guidelines for domestic and export transactions.

Guidelines for Metals Transactions—Provides definitions for all ferrous and non-ferrous grades including processing specifications.

Newspaper

Garden State Paper's (GSP) Service Requirements—Defines GSP's interpretation of number 8 Special de-ink grade newspaper with prohibited materials listed.

Aluminum

Alcoa Product Data Rigid Container Sheet, Sect. FRP941 Self-Generated Scrap and Used Beverage Scrap—Includes general information, preparation, packing, loading and shipping information.

Steel Cans

General Specifications for Steel Can Scrap by the Steel Can Recycling Institute (April 6, 1989)—Includes forms acceptable for mill-direct shipments and other transactions, references to applicable ASTM specifications and lists of definers and steel companies that accept steel cans.

Glass

Although a standard ASTM specification for cullet exists, each manufacturer has particular specifications for the types of cullet used in its product. Container manufacturers in New York have fairly complete specifications that are available through the NYS Department of Economic Development:

Owens-Illinois' Quality Specification Sheet—Describes required color separation, types of contamination and acceptable forms of material.

Central New York Bottling Company's Operational Procedures—Describes required color separation, prohibited materials and acceptable forms of container glass.

Plastics

Because standard specifications are not available for the plastics-consuming industries, each buyer's and each consumer's individual specifications must be examined separately. To locate these buyers consult:

Society of the Plastics Industries (SPI) 1989 Plastics Recycling Directory—Provides some general information on types of plastics, lists and cross references. Complete address information for all buyers and a list of plastics processing equipment vendors are included.

**CHAPTER
VI**

**Recycling Costs
and
Financing**

- **What Do Recycling Programs Cost?**
- **What Are the Alternatives for Financing Recycling Programs?**

WHAT DO RECYCLING PROGRAMS COST?

Municipalities should anticipate financial outlays for recycling. Costs for recycling can range from \$15 to \$40 per ton of recyclables. Although that may seem high, when costs are projected over a ten year period, in most cases recycling is far more economical than the long-term costs of landfill operation, expansion, closure procedures, and long-term liability and monitoring. Recycling costs include:

- Planning
- Equipment
- Facilities and land
- Personnel
- Citizen involvement

Planning

Planning must consist of a long-range strategy for solid waste management including the best estimates of alternatives to justify recycling as part of a comprehensive system. Included in planning costs are:

Waste composition study—Consultant cost can be anywhere from \$20 thousand to \$100 thousand and should be updated every year or two. Municipal personnel can conduct the study and save substantial cost to the community.

Market survey—Consultant cost ranges from \$20 thousand to \$100 thousand and also should be regularly updated to discover new market possibilities or changes in existing markets and prices. Smaller communities may find a cooperative effort with other communities will save costs.

Design—Consultant cost can run to \$100 thousand. Smaller communities' design costs will be minimal because their needs are simpler.

Equipment

Equipment expenses can include apparatus for collecting, separating, storing, processing and shipping recyclables. Planners should remember that more automated and higher capacity equipment results in lower operating costs. Planners can gather information about equipment options by:

Asking—Manufacturers for an equipment experience list with names, addresses, and telephone numbers of contacts with experience in operating and maintaining the equipment. Follow up by calling and asking about performance history.

Comparing—The equipment to specifications.

Talking—To several vendors about performance and price.

Facilities and Land

Facility and land costs can be minimized by using vacant land and buildings for transfer, storage and processing of recyclables. Implementation costs will be lower and the existing buildings and land will be put to productive use. Any land or facility should have enough room for expansion and modification, which is often necessary after three to five years.

Personnel

The number of existing personnel is usually inadequate to handle recycling, whether it is done by a municipal collection system or a private firm. More private firms are contracting to handle recycling for communities. Negotiating such contracts should be done with care to avoid expensive misunderstandings. Municipalities may require extra staff such as planners, a recycling coordinator, educators, transporters, maintenance people and marketers.

Citizen Involvement

Count citizen involvement as an ongoing and essential element in the recycling program and plan to fund it continuously whether it is handled by the municipality or by a consultant. Costs include:

- Holding public meetings
- Producing and distributing publications
- Advertising through various media

Estimated Costs (from Broome County, 1986)

These costs are variable. The disposal costs of a community must be determined on the basis of site specifics. These costs should then be the basis of calculating cost avoidance for evaluating recycling economics.

A. TO BUILD A LANDFILL: \$350,000 to \$450,000 per acre (in accordance with Part 360 regulations)

B. TO DISPOSE OF TRASH IN A LANDFILL: \$40 to \$60 a ton

C. TO BURN TRASH: \$70 to \$100 a ton

D. TO CLOSE A LANDFILL: \$50,000 to \$100,000 per landfill acre

COMPARISON OF SOLID WASTE COSTS WITH AND WITHOUT RECYCLING

COST	WITHOUT RECYCLING	WITH RECYCLING	DIFFERENCE
Administrative	\$40,000	\$70,000	-\$30,000
Labor	\$100,000	\$150,000	-\$50,000
Equipment	\$250,000	\$270,000	-\$20,000
Disposal	\$300,000	\$250,000	+\$50,000
Revenues	\$0	\$60,000	+\$60,000
		VALUE OF RECYCLING	+\$10,000
SOLID WASTE COSTS WITHOUT RECYCLING			\$690,000
SOLID WASTE COSTS WITH RECYCLING			\$680,000
NET COST/SAVINGS DUE TO RECYCLING			\$10,000

WHAT ARE THE ALTERNATIVES FOR FINANCING RECYCLING PROGRAMS?

The costs for handling and disposal of solid waste continue to rise, causing communities throughout New York State to be concerned about financing programs and facilities. Along with reduction, waste-to-energy conversion and landfilling, recycling programs are an integral part of overall solid waste management.

The cost of a recycling program depends on the extent and complexity of the endeavor. The most successful programs, that is, those which have high rates of compliance and divert the greatest volume of material from disposal are organized on a county or regional level with several municipalities sharing costs and benefits. Cooperative programs generally build a materials recycling facility and/or a composting facility.

Many sources of financing are available to fund recycling programs.

Local Revenue Sources

Taxation. Tax levies can be in the form of income tax, sales tax, property taxes, service charges, user charges, special and ad valorem (full value) tax. Taxation produces a solid base of revenue. General taxes provide a wider base while special levies can be used for specific items or services. User fees, such as tipping fees, can generate funds for a special purpose. However, taxes are difficult to impose because of taxpayer opposition. Some taxes are limited to specific purposes. For example, taxes on services used to retire revenue bonds can only be used for that purpose.

Tipping (user or waste generator) fees. A tipping fee is a charge levied on all wastes brought to a disposal facility or materials brought to a processing facility. Charges are generally on a weight or volume basis with special charges for certain kinds of materials. For example, bulky items such as white goods or particular items which are difficult to store, such as tires, may have a special fee imposed. These charges can cover capital, operating and maintenance costs for processing and disposal facilities.

Tipping fees are based on actual costs and can be adjusted as costs decrease or increase. There is generally an established rate schedule to provide a flexible revenue-producing mechanism. Tipping fees can be employed by either a private or public developer or operator. However, the facility or service must be in use to collect the fee. Charges may be unfairly distributed unless equity of rates is carefully calculated.

Legal and Institutional Mechanisms for Recycling

Beyond the municipal level, other avenues are available to finance recycling and other solid waste management endeavors.

County. The purpose is to develop a recycling program or other solid waste management technique or facility as part of an integrated solid waste management plan. The county legislative body may appropriate and disburse funds for the management of solid waste. The county may acquire, construct, operate and maintain the necessary facilities and services for solid waste management such as: recycling centers, transfer stations, hauling facilities, processing systems and other solid waste reduction, treatment, disposal or conversion systems. The county may contract for development directly or go through a public authority and must

comply with general municipal law and municipal finance law to construct facilities.

County Agency. The purpose of a County Agency is to compile information related to the development of a county solid waste management program. The county may appoint, establish or designate an existing administrative body or public authority to act as its agent to assemble data on a solid waste management project. The powers of a County Agency include collecting data on the problems of collection, conveyance, treatment and disposal of solid waste within the county and engineering, legal and other professional advice as may be necessary and budgeted. The Agency also may give technical assistance to local municipalities.

County Refuse District. The purpose of a County Refuse District is to implement programs for solid waste management. A county may establish a refuse district for the purposes of collecting and disposing of garbage and other wastes from two or more non-contiguous areas within the county. It can act as an agent, when designated by the county, to plan and develop a recycling program.

The district designates the service area of the program and carries out the functions delegated to it by the county. A refuse district requires the approval of the State Comptroller.

Local Solid Waste Authority. The purpose of a Local Solid Waste Authority is to implement, develop and finance, through revenue bonds, a county or local solid waste management program. A local Solid Waste Authority is a special public authority established by an act of the state legislature. The act identifies the purposes and powers given to the local authority. The local authority may be granted the powers to collect, transport, process and dispose of solid wastes; design, construct and operate a materials recycling facility and a disposal facility; contract for loans or grants with other municipalities, public corporations or persons; contract for the design, construction, operation, maintenance and financing of a recycling or disposal facility.

Intermunicipal Agreement. An intermunicipal agreement between two or more municipalities binds them by contract to cooperate in areas in which they are entitled by law to perform individually. An intermunicipal agreement can provide for apportionment of costs and revenues and for contracting, acquisition and sale of property. It can apply for grants and take action on behalf of the individual participants.

Financing Mechanisms for Recycling

New York State Environmental Facilities Corporation (EFC). EFC assists in the planning and development of recycling and other facilities, and is empowered to issue both general obligation and special obligation bonds and notes.

The Environmental Facilities Corporation is a public authority with broad powers to plan, design, construct, operate, maintain and finance solid waste management facilities such as materials recovery facilities, transfer stations, waste-to-energy facilities and landfills. EFC can take action in the area of solid waste management on behalf of a municipality, make loans for the construction of facilities and lease or rent its corporate projects in accordance with contracts with municipalities or state agencies. EFC has flexibility for financing because, as a public benefit corporation, it is not subject to the restrictions that govern municipalities.

New York State Urban Development Corporation (UDC). UDC accesses financial markets useful for project development. UDC affords flexibility in opportunities for financing and management of facilities since the corporation is not subject to the restrictions related to financing which can inhibit municipalities from developing projects.

UDC is a public benefit corporation which works closely with state agencies and engages in a wide range of development and improvement projects. UDC can use its broad powers to finance and construct development projects, such as residential, industrial, civic or land-use improvement. UDC can issue general obligation and project revenue bonds and notes.

Industrial Development Agency (IDA). Unlike EFC or UDC, an IDA does not engage in the actual construction and operation of facilities. IDA enters into a contract with a private corporation with IDA holding title to facilities constructed by the private company. To finance the project, IDA issues tax-exempt bonds which are paid back from the revenues of the project and secured by the credit of the private company.

An IDA is a public benefit corporation established by special act of the legislature. An IDA is a vehicle through which a project, such as a materials recovery facility, can be constructed and operated by a private company and still enjoy the advantages of tax-exempt financing. The agency is authorized to acquire real and personal property for corporate purposes and to make contracts with any public or private person or corporation. IDAs can also issue bonds and notes which are obligations of the agency. Neither the state nor the municipality is liable.

Summary of Financing Alternatives

Listed below are the legally sanctioned financing options available to municipalities and those available to public benefit corporations.

Procuring Body and Bond Issuer—*Permitted Financing Options*

Municipality—*Municipal Bonds*

Industrial Development Authority—*Project Revenue Bonds*

County—“Special District”

- *zones of assessment*
- *ad valorem tax on benefitted real property*
- *user charges*

Countywide

- *tax revenues*
- *general obligation bonds*
- *ad valorem real property taxes*

New York State Environmental Facilities Corporation—*General Obligation Bonds*
—*Special Obligation Bonds*

New York State Urban Development Corporation—*General Obligation and*
—*Project Revenue Bonds,*
subject to specific
legislative approval

**State Technical
and
Financial Assistance
for
Solid Waste
Management**

- **State Programs for Recycling**
- **State Financial Assistance for Recycling Activities**

Historically, state policy has left solid waste management in the hands of local governments. To help municipalities comply with revised regulations and recent legislation, the state has instituted programs offering technical assistance and grants for solid waste management including recycling.

STATE PROGRAMS FOR RECYCLING

New York State Environmental Quality Bond Act of 1972 and the New York State Solid Waste Management Act of 1988 established programs to help local officials plan and finance recycling systems. The new programs also target market development for recyclables (secondary materials) and provide assistance to businesses and industries for recycling their wastes and for developing methods for recycling municipal waste. Local officials, businesses and industries can take advantage of these services.

Technical Assistance for Recycling Activities

Information on grants for local recycling programs is available from:

New York State Department of Environmental Conservation
Division of Solid Waste
Bureau of Waste Reduction and Recycling
50 Wolf Road
Albany, New York 12233-4015
Telephone: (518) 457-7337

In addition to providing information on grants, the bureau provides:

- Help with solid waste management planning
- Information on individual recyclables
- Data about facilities for collection, processing, storage and marketing of recyclables
- Information about recycling exemptions, regulations and permitting rules
- Advice and guidance for setting up recycling programs
- Information on existing recycling facilities, alternative systems for recycling and on the volume and composition of solid waste generated
- Information on the STOP program (Save That Office Paper) which is practiced in state and local government offices, private industry and schools.

Information on markets for recyclables is available from:

New York State Department of Economic Development
Energy Conservation Services Unit
One Commerce Plaza
Albany, New York 12245
Telephone: (518) 486-6291

In addition, the Department of Economic Development provides:

- Assistance to commercial and industrial firms in establishing and implementing waste reduction techniques.
- Information about suppliers and consumers of secondary materials
- Financial assistance to business to encourage expansion of capacity for processing recyclables and manufacturing finished products from secondary materials

- Assistance in developing and establishing markets for local recycling programs
- Markets research

Copies of the New York State Part 360 Regulations governing recycling and other phases of solid waste management may be obtained from:

New York State Department of Environmental Conservation
 Division of Solid Waste
 Bureau of Municipal Waste Permitting
 50 Wolf Road
 Albany, New York 12233-4013
 Telephone: (518) 457-2051

To apply for construction and operation permits for all solid waste management facilities contact:

New York State Division of Regulatory Affairs
 50 Wolf Road
 Albany, New York 12233-1750
 Telephone: (518) 457-7424

or, if outside the Capital District, contact the Regulatory Affairs Representative in your DEC regional office.

A source of market information on industrial materials is:

New York State Environmental Facilities Corporation (EFC)
 50 Wolf Road
 Albany, New York 12233
 Telephone: (518) 457-4100

EFC maintains a directory of markets specifically for the exchange of industrial materials and information on methods and technology for reduction, recycling and reuse of industrial materials. Also, EFC can identify markets for other types of recyclables.

EFC can be retained for management services such as:

- Financing, regulatory analysis, lab services, technical assistance and information on alternatives for local governments or businesses
- Feasibility reports for local governments which characterize and quantify waste streams and evaluate solid waste management options
- Overseeing plans and construction for recycling and incineration facilities
- Identifying haulers of hazardous waste
- Issuing notes and bonds to finance projects for business and industry

Funding for research related to recycling is available from:

New York State Energy Research and Development Authority (NYSERDA)
 Agency Building
 2 Empire State Plaza
 Albany, New York 12223
 Telephone: (518) 465-6251

NYSERDA grants include:

- \$70,000 for innovative recycling systems
- Funds for waste oil technology studies

NYSERDA also issues Public Opportunity Notices (PONS) which announce to municipalities, private industries, small businesses and individuals that partial funding is available for research, development and demonstration projects on specific energy-related problems.

Information on the New York State Solid Waste Management Act and state policy:

New York State Legislative Commission on Solid Waste Management
(Assembly)
150 State Street
5th floor
Albany 12207
Telephone: (518) 455-3711

In addition, the Commission prepares background reports on subjects such as recycling incentives, waste tires and environmental liability insurance. The Commission also has copies of the proceedings from several solid waste conferences sponsored by the Legislature, two video tapes on solid waste and nearly twenty publications on solid waste management and recycling.

STATE FINANCIAL ASSISTANCE FOR RECYCLING ACTIVITIES

Financial Assistance for Localities

The cost of a recycling program depends on the extent and complexity of the endeavor. Funds for recycling are available to municipalities from state government programs.

Grants for recycling equipment: The 1972 Environmental Quality Bond Act (EQBA) provides grants to pay half the costs of recycling equipment such as shredders, balers, can crushers, conveyor belts, and temporary storage facilities.

Grants for costs of various recycling activities: The Local Resource Reuse and Recovery Program (LRRRP) goes beyond the 1972 EQBA and makes available funds from the 1987 Kansas Stripper Well settlement in grants paying up to 75 percent of the costs of recycling activities such as:

- Planning
- Waste composition studies
- Market analyses
- Salary of recycling coordinator
- Public education campaigns

Both of these funding programs are administered by:

New York State Department of Environmental Conservation
Division of Solid Waste
Bureau of Waste Reduction and Recycling
50 Wolf Road
Albany, New York 12233-4015
Telephone: (518) 457-7337

Financial Assistance for Businesses

State financial assistance is available to businesses involved in recycling or engaged in developing technologies for recycling.

Grants and loans for: Development of new recycling processes/technology feasibility studies.

New processors and end users of recyclable materials

Expansion of existing processor and end user enterprises

Skills training, improving competitiveness and a range of other applications

Contact:

NYS Department of Economic Development

Energy Conservation Services Unit

One Commerce Plaza

Albany 12245

Telephone: (518) 486-6291

Applicable programs in the Job Development Authority, Urban Development Corporation and Science and Technology Foundation are available through the Energy Conservation Services Unit.

Grants for:

Innovative recycling systems

Waste oil recovery systems

Waste oil technology

Contact:

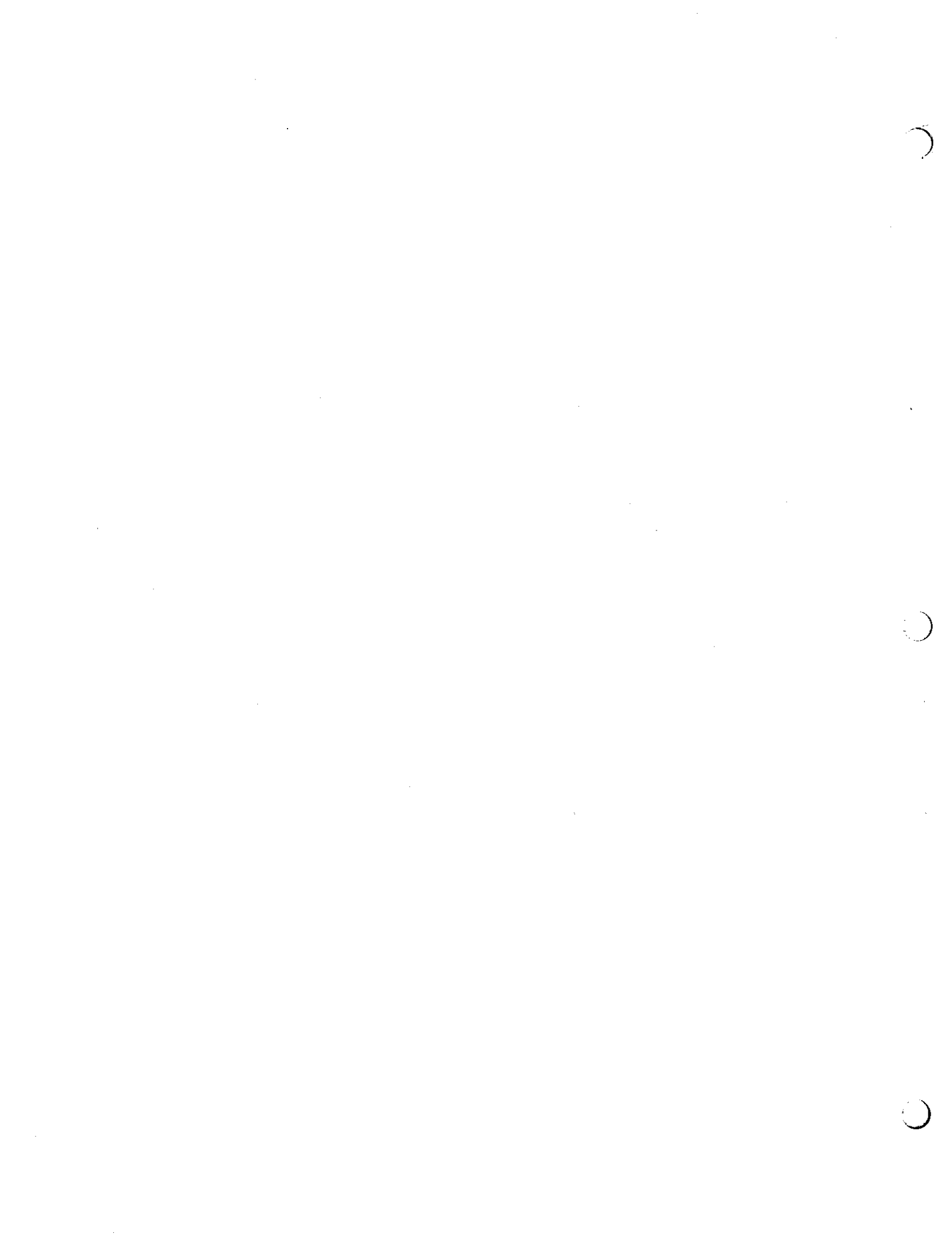
NYS Research and Development Authority (NYSERDA)

Agency Building 2

Empire State Plaza

Albany 12223

Telephone: (518) 465-6251



**CHAPTER
VIII**

**Maintaining
a
Recycling Program**

- **Troubleshooting**
- **Recordkeeping**
- **Calculations of Avoided Costs**

After the recycling program is in operation, maintaining and improving it must be an ongoing effort. Even though a recycling program seems to be operating well, its effectiveness and efficiency can only be determined by detailed analysis of productivity and recovery data and calculation of avoided costs.

Troubleshooting

Recognizing and working out problems in the early stages of the recycling program may mean the difference between the program's success or failure. Typical problems include:

- Poor participation
- Fluctuation in markets
- Change in separation or collection requirements

Changing behavioral habits in a community is a slow process. Minimize problems with participation through public involvement, promotional and educational campaigns. If municipal leaders are committed and enthusiastic about recycling, residents will be more inclined to participate. (Samples of promotional and educational materials appear in Appendix G.)

The effect of market fluctuation can be mitigated if planners develop several marketing options and keep in touch with market contact persons. Then, if the original market fails, planners will be prepared to identify other marketing alternatives.

Alert residents to any change in separation requirements or collection schedules and issue frequent reminders through the public education campaign.

Recordkeeping

Record the amounts of materials recovered from the waste stream and the amounts of materials diverted from the disposal facility. The figures are needed to calculate the costs the solid waste management program avoids by recycling. In addition, the figures are useful for informing the community of the progress of the recycling program to stimulate interest and participation.

Calculation of Avoided Costs

On the following worksheet, enter the amounts of each material recovered.
Then use the formulas to determine the total avoided costs.

Worksheet — AVOIDED DISPOSAL & TRANSPORT COSTS/REVENUES

Recycling Revenues = Amt. of Recovered Materials x Revenue/Ton of Material

Item	AMT. OF RECOVERED MATERIALS (tons) (from Worksheet 1)	x	REVENUE/TON FROM SALE OF MATERIAL	=	RECYCLING REVENUES
ALUMINUM CANS					
GLASS — Clear Brown Green					
ORGANICS — Yard Waste Food Waste					
PAPER — Newspaper/Magazines OCC Mixed					
PLASTIC — HDPE PET					
SCRAP METAL					
TEXTILES					
TIN CANS					
AMT. OF RECOVERED MATERIALS =			RECYCLING REVENUES =	\$	

Worksheet is continued on the following page.

Worksheet continued

Total Amount of Recovered Materials (tons) × Tipping/Disposal Fee (per ton) = Avoided Disposal Costs

$$\boxed{} \times \boxed{} = \boxed{\$ }$$

Total Amount of Recovered Materials (tons) × Waste Transport Fee (per ton) = Avoided Transport Costs

$$\boxed{} \times \boxed{} = \boxed{\$ }$$

Recycling Revenues + Avoided Disposal Costs + Avoided Transport Costs = TOTAL REVENUES

$$\boxed{} + \boxed{} + \boxed{} = \boxed{\$ }$$

Data Collection Chart

Month _____ Year _____

1. Collection

- | | |
|--------------------------------------|---------------------|
| 1. Number of collection routes | Route: _____ |
| 2. Average number of loads per route | Loads/Route: _____ |
| 3. Average time to complete route | Hours/Route: _____ |
| 4. Average overtime per route | OT/Route: _____ |
| 5. Average set out per route | Lbs./Set out: _____ |
| 6. Average number of stops per route | Stops/Route: _____ |

2. Recovery Rates

MATERIAL	TONNAGE COLLECTED	PERCENT OF TOTAL (WEIGHT)	LBS. PER CAPITA	VOLUME COLLECTED	PERCENT OF TOTAL CU. YDS.	COST PER UNIT
Newspaper						
Corrugated						
Cardboard						
High Grade Paper						
GLASS:						
Aluminum Cans						
Metal Cans						
PET Plastic						
HDPE Plastic						
YARD WASTE						
TIRES						
BATTERIES						
Household						
Vehicle						
Bulk						
TOTAL:						

Convert tonnage to volume using volume conversion factors in Appendix B.

3. Recycling Costs

	Monthly	Route Average
1. Direct labor costs	\$	\$
2. Total overtime paid	\$	\$
3. Fuel costs	\$	\$
4. Maintenance	\$	\$
5. Total revenue from sale of materials	\$	\$
NET COSTS	\$	\$

6. Cost per unit equals:
 Net recycling costs/Tonnage/Volume recovered

Bibliography

Print Sources of Recycling Information**POLICY****NYS Solid Waste Management Plan (Free)**

Write:

NYS Dept. of Environmental Conservation

Division of Solid Waste

50 Wolf Rd.

Albany 12233-4010

(518) 457-6603

6 NYCRR Part 360 Regulations—Environmental regulations governing solid waste management facilities. (Free)

Write:

NYS Department of Environmental Conservation

Division of Solid Waste

Bureau of Municipal Waste Permitting

50 Wolf Rd.

Albany 12233-4013

(518) 457-2051

MARKETS**New York State Department of Economic Development Energy Conservation Services Newsletter**—Current information on markets in New York State and the progress of state and local efforts to expand markets. Available summer 1989.

Write:

NYS Department of Economic Development

Energy Conservation Services

One Commerce Plaza

Albany 12245

or call: (518) 486-6291

American Recycling Market Annual Directory—Lists recycling centers, auto dismantlers, paper mills and demolition contractors. (\$95.00 per copy)

Write:

Recoup

P.O. Box 577

Ogdensburg, NY 13669

or call: 1-800-267-0707

Directory of Markets—collected and published by Saratoga County Recycling Task Force. Lists any group, business or individual involved in collection and reuse of old materials. Includes private organizations which collect recyclables, thrift shops which deal in used clothing or furniture, landfills which separate solid waste and dealers who buy and sell used goods. (Free)

Call: Diane Reilly (518) 664-8595 or Anne Magnuson (518) 371-8486

Fiber Market News—Weekly newsletter of paper stock prices including major cities on the east coast. (\$95/year)

Write:

4012 Bridge Ave.
Cleveland, Ohio 44113
Call: (216) 961-4130

Materials Recycling Markets (MRM)—Monthly listing of current prices for all recyclables for northeastern markets. (\$75/year)

Write:

P.O. Box 577
Ogdensburg, N.Y. 13669
Call: 1-800-267-0707

Northeast Industrial Waste Exchange—Acts as a broker by publishing a Listings Catalog and providing a 24-hour computer service designed to connect buyers and sellers of the waste products of manufacturing. Recently expanded its services to include other recyclables such as wood, paper, metals and tires. (Free in sponsoring states—N.Y., Ohio, Maryland, N.H., Conn., and Pa.—\$20/year in non-sponsoring states and Canada)

Write:

90 Presidential Plaza
Suite 122
Syracuse 13202
Call: (315) 422-6572
Call: 1-800 237-2481

MANUALS

Re/Uses, 2133 Ways to Recycle and Reuse the Things You Would Ordinarily Throw Away, by Carolyn Jabs. 178 pages. 1982. (\$9.95)

Write:

Crown Publishers
One Park Avenue
New York, NY 10016

Keep America Beautiful System and Recycling—Ring-bound, tab-separated book which contains information on recycling program development and recovery of materials. (\$40/copy)

Write:

9 West Broad St.
Stamford, Conn. 06902
Call: (202) 323-8987

Why Waste a Second Chance?—Self-training package for grassroots community leaders produced by the National Center for Small Communities, the research and training arm of the National Association of Towns and Townships. Package includes the guide, a video showing how recycling has been put into effect throughout the country and a user's guide. Guidebook: \$6.00 for members, \$10.00 for others \$1.50 postage for all. Package: \$50.00 for members, \$80.00 for others \$5.00 postage for all.

Package: \$50.00 for members, \$80.00 for others \$5.00 postage for all.
(Video available for rental.)

Write:

National Association of Towns and Townships
1522 K Street, N.W.
Suite 730
Washington, D.C. 20005
Telephone: (202) 737-5200

TECHNICAL BOOKS AND PERIODICALS

Bio-Cycle magazine—journal of waste recycling with articles on composting, Materials Recovery Facilities (MRFs) and processing techniques.

Write:

J.G. Press, Inc.
Box 351
18 South 7th St.
Emmaus, Pa. 18049
Call: (215) 967-4135

Phoenix Quarterly—Principally information on scrap metal (Complimentary subscription)

Write:

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

Plastic Bottle Recycling Directory and Reference Guide—published by the Plastic Bottle Institute. Lists firms nationwide which recycle plastic (Intermediate processors, manufacturers, brokers and equipment manufacturers). (Free)

Write:

Plastic Bottle Information Bureau
1275 K St., NW
Washington, D.C. 20005
Call: (202) 371-5244

Recycling Times—Newspaper of recycling markets, including articles on recycling and prices for recyclables. Published every two weeks by Waste Age. (Subscription only, \$95.00/year)

Write:

Recycling Times
5615 Cermak Road
Cicero, Illinois 60650

Recycling Today—Recycling news; focuses on metals. (\$22/year)

Write:

P.O. Box 5817
Cleveland, Ohio 44101-9599

Resource Recycling Magazine—A recycling journal which contains information on markets, new recycling developments, technologies and controversies. Also publishes an annual equipment issue.

Subscription: \$27/year)

Write:

1206 N.W. 21st St.

P.O. Box 10540

Portland, Ore. 97210

Call: (503) 227-1319

Users Directory of Waste Handling Equipment (WEMI Directory)—Pictures and describes types of trucks, trailers and other gear useful in collecting and processing recyclables and cites the companies which manufacture them. 15 to 25 pages. (\$3/copy)

Write:

National Solid Waste Management Association

Publications Dept.

P.O. Box 5000

Washington, D.C. 20061-5000

Call: (202) 659-4613

Waste Age—Monthly magazine on waste issues. (\$27/year)

For subscriptions:

555 Broad Hollow Rd.

Suite 214

Melville, N.Y. 11747

Call: (202) 861-0708

Central Office:

Suite 1000

1730 Rhode Island Ave.

Washington, D.C. 20036

Call: (516) 755-2222

Wasteline—Newsletter published four times/year by DEC on various aspects of solid waste management. (Free)

Write:

NYS Dept. of Environmental Conservation

Division of Solid Waste

50 Wolf Rd.

Albany, NY 12233-4010

Call: (518) 457-6603

World Wastes—General industry magazine; focuses on solid waste management. (\$27/year)

Write:

6255 Barfield Rd.

Atlanta, Georgia 30328

Call: (404) 256-9800

INFORMATION ON PLASTICS**Center for Plastics Recycling Research**

Rutgers, The State University of New Jersey
Busch Campus, Building 3529
Piscataway, New Jersey 08855
Telephone: (201) 932-3683

Plastics Recycling Foundation, Inc.

1275 K Street NW Suite 400
Washington, D.C. 20005
Telephone: (202) 371-5200

Mobil Chemical Company--Has established a toll-free number where consumers can get answers to questions about degradability, recycling, incineration and landfills. The number is intended to clear up misconceptions about plastics and their impact on the environment and to answer questions about photodegradable and biodegradable plastic products.
Call: 1-(800) 476-4300.

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APPENDIX A

- **Drafting a Mandatory Recycling Ordinance**
- **Sample Recycling Ordinances**

Oneida County

Saratoga County

Town of Islip

Town of Brookhaven

City of Hamburg

DRAFTING A MANDATORY RECYCLING ORDINANCE

AN INCREASING number of state mandatory recycling laws and skyrocketing solid waste disposal costs have created strong incentives for municipalities to reduce the volume of trash which they generate by implementing mandatory recycling programs. An essential component of any such program is an ordinance. Indeed, the ordinance is the legal instrument through which the program becomes mandatory.

A municipality cannot simply take a form recycling ordinance off the shelf. The ordinance should be based upon a recycling program designed and planned to address the peculiar needs and characteristics of the municipality. The nature and scope of the program will dictate, to a large extent, the contents of the ordinance.

Applicable legal requirements will also influence the contents of the ordinance. The law often dictates what a municipality must do with respect to recycling, what it can do, and what it cannot do. In many states mandatory recycling laws require that certain municipalities adopt mandatory recycling ordinances and often specify that certain elements must be included in the ordinance. A municipality's very power to adopt a mandatory recycling ordinance depends upon the existence of some state legislation authorizing the municipality to do so. State and federal law also may determine how a particular goal may be accomplished and thus dictate a program's structure. A municipality contemplating initiation of a mandatory recycling program is therefore well advised to involve its attorney when planning first begins.

DESIGNING THE PROGRAM: ELEMENTS THAT WILL VARY

Although input from the municipality's attorney should be sought during program planning, the applicable legal requirements obviously represent only one of a number of considerations which will be important to planning. The existence of markets, types of recyclables generated in the community, public acceptability and education, the availability of funding, existing recycling programs, and the structure of the solid waste collection and disposal industry are just a few other issues which must be considered in structuring a mandatory recycling program.

Effective legal steps will address specific needs and characteristics of the municipality—and its waste management goals.

*R.B. McKinstry, Jr.
and
W.M. Prendergast*

Early input from elected officials, state regulators, those already involved in recycling, other interested citizens, representatives of the solid waste industry, persons with knowledge of local markets, and representatives of local businesses is therefore essential to obtain knowledge and advice on these considerations.

Because input from those with different backgrounds and expertise is important, many municipalities establish a planning group to determine the general structure of the recycling program. The basic structure of the program will, in turn, determine the majority of the operative terms of the ordinance. This development is an iterative process, where a number of alternatives are explored and assessed for their legal, technical, economic and political feasibility and acceptability. During this process, there are a number of issues that must be addressed.

First, the attorney's task will be to determine the municipality's legal authority and responsibilities with respect to recycling. Does state law require the municipality to adopt a mandatory recycling ordinance? If not required, does state law give municipalities the power to require recycling if they so choose? If the municipality must develop a mandatory recycling program, does state law specify any requirements that must be included in the recycling program? The attorney must also inform the municipality of what it can and what it cannot do in assessing options. For example, a municipality's ability to award a franchise for collection of goods on the street for recycling may depend upon the existence of adequate authorizing legislation. Public bidding requirements may also restrict a municipality's choices in establishing a recycling program.

Secondly, the planning group must determine who will be subject to the requirements of the ordinance. Will the ordinance apply to residential uses only or will it apply to industrial, commercial and institutional sources, as well? Will the ordinance apply to single family homes only or multiple family homes as well? The geographic scope of the program must be determined. Will mandatory recycling be required throughout the community or in certain portions of the community only or be phased-in in various parts of the community over time? The community may wish to impose different requirements

upon various classes of waste generators. Different classes may generate different materials; they present different problems for collection, and the municipality's authority to mandate recycling may differ from class to class.

A third issue that must be resolved in the early planning stages is which materials will be the subject of the recycling ordinance. This will require investigation into existing markets. For example, in many places there are no markets for plastics; transporting plastics to existing markets may be impossible for a reasonable price. Investigation of the types and amounts of recyclable materials generated within the municipality will also be required. For example, different classes of generators produce a different mix of recyclable materials. Thus, a municipality may wish to limit office building programs to high grade office paper and require recycling of only glass and aluminum for bars and restaurants. Finally, one may wish to build flexibility into the choice of materials by allowing some choice by either the generator or the implementing agency regarding materials to be recycled or by phasing materials in and out over time.

A fourth basic issue to be resolved before one starts drafting the recycling ordinance is how the recycled materials will be picked up. This requires a determination of whether the recycling program will be a curbside program, a dropoff program or a combination of both. The municipality may also wish to require some classes of generators to make their own arrangements for pickup. Many programs will require commercial and institutional facilities to make their own arrangements for pickup and will require owners of multi-family establishments to create separate dropoff centers for each establishment.

The fifth and critical determination to be made is how the program will be financed. Will the municipality underwrite the program or will an authority or some other unit of government finance it. Will all or a portion of the program be financed with receipts? How will necessary equipment and facilities be acquired? Will all costs be passed to the private sector? Although this issue may not be reflected in any of the terms of the mandatory ordinance, the institutional choices that financing may require will often dictate the program's overall structure.

The sixth and final element which should be established in the early planning stages is the party or parties who will be responsible for implementing and enforcing the program. This element may very well be determined by financing considerations. For the portions of the program to be implemented by a public entity, the municipality must decide whether the implementing entity will be a department or agency of the municipality, an existing or specially created authority or another unit of government altogether, such as an authority or an agency of another unit of local government or the state government. The municipality may wish to divide responsibility for implementation and enforcement

The attorney's task will be to determine the municipality's legal authority and responsibilities with respect to recycling.

between two or more public entities. For example, an authority might be assigned responsibility for collection and marketing while the general municipal government retains responsibility for enforcement.

The municipality may wish to maintain public control, but utilize private industry. For example, a curbside program might be implemented by the municipality by hiring private contractors to perform the collection or, if there is a sufficient market, by franchising the right to collect materials placed at the curb or in dropoff centers. If the municipality wishes to minimize public involvement and expense, it might simply require source separation by generators and further require that any solid waste collectors/haulers collecting solid waste in the municipality also collect and market source separated materials.

Obviously, various combinations and permutations of these approaches may be used. For example, a very common approach would be for a municipality to perform curbside pickup from single family residences while requiring institutional and commercial enterprises to design and to implement their own programs at their own

DRAFTING THE ORDINANCE: WHAT EVERY ORDINANCE SHOULD INCLUDE

Once the foregoing basic elements of a recycling program have been established, a municipality can begin drafting the ordinance. The key provisions of the ordinance will describe the central elements discussed above. These operative elements will vary according to the type of recycling program selected by the municipality. However, every recycling ordinance should include certain elements which will be necessary regardless of the type of program developed. These include the following:

1. **Rulemaking**—If the public entity that will implement the ordinance has the power to do so, the ordinance should provide the authority to adopt rules and regulations. This will maximize flexibility and will allow for measures such as phasing in and out various recyclable materials.

2. **Notice and Public Education**—Each ordinance should require that certain measures be taken for periodic notification of the requirements of the ordinance and for public education. No recycling program can survive without an informed and motivated public.

3. **Preparation of Recyclables**—The ordinance should establish standards for the preparation of recyclables for curbside collection or drop off. It should specify the type and amount of cleaning, the location at which the recyclables should be placed and the extent to which various types of recyclables may be mixed or segregated.

4. **Anti-scavenging**—Every recycling ordinance should provide an anti-scavenging provision. Those not required or entitled to pick up recyclables from a dropoff center or from the curbside should be forbidden to do so.

5. **Existing Recycling Operations and Contracts**—The ordinance should further in-

clude provisions addressing existing contracts and existing recycling operations. The ordinance should provide that it will not interfere with the terms of the contracts executed before its effective date, so as to preserve its constitutionality. However, in order to assure that implementation will not be hindered it should further require that any new contracts or contract renewals be consistent with its provisions. To the extent that recycling is required for industrial or commercial concerns, the ordinance should seek to include provisions to assure that it will not interfere with the reuse or recycling of materials that may occur as a part of the commercial or industrial process. For example, most paper mills will reintroduce certain paper scraps into their process. The ordinance would be counterproductive if it interfered with this process. The ordinance may also seek to preserve the ongoing operation of recycling programs already established in the community by non-profit organizations. Of course, this is a matter which should be dealt with in structuring the ordinance in the initial phase.

6. Enforcement—Every ordinance must include provisions to assure enforcement. The ordinance should designate unlawful activities and allow for injunctive relief. It should also establish penalties in an amount consistent with the municipality's authority under the law. If authorized, the ordinance should provide that each continuing day of violation will be deemed a separate violation. The ordinance can include provisions that will discourage noncompliance in other ways, such as a prohibition of collection of trash including recyclable materials that should have been separated pursuant to the ordinance.

7. Boilerplate—Finally, certain "boilerplate" provisions should be included in any ordinance. The ordinance should include a severability provision which will assure that if a particular provision is invalidated, the remainder of the ordinance will remain valid. The ordinance should also include an effective date, which may provide that certain terms of the ordinance will become effective at different times.

All mandatory recycling ordinances should include certain common elements. However, the substance of the ordinance will be determined by the cooperative effort of the municipality's attorney and the parties interested in establishing a workable recycling program. Only with the early and continued involvement of all interested and knowledgeable parties can the municipality develop a workable ordinance and program which are satisfactory to the residents and businesses whose cooperation is essential to the program's ultimate success. ■

Robert B. McKinstry, Jr. and Winifred M. Prendergast are with the law firm of Ballard, Spahr, Andrews & Ingersoll in Philadelphia, Pennsylvania.



ONEIDA COUNTY BOARD OF LEGISLATORS

LOCAL LAW #1 OF 1988

RESOLUTION NO. 218

INTRODUCED BY: MESSRS. JULIAN, HARTWELL, CREASER, MEIER, FIORINI, WOOD, HERTLINE,
SMALL, ASHE, J. WILLIAMS, MANNELLA, VANWAGENEN

2ND BY: MR. KELLY

RE: LOCAL LAW FOR THE COLLECTION AND DISPOSITION OF SOLID WASTE INCLUDING
GARBAGE, RECYCLABLES, CONSTRUCTION AND DEMOLITION DEBRIS, APPLIANCES,
FURNISHINGS, GREEN WASTE, HOUSEHOLD HAZARDOUS WASTE, AND FARM HAZARDOUS
WASTE

Section 1. Definitions.

As used in this local law, the following terms shall have the following meanings:

(a) "Commercial and industrial garbage" shall include all non-hazardous and non-toxic wastes which are not commercial and industrial by-products.

(b) "Construction and demolition debris" means waste resulting from construction, remodeling, repair and demolition of structures, road building, and land clearing. Such wastes include but are not limited to bricks, concrete and other masonry materials, soil, rock, lumber, road spoils, paving material and tree and brush stumps.

(c) "Farm hazardous waste" shall mean all containers containing pesticides and/or pesticide residue and which can no longer be utilized for farm purposes.

(d) "Green waste" shall mean grass clippings, leaves, and cuttings from shrubs, hedges and trees.

(e) "Household garbage" means putrescible solid waste, including animal and vegetable waste resulting from the handling, storage, sale, preparation, cooking or serving of foods. Garbage originates primarily in home kitchens, stores, markets, restaurants, and other places where food is stored, prepared or served.

(f) "Household hazardous waste" shall include pesticides, used motor oil and automobile batteries.

(g) "Large household furnishings" shall mean all other large and/or bulky articles actually used in the home and which equip it for living (as chairs, sofas, tables, beds, carpets, etc.)

(h) "Major appliances" shall mean a large and/or bulky household mechanism (as a refrigerator, washer, dryer, stove, etc.) ordinarily operated by gas or electric current.

(i) "Person" shall mean any individual head of household, landlord, Chief Executive Officer, owner or manager of a commercial or industrial establishment.

(j) "Recyclable commercial and industrial by-products" shall include all materials which are a by-product of production utilized in production or sale after sale by a commercial enterprise or industrial enterprise.

(k) "Recyclables" means any material designated, from time to time, by the counties which, under any applicable law or regulation is not hazardous and which is separated from the waste-stream and held for its material recycling or reuse value.

(l) "Recyclers" shall mean those who deal with recyclable material both as collectors, separators and marketers. This definition shall include not-for-profit corporations and charitable corporations which collect recyclables for fund raising purposes.

(m) "Solid waste" means all putrescible and non-putrescible solid wastes, including, but not limited to, materials or substances discarded or rejected as being spent, useless, worthless, or in excess to the owners at the time of such discard or rejection, or are being accumulated, stored, or physically, chemically or biologically treated prior to being discarded or rejected, having served their intended use, or as a manufacturing by-product, including, but not limited to, garbage, refuse, industrial, commercial and agricultural waste sludges from air or water pollution control facilities or water supply treatment facilities, rubbish, ashes, contained gaseous material, incinerator residue, demolition and construction debris and offal, but not including sewage and other highly diluted water-carried materials or substances and those in gaseous form, special nuclear or by-product material within the meaning of the Atomic Energy Act of 1954, as amended, or waste which appears on the list or satisfies the characteristics of hazardous waste promulgated by the Commissioner of Environmental Conservation.

(n) "Source separation" means the segregation of recyclable materials from the solid waste stream at the point of generation for separate collection, sale or other disposition.

(o) "Vehicular tires" shall mean tires from cars and trucks and their casings.

(p) The terms "garbage," "recyclable material," "construction debris" and "major appliances" shall not be construed to include "green waste".

Section 2. Preparation of Garbage and Recyclable Material for Residential Collection.

In order to provide for public health and safety and to facilitate the conservation of vital natural resources, each city, town and/or village within the county shall provide for the collection of solid waste and recyclable material. Each municipality shall provide by January 1, 1990 to the Commissioner of Solid Waste Management a plan for approval to provide for such collection. Such plan must demonstrate that regular, reliable collection of solid waste and recyclable material will be provided to each property which generates that material in that municipality.

The Commissioner of Solid Waste shall determine subject to the approval of the County Legislators, the schedule of implementation for collection of recyclable material throughout the County.

No person shall dispose of garbage or recyclable or nonrecyclable material except as follows:

(a) In order to facilitate the conservation of vital natural resources through recycling: Each person shall provide for the separation of recyclables in a suitable container as authorized by the Oneida County Commissioner of Solid Waste Management for recyclable material or as provided by the County of Oneida or any public authority contracting with said County.

(b) In order to further facilitate the conservation of vital natural resources through recycling: Discarded newspapers, glass and metals shall be separated from other nonrecyclable material and placed in said container; the particular requirements for separation shall be established by the Commissioner of Solid Waste Management.

(c) From the time of placement of garbage and of recyclable material at the roadside or other designated area approved by the Commissioner of Solid Waste Management by a person for collection in accordance herewith, such garbage and recyclable material shall be delivered to the appropriate facility designated by the Oneida County Commissioner of Solid Waste Management. It shall be a violation of this ordinance for any person without authority from Oneida County to collect, pickup, remove or cause to be collected, picked up or removed any garbage and recyclable material placed at the roadside or other designated area and each such collection, picking up, or removal from one or more premises shall constitute a separate and distinct offense in violation of this ordinance. A resident may dispose of their recyclables by selling or donating the same to recyclers, but these recyclables may not be picked up at the roadside.

(d) It shall be a violation of this local law for any person to place at the roadside for collection any can or container other than one which contains garbage and recyclable material alone.

(e) Tipping fees if necessary for the collection, handling and disposal of recyclables shall be established by the Board of Legislators as needed either upon its recommendation or that of the County Executive.

Section 3. Public Sale of Recyclables.

(a) In order to facilitate the sale of recyclable material, the County shall request letters of interest from recyclers expressing their willingness to purchase recyclable material from the County. A list of interested parties will be established by the Commissioner of Solid Waste Management.

(b) Prior to the sale of recyclable material, recyclers appearing on the list will be notified and given specifications with regard to available recyclable material for sale.

(c) In the event that recyclers bid on said recyclable material, it shall be required that said bid be written and delivered to the Commissioner of Solid Waste Management according to the specifications set forth by the Department of Solid Waste Management. In the case of awarding a bid, the highest bid price will be accepted.

(d) All sales of recyclables collected and separated shall be subject to bid. It shall be a term and condition of all bids for recyclables collected under this local law that the material purchased will be recycled and not landfilled or burned or otherwise not recycled.

Section 4. Preparation of Residential, Commercial and Industrial Construction and Demolition Debris and Disposal of the Same.

(a) Each city, town and/or village within the county shall provide a schedule for the collection of residential, commercial and industrial, construction and demolition debris. Such material which is recycled or reused for construction shall not be regulated by this local law.

(b) Said debris shall be disposed of at the Oneida County Construction Demolition Debris Disposal Site or other suitable site as designated by the Commissioner of Solid Waste Management under the terms and conditions established by the Oneida County Commissioner of Solid Waste Management.

(c) Tipping fees or other charges for the handling and disposal of residential, commercial and industrial and construction debris shall be established and modified by the Board of Legislators as needed from time to time either upon the Board's own initiative or upon the recommendation of the County Executive.

Section 5. Preparation of Residential Green Waste and Disposal of the Same.

(a) Each city, town and/or village within the county shall provide a schedule for the collection of residential green waste.

(b) Said green waste shall be composted either by the County of Oneida at a site or sites designated by the Commissioner of Solid Waste or at sites approved by the Commissioner of Solid Waste operated by cities, towns or villages. Where allowed by law or regulation, this section shall not prohibit private composting of green waste.

(c) Tipping fees or other charges for the handling and disposal of residential green waste shall be established and modified by the Board of Legislators as needed from time to time either upon the Board's own initiative or upon the recommendation of the County Executive.

Section 6. Disposal of Commercial and Industrial Garbage and Recyclables.

(a) All commercial and industrial waste collected by either municipal haulers or private haulers shall be delivered to the appropriate facility designated by the Oneida County Commissioner of Solid Waste.

Section 9. Enforcement: Penalties

(a) Failure to comply with this local law by any person or tenant in cases where a lease agreement gives specific responsibility for solid waste disposal to said tenant, shall be an offense punishable as provided.

(b) Conviction of a first offense provided by this article shall be punishable by a fine of fifty dollars (\$50), and in addition, anyone convicted of a first offense thereunder shall be liable to pay a civil penalty of fifty dollars (\$50). Conviction of a second offense within a year of the first offense shall be punishable by a fine of one hundred dollars (\$100), or imprisonment of not more than fifteen (15) days, or both, and in addition anyone convicted of a second offense thereunder shall be liable to pay a civil penalty of one hundred dollars (\$100). Conviction of a subsequent offense within a year of the first offense shall be punishable by a fine of at least one hundred dollars (\$100) and not more than five hundred dollars (\$500), or imprisonment of not more than thirty (30) days, or both, and in addition anyone convicted of a subsequent offense thereunder shall be liable to pay a civil penalty of one thousand dollars (\$1,000).

Section 10. Effective Date:

This local law shall be effective throughout the County of Oneida no later than eighteen (18) months from the day of signing by the County Executive. The Commissioner of Solid Waste Management shall within thirty (30) day of the signing of this local law file with the Clerk of the Board of Legislators a schedule for the implementation of this local law, giving the date that this law will be effective in each town, city and village within the county.

Section 11. Severability:

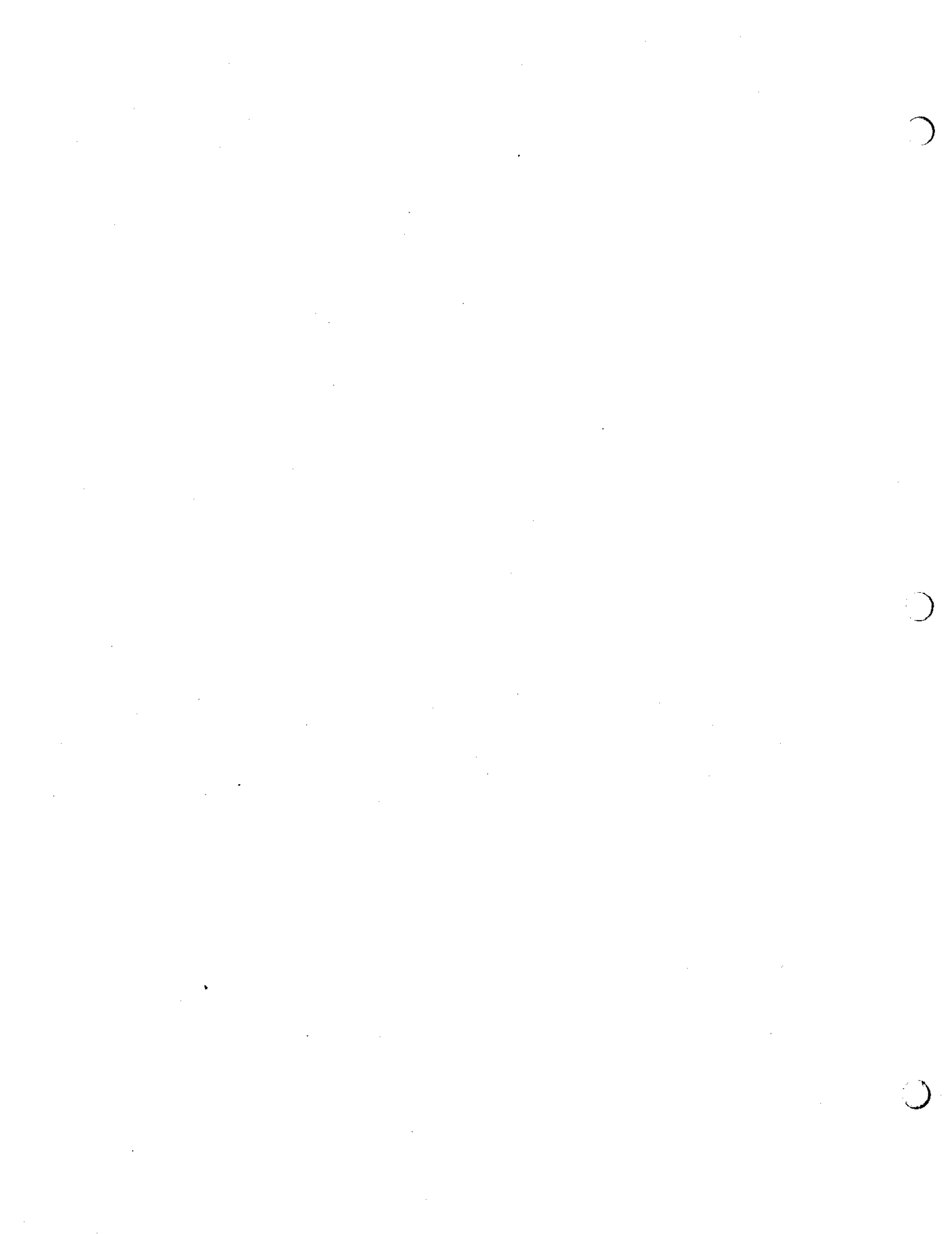
If any part of this local law is found to be illegal by a court of competent jurisdiction, the remaining sections shall remain in full force and effect.

APPROVED: Environmental Conservation Committee (June 29, 1988)
Laws & Rules Committee (June 29, 1988)
Ways & Means Committee (July 13, 1988)

ADOPTED BY THE FOLLOWING VOTE:

AYES 37 NAYS 0

DATED: July 27, 1988



RESOLUTION NO. 106

TO ENACT LOCAL LAW NO. 1 OF 1988, ENTITLED
"A LOCAL LAW RELATIVE TO RECYCLING IN THE COUNTY OF SARATOGA".

By Messrs. McNeary, Callanan, Congdon, Dailey, Dudek, McDonald,
Seymour, Sgambati and Simoni:

WHEREAS, a proposed Local Law was duly presented to the Board of
Supervisors and was introduced by Resolution No. 80 of March 15, 1988,
and

WHEREAS, pursuant to such Resolution, the Board of Supervisors did
provide for a Public Hearing to be held on the proposed Local Law on
April 13, 1988 in the Board of Supervisors' Rooms at No. 40 McMaster
Street, Ballston Spa, New York 12020, and

WHEREAS, Notice of such Public Hearing was duly published and
posted as required by law, and said Public Hearing was held and all
persons appearing at said Public Hearing desiring to be heard have been
heard by the Board of Supervisors; now, therefore, be it

RESOLVED, that the Board of Supervisors of the County of Saratoga,
New York, on this 19th day of April, 1988, does hereby enact and adopt
Local Law No. 1 of 1988 as set forth in Schedule "A" annexed hereto.

Budget Statement: The full cost of a recycling program will be offset
by revenues which cannot be determined at this time,
however, there is no cost associated with this local
law.

STATE OF NEW YORK |
 | ss:
COUNTY OF SARATOGA |

I, ARDIS ANDERSON, Clerk of the Board of Supervisors of Saratoga
County, do hereby certify that the foregoing is a true copy, and the whole
thereof, of a resolution duly adopted by the Board of Supervisors of said
county, on the 19th day of April, 1988.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed
hereto the official seal of said Board of Supervisors this 21st day of
April, 1988.

Ardis Anderson
Clerk of the Board of Supervisors
Saratoga County, New York

COUNTY OF SARATOGA
LOCAL LAW NO. 1 OF 1988

A LOCAL LAW RELATIVE TO RECYCLING IN THE COUNTY OF SARATOGA.

BE IT ENACTED by the Board of Supervisors of the County of Saratoga as follows:

SECTION 1. Legislative Intent.

In Section 1 of Chapter 773 of the 1987 Laws of the State of New York, entitled "An Act in relation to solid waste treatment and disposal in Saratoga county", effective August 7, 1987, the New York State Legislature finds, declares and determines that "the present and existing systems for the disposal of solid waste generated or disposed of within the boundaries of the County of Saratoga threaten the present and future health, safety, welfare and environment of the people of such county ... and that such situation transcends local boundaries, interests and motivations and is therefore a matter of state concern". As defined in such state law, "Solid waste disposal activities" include, among other things, such activities as separation, transportation, delivery, storage, handling and the processing of solid waste.

Pursuant to Section 3 of such law, the Saratoga County Board of Supervisors is empowered to adopt and amend local laws which impose appropriate and reasonable limitations on competition with respect to, among other things, the processing or recovery of any material and requiring that all or any portion of the solid waste generated, originated or brought within the County of Saratoga be delivered to recycling centers as determined by the County of Saratoga's Board of Supervisors.

On January 19, 1988, by the adoption of Resolution No. 19 of 1988, entitled "ASSUMING THE LEAD ROLE RELATIVE TO RESOLVING THE PROBLEMS OF SOLID WASTE DISPOSAL IN SARATOGA COUNTY", the Saratoga County Board of Supervisors did assume the lead role in examining all alternatives for the disposal of solid waste within Saratoga County, and the Board of Supervisors did also accept the responsibility of developing the most cost effective and environmentally safe solution for the disposal of solid waste in Saratoga County.

In keeping with this charge, the 1988 Solid Waste Committee has recommended a staged County-wide recycling program which, in the first instance, shall require the source separation of newspapers and discarded scrap ("white") metal. It is intended that an expanded recycling program of other materials shall be initiated as the County of Saratoga gains experience and formalizes its recycling procedures.

Chapter 7½

GARBAGE, TRASH AND RUBBISH*

Art. I. In General, §§ 7½-1—7½-10

Art. II. Collection and Disposition, §§ 7½-11—7½-17

ARTICLE I. IN GENERAL

Secs. 7½-1—7½-10. Reserved.

ARTICLE II. COLLECTION AND DISPOSITION†

Sec. 7½-11. Definitions..

As used in this local law [article], the following terms shall have the following meanings:

- (1) "Garbage" shall mean kitchen and house refuse and table cleanings, fruit and vegetable parings, decaying vegetable, animal and fruit matter and fallen fruit.
- (2) "Nonrecyclable rubbish" shall mean plastic containers, rags, sweepings, excelsior, rubber, leather, crockery, shells, clothing, straw, dirt, filth, ashes, waste paper and similar waste material.
- (3) "Recyclable rubbish" shall mean clean metal food containers and cans; glass food containers and bottles with metal rings and tops removed; discarded newspapers, magazines, cardboard and flat paper.
- (4) "Construction debris" shall mean discarded building material, concrete, stones, earth from excavations or grading, and all other refuse matter resulting from the erection, repair or

*Cross references—Health and sanitation generally, Ch. 8; use of animal vegetable matter to fill land prohibited, § 8-3; deposits of refuse, garbage, rubbish, etc., § 8-7; clearance of brush and like matter, § 8-20 et seq.; sewers and sewage disposal, Ch. 14; depositing, scattering materials on sidewalks and streets, § 15-10.

†Editor's note—Local Law No. 3-1974, adopted April 1, 1974, did not expressly amend this Code, hence inclusion of §§ 1—7 herein as Ch. 7½. Art. II, §§ 7½-11—7½-17, was at the discretion of the editors. Sections 8 and 9 of said local law, validity and effective date provisions, were omitted from codification.

demolition of buildings, structures or other improvements of property, tree parts over four (4) inches in diameter.

- (5) "Major appliances" shall mean a large and/or bulky household mechanism (as a refrigerator, washer, dryer, stove, etc.) ordinarily operated by gas or electric current.
- (6) "Large household furnishings" shall mean all other large and/or bulky articles actually used in the home and which equip it for living (as chairs, sofas, tables, beds, carpets, etc.)
- (7) Under no circumstance shall the terms "garbage," "recyclable rubbish," "nonrecyclable rubbish," "construction debris" or "major appliances" be deemed or construed to include vehicular tires or tire casings. Vehicular tires and tire casings will not be picked up or removed by Village of Hamburg or any agency thereof. (L.L. No. 3-1974, § 1; L.L. No. 1-1975, § 1; L.L. No. 5-1981, §§ 1-5)

Sec. 74-12. Preparation of garbage, recyclable rubbish and nonrecyclable rubbish for collection.

No person shall dispose of garbage or recyclable or nonrecyclable rubbish except as follows:

- (a) Each person shall provide separate galvanized iron cans or other suitable sanitary containers for garbage and nonrecyclable rubbish only; and for recyclable rubbish only. Such cans or containers shall not exceed twenty (20) gallons capacity and when filled shall not exceed sixty (60) pounds in weight. All cans or containers shall be placed at the curb for collection.
- (b) When not placed in a suitable container as provided above, nonrecyclable waste paper, rags, leather, shavings, grass clippings, straw, scraps, clothing and any other refuse or matter shall be separated from other matter and securely tied in compact bundles or packages and properly weighted down, and placed at the sidewalk near the curb; the weight or size of said bundles or packages shall not exceed sixty (60) pounds in weight or five (5) feet in length.
- (c) In order to facilitate the conservation of vital natural resources through recycling: Each person shall also provide separate galvanized iron cans or other suitable sanitary contain-

ers for recyclable rubbish, other than discarded newspapers, magazines, cardboard and flat papers.

- (d) In order to further facilitate the conservation of vital natural resources through recycling: Discarded newspapers, magazines, cardboard and flat papers shall be separated from other recyclable rubbish for separate collection; discarded newspapers, magazines, cardboard and flat paper shall be securely tied in bundles each weighing not in excess of forty (40) pounds.
- (e) From the time of placement of recyclable rubbish at the curb by a resident for collection in accordance herewith such recyclable rubbish shall become and be the property of the Village of Hamburg or its authorized agent. It shall be a violation of Chapter 7½ of the Code of Ordinances for any person without authority from the Village of Hamburg to collect, pickup, remove or cause to be collected; picked up or removed any recyclable rubbish and each such collection, picking up, or removal from one or more premises shall constitute a separate and distinct offense in violation of the Code of Ordinances.
- (f) It shall be a violation of Chapter 7½ of the Code of Ordinances for any person to place at the curb for collection any can or container other than one which contains garbage and nonrecyclable rubbish alone or recyclable rubbish alone. (L.L. No. 3-1974, § 2; L.L. No. 12-1981, § 6)

Cross references—Receptacles for garbage to be provided with cover, § 8-2; containers for transporting garbage, § 8-3.

Sec. 7½-13. Disposal of construction debris, major appliances and large household furnishings.

(a) Construction debris, major appliances and large household furnishings shall be collected on the last regular garbage collection day of March, June, September and December.

(b) No person shall place or store construction debris with garbage or rubbish. The person creating construction debris shall remove same and dispose of same in a sanitary manner. In the event construction debris results from work performed by an owner or resident individually, the debris may be placed at the curb for
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pickup by the village except that the quantity of such debris may not exceed ten (10) containers or bundles of not more than sixty (60) pounds each. Quantities of such debris in excess of the amount stated shall be removed by the property owner or resident at his expense.

(c) All major appliances or large household furnishings which are to be discarded from a residence where the appliance or furnishing was actually in use shall be placed by the owner of said appliance or furnishing at the curb on the scheduled collection day for pickup by the village. It shall be the sole responsibility of the owner to dismantle the appliance or furnishing so that it will not be a hazard to the public. In this respect, doors shall be removed from the appliance or furnishing before placing it at the curb for collection.

(d) The village shall have no obligation to pick up and remove any construction debris, major appliance or household furnishing which was not used in a residence in the Village of Hamburg. (L.L. No. 3-1974, § 3; L.L. No. 12-1981, § 7)

Cross reference—Removal of building materials and rubbish from streets. § 13-9(c).

Sec. 74-14. Removal of garbage, recyclable rubbish and nonrecyclable rubbish.

(a) The director of public works shall designate the days, and hours for collection of garbage, recyclable rubbish and nonrecyclable rubbish.

(b) Village employees or equipment shall not enter private property or structures in making collections.

(c) All material to be picked up must be at the curb no later than 8:00 a.m. on the day of collection, and no material may be placed at the curb before 12:00 noon of the day preceding the scheduled pick-up day.

(d) Empty containers shall be removed from the curb line or other place of collection by the occupants of the premises before the end of the day on which collection is made from the premises.

(e) No garbage, recyclable rubbish or nonrecyclable rubbish shall be placed on any public street or on any premises unless the same is in a container or is bundled as required by section 74-12 of this Code. (L.L. No. 3-1974, § 4; L.L. No. 12-1981, § 8)

APPENDIX V

Sample Mandatory Source Separation Law, Hamburg, N.Y.

Chapter 7½

GARBAGE, TRASH AND RUBBISH*

Art. I. In General, §§ 7½-1—7½-10

Art. II. Collection and Disposition, §§ 7½-11—7½-17

ARTICLE I. IN GENERAL

Secs. 7½-1—7½-10. Reserved.

ARTICLE II. COLLECTION AND DISPOSITION†

Sec. 7½-11. Definitions.

As used in this local law [article], the following terms shall have the following meanings:

- (1) "Garbage" shall mean kitchen and house refuse and table cleanings, fruit and vegetable parings, decaying vegetable, animal and fruit matter and fallen fruit.
- (2) "Nonrecyclable rubbish" shall mean plastic containers, rags, sweepings, excelsior, rubber, leather, crockery, shells, clothing, straw, dirt, filth, ashes, waste paper and similar waste material.
- (3) "Recyclable rubbish" shall mean clean metal food containers and cans; glass food containers and bottles with metal rings and tops removed; discarded newspapers, magazines, cardboard and flat paper.
- (4) "Construction debris" shall mean discarded building material, concrete, stones, earth from excavations or grading, and all other refuse matter resulting from the erection, repair or

*Cross references—Health and sanitation generally, Ch. 8; use of animal vegetable matter to fill land prohibited, § 8-3; deposits of refuse, garbage, rubbish, etc., § 8-7; clearance of brush and like matter, § 8-20 et seq.; sewers and sewage disposal, Ch. 14; depositing, scattering materials on sidewalks and streets, § 15-10.

†Editor's note—Local Law No. 3-1974, adopted April 1, 1974, did not expressly amend this Code, hence inclusion of §§ 1—7 herein as Ch. 7½. Art. II, §§ 7½-11—7½-17, was at the discretion of the editors. Sections 8 and 9 of said local law, validity and effective date provisions, were omitted from codification.

- demolition of buildings, structures or other improvements of property, tree parts over four (4) inches in diameter.
- (5) "Major appliances" shall mean a large and/or bulky household mechanism (as a refrigerator, washer, dryer, stove, etc.) ordinarily operated by gas or electric current.
 - (6) "Large household furnishings" shall mean all other large and/or bulky articles actually used in the home and which equip it for living (as chairs, sofas, tables, beds, carpets, etc.)
 - (7) Under no circumstance shall the terms "garbage," "recyclable rubbish," "nonrecyclable rubbish," "construction debris" or "major appliances" be deemed or construed to include vehicular tires or tire casings. Vehicular tires and tire casings will not be picked up or removed by Village of Hamburg or any agency thereof. (L.L. No. 3-1974, § 1; L.L. No. 1-1975, § 1; L.L. No. 5-1981, §§ 1—5)

Sec. 74-12. Preparation of garbage, recyclable rubbish and nonrecyclable rubbish for collection.

No person shall dispose of garbage or recyclable or nonrecyclable rubbish except as follows:

- (a) Each person shall provide separate galvanized iron cans or other suitable sanitary containers for garbage and nonrecyclable rubbish only; and for recyclable rubbish only. Such cans or containers shall not exceed twenty (20) gallons capacity and when filled shall not exceed sixty (60) pounds in weight. All cans or containers shall be placed at the curb for collection.
- (b) When not placed in a suitable container as provided above, nonrecyclable waste paper, rags, leather, shavings, grass clippings, straw, scraps, clothing and any other refuse or matter shall be separated from other matter and securely tied in compact bundles or packages and properly weighted down, and placed at the sidewalk near the curb; the weight or size of said bundles or packages shall not exceed sixty (60) pounds in weight or five (5) feet in length.
- (c) In order to facilitate the conservation of vital natural resources through recycling: Each person shall also provide separate galvanized iron cans or other suitable sanitary contain-

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- ers for recyclable rubbish, other than discarded newspapers, magazines, cardboard and flat papers.
- (d) In order to further facilitate the conservation of vital natural resources through recycling: Discarded newspapers, magazines, cardboard and flat papers shall be separated from other recyclable rubbish for separate collection: discarded newspapers, magazines, cardboard and flat paper shall be securely tied in bundles each weighing not in excess of forty (40) pounds.
 - (e) From the time of placement of recyclable rubbish at the curb by a resident for collection in accordance herewith such recyclable rubbish shall become and be the property of the Village of Hamburg or its authorized agent. It shall be a violation of Chapter 74 of the Code of Ordinances for any

person without authority from the Village of Hamburg to collect, pickup, remove or cause to be collected, picked up or removed any recyclable rubbish and each such collection, picking up, or removal from one or more premises shall constitute a separate and distinct offense in violation of the Code of Ordinances.

- (f) It shall be a violation of Chapter 7½ of the Code of Ordinances for any person to place at the curb for collection any can or container other than one which contains garbage and nonrecyclable rubbish alone or recyclable rubbish alone. (L.L. No. 3-1974, § 2; L.L. No. 12-1981, § 6)

Cross references—Receptacles for garbage to be provided with cover. § 8-5; containers for transporting garbage. § 5-9.

Sec. 7½-13. Disposal of construction debris, major appliances and large household furnishings.

(a) Construction debris, major appliances and large household furnishings shall be collected on the last regular garbage collection day of March, June, September and December.

(b) No person shall place or store construction debris with garbage or rubbish. The person creating construction debris shall remove same and dispose of same in a sanitary manner. In the event construction debris results from work performed by an owner or resident individually, the debris may be placed at the curb for Supp. No. 29

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pickup by the village except that the quantity of such debris may not exceed ten (10) containers or bundles of not more than sixty (60) pounds each. Quantities of such debris in excess of the amount stated shall be removed by the property owner or resident at his expense.

(c) All major appliances or large household furnishings which are to be discarded from a residence where the appliance or furnishing was actually in use shall be placed by the owner of said appliance or furnishing at the curb on the scheduled collection day for pickup by the village. It shall be the sole responsibility of the owner to dismantle the appliance or furnishing so that it will not be a hazard to the public. In this respect, doors shall be removed from the appliance or furnishing before placing it at the curb for collection.

(d) The village shall have no obligation to pick up and remove any construction debris, major appliance or household furnishing which was not used in a residence in the Village of Hamburg. (L.L. No. 3-1974, § 3; L.L. No. 12-1981, § 7)

Cross reference—Removal of building materials and rubbish from streets. § 15-9(c).

Sec. 7½-14. Removal of garbage, recyclable rubbish and nonrecyclable rubbish.

(a) The director of public works shall designate the days, and hours for collection of garbage, recyclable rubbish and nonrecyclable rubbish.

(b) Village employees or equipment shall not enter private property or structures in making collections.

(c) All material to be picked up must be at the curb no later than 8:00 a.m. on the day of collection, and no material may be placed at the curb before 12:00 noon of the day preceding the scheduled pick-up day.

(d) Empty containers shall be removed from the curb line or other place of collection by the occupants of the premises before the end of the day on which collection is made from the premises.

(e) No garbage, recyclable rubbish or nonrecyclable rubbish shall be placed on any public street or on any premises unless the same is in a container or is bundled as required by section 7½-12 of this Code. (L.L. No. 3-1974, § 4; L.L. No. 12-1981, § 8)

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§ 7½-15

GARBAGE, TRASH AND RUBBISH

§ 7½-17

Sec. 7½-15. Duties of owner, lessees, occupants.

It shall be the duty of the owner, lessee, or occupant of every dwelling, store or other building within the Village of Hamburg to keep such buildings free, clear and clean of all kinds of garbage and rubbish of any kind or description and to keep sidewalk and yard areas free, clear and clean of all garbage and rubbish of any kind or description.

It shall be the duty of the owner, lessee, or occupant of every store or other building within the Village of Hamburg, excepting dwellings, to keep all garbage and refuse containers inside the building on the occupied premises or in a suitable, ~~compact~~ enclosed structure considered for that particular purpose of approved design from approved ~~noncombustible~~ building materials in accordance with the building regulations of the village, but nothing herein shall be construed to require the alteration, modification or reconstruction of any existing structure or portion thereof presently in use for such purpose in the Village of Hamburg. (L.L. No. 3-1974, § 5)

Sec. 7½-16. Authority; enforcement.

The director of public works, a police officer or such other person as may be designated by the board of trustees, is authorized and directed to enforce this article and to cause collections to be made accordingly. (L.L. No. 3-1974, § 6; L.L. No. 12-1981, § 9)

Sec. 7½-17. Unauthorized disposal of garbage, recyclable rubbish, nonrecyclable rubbish or construction debris.

No person shall cart to, dump, or deposit garbage, recyclable rubbish, nonrecyclable rubbish, or construction debris upon any property in the village except under the authorization, supervision and direction of the director of public works. (L.L. No. 3-1974, § 7; L.L. No. 12-1981, § 10)

The County of Saratoga's goal is to reuse and to recycle materials such as paper, glass, yard wastes, metals and other recyclable materials which can be separated from non-recyclable wastes at the source, i.e. at the residence or at the non-residence where the waste is created. Such reduction and recycling of solid waste is in keeping with the expressed policy of the State of New York to save landfill space, reduce waste disposal problems, and to conserve our precious natural resources.

Recycling will be a new challenge to our residents, one to be learned and to be improved upon. Education, participation and cooperation are the elements of a successful recycling program, and when the County has a successful recycling program operating, it will be a keystone in the management of the Saratoga County Solid Waste Management Plan.

SECTION 2. Definitions.

(A) Solid Waste - shall mean all materials or substances discarded or rejected as being spent, useless, worthless or in excess to the owners at the time of such discard or rejection.

(B) Newspapers - shall mean clean newspapers.

(C) Scrap ("White") Metal - shall mean large appliances such as refrigerators, stoves, washing machines and clothes dryers.

(D) Recyclables - shall mean newspaper and scrap ("White") metal as defined herein.

(E) Source Separation - shall mean the segregation of recyclables to be discarded.

SECTION 3. Source Separation Required.

Source separation shall be required of each and every person in the County of Saratoga discarding recyclables as defined herein.

SECTION 4.

Recyclable materials separated in accordance with this Local Law shall not be buried in any landfill in the County of Saratoga. Such recyclable materials shall be disposed of in accordance with the procedures promulgated by the County of Saratoga's Public Works Commissioner.

SECTION 5.

In accordance with the provisions of Section 4 of Local Law No. 4 of 1980 of the County of Saratoga, which is "A LOCAL LAW ESTABLISHING THE DEPARTMENT OF PUBLIC WORKS FOR THE COUNTY OF SARATOGA", the Commissioner of Public Works does possess such powers and duties with respect to the disposal of solid waste as determined by the Board of Supervisors. In connection therewith, the Commissioner of

Public Works is hereby designated to administer the County's responsibilities pertaining to the implementation of recycling in the County of Saratoga. The Commissioner is hereby empowered to establish procedures relative to the designating of County recycling centers; the determination of the effective dates for compliance with this Local Law, and the establishment of operational procedures designed to effectively recycle and reuse recyclables.

SECTION 6. Effective Date.

This Local Law shall take effect upon its filing pursuant to Section 27 of the Municipal Home Rule Law with the Secretary of State.

SWA/36,4-18-88/nl

SOLID WASTE

Chapter 21

SOLID WASTE

Local Law

No. 5

1986

A LOCAL LAW CONCERNING THE REGULATION, COLLECTION AND DISPOSAL OF SOLID WASTE IN THE TOWN OF ISLIP

- § 21-1. Legislative intent.**
- § 21-2. Definitions.**
- § 21-3. Disposal methods.**
- § 21-4. Recyclables.**
- § 21-5. Permit required.**
- § 21-6. Permit application.**
- § 21-7. Permit issuance.**
- § 21-8. Conditions of permit.**
- § 21-9. Hours of collection and disposal.**
- § 21-10. Use of disposal facilities.**
- § 21-11. Disposal fees.**
- § 21-12. Nonresidential solid waste services requirements.**
- § 21-13. Multiple residences.**
- § 21-14. Penalties for offenses.**
- § 21-15. Seizure of evidence.**
- § 21-16. Severability.**
- § 21-17. Effective date.**

DISPOSAL FEE — The fee charged by the Islip Resource Recovery Agency to receive and dispose of solid waste at a disposal facility, which fee may be changed from time to time by the Board of Directors of the Islip Resource Recovery Agency.

HAZARDOUS SUBSTANCE — Has the same meaning as set forth in § 66-4 of the Islip Town Code.

MULTIPLE RESIDENCE — A building or parcel of land having four (4) or more dwelling units.

NONRESIDENCE — Any building or parcel of land not used as a residence or a multiple residence as defined in this section. [Amended 11-18-86 by L.L. No. 6, 1986]

PERSON — Any individual, partnership, association, firm, corporation or any and all combinations of individuals acting in concert.

RECYCLABLES — Solid waste consisting of newspapers, corrugated boxes, glass bottles and jars and metal food and beverage cans and such other materials as designated by the Commissioner after notice pursuant to § 21-4. [Amended 12-15-87 by L.L. No. 8, 1987]

RESIDENCE — A building or parcel of land having three (3) or fewer dwelling units.

RESIDENT — A person residing in a residence.

SOLID WASTE — Materials or substances discharged or rejected as being spent, useless, worthless or in excess of the owner at the time of such discard or rejection, except sewage and other highly diluted water-carried materials or substances and those in gaseous form. Such wastes shall include but are not limited to garbage, sludge, rubbish, ashes, incinerator residue, street cleanings, dead animals, offal, abandoned vehicles, agricultural waste, industrial waste, commercial waste and construction and demolition debris.

SOLID WASTE SERVICES — The handling, removal, storage or disposal of solid waste, including but not limited to placing or removing containers for solid waste on or from sites within the town not owned by the person placing or removing the containers, and transporting solid waste from or to any location within the town.

TOWN — The Town of Islip.

TOWN BOARD — The Town Board of the Town of Islip.

TOWN CLERK — The Town Clerk of the Town of Islip.

TRANSFER STATION/RECYCLING CENTER — Any combination of structure, machinery and facilities used for the off-loading of solid waste from collection vehicles, the recovery of recyclables from said solid waste and the reloading of nonrecyclable solid waste into vehicles for disposal. [Amended 12-15-87 by L.L. No. 8, 1987]

§ 21-3. Disposal methods. [Amended 6-16-87 by L.L. No. 5, 1987]

- A. Solid waste disposed of within the town shall be disposed of only at a disposal facility, except as otherwise provided herein.
- B. The disposal of the following items shall be arranged in advance with the Commissioner and shall be delivered to such location as the Commissioner shall designate if the disposal facility regulations allow for their disposal: bulk decaying vegetable matter, large dead animals, small dead animals in quantity, stable and kennel manure and similar waste.
- C. It shall be unlawful to dispose of solid waste collected outside the town at a disposal facility.
- D. It shall be unlawful to transport, carry or convey solid waste or hazardous substances, collected outside the town, into a disposal facility.
- E. It shall be unlawful to place a hazardous substance out for collection by a person not licensed to collect, remove and/or dispose of a hazardous substance.

F. (Reserved)

G. (Reserved)

§ 21-4. Recyclables [Amended 12-15-87 by L.L. No. 8, 1987]

A. Residential recyclables.

- (1) It shall be the responsibility of all residents to separate recyclables from all residential solid waste and place them out for collection in the following manner:
 - (a) Prior to placement for collection and removal, glass and metal recyclables shall be clean, and all contents shall be removed therefrom, caps shall be removed from glass recyclables and paper labels shall be removed from metal recyclables.
 - (b) Recyclables for collection shall be placed in a solid container with a lid, not a plastic bag.
 - (c) Recyclables shall not be placed in the same container as or otherwise mixed with other forms of solid waste.
- (2) It shall be unlawful for a person to collect from a residence and dispose of solid waste which consists of recyclables combined with other forms of solid waste.
- (3) Ownership of recyclables set out for collection shall thereupon vest in the town. It shall be unlawful for a person to collect, remove or dispose of recyclables which are the property of the town without first having obtained the license required by this local law. Persons who collect or remove recyclables which belong to the town shall deliver and dispose of the same at such location as the Commissioner shall designate for that purpose.
- (4) The Commissioner is empowered to designate the day of the week on which recyclables shall be collected and

¹ Editor's Note: Former Subsection G, which required persons operating a transfer station within the town to file a notarized statement with the Resource Recovery Agency, was repealed 12-15-87 by L.L. No. 8, 1987.

removed from a particular area. Recyclables shall not be collected or removed from any area except on the day of the week designated by the Commissioner.

- (5) The Commissioner is empowered to designate the day of the week on which solid waste which does not contain recyclables shall be collected, removed and disposed of from a particular area. Solid waste which does not contain recyclables shall not be collected, removed or disposed of from any area except on the days of the week designated by the Commissioner.

B. Nonresidential recyclables.

- (1) As of the effective date of this local law, all nonresidences and multiple residences shall:

- (a) Provide for the separate collection of recyclables as distinguished from other forms of solid waste; or
- (b) Provide for the collection of solid waste and recyclables by a person licensed to operate a transfer station/recycling center pursuant to § 21-6B of this local law.

- (2) On or before April 15 of each year, each nonresidence in the town shall report to the Commissioner on a form prescribed by the Department of Environmental Control the quantity and manner of disposal of recyclables generated by the nonresidence in the preceding calendar year.

- C. Provided, however, that in order to effect an orderly implementation of this section, taking into account present and future market conditions, availability of containers and other equipment and other such factors as may bear upon the effectiveness of this local law, the Commissioner of the Town of Islip Department of Environmental Control is hereby empowered to phase in the application of this subsection to recyclable materials produced by residences, nonresidences and/or multiple residences, other than corrugated cardboard, by public notice published in two (2) newspapers of general

circulation within the Town of Islip, no less than sixty (60) days prior to the date of application of this subsection to any other recyclable material. Subsection B hereto shall apply to corrugated cardboard generated by nonresidences as of the effective date of this local law. The Commissioner shall apply this subsection to all other recyclable materials within two (2) years of the effective date of this local law.

§ 21-5. Permit required. [Amended 12-15-87 by L.L. No. 9, 1987]

- A. No person shall engage in the business of collecting solid waste or otherwise render services to anyone without a permit as hereinafter provided.
- B. No person shall operate a transfer station/recycling center without a permit therefor as hereinafter provided.

§ 21-6. Permit application. [Amended 12-15-87 by L.L. No. 8, 1987]

A. Solid waste collection service permit.

- (1) A permit application shall be made in writing on the form prescribed by the Town Clerk, submitted to the Town Clerk and accompanied by a fee of two hundred dollars (\$200.) for the first vehicle and fifty dollars (\$50) for each additional vehicle applied for.
- (2) The application shall contain the name of the applicant or, if a partnership or corporation, the names of all partners, officers, directors and all persons holding twenty-five percent (25%) or more of the outstanding shares of said corporation. If the applicant is a corporation which is wholly or partially owned by another corporation, the parent corporation shall be identified, together with the names of the officers and directors of the parent corporation.

- (3) A permit application shall constitute an agreement by the applicant to provide the information required pursuant to § 21-12D.
- (4) A permit application shall be accompanied by a current Suffolk County Department of Health Services solid waste permit.

B. Transfer station/recycling center permit.

- (1) A permit application shall be made in writing on the form prescribed by the Town Clerk, submitted to the Town Clerk and accompanied by a fee of thirty dollars (\$30.).
- (2) The application shall contain the information required in § 21-6A(2) above.
- (3) No permit shall be granted unless the applicant can produce a valid transfer station operating permit issued by the New York State Department of Environmental Conservation for the proposed site.
- (4) The grant of a permit shall bind the applicant to provide the Town of Islip with the following information on a monthly basis:
 - (a) Gross tons of mixed solid waste and recyclables received.
 - (b) Gross tons of recyclables removed from solid waste delivered.
 - (c) Net tons of nonrecyclable solid waste reloaded onto vehicles for disposal.
 - (d) Total container capacity of all nonresidential stops and multiple residence stops serviced by collection vehicles delivering mixed solid waste and recyclables to the facility.
 - (e) Location and container capacity of all nonresidential and multiple residence stops located within the Town of Islip serviced by all collection vehicles delivering mixed solid waste and recyclables to the facility.

- (5) The grant of a permit shall entitle the operator of the facility to dispose of a percentage of his net nonrecyclable solid waste in an Islip Resource Recovery Agency disposal facility. This percentage shall be equivalent to the ratio of the container capacity of stops located within the Town of Islip [as provided pursuant to Subsection B(4)(c) above] to the container capacity of all stops served by collection vehicles delivering mixed solid waste and recyclables to the facility, as provided pursuant to Subsection B(4)(d) above.
- (6) The right to dispose of a percentage of nonrecyclable solid waste in Islip Resource Recovery Agency facilities granted by this permit shall exempt the operator of the facility from the provisions of § 21-3C, provided that all information required by this section is timely submitted.
- (7) The information required by Subsection B(4)(a) through (e) shall be submitted to the Department of Environmental Control on or before the 10th day of each month.
- (8) Delivery of solid waste to an Islip Resource Recovery Agency facility in an amount greater than the percentage allowed by Subsection B(5) of this section shall be considered a violation of the terms and conditions of the permit and shall subject the operator to the penalties provided in § 21-14C and D.
- (9) Nothing in this section shall exempt an applicant or facility from compliance with zoning or other requirements of the Islip Town Code.

§ 21-7. Permit issuance.

A. Requirements for permit.

- (1) No permit shall be issued unless the applicant can demonstrate compliance with at least one (1) of the following levels of service to be provided to customers within the Town of Islip:

- (a) Three hundred (300) residential stops.
 - (b) Fifty (50) commercial stops.
 - (c) Enough stops so that the applicant shall gross three thousand dollars (\$3,000.) per month.
- (2) The Commissioner shall have the power to relieve an applicant of the above requirements upon a showing of good cause.
- (3) [Added 12-15-87 by L.L. No. 8, 1987] No permit shall be issued to provide solid waste services to nonresidential and multiple residences unless the applicant:
- (a) Can demonstrate the ability to collect, store and handle recyclables separately from other solid wastes; or
 - (b) Can certify that mixed solid waste and recyclables are delivered to a transfer station/recycling center license by the Town of Islip; and
 - (c) Identifies the total cubic-yard container capacity he is under contract to service each month.
- B. With each permit issued, the Town Clerk shall issue two (2) decals for each vehicle used by the permit holder who engages in solid waste services. The decals shall be securely fastened and conspicuously displayed at all times on the vehicle for which they are issued.

§ 21-8. Conditions of permit.

- A. A permit shall expire on December 31 of the year in which it is issued, unless sooner revoked.
- B. A person to whom a permit has been issued shall not transfer, assign or allow any other person to use the permit.
- C. No person shall use a permit issued to another person.

- D. Each vehicle for which decals are issued shall have the name and telephone number of the permit holder and the name and telephone number of the owner of the vehicle on each side of the vehicle in letters at least six (6) inches high. Each name shall be labeled to indicate whether it is the name of the permit holder or the owner, or both.
- E. A permit holder may dispose of solid waste at any legal solid waste disposal facility or transfer station unless otherwise directed to a specific disposal facility within the town by the Commissioner.
- F. Failure to comply with the rules, regulations or directives of the Commissioner regarding the collection and disposal of solid waste within the town shall constitute a violation of this local law.

§ 21-9. Hours of collection and disposal.

- A. No collections shall be made prior to 5:00 a.m. at a multiple residence or nonresidential location or 6:00 a.m. at a residential location unless permission is otherwise given by the Commissioner.
- B. The Islip Resource Recovery Agency shall set the hours for all disposal facilities.

§ 21-10. Use of disposal facilities.

- A. Only residents of the town and persons holding permits shall be permitted to use disposal facilities. All persons providing solid waste services must secure the proper permits from the Town Clerk and the Suffolk County Department of Health Services to be entitled to bring or send solid waste to a disposal facility.
- B. No person shall deliver solid waste to a disposal facility or cart or transport solid waste through or upon any street, avenue, parkway or highway within the unincorporated parts of the town, except in trucks or trailers securely covered with

tarpaulin and having watertight containers or in approved conveyances designated for solid waste collection and unless such person shall have agreed to conform to the rules and regulations established by the Commissioner with regard to solid waste.

- C. Nothing contained herein shall prohibit the Islip Resource Recovery Agency from differentiating between various types of solid waste by nature or origin in establishing regulations for the use of disposal facilities and in controlling access to its disposal facilities.

§ 21-11. Disposal fees.

- A. Disposal fees shall be fixed by resolution of the Board of Directors of the Islip Resource Recovery Agency and shall be collected by the Commissioner on behalf of the Agency.
- B. The Commissioner shall establish a time and procedure for the payment of disposal fees as required by the Islip Resource Recovery Agency.
- C. A person to whom a permit has been issued under this local law and who disposes of solid waste at a disposal facility shall deposit with the Town Clerk a certified check, cash or surety bond in an amount equal to the permittee's highest two (2) months of disposal fees for the previous year or, if the permittee did not incur disposal fees in the previous year, in an estimated equivalent amount as established by the Commissioner to guarantee payment of disposal fees. A surety bond deposited pursuant to this section shall not have an expiration date prior to the expiration date of the permit of the person depositing the surety bond.

§ 21-12. Nonresidential solid waste services requirements.

A person who provides solid waste services to a nonresidential customer shall:

- A. Provide the customer with a container for solid waste sufficient for the customer's needs and provide the customers with containers for recyclables sufficient for the customers to comply with the provisions of this local law. [Amended 12-15-87 by L.L. No. 8, 1987]
- B. Within one (1) week of a request by the customer, provide solid waste services to any nonresidence within one-half ($\frac{1}{2}$) mile of any nonresidence at which the person provides solid waste services, or arrange for another person to provide such services or provide such services after being ordered to provide such services by the Commissioner.
- C. Specify on each bill to a customer the rate charged per unit of solid waste removed and the rates charged per unit of recyclables serviced. [Amended 12-15-87 by L.L. No. 8, 1987]
- D. On January 1 of each year, submit to the Commissioner a notarized statement containing the following information which shall be used to document the quantity and type of solid waste generated within the town to assist in the planning and implementation of disposal facilities:
 - (1) The name, address and telephone number of the person providing the solid waste services.
 - (2) The name, address and telephone number of the person for whom the solid waste services are rendered.
 - (3) The location at which the services are rendered.
 - (4) A description of the services, including the capacity, number and type (compactor or loose) of container(s), the number of collections per week and a description of the typical composition of the waste. This information shall be regarded by the town as trade secrets which, if disclosed, could cause substantial injury to the competitive position of the person submitting the information. However, failure to submit this information shall constitute a violation of permit conditions and shall subject the permit holder to penalties as provided in § 21-14D.

- E. [Amended 12-15-87 by L.L. No. 8, 1987] Be required to report at the end of each month the following information in cubic yards and tons:
- (1) The total quantity of solid waste collected from containers during that month ended; and
 - (2) The total quantity of recyclables collected separately during the month ended and the manner of disposal (i.e., sold, delivered to town or delivered to private recycling facility).
- F. Remove any solid waste container provided by him within twenty-one (21) days after solid waste services are terminated. [Added 12-15-87 by L.L. No. 8, 1987]

§ 21-13. Multiple residences.

- A. A person who provides solid waste services to a multiple residence shall comply with the same requirements as specified in § 21-12 for nonresidences.
- B. It shall be unlawful for a person to charge a fee in excess of five dollars and nineteen cents (\$5.19) per collection per cubic yard of container capacity for solid waste services rendered to multiple residences. However, the maximum service fee increase in any one (1) year shall not exceed fifteen percent (15%) except as otherwise required by Subsection C of this section.
- C. On or after January 1, 1987, the maximum fee provided in Subsection B of this section may be increased by seven and five-tenths cents (\$0.075) per cubic yard for each one dollar (\$1.) increase in the disposal fee at the Blydenburgh landfill over the rate in effect on December 31, 1985.
- D. The maximum fee shall be further increased or decreased once per calendar year beginning January 1, 1988, and the first day of January for each succeeding year by a percentage equivalent to the annual percentage rise or fall of the consumer price index for the New York, New York; Long

Island; Manhattan and New Jersey Region, as published by the United States Department of Labor, as based upon the 1986 annual average.

- E. This maximum limitation does not apply to the cost of collecting and disposing of bulk wastes which do not fit into the container provided to the multiple residence nor to specialized container services with a capacity of less than two (2) cubic yards.

§ 21-14. Penalties for offenses.

- A. Any person engaging in the business of collecting solid waste or rendering solid waste services to another person without a permit as required by § 21-5 shall be guilty of a violation punishable by a fine of not less than two hundred dollars (\$200.) and not exceeding the sum of one thousand dollars (\$1,000.) or by imprisonment for a term not exceeding fifteen (15) days, or both. Each day such violation occurs or continues shall constitute a separate offense.
- B. [Amended 12-15-87 by L.L. No. 8, 1987] The violation of § 21-4A and B shall be punishable as follows:
- (1) For a first conviction: by a fine of not less than ten dollars (\$10.) nor more than twenty-five dollars (\$25.).
 - (2) For a second conviction within one (1) year: by a fine of not less than twenty-five dollars (\$25.) nor more than fifty dollars (\$50.).
 - (3) For a third conviction within one (1) year: by a fine of not less than fifty dollars (\$50.) nor more than one hundred dollars (\$100.).
 - (4) For a fourth conviction within one (1) year: by a fine of not less than one hundred dollars (\$100.) nor more than two hundred fifty dollars (\$250.).
- C. A violation of any of the provisions of this local law, except as otherwise specified in § 21-14A or B, shall be punishable by a

fine of not less than one hundred dollars (\$100.) and not more than one thousand dollars (\$1,000.).

- D. The Town Board, after a hearing for the purpose hereof, may, in its absolute discretion, suspend or revoke the permit issued under this local law of any person found by the Town Board to have violated any provision of this local law. The Town Board may also impose a civil penalty therein not exceeding the penalties provided in this section or suspend or revoke the permit, or both.
- E. The Town Clerk, pursuant to Chapter 50B of the Town Code, may suspend or revoke a permit issued to any person if such

(Cont'd on page 2113)

proceedings. If the petition is filed after the sale of the forfeited property, any judgment in favor of the petitioner shall be limited to the net proceeds of such sale after deduction of the lawful expenses and costs incurred by the Town Attorney.

- K. No suit or action under this section for wrongful seizure shall be instituted unless such suit or action is commenced within two (2) years after the time when the property was seized.

§ 21-16. Severability.

If any term, part, provision, section, subdivision or paragraph of this local law shall be held unconstitutional or ineffective, in whole or in part, then, to the extent that it is not unconstitutional or ineffective, this local law and such term, part, provision, section, subdivision or paragraph thereof shall be in full force and effect; and such determination shall not be deemed to invalidate the remaining terms, parts, provisions, sections, subdivisions or paragraphs thereof

§ 21-17. Effective date. [Amended 12-15-87 by L.L. No. 8, 1987]

This local law shall take effect on January 1, 1988.

DEC 14 1988

(Please Use this Form for Filing your Local Law with the Secretary of State)

BUREAU OF PUBLIC
REGULATION AND RECORDS
DIVISION OF SOLID WASTE

Text of law should be given as amended. Do not include matter being eliminated and do not use italics or underlining to indicate new matter.

County BROOKHAVEN
City of
Town
Village 88

Local Law No. 27 of the year 19

RECYCLING - Chapter 46

A local law
(Insert title)

TOWN BOARD

Be it enacted by the of the
BROOKHAVEN (Name of Legislative Body)

County
City of as follows:
Town
Village Section 1.

CHAPTER 46

RECYCLING LAW

- § 46-1. Title.
- § 46-2. Legislative Findings.
- § 46-3. Statutory Authority for Local Law.
- § 46-4. Definitions.
- § 46-5. Establishment of Curbside Program.
- § 46-6. Requirements Applicable to Source-Separation and Collection of Designated Recyclables for the Curbside Program.
- § 46-7. Establishment of Private Collection Program for Multi-residential Complexes.
- § 46-8. Requirements Applicable to Source Separation and Placement of Designated Recyclables in Recycling Collection Areas.
- § 46-9. Mandatory Commercial, Industrial and Institutional Source Separation Program.
- § 46-10. Special provision regarding vegetative yard waste.
- § 46-11. Enforcement; Rules and Regulations.
- § 46-12. Unlawful Activities.
- § 46-13. Non-collection of Solid Waste Contaminated by Designated Recyclables.
- § 46-14. Non-interference with Existing Contracts.
- § 46-15. Penalties.
- § 46-16. Injunctions; Concurrent Remedies.
- § 46-17. Construction.
- § 46-18. Severability.
- § 46-19. Repealer.
- § 46-20. Effective Date.

§ 46-1. Title.

This local law shall be known as the Town of Brookhaven Recycling Law.

§ 46-2. Legislative Findings.

The Town Board of the Town of Brookhaven finds that the reduction of the amount of solid waste and the conservation of recyclable materials are important public concerns. The separation and collection of newspaper, paper, cardboard, glass, cans, plastic containers, vegetative yard waste and other materials for recycling from the residential, commercial, industrial and institutional establishments in the Town will protect and enhance the Town's physical and visual environment as well as promote the health, safety and well-being of persons and property within the Town by minimizing the potential adverse effects of landfilling through reduction of the need for landfills and conservation of existing landfill capacity, facilitating the implementation and operation of other forms of solid waste management, conserving natural resources, assisting the Town in complying with the mandates of the Long Island Landfill Law, codified in New York State Environmental Conservation Law section 27-0704, ensuring conformance with the New York State Solid Waste Management Plan, and facilitating the development and implementation of a solid waste management plan for the Town. The promotion and use of recyclable materials, goods produced from recyclable materials, and goods which facilitate recycling will further serve the same purposes by encouraging and facilitating recycling.

§ 46-3. Statutory Authority for Local Law.

This Local Law is adopted pursuant to Section 10 of the Municipal Home Rule Law of the State of New York.

§ 46-4. Definitions.

As used in this Local Law, the following definitions shall apply:

- (a) CANS shall mean containers comprised of aluminum, tin, steel, or a combination thereof, which contain or formerly contained only food and/or beverage substances.
- (b) CARDBOARD shall mean all corrugated cardboard normally used for packing, mailing, shipping of containerizing goods, merchandise or other material, but shall not mean wax-coated or soiled cardboard.
- (c) COMMINGLED shall mean source separated, non-putrescible, noncontaminated recyclable materials that have been placed in the same container.
- (d) COMMISSIONER shall mean the Commissioner of the Department of Waste Management.
- (e) DEPARTMENT OF WASTE MANAGEMENT shall mean the Town of Brookhaven Department of Waste Management.

- (f) DESIGNATED RECYCLABLE MATERIALS or DESIGNATED RECYCLABLES shall mean those recyclable materials designated by this Local Law, and/or by resolution of the Town Board pursuant to this Local Law, to be source separated. The term includes, but is not limited to, newspaper, glass, paper, cardboard, cans, plastic containers and vegetative yard waste.
- (g) DISPOSITION or DISPOSITION OF DESIGNATED RECYCLABLE MATERIALS shall mean the transportation, placement, or arrangement for transportation or placement of designated recyclable materials for all possible end uses.
- (h) GARBAGE shall mean putrescible animal and vegetable wastes resulting from the handling, preparation, cooking and consumption of food.
- (i) "GARBAGE DISTRICT" shall mean a refuse and garbage district within the Town established, consolidated or extended under Article 3-A, Article 12 and/or Article 12-A of the New York Town Law or such other laws governing the establishment of improvement districts, and shall include, without limitation, the Town-wide Brookhaven Refuse and Recycling Improvement District.
- (j) GLASS shall mean all clear (Flint), green, and brown (amber) colored glass containers, crystal, ceramics, and plate, window, laminated, or mirrored glass, but shall not mean wired glass.
- (k) HAZARDOUS MATERIAL or HAZARDOUS WASTE shall mean a solid waste, or a combination of solid wastes, which, because of its quantity, concentration or physical, chemical or infectious characteristics, may: (a) cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed. Such materials or wastes shall include, but are not limited to, explosives, hazardous radioactive materials, toxic substances and those substances which the Commissioner has identified as a hazardous waste pursuant to the above criteria and has included on a list of hazardous waste promulgated by the Department of Waste Management.
- (l) MULTI-RESIDENTIAL COMPLEX shall mean four or more residential units located on a single property or continuous properties under common ownership, control or management. For this purpose, RESIDENTIAL UNIT shall mean an enclosed space consisting of one or more rooms designed for use as a separate residence and shall include, but not be limited to, an apartment, condominium unit, town house cooperative unit, mobile home, living unit in a group home, and room or set of rooms in a boarding house but shall not include rooms within a single family residence, motel or hotel.
- (m) NEWSPAPER shall include newsprint and all newspapers and newspaper advertisements, supplements, comics and enclosures.

- (n) PAPER shall mean all high-grade office paper, fine paper, bond paper, office paper, xero-graphic paper, mimeo paper, duplication paper, magazines, paperback books, school paper, catalogs, junk mail, computer paper, telephone books, and similar cellulosic material, but shall not mean newspaper, wax paper, plastic or foil-coated paper, styrofoam, wax-coated food and beverage containers, carbon paper, blueprint paper, food contaminated paper, soiled paper, and cardboard.
- (o) PERSON shall mean any individual, firm, partnership, company, corporation, association, joint venture, cooperative enterprise, trust, municipality, other governmental agency or any other entity or any group of such persons which is recognized by law as the subject of rights and duties. In any provisions of this Local Law prescribing a fine, penalty, or imprisonment, the term PERSON shall include the officers, directors, partners, managers, or persons in charge of a company, corporation or other legal entity having officers, directors, partners, managers, or other persons in charge.
- (p) PLASTIC CONTAINERS shall mean containers composed of high-density polyethylenes, polyethylene terephthalate or other specific plastics as the Town Board may designate, which contain or formerly contained only food and/or beverage substances.
- (q) RECYCLABLE MATERIAL shall mean a material which would otherwise become solid waste, which can be collected, separated and/or processed, treated, reclaimed, used or reused to produce a raw material or product.
- (r) RECYCLING shall mean any process by which materials, which would otherwise become solid waste, are collected, separated and/or processed, treated, reclaimed, used or reused to produce a raw material or product.
- (s) RECYCLING COLLECTION AREA shall mean any facility designed and operated solely for the receiving and storing of source-separated designated recyclable materials.
- (t) RESIDENT shall mean any person residing within the Town on a temporary or permanent basis, but excluding persons residing in hotels or motels. For purposes of this Local Law, RESIDENT does not include commercial, industrial or institutional establishments.
- (u) RUBBISH shall mean nonputrescible solid wastes consisting of both combustible and noncombustible wastes, including, but not limited to, non-recyclable paper, wrappings, cigarettes, wood, wires, glass, bedding, furniture and similar materials which are not designated recyclable materials.
- (v) SOLID WASTE shall mean all putrescible and non-putrescible materials or substances discarded or rejected as having served their original intended use or as being spent, useless, worthless or in excess to the owner at the time of such discard or rejection, including garbage, refuse, litter, rubbish, industrial waste,

gaseous material, incinerator residue, construction and demolition debris, discarded automobiles and offal, but not including designated recyclable materials, solid or dissolved matter in domestic sewage or substances, materials in non-containerized gaseous form or hazardous materials or waste.

- (w) SOURCE SEPARATE shall mean to separate recyclable materials from the solid waste stream at the point of waste generation.
- (x) TOWN shall mean the Town of Brookhaven located within the County of Suffolk, State of New York.
- (y) TOWN BOARD shall mean the Town Board of the Town of Brookhaven.
- (z) VEGETATIVE YARD WASTE shall mean organic yard and garden waste, leaves, grass clippings and brush.

§ 46-5. Establishment of Curbside Program.

- (a) Upon the effective date of this Local Law, there is established within existing Garbage Districts in the Town a program ("curbside program") for separate collection of newspaper from all non-physically disabled residents of the Districts. Said curbside program shall apply to multi-residential complexes in accordance with Section 46-7 of this Local Law and to commercial, industrial and institutional establishments in accordance with Section 46-9 of this Local Law.
- (b) Collection of newspaper pursuant to the curbside program established by this Section shall be made once each week. Collection shall occur in accordance with a schedule advertised by the Town.
- (c) The curbside program established pursuant to this Section shall apply to any new Garbage District in the Town immediately upon the formation of such District and shall also be applied to other geographic areas within the Town designated by resolution of the Town Board at all times thirty (30) days after enactment of the resolution and publication of notice in a newspaper of general circulation within the Town.
- (d) The Town Board, by resolution, may expand the curbside program to include, in addition to newspaper, the collection in separate containers, bundles or packages, as appropriate, of one or more of the following designated recyclable materials:
 - (i) Paper;
 - (ii) Cardboard;
 - (iii) Commingled glass, cans and plastic containers;
 - (iv) Vegetative yard waste; and
 - (v) Other recyclable materials as designated by resolution of the Town Board.

Said expanded curbside program shall be established at all times thirty (30) days after designation and publication of notice in an

official newspaper of the Town or a newspaper of general circulation within the Town. Said expanded curbside program shall apply to multi-residential complexes in accordance with Section 46-7 of this Local Law and to commercial, industrial and institutional establishments, in accordance with Section 46-9 of this Local Law.

- (e) Collection of designated recyclable materials added to the curbside program pursuant to paragraph (d) above shall be made once each week. Collection shall occur in accordance with a schedule advertised by the Town.
- (f) All residents of the Town within the areas serviced by the curbside programs established pursuant to this Section shall, upon the applicable effective date, source separate newspaper and other designated recyclables and, in the manner designated by the Commissioner pursuant to Section 46-6 of this Local Law and on the date specified for collection by the schedule published by the Town, place them at the side of the road fronting their residences or at such other location at or near the residence agreeable to the person who is collecting the material.

§ 46-6. Requirements Applicable to Source-Separation and Collection of Designated Recyclables for the Curbside Program.

All designated recyclables placed at the roadside, or other location, by residents for collection pursuant to the curbside programs established pursuant to Section 46-5 of this Local Law shall be prepared for collection in accordance with regulations promulgated by the Commissioner.

§ 46-7. Establishment of Private Collection Program for Multi-residential Complexes.

- (a) In any Garbage District or area designated by the Town Board subject to a curbside program established pursuant to Section 46-5 of this Local Law, there is also established a program ("private collection program") for the source separation, collection and delivery of newspaper and any other designated recyclable material included in the curbside program from all non-physically disabled residents of multi-residential complexes.
- (b) The owner, manager or superintendent of every multi-residential complex subject to paragraph (a) above, shall provide and maintain, in a neat and sanitary condition, recycling collection areas to receive newspaper and other designated recyclables included in the curbside program which are generated by residents of the complex. In cases where a condominium, cooperative, homeowner or similar association exists, the association shall be responsible for provision and maintenance of the recycling collection areas. Said recycling collection areas shall be constructed and capable of receiving: newspaper within 180 days of the

and all other designated recyclables as may be included in or added to the curbside program within 180 days of such inclusion or in addition to the curbside program.

- (c) Once the recycling collection area for a particular multi-residential complex has been constructed and is capable of receiving newspaper and other designated recyclables as may be included in or added to the curbside program, all non-physically disabled residents of such complex shall source separate such materials by placing them in the appropriate containers or areas within the collection area.
- (d) The owner, manager or superintendent of each multi-residential complex subject to paragraph (a) above, shall arrange for the collection for recycling of newspaper and other designated recyclables from the recycling collection areas.
- (e) The number and design of the recycling collection areas required by this Section for each multi-residential complex shall be consistent with guidelines provided by the Commissioner.

§ 46-8. Requirements Applicable to Source Separation and Placement of Designated Recyclables in Recycling Collection Areas.

Designated recyclables required to be placed in recycling collection areas pursuant to 46-7 of this Local Law shall be prepared for collection in accordance with regulations promulgated by the Commissioner.

§ 46-9. Mandatory Commercial, Industrial and Institutional Source Separation Program.

- (a) All commercial, industrial and institutional establishments within a Garbage District or an area of the Town subject to a curbside program established pursuant to Section 46-5 of this Local Law shall source separate and arrange for the collection for recycling of: newspaper within 180 days of the establishment of the curbside program; and any and all other designated recyclables as may be included in or added to such curbside program within 180 days of such inclusion in or addition to the curbside program.
- (b) Designated recyclables for the mandatory commercial, industrial and institutional source separation program may consist of the following materials:
 - (i) Newspaper;
 - (ii) High grade paper, including but not limited to white letterhead paper, white bond paper, white typing paper, white copier paper, white note pad paper, white writing paper, white envelopes without glassine windows, other non-glossy white office paper without plastic, computer printout paper, computer tab cards, and white onion skin paper;

- (iii) Corrugated cardboard;
- (iv) Glass containers, plastic containers, and cans generated by food and beverage service establishments;
- (v) Vegetative yard waste; and
- (vi) Other recyclable materials as designated by resolution of the Town Board at all times thirty (30) days after said designation and publication of notice in an official newspaper of the Town or a newspaper of general circulation within the Town.

- (c) The arrangement for collection of designated recyclables for disposition hereunder shall be the responsibility of the person who owns, manages or operates the commercial, industrial or institutional establishment at which the recyclables are generated ("generator") or the person contractually obligated to the generator to arrange for collection and disposal of its solid waste. Said arrangements may include, without limitation, direct marketing of recyclables, contracts with permitted solid waste collector/haulers for separate collection of any or all designated recyclables, contracts with other persons for separate collection of any or all designated recyclables, or direct delivery to a designated processing facility.

§ 46-10. Special provision regarding vegetative yard waste.

Nothing in this Local Law shall be construed as preventing any person from utilizing vegetative yard waste for compost, mulch, or other agricultural, horticultural, silvicultural, gardening or landscaping purposes.

§ 46-11. Enforcement; Rules and Regulations.

The Department of Waste Management is authorized to enforce the provisions of this Local Law and to administer the recycling programs established herein. The Commissioner of said Department may adopt and promulgate, amend and repeal rules and regulations implementing this Local Law in order to carry out and enforce the intent and purposes thereof.

§ 46-12. Unlawful Activities.

- (a) It shall be unlawful for:

- (i) any person, other than those persons so authorized, to collect any designated recyclable which has been placed at the roadside for collection or within a recycling collection area pursuant to this Local Law;
- (ii) any person to violate or to cause or to assist in the violation of any provision of this Local Law or any implementing rule or regulation promulgated of the Commissioner of the Department of Waste Management.
- (iii) any person to place or to cause to be placed any material other than a designated recyclable in or near a recycling collection area;

or interfere with this Town, Department of Waste Management employees or any other authorized persons in the performance of any duty under this Local Law or in the enforcement of this Local Law.

- (b) All unlawful conduct set forth in this Section shall constitute a violation.

§ 46-13. Non-collection of Solid Waste Contaminated by Designated Recyclables.

The Town or any other person collecting solid waste generated within this Town may refuse to collect solid waste from any person who has clearly failed to source separate recyclables designated under an applicable section of this Local Law and the Town may refuse to accept solid waste containing recyclables designated under an applicable section of this Local Law at any solid waste disposal facility owned or operated by the Town.

§ 46-14. Non-interference with Existing Contracts.

- (a) Nothing contained in this Local Law shall be construed to interfere with or in any way modify the provisions of any existing contract in force in the Town on the effective date of this Local Law.
- (b) No renewal of any existing contract upon the expiration of the original term thereof and no new contract for the collection, transportation, processing or purchase of solid waste or recyclables shall be entered into after the effective date of this Local Law, unless renewal of such contract shall conform to the requirements of this Local Law.

§ 46-15. Penalties.

- (a) Any person who engages in unlawful conduct as defined in this Local Law may, upon conviction thereof, in a proceeding before a court of competent jurisdiction be sentenced to imprisonment for a term not to exceed fifteen (15) days or to a term of community service related to the purposes of this Local Law or to pay a fine of not more than Two Hundred Fifty Dollars (\$250.00) and not less than Twenty-five Dollars (\$25.00), or any combination of the above penalties.
- (b) Each continuing day of violation of this Local Law shall constitute a separate offense.

§ 46-16. Injunctions; Concurrent Remedies.

- (a) In addition to any other remedy provided in this Local Law, the Town may institute a suit in equity where unlawful conduct exists as defined in this Local Law for an injunction to restrain a violation of this Local Law.
- (b) The penalties and remedies prescribed by this Local Law shall be deemed concurrent. The existence or exercise of any remedy shall not prevent this Town from exercising any other remedy provided by this Local Law or otherwise provided at law or equity.

§ 46-17. Construction.

The terms and provisions of this Local Law are to be liberally construed, so as best to achieve and effectuate the goals and purposes hereof.

§ 46-18. Severability.

The provisions of this Local Law are severable. If any provision of this Local Law or its application to any person or circumstances is held invalid, said invalidity shall not affect any other provision or application of this Local Law which can be given effect without the invalid provision or application of the Local Law.

§ 46-19. Repealer.

All provisions of any other local law or ordinance which are inconsistent with the provisions of this Local Law are hereby repealed.

§ 46-20. Effective Date.

This Local Law shall become effective January 1, 1989.

Section 2. This Local Law shall become effective January 1, 1989.

(Complete the certification in the paragraph which applies to the filing of this local law and strike out the matter therein which is not applicable.)

1. (Final adoption by local legislative body only.)

I hereby certify that the local law annexed hereto, designated as local law No.27... of 19 88

~~County~~
~~City~~
of the ~~Town~~ of Brookhaven was duly passed by the Town Board
Village (Name of Legislative Body)
on Nov. 15 19 88 in accordance with the applicable provisions of law.

~~2. (Passage by local legislative body with approval or no disapproval by Elective Chief Executive Officer, or repassage after disapproval.)~~

~~I hereby certify that the local law annexed hereto, designated as local law No. of 19.....
County
of the City of was duly passed by the
Town (Name of Legislative Body)
Village
on 19..... and was approved not disapproved
repassed after disapproval by the
Elective Chief Executive Officer *
and was deemed duly adopted on 19....., in accordance with the applicable provisions of law.~~

3. (Final adoption by referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. of 19.....
County
of the City of was duly passed by the
Town (Name of Legislative Body)
Village
on 19..... and was approved not disapproved
repassed after disapproval by the
Elective Chief Executive Officer *
on 19..... Such local law was submitted to the people by reason of a
mandatory referendum, and received the affirmative vote of a majority of the qualified electors voting
permissive general
thereon at the special election held on 19....., in accordance with the appli-
annual
cable provisions of law.

4. (Subject to permissive referendum, and final adoption because no valid petition filed requesting referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. of 19.....
County
of the City of was duly passed by the on
Town (Name of Legislative Body)
Village
..... 19..... and was approved not disapproved
repassed after disapproval by the on
Elective Chief Executive Officer *
..... 19..... Such local law being subject to a permissive referendum and no
valid petition requesting such referendum having been filed, said local law was deemed duly adopted on
..... 19....., in accordance with the applicable provisions of law.

*Elective Chief Executive Officer means or includes the chief executive officer of a county elected on a county-wide basis or, if there be none, the chairman of the county legislative body, the mayor of a city or village or the supervisor of a town, where such officer is vested with power to approve or veto local laws or ordinances.

5. (City local law concerning Charter revision proposed by petition.)

I hereby certify that the local law annexed hereto, designated as local law No. of 19 of the City of having been submitted to referendum pursuant to the provisions of § 36 of the Municipal Home Rule Law and having received the affirmative vote of a majority of the qualified electors of such city voting thereon at the special general election held on 19 became operative.

6. (County local law concerning adoption of Charter.)

I hereby certify that the local law annexed hereto, designated as Local Law No. of 19 of the County of State of New York, having been submitted to the Electors at the General Election of November, 19, pursuant to subdivisions 5 and 7 of Section 33 of the Municipal Home Rule Law and having received the affirmative vote of a majority of the qualified electors of the cities of said county as a unit and of a majority of the qualified electors of the towns of said county considered as a unit voting at said general election, became operative.

(If any other authorized form of final adoption has been followed, please provide an appropriate certification.)

I further certify that I have compared the preceding local law with the original on file in this office and that the same is a correct transcript therefrom and of the whole of such original local law, and was finally adopted in the manner indicated in paragraph above.

Stanley Allan

Clerk of the County legislative body, City, Town or Village Clerk or officer designated by local legislative body

TOWN CLERK, TOWN OF BROOKHAVEN

Date: Nov. 15 1988

(Seal)

(Certification to be executed by County Attorney, Corporation Counsel, Town Attorney, Village Attorney or other authorized Attorney of locality.)

STATE OF NEW YORK
COUNTY OF SUFFOLK

I, the undersigned, hereby certify that the foregoing local law contains the correct text and that all proper proceedings have been had or taken for the enactment of the local law annexed hereto.

David P. Fishbein
Signature
DAVID P. FISHBEIN
TOWN ATTORNEY
Title

Date: Nov. 15 1988

County
City of BROOKHAVEN
Town
Village

Chapter 7½

GARBAGE, TRASH AND RUBBISH*

Art. I. In General, §§ 7½-1—7½-10

Art. II. Collection and Disposition, §§ 7½-11—7½-17

ARTICLE I. IN GENERAL

Secs. 7½-1—7½-10. Reserved.

ARTICLE II. COLLECTION AND DISPOSITION†

Sec. 7½-11. Definitions..

As used in this local law [article], the following terms shall have the following meanings:

- (1) "Garbage" shall mean kitchen and house refuse and table cleanings, fruit and vegetable parings, decaying vegetable, animal and fruit matter and fallen fruit.
- (2) "Nonrecyclable rubbish" shall mean plastic containers, rags, sweepings, excelsior, rubber, leather, crockery, shells, clothing, straw, dirt, filth, ashes, waste paper and similar waste material.
- (3) "Recyclable rubbish" shall mean clean metal food containers and cans; glass food containers and bottles with metal rings and tops removed; discarded newspapers, magazines, cardboard and flat paper.
- (4) "Construction debris" shall mean discarded building material, concrete, stones, earth from excavations or grading, and all other refuse matter resulting from the erection, repair or

*Cross references—Health and sanitation generally, Ch. 8; use of animal vegetable matter to fill land prohibited, § 8-3; deposits of refuse, garbage, rubbish, etc., § 8-7; clearance of brush and like matter, § 8-20 et seq.; sewers and sewage disposal, Ch. 14; depositing, scattering materials on sidewalks and streets, § 15-10.

†Editor's note—Local Law No. 3-1974, adopted April 1, 1974, did not expressly amend this Code, hence inclusion of §§ 1—7 herein as Ch. 7½. Art. II, §§ 7½-11—7½-17, was at the discretion of the editors. Sections 8 and 9 of said local law, validity and effective date provisions, were omitted from codification.

demolition of buildings, structures or other improvements of property, tree parts over four (4) inches in diameter.

- (5) "Major appliances" shall mean a large and/or bulky household mechanism (as a refrigerator, washer, dryer, stove, etc.) ordinarily operated by gas or electric current.
- (6) "Large household furnishings" shall mean all other large and/or bulky articles actually used in the home and which equip it for living (as chairs, sofas, tables, beds, carpets, etc.)
- (7) Under no circumstance shall the terms "garbage," "recyclable rubbish," "nonrecyclable rubbish," "construction debris" or "major appliances" be deemed or construed to include vehicular tires or tire casings. Vehicular tires and tire casings will not be picked up or removed by Village of Hamburg or any agency thereof. (L.L. No. 3-1974, § 1; L.L. No. 1-1975, § 1; L.L. No. 5-1981, §§ 1-5)

Sec. 74-12. Preparation of garbage, recyclable rubbish and nonrecyclable rubbish for collection.

No person shall dispose of garbage or recyclable or nonrecyclable rubbish except as follows:

- (a) Each person shall provide separate galvanized iron cans or other suitable sanitary containers for garbage and nonrecyclable rubbish only; and for recyclable rubbish only. Such cans or containers shall not exceed twenty (20) gallons capacity and when filled shall not exceed sixty (60) pounds in weight. All cans or containers shall be placed at the curb for collection.
- (b) When not placed in a suitable container as provided above, nonrecyclable waste paper, rags, leather, shavings, grass clippings, straw, scraps, clothing and any other refuse or matter shall be separated from other matter and securely tied in compact bundles or packages and properly weighted down, and placed at the sidewalk near the curb; the weight or size of said bundles or packages shall not exceed sixty (60) pounds in weight or five (5) feet in length.
- (c) In order to facilitate the conservation of vital natural resources through recycling: Each person shall also provide separate galvanized iron cans or other suitable sanitary contain-

ers for recyclable rubbish, other than discarded newspapers, magazines, cardboard and flat papers.

- (d) In order to further facilitate the conservation of vital natural resources through recycling: Discarded newspapers, magazines, cardboard and flat papers shall be separated from other recyclable rubbish for separate collection; discarded newspapers, magazines, cardboard and flat paper shall be securely tied in bundles each weighing not in excess of forty (40) pounds.
- (e) From the time of placement of recyclable rubbish at the curb by a resident for collection in accordance herewith such recyclable rubbish shall become and be the property of the Village of Hamburg or its authorized agent. It shall be a violation of Chapter 7½ of the Code of Ordinances for any person without authority from the Village of Hamburg to collect, pickup, remove or cause to be collected; picked up or removed any recyclable rubbish and each such collection, picking up, or removal from one or more premises shall constitute a separate and distinct offense in violation of the Code of Ordinances.
- (f) It shall be a violation of Chapter 7½ of the Code of Ordinances for any person to place at the curb for collection any can or container other than one which contains garbage and nonrecyclable rubbish alone or recyclable rubbish alone. (L.L. No. 3-1974, § 2; L.L. No. 12-1981, § 6)

Cross references—Receptacles for garbage to be provided with cover. § 8-8; containers for transporting garbage. § 8-9.

Sec. 7½-13. Disposal of construction debris, major appliances and large household furnishings.

(a) Construction debris, major appliances and large household furnishings shall be collected on the last regular garbage collection day of March, June, September and December.

(b) No person shall place or store construction debris with garbage or rubbish. The person creating construction debris shall remove same and dispose of same in a sanitary manner. In the event construction debris results from work performed by an owner or resident individually, the debris may be placed at the curb for

pickup by the village except that the quantity of such debris may not exceed ten (10) containers or bundles of not more than sixty (60) pounds each. Quantities of such debris in excess of the amount stated shall be removed by the property owner or resident at his expense.

(c) All major appliances or large household furnishings which are to be discarded from a residence where the appliance or furnishing was actually in use shall be placed by the owner of said appliance or furnishing at the curb on the scheduled collection day for pickup by the village. It shall be the sole responsibility of the owner to dismantle the appliance or furnishing so that it will not be a hazard to the public. In this respect, doors shall be removed from the appliance or furnishing before placing it at the curb for collection.

(d) The village shall have no obligation to pick up and remove any construction debris, major appliance or household furnishing which was not used in a residence in the Village of Hamburg. (L.L. No. 3-1974, § 3; L.L. No. 12-1981, § 7)

Cross reference—Removal of building materials and rubbish from streets, § 15-9(c).

Sec. 7½-14. Removal of garbage, recyclable rubbish and nonrecyclable rubbish.

(a) The director of public works shall designate the days, and hours for collection of garbage, recyclable rubbish and nonrecyclable rubbish.

(b) Village employees or equipment shall not enter private property or structures in making collections.

(c) All material to be picked up must be at the curb no later than 8:00 a.m. on the day of collection, and no material may be placed at the curb before 12:00 noon of the day preceding the scheduled pick-up day.

(d) Empty containers shall be removed from the curb line or other place of collection by the occupants of the premises before the end of the day on which collection is made from the premises.

(e) No garbage, recyclable rubbish or nonrecyclable rubbish shall be placed on any public street or on any premises unless the same is in a container or is bundled as required by section 7½-12 of this Code. (L.L. No. 3-1974, § 4; L.L. No. 12-1981, § 8)

APPENDIX V

Sample Mandatory Source Separation Law, Hamburg, N.Y.

Chapter 7½

GARBAGE, TRASH AND RUBBISH*

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person without authority from the Village of Hamburg to collect, pickup, remove or cause to be collected, picked up or removed any recyclable rubbish and each such collection, picking up, or removal from one or more premises shall constitute a separate and distinct offense in violation of the Code of Ordinances.

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§ 7½-15 GARBAGE, TRASH AND RUBBISH § 7½-17

Sec. 7½-15. Duties of owner, lessees, occupants.

It shall be the duty of the owner, lessee, or occupant of every dwelling, store or other building within the Village of Hamburg to keep such buildings free, clear and clean of all kinds of garbage and rubbish of any kind or description and to keep sidewalk and yard areas free, clear and clean of all garbage and rubbish of any kind or description.

It shall be the duty of the owner, lessee, or occupant of every store or other building within the Village of Hamburg, excepting dwellings, to keep all garbage and refuse containers inside the building on the occupied premises or in a suitable, ~~completely enclosed~~ structure considered for that particular purpose of approved design from approved ~~materials~~ building materials in accordance with the building regulations of the village, but nothing herein shall be construed to require the alteration, modification or reconstruction of any existing structure or portion thereof presently in use for such purpose in the Village of Hamburg. (L.L. No. 3-1974, § 5)

Sec. 7½-16. Authority; enforcement.

The director of public works, a police officer or such other person as may be designated by the board of trustees, is authorized and directed to enforce this article and to cause collections to be made accordingly. (L.L. No. 3-1974, § 6; L.L. No. 12-1981, § 9)

Sec. 7½-17. Unauthorized disposal of garbage, recyclable rubbish, nonrecyclable rubbish or construction debris.

No person shall cart to, dump, or deposit garbage, recyclable rubbish, nonrecyclable rubbish, or construction debris upon any property in the village except under the authorization, supervision and direction of the director of public works. (L.L. No. 3-1974, § 7; L.L. No. 12-1981, § 10)

APPENDIX B

- **Sample Waste Stream Analysis**
- **Waste Stream Composition**
- **Conversion Factors**

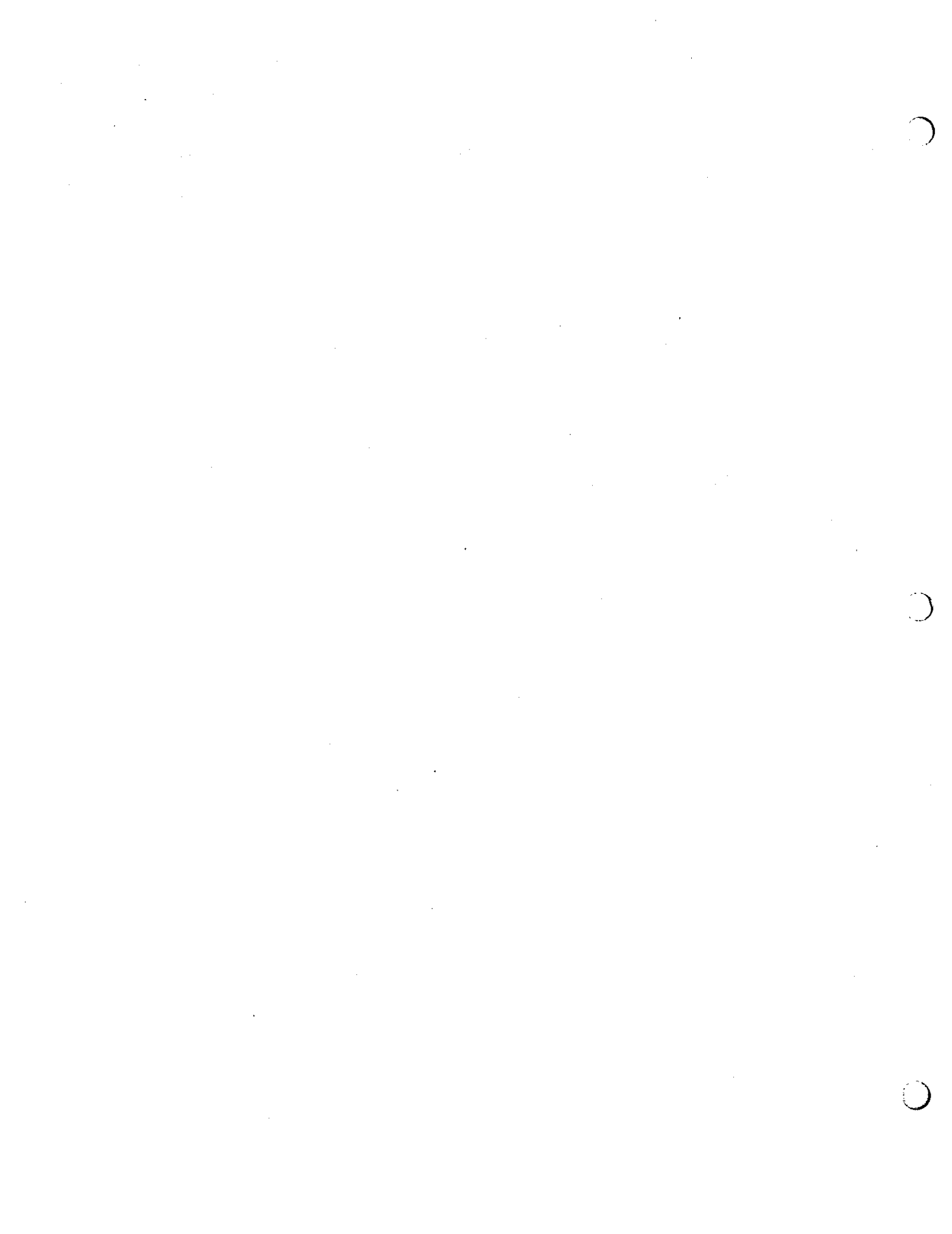
MATERIALS DISCARDED INTO THE MUNICIPAL WASTE STREAM*
(In millions of tons and percent)

<u>Materials</u>	<u>1970</u>		<u>1986</u>		<u>2000</u>	
	<u>tons</u>	<u>%</u>	<u>tons</u>	<u>%</u>	<u>tons</u>	<u>%</u>
Paper and Paperboard	36.5	32.4	50.1	35.6	66.0	39.1
Glass	12.5	11.1	11.8	8.4	12.0	7.1
Metals	13.5	12.0	12.6	8.9	14.4	8.5
Plastics	3.0	2.7	10.3	7.3	15.6	9.2
Rubber and Leather	3.0	2.7	3.9	2.8	3.8	2.3
Textiles	2.0	1.8	2.8	2.0	3.3	2.0
Wood	4.0	3.6	5.8	4.1	6.1	3.6
Other	0.1	-	0.1	-	0.1	-
Food Wastes	12.8	11.4	12.5	8.9	12.3	7.3
Yard Wastes	23.2	20.6	28.3	20.1	32.0	19.0
Miscellaneous Inorganics	1.9	1.7	2.6	1.8	3.2	1.9
TOTALS	112.5	100.0	140.8	100.0	168.8	100.0

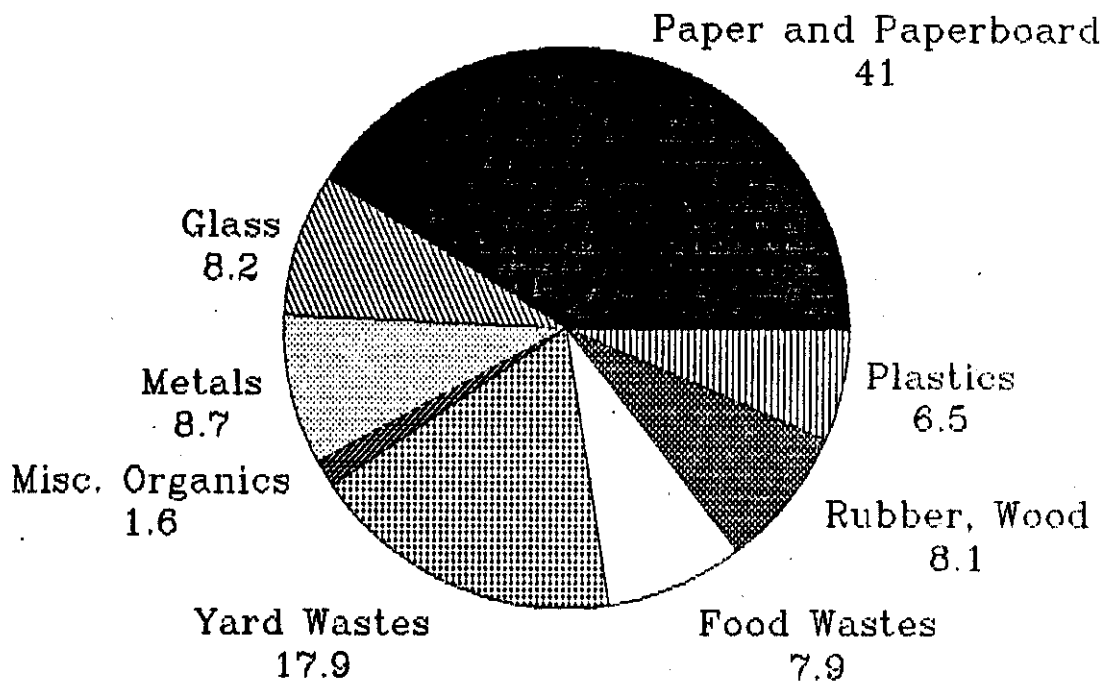
* Wastes discarded after materials recovery and before energy recovery.

Details may not add to totals due to rounding.

Source: Franklin Associates, Ltd.



MUNICIPAL SOLID WASTE COMPOSITION PERCENTAGES



Source: Characterization of Municipal
Solid Waste In the United States,
1960 to 2000, Franklin Assoc. 3/30/88

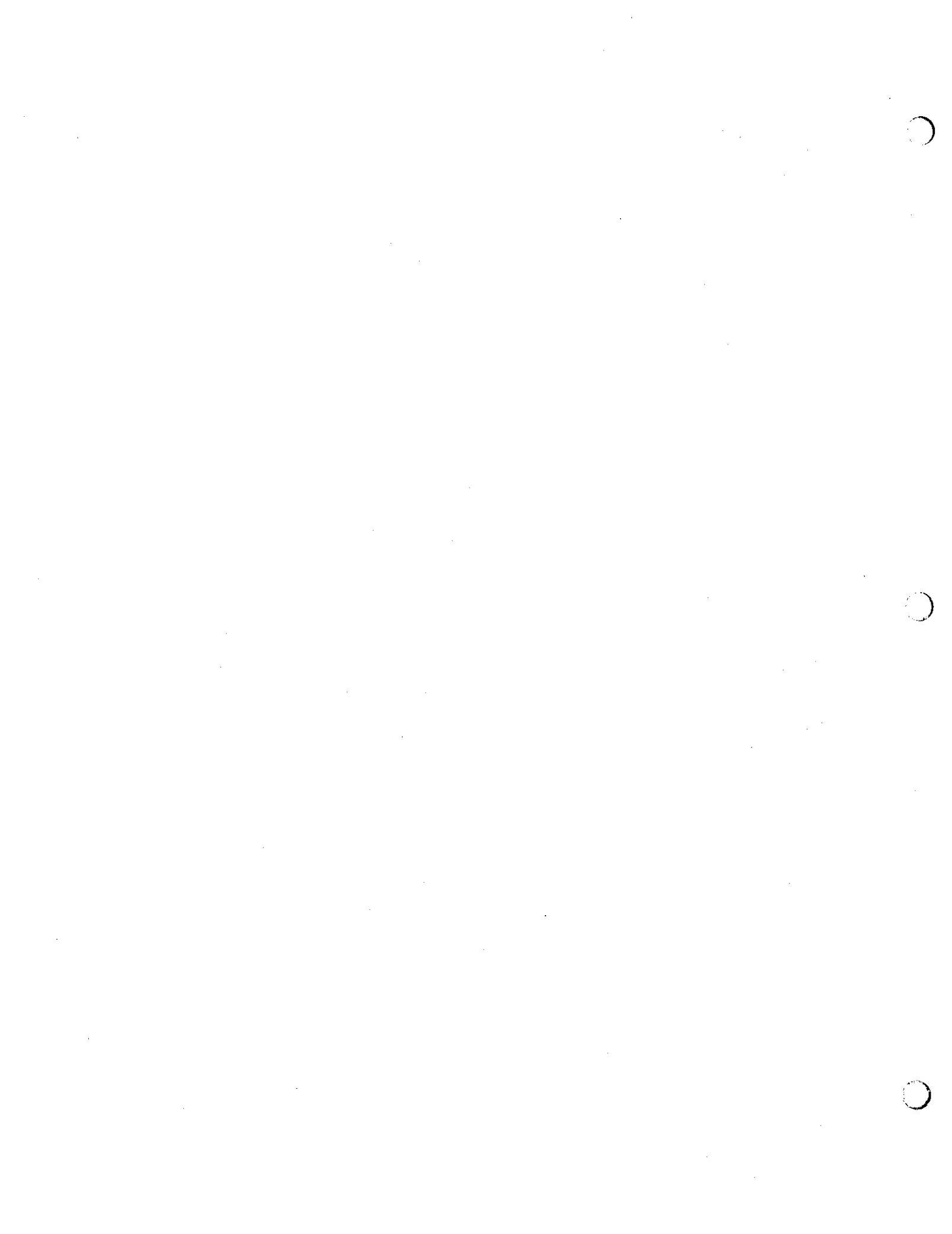


TABLE 1
Conversion Factors

This Conversion Table will be useful for comparing weight to volume measurements and for estimating the size and number of vehicles and storage containers for handling a given quantity of materials. These conversions can easily be calculated by using material densities. If you know the tonnage and want to know its equivalent volume, use the VOLUME CONVERSION FACTOR to convert tons to cubic yards. This is done by multiplying this conversion factor by the given tonnage. If the volume is known and you want to find its equivalent tonnage, multiply the cubic yards by the TONNAGE CONVERSION FACTOR.

Cubic Yards = Tons × Volume Conversion Factor

Tons = Cubic Yards × Tonnage Conversion Factor

MATERIAL	POUNDS PER CUBIC YARDS	VOLUME CONVERSION FACTOR	TONNAGE CONVERSION FACTOR
Newsprint, loose	600	3.33	.30
Newsprint, compacted	900	2.22	.45
Glass, whole bottles	600	3.33	.30
Glass, semi-crushed	1,350	1.48	.68
Glass, crushed, mechanically	2,350	.85	1.18
Aluminum cans, whole	50	40.00	.03
Aluminum cans, flattened	250	8.00	.13
Ferrous cans, whole	150	13.33	.08
Ferrous cans, flattened	850	2.35	.43
Corrugated cardboard, loose	150	13.30	.08
Corrugated cardboard, compacted	300	6.66	.15
Corrugated cardboard, baled	1,100	1.82	.55
PET Plastic Bottles, whole	30	66.66	.015
PET Plastic Bottles, flattened	75	26.66	.45
PET Plastic Bottles, baled	750	2.66	.38
HDPE Plastic Bottles, whole	25	80.00	.013
HDPE Plastic Bottles, flattened	60	33.33	.03
HDPE Plastic Bottles, baled	750	2.66	.38
Leaves, uncompacted	250	8.00	.13
Leaves, compacted	450	4.44	.23
Leaves, vacuumed	350	5.71	.18
Wood chips	500	4.00	.25
Grass clippings	400	5.00	.20
Glass, 55 gallon drums, uncrushed		300 pounds	
Glass, 55 gallon drums, manually crushed		500 pounds	
Glass, 55 gallon drums, mechanically crushed		900 pounds	

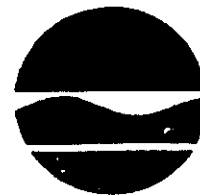


APPENDIX C

- **Sample Market Contract**
- **Letter of Intent**



New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233



Thomas C. Jorling
Commissioner

Attached for your information and guidance is a draft "Agreement" which we feel will meet the requirements of our "Marketing Guidelines for Source Separation/Recycling Resource Recovery Projects," and fairly balance the interests of the buyer and seller of recovered resources.

We feel it is important to emphasize that this is strictly a sample contract and that we are not attempting to dictate contract terms, but are merely suggesting a sample contract which would meet the requirements of our "marketing guidelines" and help qualify a municipality for receiving grants under the Environmental Quality Bond Act of 1972. In addition, we do not encourage the mere filling in of names and dates on the sample contract. Rather, we encourage thoughtful negotiations between buyer and seller so that the unique circumstances of each separate situation are adequately addressed in the agreement. The Economics Section of the Bureau of Resource Recovery Programs will continue to remain available to assist municipalities in contract development. Our telephone number is (518) 457-2051.

While the attached sample agreement does not refer to specific recovered materials, several publications may be used in setting prices in section 4 of the agreement. If the agreement covers newspapers, the publications would include Official Board Markets and Fibre Market News. If the agreement covers steel or aluminum, the publications would include Iron Age, American Metal Market and Fibre Market News. The Economics Section of the Bureau of Resource Recovery Programs will also remain available to assist in negotiating prices for recovered materials.

Agreement

Whereas, the (name of municipality), the "Municipality," intends to operate (a source separation program) (a recycling program) designed to recover (various marketable materials including - material to be sold/purchased -) from municipal solid waste;

Whereas, the Municipality desires to sell such marketable materials; and

Whereas, the (name of company), the "Company," desires to purchase (material to be purchased) recovered through the program;

Therefore, it is mutually agreed between the Municipality and the Company that:

1. The Municipality intends to recover approximately _____ tons per _____ of _____. Beginning on the first day of this agreement and continuing for the balance of the term of this agreement, the Municipality shall sell to the Company and the Company shall purchase from the Municipality (the entire output of the program) (a minimum of _____ tons per _____) (a maximum of _____ tons per _____) of material meeting the attached "Specifications."
2. The Municipality shall be notified immediately, both verbally and in writing, in the event the Company determines that any shipment fails to meet the attached Specifications and the Company desires to downgrade or reject the shipment. The precise reasons for downgrading or rejecting the shipment shall be stated in writing and submitted to the Municipality within _____ days of such determination by the Company. At the Company's option, it may decide to purchase downgraded shipments at a price (to be negotiated with the Municipality) (equal to _____% of the price otherwise payable). Transportation charges incurred in returning rejected shipments to the Municipality shall be the responsibility of the Municipality.
3. All (material to be purchased) recovered through the program shall be (delivered to the Company by the Municipality during the hours of _____, Monday through _____, except on the following holidays:
_____)

(shall be picked up by the Company at Municipal facilities located at _____ - address - _____. The Municipality shall notify the Company when no less than approximately _____ tons or one truckload of materials are available for pickup. The Company shall pick up such materials within _____ hours of such notification and shall make such pickups during the hours of _____, Monday through _____, except for the following holidays). The Company shall provide the Municipality with receipts for all materials (delivered/picked up). Such receipts shall, at a minimum, indicate the date of transaction and weight of materials. All materials shall be weighed by the (Company, Municipality) on certified scales.

4. The price per ton of material purchased to be paid by the Company to the Municipality shall be _____% of the (price for _____ published in the _____ issue of _____). In no event, however, shall the price per ton be less than \$_____. If (name of publication) shall cease publication during the term of this contract, the Company and the Municipality agree to select a mutually agreeable alternative. Fractional weights shall be priced on a pro rata basis.

(The price as determined above shall apply to all materials purchased during the month. Within _____ working days following the close of the month, the Company shall pay to the Municipality the amount as determined above.)

5. Title to the materials shall transfer from the Municipality to the Company at such time as the materials are (delivered by the Municipality to the Company's plant/picked up by the Company).
6. This agreement shall be subject to force majeure except to the extent that either the Municipality or the Company has any control over the event or effect otherwise leading to force majeure. If either party under this agreement declares force majeure, it shall immediately notify the other party, both verbally and in writing, of the reason for declaring force majeure and when full performance under the agreement may be resumed.

(A definition of the specific events which will constitute force majeure should be included.)

7. This agreement shall take effect on _____ and shall continue in effect for a period of _____ years. The duration of this agreement may be further extended for periods of one or more years upon mutual agreement in writing by the Municipality and the Company.

8. If either party to this agreement feels that this agreement or any provision of this agreement requires modification, it shall request a meeting with the other party to attempt to negotiate a mutually agreeable modification to this contract. Any such mutually agreeable modification shall be made in writing and shall be signed by an authorized representative of both the Municipality and the Company and shall be attached to and made a part of this agreement.

(The State Contract with the Municipality should include a provision in which the Municipality agrees not to modify this agreement to reduce the duration of the agreement to less than two years.)

9. This agreement may be terminated by the Company upon 30 days written notice to the Municipality if the Company ceases all operations or if the Company permanently ceases the use of (material to be purchased) or any similar material.

10. All notices required or permitted to be given under this agreement shall be made in writing and shall be deemed given when received by the addressee after deposit in the United States mail, certified or registered, with return receipt requested, as follows:

a. To the Municipality, addressed as follows:

(name and address of individual to receive notices)

b. To the Company, addressed as follows:

(name and address of individual to receive notices)

11. This agreement, including the attached "Specifications," constitutes the entire agreement between the Municipality and the Company regarding recovered (material to be sold/purchased).

This agreement is made and entered into on this _____ day of _____, _____, and is signed on behalf of the Municipality and the Company as follows:

(The Municipality)

By: _____

Title: _____

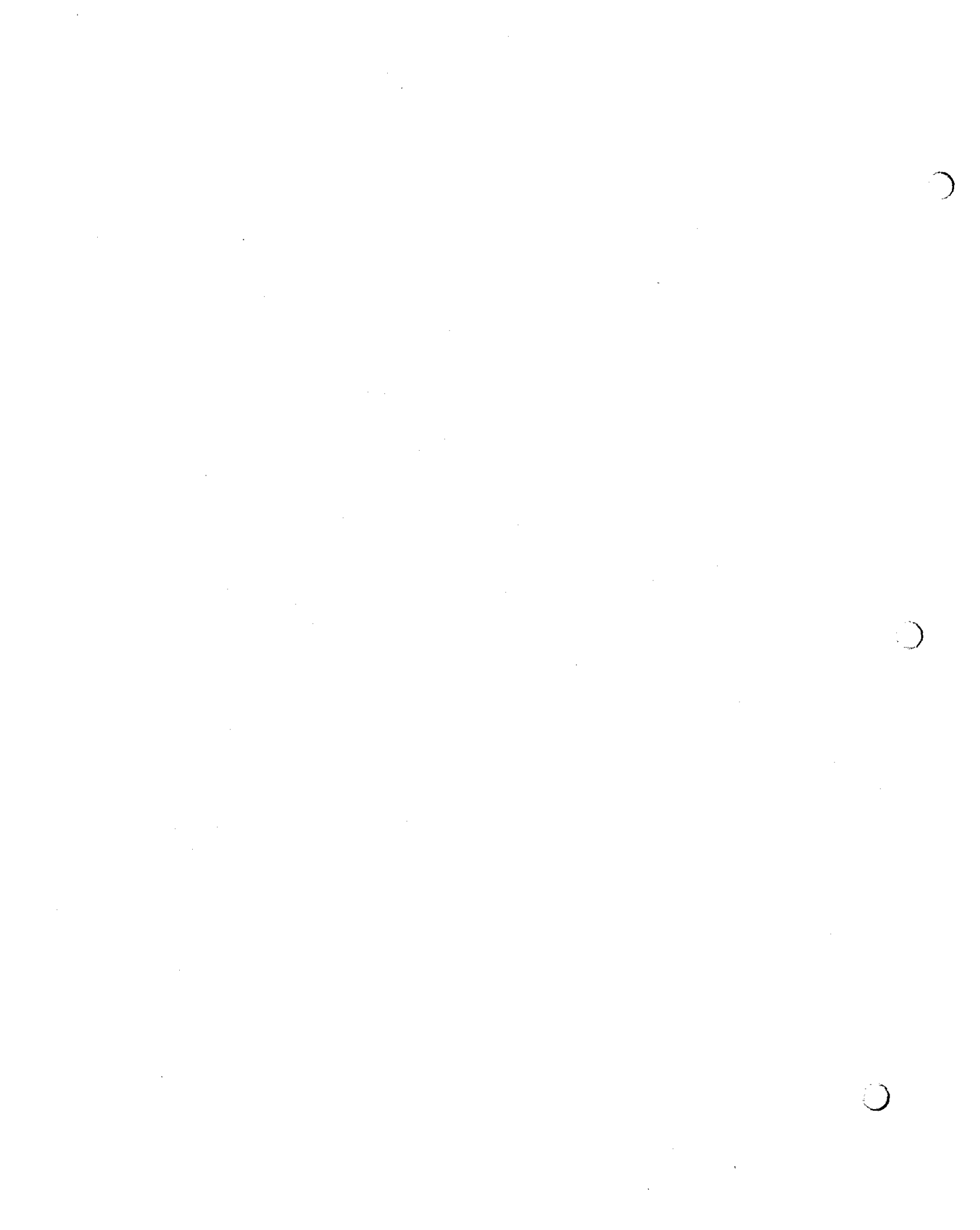
Date: _____

(The Company)

By: _____

Title: _____

Date: _____



Sample Letter of Intent
from the
National Center for Resource Recovery

**ADVANCE LETTER OF INTENT TO BID FOR
THE PURCHASE OF RECOVERED PRODUCTS**

WHEREAS, the _____ Corporation (hereinafter called the CORPORATION) endorses resource recovery from municipal solid waste as a means toward a cleaner environment and preservation of natural resources, and

WHEREAS, the CORPORATION recognizes the need to develop firm expressions of intent to purchase materials or energy products recovered from waste within known financial parameters as part of the planning process for a new endeavor such as this, and

WHEREAS, _____ (hereinafter called the JURISDICTION), is evaluating the prospects of substituting materials and energy recovery for its traditional means of solid waste disposal, and

WHEREAS, the JURISDICTION recognizes the need to establish financial underpinnings for the determination of the economic feasibility of processing up to _____ tons per day of municipal solid waste to produce up to _____ tons per day of _____ (hereinafter known as the PRODUCT) in a form usable and acceptable to the CORPORATION according to the Specifications attached to this Agreement and made a part hereof.

THEREFORE, in consideration of the fact that the legal authority to sell recovered products may rest upon a requirement to advertise for the purchase of such products, it is mutually agreed between the CORPORATION and the JURISDICTION that:

I. The CORPORATION, as an expression of its support of the municipal solid waste recovery program, agrees:

- (1) to offer herein a firm commitment to bid for the purchase of the recovered PRODUCT at prices not less than those en-

tered here should the JURISDICTION be required or decide to effect a competitive procurement, and

- (2) if public bidding is not necessary and not the course chosen by the JURISDICTION, then the conditions of this Letter of Intent may be considered as a bona fide offer to purchase the recovered PRODUCT at prices not less than those recorded here.

- (3) to respond should a bid be required with a bona fide offer to purchase which will include the following:

- (a) It will be a firm bid for five (5) years offering an Exchange Price either fixed or related to a commodity quote, and if the Exchange Price is not fixed, it will offer a Floor Price below which the Exchange Price will not fall during the term of the contract.

- (b-1) If the Exchange Price to be paid by the CORPORATION is to be a fixed dollar amount per unit of product, f.o.b. the recovery facility (or the CORPORATION'S plant — choose one), the bid shall not be less than _____ per ton.

OR

- (b-2) If the Exchange Price is to be based on a commodity quote, the monthly Exchange Price shall relate to the quotation at the close of that month for _____ (the same or the appropriate analogous commodity and location) as published in the last issue of the month of _____ (fill in source of quote) using the (mid-range or high side, or low side —choose one) of the quote, f.o.b. the recovery facility (or the CORPORA-

TION'S plant—choose one). If the Exchange Price is to be bid in terms of a percentage of the quoted price, the Exchange Price shall not be bid at less than _____ percentage of appropriate quote as defined above. (Fill in percentage).

- (c) If the Exchange Price is not fixed, a Floor Price will be bid which will not be below \$_____ per ton f.o.b. (fill in dollar amount) the recovery facility (or CORPORATION'S plant—choose one).
- (d) The CORPORATION shall retain the right to reject any material delivered which does not meet Specifications. Such rejection will be at the expense of the resource recovery plant.
- (e) The bid will be subject to *force majeure*.
- (f) It will be noted that Additional Conditions of the CORPORATION covering general terms and conditions of purchase, acceptance delivery, arbitration, weights, and downgrading not explicitly covered in this Letter of Intent or by reference, will be negotiated according to good business practices and include such Additional Conditions as are attached to this Agreement and made a part hereof.
- (g) This Advance Letter of Intent to bid is null and void if during the period between its execution and the actual bid or negotiated contract the CORPORATION'S plant ceases operation or ceases use of this or equivalent grade of recovered PRODUCT. The JURISDICTION shall further recognize that a clause similar to this shall be incorporated in the actual bid when made or contract when signed.
- (h) This Advance Letter of Intent may be assigned by the JURISDICTION.

II. The JURISDICTION agrees:

- (1) to see that the recovery plant establishes

specification assurance procedures for the recovered PRODUCT, using good industrial quality control practices in recognition of the CORPORATION'S use technology as practiced in their _____ plant, so as to produce and offer the recovered PRODUCT for sale in a form and to the required Specifications, usable in the plant with minimum alterations to present processing technology and business practices, and

- (2) to require, should a contract be effected as a result of the Advance Letter of Intent, that the PRODUCT be delivered to the CORPORATION according to conditions and prices determined herein and not diverted to the spot market which may on occasion be higher than the Exchange Price determined by the pricing relationship set forth here or as modified by the contract.
- (3) that should the CORPORATION'S plant, as specified herein, become saturated in its ability to handle the recovered PRODUCT as a result of other Letters of Intent issued by the CORPORATION being converted into firm contracts for delivery and purchase prior to effecting such arrangements as a result of this commitment, the provisions of this Advance Letter of Intent become null and void.

The CORPORATION will communicate to the JURISDICTION that information about its use technology and business practices which the CORPORATION at its sole discretion shall consider necessary so as to assure receipt of the recovered material in form and cleanliness necessary for use by the CORPORATION. Such communication shall be on a nonconfidential basis, unless otherwise subject to a subsequent confidentiality agreement.

This Advance Letter of Intent shall become null and void on _____ unless effected into a contractual relationship or mutually extended by both the CORPORATION and JURISDICTION.

JURISDICTION

By: _____
CORPORATION

By: _____

Witnessed by:

Witnessed by:

APPENDIX D

- **List of Recycling Coordinators**



DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID WASTE
BUREAU OF WASTE REDUCTION AND RECYCLING

LISTING OF NEW YORK STATE RECYCLING COORDINATORS

Revised 12/19/89

DEC REGION 1

NASSAU COUNTY

- Guy Mazza 516-535-4284
Recycling Coordinator - Nassau County
1 West St., Room 112
Mineola, NY 11501

- John Febbo 516-431-1000
Recycling Coordinator - City of Long Beach
Room 500, Dept. of Public Works
1 West Chester Street
Long Beach, NY 11561

- Eugene Ferencik 516-489-5000
Recycling Coordinator - Town of Hempstead
Town Hall
350 Front Street
Hempstead, NY 11550

- Rhoda Becker 516-627-0590
Deputy Commissioner of
Solid Waste for Recycling - Town of North Hempstead
Town Hall
220 Plandome Road
Manhasset, NY 11030

- Anthony Maurino 516-921-7347
Deputy Commissioner of
Environmental Control - Town of Oyster Bay
50 Miller Road
Syosset, NY 11791

SUFFOLK COUNTY

- David Newton 516-360-4000
Recycling Coordinator - Suffolk County
10 Oval Drive
Hauppauge, NY 11788

- Ken Fehling 516-632-6416
Waste Management/
Recycling Coordinator - State Univ. of New York at Stony Brook
113 Suffolk Hall
Stony Brook, NY 11794

- Barbara Fitzpatrick 516-422-7664
Recycling Coordinator - Town of Babylon
Dept. of Environmental Control
281 Phelps Lane
North Babylon, NY 11703

- Elaine McKibbin 516-451-6220
Supervisor of Waste Management - Town of Brookhaven
Dept. of Environmental Control
3233 Route 112
Medford, NY 11763

- James Hartnett 516-351-3295
Director of SW Mgmt. - Town of Huntington
Dept. of Solid Waste Management
100 Main Street
Huntington, NY 11743

- Julia Noeldechen 516-224-5640
Recycling Coordinator - Town of Islip
Dept. of Environmental Control
401 Main Street
Islip, NY 11751

- Andy Wolke 516-269-6600
Supt. of Sanitation & Recycling - Town of Smithtown
Smithtown Town Hall
P.O. Box 575
Smithtown, NY 11787

- Robert L. Arner 516-283-5210
Recycling Manager - East End Recycling Association (E2RA)
116 Hampton Road
Southampton, NY 11968

REGION 2

NEW YORK CITY

- (position vacant) 212-240-4842
Director of Recycling - City of New York
Dept. of Sanitation
253 Broadway
Room 801
New York, New York 10007

REGION 3

DUTCHESS COUNTY

- John Ridinger 914-462-0334
Recycling Coordinator - Dutchess County
Dutchess County Resource Recovery Agency
Sand Dock Road
Poughkeepsie, NY 12603
- Shabazz Jackson 914-831-4390
Recycling Coordinator - City of Beacon
Box 431
Beacon, NY 12503
- Sam Patton 914-221-9191
Chairman, Recycling Commission - Town of East Fishkill
Town Hall - 370
Route 376
Hopewell Junction, NY 12533

ORANGE COUNTY

- Steve Praser 914-294-7951
Recycling Coordinator - Orange County
Orange County Government Center
Route 17M, P.O. Box 509
Goshen, NY 10924

PUTNAM COUNTY

- Sid Boxer 914-225-3641
Recycling Coordinator - Putnam County
2 Government Building
Route 6
Carmel, NY 10512

ROCKLAND COUNTY

- Gene Burns 914-638-5122
Recycling Coordinator - Rockland County
County Office Building
11 New Hempstead Road
New City, NY 10956
- William Griffith 914-359-6500
Recycling Coordinator - Town of Orangetown
Town Hall
26 Orangeburg Road
Orangeburg, NY 10962
- Arnold Gardner 914-357-5100
Recycling Coordinator - Town of Ramapo
237 Route 59
Suffern, NY 10901

SULLIVAN COUNTY

- Tom Schill 914-794-3000
Recycling Coordinator - Sullivan County
Dept. of Public Works
100 North Street
Monticello, NY 12701

ULSTER COUNTY

- (position vacant) 914-339-1223
Recycling Coordinator - Ulster County
Ulster County Resource Recovery Agency
P.O. Box 4298
52 Main Street
Kingston, NY 12401
- Jay Hogan 914-331-0080
Recycling Coordinator - City of Kingston
Dept. of Public Works
25 East O'Reilly Street
Kingston, NY 12401
- Manna Jo Greene 914-257-2877
Recycling Coordinator - Town of New Paltz
P.O. Box 550
1 Veterans Drive
New Paltz, NY 12561
- Renee Lohre 914-338-5956
Recycling Coordinator - Town of Rosendale
Town Hall
Rosendale, NY 12472
- Kim Corey 914-895-2266
Recycling Coordinator - Town of Wallkill
P.O. Box 247
Wallkill, NY 12449
- Amy Kletter 914-679-6570
Recycling Coordinator - Town of Woodstock
81 Tinker Street
Woodstock, NY 12498

WESTCHESTER COUNTY

- Abby Pelton 914-285-2588
Recycling Coordinator - Westchester County
Dept. of Public Works
Michaelian Building - Room 522
White Plains, NY 10601
- John Yvars 914-285-2520
Environmental Projects Coordinator - Westchester County
Dept. of Public Works
Michaelian Building - Room 522
White Plains, NY 10601
- Tracy Kay 914-967-5400
Recycling Coordinator - City of Rye
873 Boston Post Road
Rye, NY 10580
- Claudia Ng 914-381-6133
Environmental Coordinator - Town of Mamaroneck
740 West Boston Post Road
Mamaroneck, NY 10543
- Patrick Lofaro 914-245-4438
Supt. of Recycling - Town of Yorktown
Dept. of Environmental Conservation
2281 Crompond Road
Yorktown Heights, NY 10598

REGION 4**ALBANY COUNTY**

- Kevin Byng 518-432-1144
Recycling Specialist - City of Albany/ANSWERS Wasteshed
25 Quackenbush Square
Albany, NY 12207
- Stephen Kuzia 518-237-5242
Recycling Coordinator - City of Cohoes
Community Development Dept.
City Hall
Cohoes, NY 12047

COLUMBIA COUNTY

- Brian Bailey 518-828-2737
Director of Solid Waste - Columbia County
Solid Waste Dept.
401 State Street
Hudson, NY 12534

DELAWARE COUNTY

- Richard Lanigan 607-746-2128
Commissioner - Delaware County
Dept. of Public Works
P.O. Box 311
Page Avenue
Delhi, NY 12757

- Amy Zaref
Recycling Consultant - Delaware County
Hawk Engineering, P.C.
P.O.Box 427
Binghamton, NY 13902

GREENE COUNTY

- Arlyne Ruthschild 518-622-3251
Recycling Coordinator - Greene County
HCR 3, Box 909
Cairo, NY 12413

MONTGOMERY COUNTY

- Chuck Lowenhagen 518-853-3814
Recycling Coordinator - Montgomery County/MOS Authority
Dept. of Solid Waste Management
Park Street
Fonda, NY 12068

OTSEGO COUNTY

- Stephen Bonnell 607-547-4389
Recycling Coordinator - Otsego County
County Office Building
Cooperstown, NY 13326

- Bruno Bruni 607-432-6465
Solid Waste Manager - City of Oneonta
RD #4, Box 230
Oneonta, NY 13820

RENSSELAER COUNTY

- Charles Axtmann 518-270-2631
Recycling Coordinator - Rensselaer County
Rensselaer County Health Dept.
1600 Seventh Avenue
Troy, NY 12180

- Barbara Tozzi 518-270-4568
Recycling Coordinator - City of Troy
Public Works Bureau
1 Monument Square
Troy, NY 12180

- Lawrie Nickerson
Recycling Coordinator - Towns of Grafton & Brunswick
P.O. Box 224
Grafton, NY 12082

SCHENECTADY COUNTY

- Jeff Edwards 518-382-3286
Recycling Coordinator - Schenectady County
Planning Dept.
620 State Street
Schenectady, NY 12305

SCOHARIE COUNTY

- J. Scott Jiusto 518-295-7102
Recycling Coordinator - Schoharie County/MOS Authority
P.O. Box 583
Schoharie, NY 12157

REGION 5**CLINTON COUNTY**

- Laura Petropoulos 518-565-4713
Recycling Coordinator - Clinton County
Clinton County Government Center
137 Margaret Street
Plattsburgh, NY 12901

ESSEX COUNTY

- Sharon Brauner 518-873-6301
Recycling Coordinator - Essex County
Dept. of Solid Waste
Essex County Government Center
Elizabethtown, NY 12932

FULTON COUNTY

- Cindy Livingston 518-762-0501
Recycling Coordinator - Fulton County
Solid Waste Department
P.O. Box 28
Johnstown, NY 12095

FRANKLIN COUNTY

- Janine Taylor 518-483-8270
Recycling Coordinator - Franklin County
Franklin County Solid Waste Management Authority
121 East Main Street
Malone, NY 12953

SARATOGA COUNTY

- Joseph Miranda 518-885-2235
Recycling Coordinator - Saratoga County
Dept. of Public Works
50 West High Street
Ballston Spa, NY 12020

- Joyce Moore 518-863-2034
Recycling Coordinator - Town of Edinburg
RD #1
Box 547
Edinburg, NY 12134

WARREN COUNTY

- Robert Linck 518-761-6410
Recycling Coordinator - Warren County
Planning Dept.
Warren County Municipal Center
Lake George, NY 12845

- Diane Reilly 518-664-8595
Chair, Recycling Committee - Town of Halfmoon
P.O. Box 4700
191 Harris Road
Halfmoon, NY 12065

WASHINGTON COUNTY

- William Munoff 518-747-3331
Recycling Coordinator - Washington County
Dept. of Public Works
Upper Broadway
Fort Edward, NY 12828

REGION 6

HERKIMER COUNTY

- David Lupinski 315-866-1112
Recycling Coordinator - Herkimer County
Herkimer County Office Building
P.O. Box 471
Herkimer, NY 13350

JEFFERSON COUNTY

- Michael Kaskan 315-785-3144
Recycling Coordinator - Jefferson County
Planning Dept.
163 Arsenal Street
Watertown, NY 13601

LEWIS COUNTY

- Gary Buckingham 315-376-5394
Recycling Coordinator - Lewis County
Solid Waste/Recycling Dept.
Lewis County Court House
Lowville, NY 13367

ONEIDA COUNTY

- Kevin Manion 315-798-5474
Deputy Commissioner - Oneida County
Dept. of Solid Waste Management
800 Park Avenue
Utica, NY 13501

ST. LAWRENCE COUNTY

- Pierre Gagnon 315-393-7889
Recycling Coordinator - St. Lawrence County
- Linda McQuinn
Assistant Recycling Coordinator - St. Lawrence County
St. Lawrence Co. Solid Waste Disposal Authority
U.S. Custom House
Ogdensburg, NY 13669

REGION 7

BROOME COUNTY

- Lee Cornell 607-772-2482
Materials Recovery Manager - Broome County
Division of Solid Waste Management
P.O. Box 1766
Government Plaza
Binghamton, NY 13902

- Kathleen Hennesey 607-772-2482
Solid Waste Educator - Broome County
Division of Solid Waste Management.
P.O. Box 1766
Government Plaza
Binghamton, NY 13902

CAYUGA COUNTY

- William Walsh 315-252-9531 ext. 72
Recycling Administrator - City of Auburn/Cayuga County
City Hall
24 South Street
Auburn, NY 13021

CHENANGO COUNTY

- Susan McIntyre 607-335-4660
Recycling Coordinator - Chenango County
Dept. of Waste Management
Box 6, 27 West Main Street
Norwich, NY 13815

MADISON COUNTY

- James Zecca 315-366-2221
Solid Waste Coordinator - Madison County
Madison County Highway Dept.
Box 15
Wampsville, NY 13163

ONONDAGA COUNTY

- Debbie Young 315-425-2412
Recycling Coordinator - Onondaga County
1300 Civic Center
421 Montgomery Street
Syracuse, NY 13202

OSWEGO COUNTY

- Mark Lichtenstein 315-349-3564
Recycling Coordinator - Oswego County
Oswego County Offices
70 Brunner Street
Oswego, NY 13126

TIOGA COUNTY

- Walt Heater 607-565-8130
Recycling Coordinator - Tioga County
Box 240A, RD #1
Barton, NY 13734

TOMPKINS COUNTY

- Barbara Hotchkiss 607-273-5700
Recycling Coordinator - Tompkins County
Solid Waste Division
Bostwick Road
Ithaca, NY 14850
- Lynn Leopold 607-273-3470
Education Coordinator - City of Ithaca
City Hall
108 East Green Street
Ithaca, NY 14850

REGION 8

CHEMUNG COUNTY

- Vinnie Nykiel 607-737-2980
Recycling Manager - Chemung County
Chemung County Solid Waste Disposal District
Box 588, 1690 Lake Street
Elmira, NY 14902

GENESEE, LIVINGSTON, ORLEANS, WYOMING COUNTIES (GLOW)

- Bethany Dawes 716-344-4035
Recycling Administrator - GLOW
Solid Waste Office
26 Harvester Ave.
Batavia, NY 14020

MONROE COUNTY

- Abby Goldsmith 716-254-4000
Recycling Coordinator - Monroe County
Division of Solid Waste
1845 Emerson Street
Rochester, NY 14606

- Norman Jones 716-428-6545
Recycling Coordinator - City of Rochester
210 Colfax Street
Rochester, NY 14606

ONTARIO COUNTY

- (position vacant) 716-396-4482
Recycling Coordinator - Ontario County
Ontario County Recycling Office
5297 Parkside Drive
Canandaigua, NY 14424

SCHUYLER COUNTY

- Nancy Peckham 607-535-7391
Recycling Coordinator - Schuyler County
Dept. of Planning and Economic Development
208 Broadway Street
Montour Falls, NY 14865

SENECA, WAYNE, YATES COUNTIES (Western Finger Lakes Region)

- J. Garrett Dolan 716-396-2900
Recycling Coordinator - Western Finger Lakes Solid
Waste Management Authority
P.O. Box 63, 5 Court Street
Canandaigua, NY 14424

STEBEN COUNTY

- Nancy Lyon 607-776-9631
Recycling Manager - Steuben County
Dept. of Solid Waste
3 East Pulteney Square
Bath, NY 14810

REGION 9

ALLEGANY COUNTY

- Gretchen Gary 716-268-9230
Recycling Coordinator - Allegany County
Dept. of Public Works - Room 210
Belmont, NY 14813

CATTARAUGUS COUNTY

- (position vacant) 716-938-9121
Waste Management Analyst - Cattaraugus County
Dept of Public Works Refuse Division
214 Main Street
Little Valley, NY 14755
- Douglas Baldwin 716-945-1211
Waste Management Coordinator - Cattaraugus County
389 Center Street
Salamanca, NY 14779

CHAUTAUQUA COUNTY

- Janell Lundgren-Dolan 716-665-4496
Recycling Coordinator - County of Chautauqua
P.O. Box 38
454 North Work Street
Falconer, NY 14733

ERIE COUNTY

- John Finster 716-846-6307
Solid Waste Management Program Coordinator - Erie County
Dept. of Public Works
95 Franklin Street
Buffalo, NY 14020
- Jerry Knoll 716-649-4953
Superintendent - Village of Hamburg
Dept. of Public Works
100 Main Street
Hamburg, NY 14075

NIAGARA COUNTY

- Keith O'Neill 716-434-6568
Director of Environmental Management - Niagara County
Dept. of Environmental Management
423 Bewley Building
Lockport, NY 14094

THIS LIST IS UPDATED PERIODICALLY. PLEASE SEND ANY CHANGES TO:

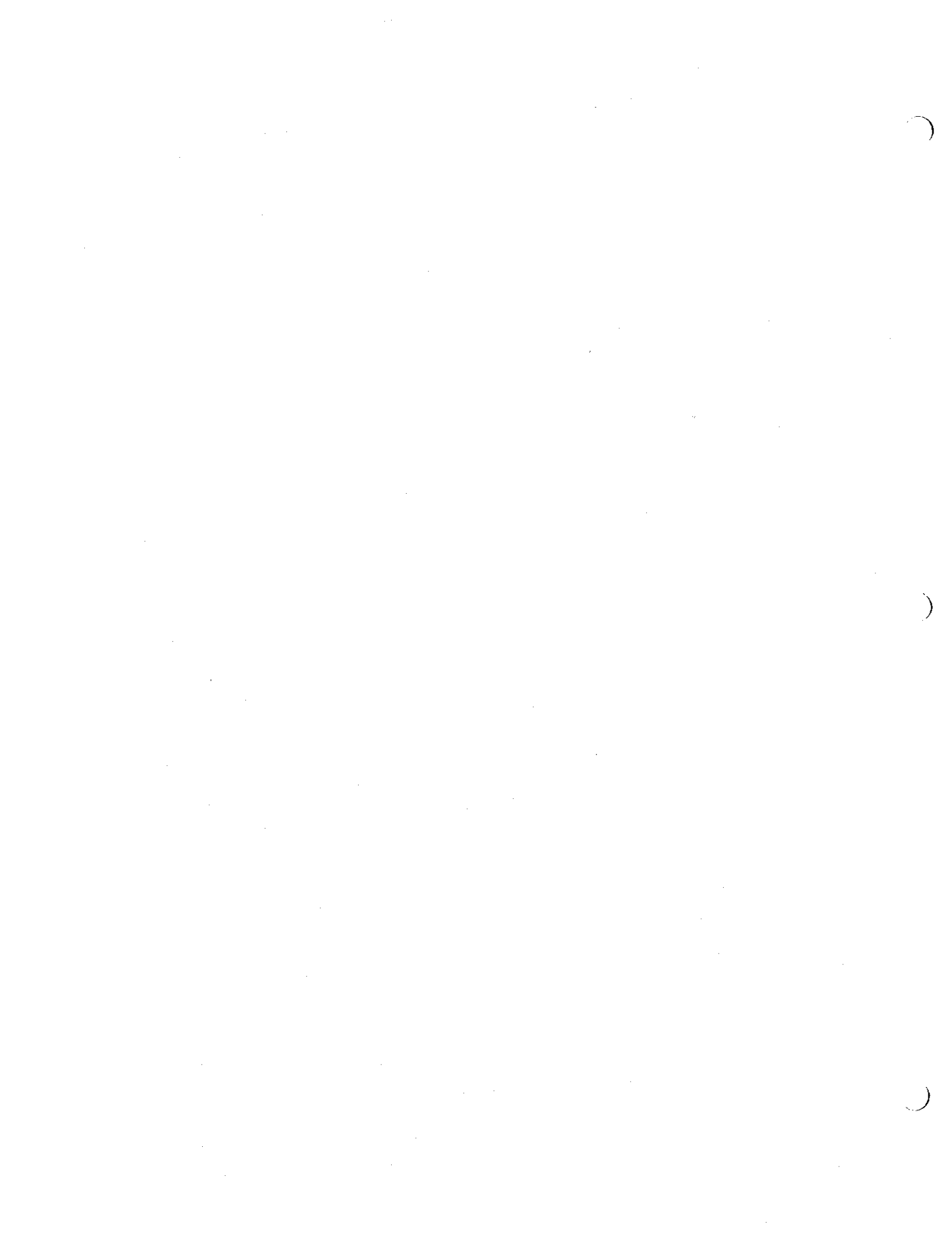
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
BUREAU OF WASTE REDUCTION AND RECYCLING
50 WOLF ROAD ROOM 200
ALBANY, NEW YORK 12233-4015

OR CALL THE BUREAU AT 518-457-7337

THANK YOU FOR YOUR ASSISTANCE IN KEEPING THIS INFORMATION CURRENT

APPENDIX E

- **Equipment Options**



EQUIPMENT OPTIONS FOR MRFs

A variety of equipment can be used to perform processing. The most commonly used machinery is described below.

1. Baler. A baler is a compaction device that crushes material into large rectangular blocks, reducing it in volume and making it uniform in shape for easy storage and shipping. Balers are versatile because they can process several kinds of materials.

2. Shredder. Some shredders work on many types of materials, such as paper, plastic and aluminum. Others are specifically designed to handle a single type of material. A hogger, for example, works on demolition wood. A paper shredder is of particular value to a program serving a number of businesses that generate high quality paper. Markets pay well for this grade of paper, but businesses prefer that it be shredded because it often consists of payroll, accounting or other private records.

3. Magnetic separator. This device uses magnets to separate ferrous from non-ferrous metals. Markets pay well for aluminum cans, but they must be uncontaminated by other metals. Magnetic separators are often used after shredding.

4. Can crusher and flattener. The largest can crushers process thousands of cans an hour. Some can crushers have special features, such as a blower, that automatically feeds the cans into a truck. Crushing or flattening is done to transport more cans per load.

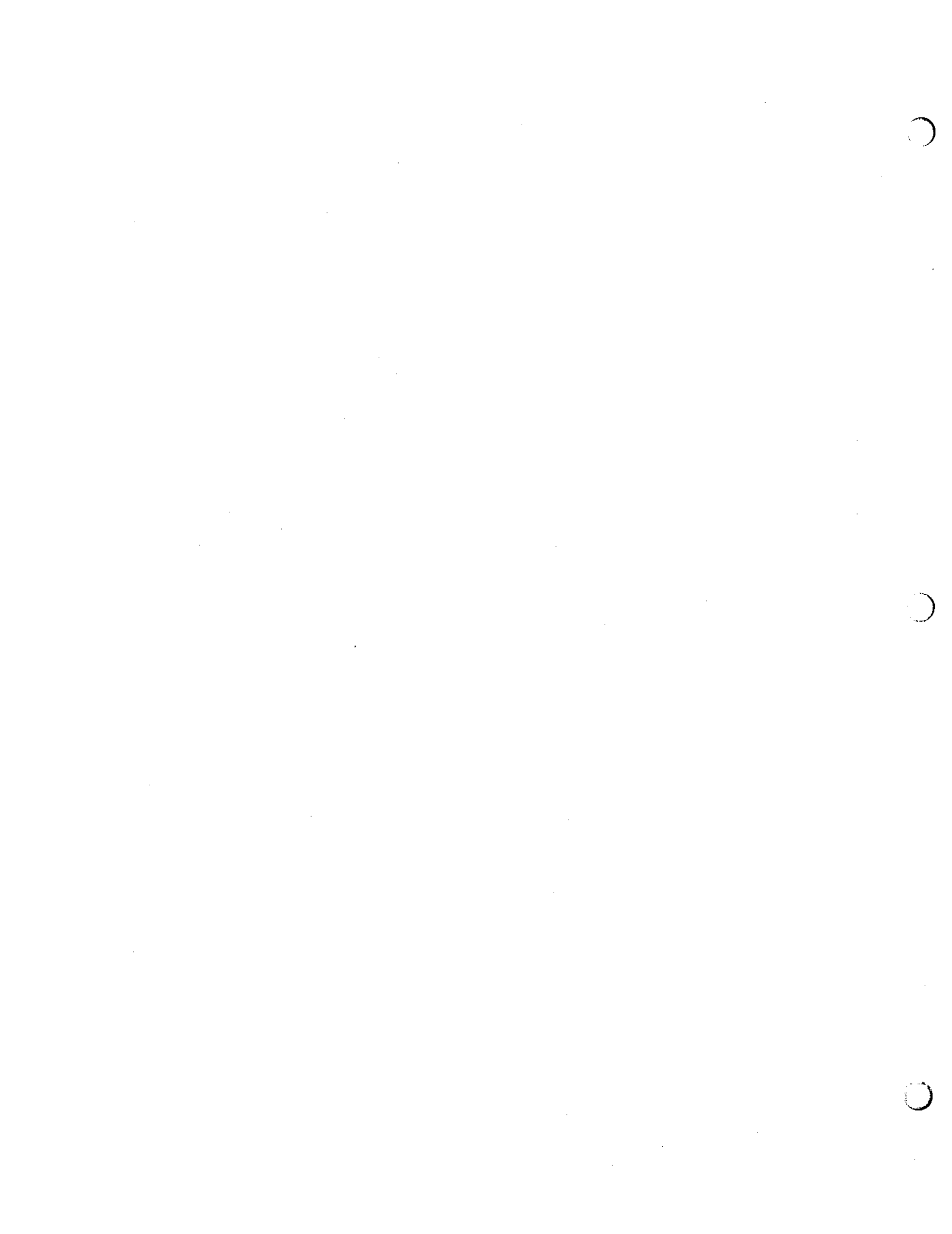
5. Densifier. Densifiers do a better job of compacting aluminum than crushers or flatteners and produce rectangular briquettes which are easy to stack and transport. Densifiers may also be used to make white goods more compact so that more will fit into one shipment.

6. Glass bottle crusher. Glass is crushed to reduce volume. Mechanical bottle crushers are preferred to manual crushing because they are less dangerous for personnel and equipment. Some models have attached screens or trommels to remove paper and aluminum contaminants.

7. Granulator. Granulators reduce the volume of plastics. Some remove impurities as well, usually by means of an air classifier, which operates on the principle of sedimentation to sort materials.

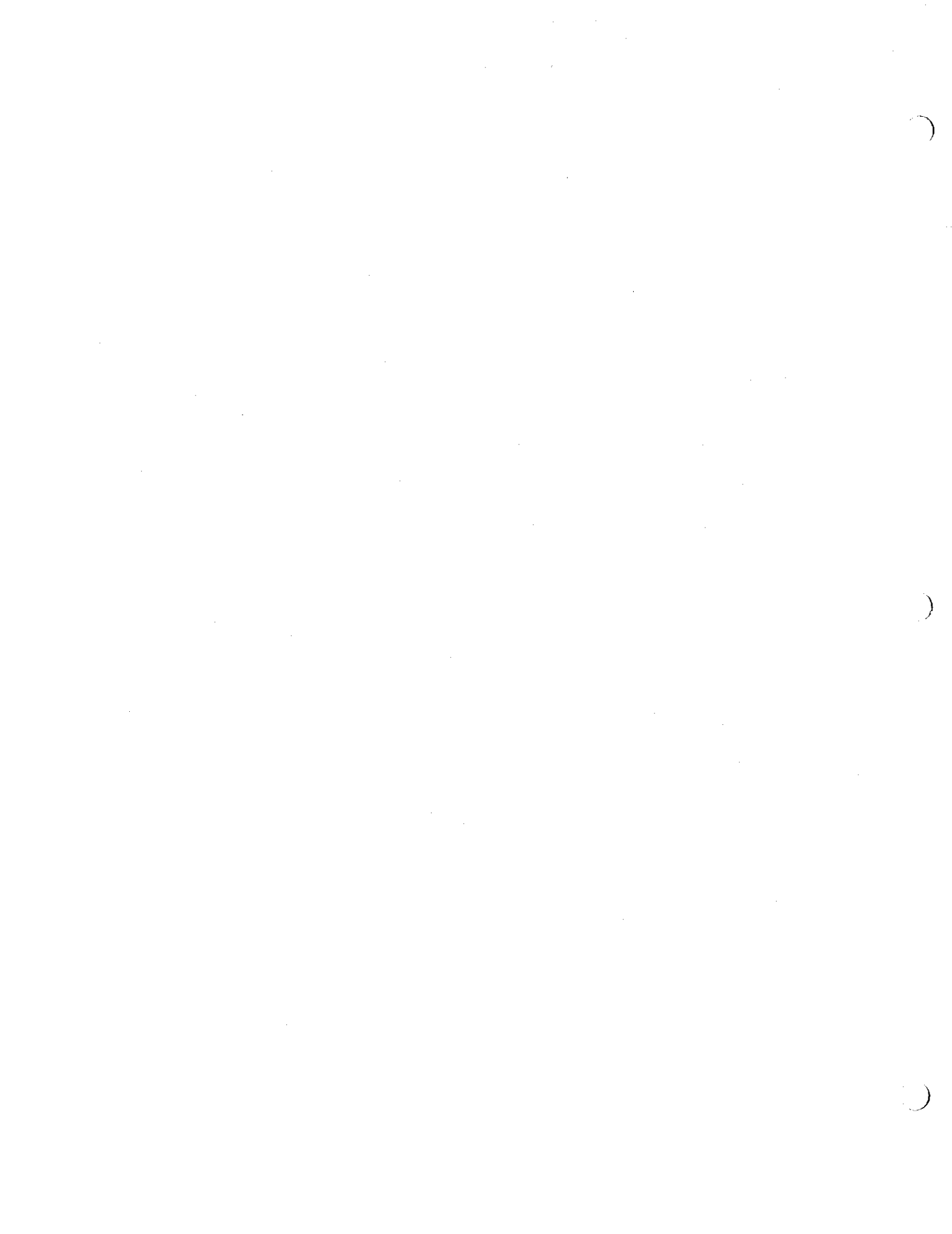
8. Chipper. A chipper is a slower-speed shredder for demolition lumber, tree scrap, pallets, boxes and old furniture. The product of chipping can be used as fuel or mulch.

9. Other machinery used at an MRF. MRFs also use front-end loaders and forklift trucks to receive and move materials, and scales to weigh it for transport and sale. Conveyor belts serve a variety of purposes, such as moving materials to processing machines, storage areas or hauling vehicles, or for sorting.



APPENDIX F

- **Solid Waste Management Act of 1988**



STATE OF NEW YORK

S. 8107

A. 10652

SENATE—ASSEMBLY

April 7, 1988

IN SENATE -- Introduced by Sens. ANDERSON, BRUNO, FARLEY, DUNNE, COOK, DALY, DONOVAN, FLOSS, GOODHUE, JOHNSON, KEHOE, KUHL, LACK, E. LEVY, N. LEVY, LOMBARDI, MARCHI, McHUGH, MEGA, PADAVAN, ROLISON, SCHERMERHORN, SEWARD, SPANO, STAFFORD, TRUNZO, VELELLA, VOLKER -- read twice and ordered printed, and when printed to be committed to the Committee on Environmental Conservation

IN ASSEMBLY -- Introduced by M. of A. HINCHEY, TALLON, VITALIANO, YEVOLI, PILLITTERE, COLMAN, SIEGEL, GRANNIS, CASALE -- Multi-Sponsored by -- M. of A. BENNETT, BIANCHI, BRAGMAN, BRENNAN, BRODSKY, CONNOR, DANIELS, DiNAPOLI, GANTT, GOTTFRIED, GRIFFITH, HARENBERG, HOYT, KEANE, McPHILLIPS, NOLAN, PARMENT, PASSANNANTE, PHEFFER, E. C. SULLIVAN, SWEENEY, TOCCI, TOKASZ, TONKO, ZALESKI, ZIMMER -- read once and referred to the Committee on Environmental Conservation

AN ACT to amend the environmental conservation law, the public authorities law, the economic development law, the state finance law, the county law, the general municipal law, the town law, the village law and chapter fifty of the laws of nineteen hundred eighty-eight relating to the state operations budget, in relation to enacting the solid waste management act of 1988; establishing a state solid waste management policy; creating a state bureau of waste reduction and recycling and a state solid waste management board; allocates funds appropriated for solid waste management and repealing certain provisions of the environmental conservation law relating to local resource programs and technical assistance

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

- 1 Section 1. Short title. This act shall be known and may be cited as
- 2 the "Solid Waste Management Act of 1988".
- 3 § 2. Legislative findings and intent. The legislature finds and de-
- 4 clares that the proper management of solid waste is necessary to protect
- 5 public health and the environment. Toward this end, it is necessary to

EXPLANATION--Matter in italics (underscored) is new; matter in brackets [] is old law to be omitted.

LBD14445-05-8

1 reduce the generation of solid waste, to accelerate the recovery and
2 reuse of secondary materials within the state, to encourage the conser-
3 vation of resources, to foster public and private initiatives to achieve
4 these ends, and to encourage a new ethic among New York's citizens to
5 conserve and reuse, rather than discard, useful materials. A state-local
6 partnership is essential to achieving these ends.

7 Waste reduction is a key strategy in the state solid waste management
8 policy. The promotion of effective waste reduction strategies, on a
9 statewide or regional basis, would assist local governments in develop-
10 ing more effective waste disposal programs. Thus, the state must iden-
11 tify and encourage the implementation of effective waste reduction
12 techniques.

13 The legislature further finds that, when accompanied by the develop-
14 ment of adequate markets for materials separated from the waste stream,
15 source separation and recycling programs can be effective ways to reduce
16 the ultimate volume of solid waste requiring disposal. Thus, the state
17 should provide enhanced assistance in developing and identifying markets
18 for secondary materials.

19 The legislature also finds that many communities face a crisis in
20 development and implementation of environmentally acceptable ways to
21 dispose of the waste produced by their residents and the industries
22 located within their jurisdictions. This crisis demonstrates the need to
23 facilitate planning for and the development of local solid waste manage-
24 ment programs, to provide additional state technical assistance, and to
25 enhance state programs relating to solid waste management. State as-
26 sistance in these areas is needed to assist localities which must assess
27 solid waste management alternatives, work with concerned interests and
28 the public in evaluating these alternatives, and design and implement
29 solid waste management programs.

30 The legislature finds that, in order for communities to plan for and
31 implement safe and adequate solid waste management programs, state gov-
32 ernment must ensure that solid waste is managed in an appropriate
33 manner. It is essential that the state provide clear recommendations and
34 specific program steps to give meaning to the broad management priori-
35 ties contained in the state solid waste management policy established
36 herein, so that localities may develop more effective disposal
37 solutions. Thus, it is the intent of this legislation to ensure and sup-
38 port an improved regulatory environment which permits localities and
39 private industry to plan for, establish, and operate such facilities
40 with the state providing enhanced assistance to local governments to en-
41 able them to devise and implement such local programs.

42 It is the intent of the legislature to ensure that all concerned
43 recognize that solid waste management programs undertaken by state agen-
44 cies to establish a pattern or course of conduct for the future should
45 be guided by rules promulgated pursuant to the state administrative
46 procedure act under which local governments and other persons directly
47 or indirectly affected are afforded the fullest opportunity to respond
48 to any proposed new or revised rules.

49 Finally, it is the intent of the legislature to create a mechanism
50 that will ensure that state agencies and authorities charged with as-
51 sisting those who are responsible for solid waste management will oper-
52 ate cooperatively in developing implementation strategies that reflect
53 the state's overall solid waste management policy.

54 § 3. Subdivision one of section 3-0301 of the environmental conserva-
55 tion law is amended by adding a new paragraph cc to read as follows:

1 cc. Prescribe and certify the qualifications for operators of solid
2 waste management facilities as defined in section 27-0701 of this chap-
3 ter; provided, however, that the commissioner shall not require the cer-
4 tification of operators until the commissioner shall have identified or
5 established programs of training within the state that satisfy such
6 qualifications;

7 § 4. Subdivision five of section 19-0306 of such law is renumbered
8 subdivision seven and two new subdivisions five and six are added to
9 read as follows:

10 5. The department shall, in promulgating any new or revised rule or
11 regulation, accompany such rule making with an environmental impact
12 statement or a written assessment stating the extent to or means by
13 which such rule or regulation will prevent, control or prohibit air
14 pollution.

15 6. Operating requirements established pursuant to this section for
16 municipal incineration facilities shall be embodied in rules and regula-
17 tions of the department promulgated in accordance with the state admin-
18 istrative procedure act.

19 § 5. Section 27-0103 of such law, as added by chapter five hundred
20 fifty-two of the laws of nineteen hundred eighty, is amended to read as
21 follows:

22 § 27-0103. [Implementation] State solid waste management plan.

23 1. For the purposes of this article, the department is designated as
24 the official state agency with the responsibility for preparing[,] and
25 updating [and overseeing implementation of] the New York state solid
26 waste management plan (hereinafter referred to as the "plan") consistent
27 with the state resource recovery policies declared in the New York state
28 resource recovery policy act, with this title, with titles five and
29 seven of this article, and with the federal "Resource Conservation and
30 Recovery Act of 1976" and amendments thereto.

31 2. The commissioner shall, with the advice of the state solid waste
32 management board established pursuant to section 27-0702 of this arti-
33 cle, annually review the status of programs and information contained
34 within the plan and make recommendations for legislation or other state
35 action related to:

36 (a) comprehensive procurement policies applicable to state agencies
37 and public authorities which will give maximum feasible encouragement to
38 the procurement of products manufactured with stated levels of
39 [recycled] secondary materials;

40 (b) incentives for developing and expanding markets for promoting the
41 return of secondary materials and other recovered resources to produc-
42 tive use; and

43 (c) analysis of [the] packaging [portion] and other various compo-
44 nents of the waste stream to propose changes which will conserve energy
45 and reduce solid waste generation.

46 In making such recommendations and reviewing said plans the commis-
47 sioner shall take into account sound principles of solid waste manage-
48 ment and relevant considerations of natural resources conservation,
49 energy production and employment creating opportunities and shall fur-
50 ther take into account any relevant changes in federal and state laws,
51 any [municipal] local solid waste management plans [submitted] developed
52 pursuant to [the commissioner] section 27-0107 of this article, and the
53 experience of agencies, local governments, private industry [and], the
54 public [in the implementation of the plan] and the results of the public
55 participation contemplated by the United States Environmental Protection
56 Agency's Guidelines for Public Participation in Programs under the

1 Resource Conservation and Recovery Act (40 CFR Part 25). On the basis
2 of that review, the commissioner shall modify the plan, as appropriate,
3 and, not later than March thirty-first of each year, shall file such
4 modified plan with the governor and the legislature.

5 3. Amendments to the plan shall assure current attention to:

6 (a) an identification of the boundaries of those regions within the
7 state which, as a result of urban concentration, geographic conditions,
8 secondary materials markets, technological feasibility, and other fac-
9 tors, are appropriate for carrying out regional solid waste management;

10 (b) identification of which solid waste functions will be planned for
11 and carried out by which local authorities, regional authorities, state
12 authorities, agencies and public benefit corporations, giving due con-
13 sideration to the compatibility of the planning and implementing func-
14 tions which can be combined at the local level;

15 (c) identification of local, regional and state authorities and agen-
16 cies which shall have responsibility for [implementation of such plan
17 and] the solid waste functions identified in the plan which shall be
18 managed and carried out by or on behalf of such entities or any combina-
19 tion thereof, giving due consideration to the compatibility of the plan-
20 ning and implementing functions which can be combined at the local
21 level;

22 (d) identification of the environmental impacts including, but not
23 limited to, air or water pollution, or the generation of hazardous waste
24 resulting from the utilization of [classes of resource recovery
25 technology] solid waste management technologies;

26 (e) identification and projections of changes in the waste stream
27 that are likely to occur during the useful life of a proposed facility,
28 on a statewide and regional basis, during the projected planning period;

29 (f) the status of solid waste management activities and capacity, and
30 projected special needs within the state;

31 (g) an assessment of future programs and resource needs to effectuate
32 the purposes of such plan;

33 (h) an assessment of alternative resource recovery practices including
34 but not limited to source separation, waste volume reduction, community
35 recycling centers and sanitary landfill or other environmentally sound
36 disposal manner or practice;

37 [(g)] (i) any [plan relating to] local solid waste management plan
38 submitted to the commissioner by or on behalf of any municipality; [and

39 (h)] (j) legislative recommendations appropriate to effectuate the
40 purposes of this title; and

41 (k) any other recommendations as may be appropriate.

42 4. In the case of any region which, pursuant to the federal "Resource
43 Conservation and Recovery Act of 1976", would be located in two or more
44 states, the commissioner shall include in the plan an identification of
45 such regions and the function to be performed thereby[, shall recommend
46 the appropriate interstate agency for implementation of that aspect of
47 the plan,] and shall submit to the governor and the legislature recom-
48 mendations for the development and enactment of the interstate
49 agreements necessary to carry out the purposes of this article.

50 5. In connection with developing and updating the plan, the commis-
51 sioner may request and shall receive from any department, division,
52 board, bureau, commission or other agency of the state or any political
53 subdivision thereof or any public authority such assistance and data as
54 may be reasonably necessary to enable the commissioner to carry out his
55 responsibilities under this section. In making such request, the com-
56 missioner shall consult and cooperate with such municipality or other

1 public body to [assure] ensure against unnecessary duplication of effort
2 or other administrative inefficiency.

3 § 6. Such law is amended by adding a new section 27-0106 to read as
4 follows:

5 § 27-0106. State solid waste management policy.

6 In the interest of public health, safety and welfare and in order to
7 conserve energy and natural resources, the state of New York, in enact-
8 ing this section, establishes as its policy that:

9 1. The following are the solid waste management priorities in this
10 state:

11 (a) first, to reduce the amount of solid waste generated;

12 (b) second, to reuse material for the purpose for which it was origi-
13 nally intended or to recycle material that cannot be reused;

14 (c) third, to recover, in an environmentally acceptable manner, energy
15 from solid waste that can not be economically and technically reused or
16 recycled; and

17 (d) fourth, to dispose of solid waste that is not being reused, recy-
18 cled or from which energy is not being recovered, by land burial or
19 other methods approved by the department.

20 2. State government must make an essential contribution to the
21 development and implementation of environmentally, economically and
22 technically viable solid waste management programs through fulfilling
23 its responsibilities to provide programs which promote waste reduction
24 and the expansion of markets for recovered materials, clearly articu-
25 lated, responsive and consistently applied regulatory structures, and a
26 full range of technical assistance to local governments. A state-local
27 partnership, in which the basic responsibility for the planning and
28 operation of solid waste management facilities remains with local gov-
29 ernments and the state provides necessary guidance and assistance, must
30 be forged.

31 3. This policy, after consideration of economic and technical feasi-
32 bility, shall guide the solid waste management programs and decisions of
33 the department and other state agencies and authorities.

34 § 7. Such law is amended by adding two new sections 27-0107 and 27-
35 0109 to read as follows:

36 § 27-0107. Local solid waste management plans: purpose and scope.

37 1. Purpose and scope. (a) A planning unit may undertake and complete a
38 timely process leading to a local solid waste management plan for such
39 unit for at least a ten-year period. For purposes of this section and
40 section 27-0109 of this article, "planning unit" shall mean a county,
41 two or more counties acting jointly, a local government agency or
42 authority established pursuant to state law for the purposes of managing
43 solid waste, or two or more other municipalities which the department
44 determines to be capable of implementing a regional solid waste manage-
45 ment program.

46 (b) The local solid waste management plan shall:

47 (i) characterize the solid waste stream to be managed in the planning
48 period;

49 (ii) assess existing and alternate proposed solid waste management
50 programs and facilities;

51 (iii) address to the maximum extent practicable the comments and views
52 expressed by concerned governmental, environmental, commercial and in-
53 dustrial interests and the public on the waste reduction, recycling,
54 reuse and disposal alternatives;

55 (iv) identify the parties with responsibility to implement each ele-
56 ment of the plan and the steps which must be undertaken by each;

1 (v) set forth a timetable for implementing the plan;
2 (vi) describe the participation in the preparation of the plan of each
3 municipality which has chosen to participate in such preparation; and
4 (vii) describe (A) measures undertaken by the municipalities partici-
5 pating in the planning unit to secure participation of neighboring
6 jurisdictions, (B) the limitations, if any, imposed by the proposed plan
7 on solid waste management alternatives available to such neighboring
8 jurisdictions, and (C) alternatives which would be available if a local
9 solid waste management plan including such jurisdictions were prepared.
10 Specific written suggestions received from neighboring jurisdictions
11 shall be summarized and reflected in the plan.

12 (c) Such plan shall take into account the objectives of the state
13 solid waste management policy, provide for or take into account manage-
14 ment of all solid waste within the planning unit, and embody, as may be
15 appropriate to the circumstances, sound principles of solid waste
16 management, natural resources conservation, energy production, and em-
17 ployment creating opportunities.

18 (d) Such plan is authorized to include and shall utilize, to the ex-
19 tent practicable, prepared resource materials or generic analyses so as
20 to minimize the development and use of original data to degrees of
21 detail not pertinent to the circumstances.

22 (e) A plan may be submitted to the department by a planning unit on
23 its own initiative or upon the request of the participating
24 municipalities. The department shall review such plan and advise the
25 planning unit that:

26 (i) the plan contains the elements set forth in paragraph (b) of this
27 subdivision. Thereafter such plan shall become the local solid waste
28 management plan in effect for such municipalities; or

29 (ii) the plan as submitted does not contain the elements set forth in
30 paragraph (b) of this subdivision. The department shall state the reas-
31 ons for its determination under this subparagraph.

32 (f) For purposes of this subdivision, the department shall not serve
33 as lead agency as defined in subdivision six of section 8-0111 of this
34 chapter.

35 (g) For purposes of this section, "solid waste" shall have the same
36 meaning as is found in subdivision one of section 27-0701 of this arti-
37 cle, but shall not include source, special nuclear or by-product
38 material as defined in the atomic energy act of 1954, as amended, or
39 hazardous waste which appears on the list or satisfies the characte-
40 ristics of hazardous waste promulgated pursuant to section 27-0903 of
41 this article or, low level radioactive waste as defined in section 29-
42 0101 of this chapter.

43 2. The department shall promulgate rules and regulations in accordance
44 with the provisions of the state administrative procedure act for the
45 implementation of this section and section 27-0109 of this article.
46 § 27-0109. State assistance for local solid waste management plans.

47 1. As a complement to, and in conjunction with the technical as-
48 sistance provided pursuant to this chapter, and to foster and facilitate
49 local planning, a planning unit may apply for state assistance for
50 developing solid waste management plans pursuant to section 27-0107 of
51 this article or to update or revise an existing plan to address the ele-
52 ments contained in paragraph (c) of subdivision one of such section.

53 2. The commissioner is authorized until April thirtieth, nineteen hun-
54 dred ninety, to contract to make a state grant, within the limit of ap-
55 propriation therefor, to any planning unit for up to ninety percent of
56 the costs to prepare its local solid waste management plan; provided,

1 however, that the amount of such grant shall be reduced by the amount of
2 any grant previously made to a planning unit which is a part of or is
3 served by the planning unit seeking such grant. A planning unit may
4 receive a grant pursuant to this subdivision which shall not exceed the
5 greater of twenty-five thousand dollars or one dollar for each resident
6 of the planning unit, based upon the census of nineteen hundred eighty.

7 3. Applications for such assistance shall outline the proposed scope
8 and timetable for preparation of the plan pursuant to section 27-0107 of
9 this article. In addition, the planning unit must demonstrate its intent
10 that the purpose of undertaking the plan is to develop a viable solution
11 to its solid waste management needs which cannot be achieved based on an
12 existing plan.

13 4. Payments authorized under this section shall be made as follows:

14 (a) not more than fifty percent of the total grant upon approval by
15 the department of the grant request; and

16 (b) the balance of the total grant in not more than three periodic
17 payments for unreimbursed costs, as provided in the contract.

18 5. The commissioner may, in the commissioner's discretion, deny fund-
19 ing to a planning unit which is within the jurisdiction of another plan-
20 ning unit or proposed planning unit.

21 § 8. Subdivision four of section 27-0305 of such law, as amended by
22 chapter five hundred ninety-two of the laws of nineteen hundred eighty-
23 one, is amended to read as follows:

24 4. The department [may] shall make rules and regulations implementing
25 this section promulgated in accordance with the state administrative
26 procedure act in order to carry out and enforce the intent and purposes
27 thereof. Such rules and regulations and the provisions of article 70 of
28 this chapter and rules and regulations adopted thereunder shall govern
29 permit applications, permit conditions, renewals, modifications, suspen-
30 sions and revocations under this section. The department shall, in
31 promulgating any new or revised rule or regulation, accompany such rule-
32 making with an environmental impact statement or a written assessment
33 stating the extent to or means by which such rule or regulation will
34 carry out the intent and purpose of this section. The responsibility for
35 the issuance and review of permits and the enforcement of the provisions
36 of this section may be delegated to regional, district or county offices
37 of the state department of health, or to local health departments where
38 their jurisdiction may apply.

39 § 9. Section 27-0401 of such law is REPEALED and a new section 27-0401
40 is added to read as follows:

41 § 27-0401. Secondary materials.

42 1. As used in this article, "secondary materials" shall mean material
43 recovered from or otherwise destined for the waste stream, including but
44 not limited to, post-consumer material, industrial scrap material and
45 overstock or obsolete inventories from distributors, wholesalers and
46 other companies as defined in rules and regulations promulgated by the
47 commissioner of economic development in consultation with the commis-
48 sioner but such term does not include those materials and by-products
49 generated from, and commonly reused within, an original manufacturing
50 process.

51 2. For the purposes of this article, the department shall assist the
52 department of economic development in conducting secondary materials
53 market development programs pursuant to article six of the economic
54 development law, as added by chapter six hundred fifteen of the laws of
55 nineteen hundred eighty-seven, and other state agencies and authorities
56 conducting waste reduction and recycling programs.

1 3. The department shall assist in providing consumer education on the
2 economic and environmental benefits of solid waste management practices
3 and the concomitant needs for waste reduction and for consumers to ac-
4 tively seek consumer products which contain secondary materials or which
5 are easily recycled or reused.

6 § 10. Such law is amended by adding a new section 27-0702 to read as
7 follows:

8 § 27-0702. Solid waste management board.

9 1. There is hereby created within the department the state solid waste
10 management board hereinafter referred to as the "board". The board shall
11 consist of a total of fifteen members and shall include the commission-
12 ers of environmental conservation, health and economic development or a
13 deputy commissioner of such department as designated by the commissioner
14 thereof. The board's twelve at-large members shall be appointed by the
15 governor. Two such appointments shall be upon recommendation of the tem-
16 porary president of the senate, two such appointments shall be upon
17 recommendation of the speaker of the assembly, one such appointment
18 shall be upon recommendation of the minority leader of the senate and
19 one such appointment shall be upon recommendation of the minority leader
20 of the assembly. Of the remaining six appointments, three of the at-
21 large members shall be a representative of local government representa-
22 tive of different geographic areas of the state, two shall be represen-
23 tative of private industry which provides solid waste management ser-
24 vices or deals in secondary materials, and one shall be representative
25 of organizations whose prime function is the protection of health or en-
26 vironmental resources. None of the members so appointed shall be offic-
27 ers or employees of any state department or agency and each shall be, by
28 professional training or experience and attainment, qualified to analyze
29 and interpret matters pertaining to solid waste management.

30 2. (a) The commissioner shall serve as chairman of the board provided,
31 however, that his designee may not preside as chairman in his absence.
32 The board shall elect a vice chairman from among the appointed members
33 to act in the absence of the chairman.

34 (b) Each of the twelve at-large members appointed by the governor
35 shall hold office for a term of two years or until such time as the
36 board shall cease to exist or until such member shall resign or be
37 removed in the manner provided by law, except that one of the initial
38 appointments made on the recommendation of the temporary president of
39 the senate, one of the initial appointments made on the recommendation
40 of the speaker of the assembly and four of the initial remaining ap-
41 pointments of the governor shall be for a term of three years. Any
42 vacancy on the board shall be filled by appointment pursuant to this
43 section.

44 3. The members of the board shall serve without compensation for their
45 services as members of the board, except that members shall be allowed
46 their necessary and actual expenses incurred in the performance of their
47 duties under this section.

48 4. The board shall have the power, duty and responsibility to:

49 (a) Serve as a working forum for the exchange of views, concerns,
50 ideas, information and recommendations relating to implementation of the
51 state solid waste management policy articulated in section 27-0106 of
52 this article, market development and secondary materials, waste reduc-
53 tion and recycling programs established pursuant to sections one hundred
54 eighty-one and one hundred eighty-one-b of the economic development law,
55 technical assistance, planning and any other solid waste management pro-

1 grams, policies and plans of the department or any other state agency or
2 authority;

3 (b) Request the attendance at any meeting of the board of such person-
4 nel of the department or of other state agencies or authorities, as may
5 be necessary to provide information and otherwise assist the board and
6 request such information from the department or other state agencies or
7 authorities as the board may require in fulfilling its responsibility
8 under this section;

9 (c) Monitor, review and make recommendations concerning:

10 (i) the objectives, methods and strategies of the department and other
11 state agencies or authorities in implementing and pursuing programs
12 designed to meet the objectives of the state solid waste management
13 policy;

14 (ii) the objectives, methods and strategies of the department and
15 other state agencies and authorities in implementing the programs of as-
16 sistance to local governments in planning and implementing solid waste
17 management programs; and

18 (iii) the objectives, methods and strategies of the department and the
19 department of economic development to promote waste reduction through
20 regulatory activities, interstate cooperation, and assistance to local
21 governments and businesses;

22 (d) Coordinate its activities with appropriate boards and advisory
23 bodies of the state or other agencies with related responsibilities, in-
24 cluding the board of operating requirements established pursuant to sec-
25 tion 19-0306 of this chapter and the state environmental board esta-
26 blished pursuant to article five of this chapter;

27 (e) Study and make recommendations concerning programs and activities
28 that the department, and other agencies or authorities as may be appro-
29 priate, could undertake to provide information for the public on how
30 locally proposed or operated facilities conform with regulatory require-
31 ments and the protections afforded thereby;

32 (f) Request and receive, upon reasonable notice, reports from state
33 agencies and public authorities concerning segments of the waste stream
34 posing particular problems in disposal, recycling and reuse and, within
35 six months of the receipt of each such report, submit its recommenda-
36 tions to the governor and the legislature concerning such report;

37 (g) Make recommendations to the governor and the legislature, no later
38 than one year after the effective date of this subdivision, concerning
39 incentives for host communities of solid waste management facilities.
40 Such incentives may include, but need not be limited to, ways to protect
41 against decreases in property values, rate structures which could bene-
42 fit residents of the host community and mechanisms to address local
43 concerns during facility design and operation; and

44 (h) Perform other activities or services as may be necessary to ful-
45 fill the purposes of this section.

46 5. Based upon its monitoring, reviewing and other information availa-
47 ble to it, the board shall report to the governor and the legislature on
48 or before October first of each year its assessment with comments and
49 recommendations regarding solid waste management programs, their imple-
50 mentation, available funding and resources, and the need for steps to
51 assure the future availability of funding.

52 6. (a) The board shall:

53 (i) meet at least quarterly;

54 (ii) keep a record of its proceedings; and

55 (iii) determine the rules of its own procedures.

1 (b) Eight members of the board shall constitute a quorum for the tran-
2 saction of any business of the board.

3 7. Staff services, including recording of board proceedings, shall be
4 performed by personnel of the department, or such state departments or
5 agencies as the chairman deems appropriate or desirable.

6 § 11. Section 27-0703 of such law, as added by chapter three hundred
7 ninety-nine of the laws of nineteen hundred seventy-three and renumbered
8 by chapter four hundred twenty-five of the laws of nineteen hundred
9 seventy-seven, is amended to read as follows:

10 § 27-0703. Powers and duties of the department; solid waste management
11 facilities.

12 1. To the maximum extent feasible, the department shall carry out the
13 provisions of this title so as to facilitate short and long term plan-
14 ning for solid waste disposal, to promote cooperation among neighboring
15 localities in the planning and implementation of solid waste management
16 programs and facilities, and to facilitate implementation of solutions
17 to solid waste management problems confronted by localities.

18 2. The department shall have the power to: [1.] (a) Adopt and promul-
19 gate, amend and repeal rules and regulations governing the operation of
20 solid waste management facilities. Such rules and regulations shall be
21 directed at the prevention or reduction of [(a)] (i) water pollution,
22 [(b)] (ii) air pollution, [(c)] (iii) noise pollution, [(d)] (iv) obnox-
23 ious odors, [(e)] (v) unsightly conditions caused by uncontrolled
24 release of litter, [(f)] (vi) infestation of flies and vermin, and (vii)
25 other conditions inimical to the [pubilc] public health, safety and
26 welfare. In promulgating such rules and regulations, the department
27 shall give due regard to the economic and technological feasibility of
28 compliance therewith. Any rule or regulation promulgated pursuant
29 hereto may differ in its terms and provisions as between particular
30 types of solid waste management facilities and as between particular
31 areas of the state.

32 [2.] (b) Provide technical assistance to municipalities and other
33 persons engaged in solid waste management and provide training for
34 proper operation of solid waste management facilities.

35 [3.] (c) Cooperate with appropriate local, state, interstate and fed-
36 eral agencies to promote the operation of solid waste management facili-
37 ties in a safe, sanitary, efficient and environmentally sound manner.

38 3. The department shall, in promulgating any new or revised rule or
39 regulation, accompany such rule making with an environmental impact
40 statement or a written assessment stating the extent to or means by
41 which such rule or regulation will prevent or reduce the factors identi-
42 fied in subparagraphs (i) through (vii) of paragraph (a) of subdivision
43 two of this section.

44 4. Siting, design, construction, and operating requirements esta-
45 blished pursuant to subdivision two of this section for solid waste
46 management facilities shall be embodied in rules and regulations of the
47 department promulgated pursuant to the state administrative procedure
48 act.

49 5. The commissioner shall cause program plans to be prepared for all
50 solid waste management assistance programs of the department enacted or
51 substantially modified by the solid waste management act of 1988 or
52 hereafter enacted, for the program of funding small scale, low tech-
53 nology approaches to resource recovery pursuant to section 51-0905 of
54 this chapter, and for the local resource reuse and development program
55 established by section 27-0405 of this article. Such plans shall be con-
56 sistent with the legislative intent and statutory authorization for such

1 programs. Program plans shall be derived from and shall be consistent
2 with the state solid waste management policy set forth in section 27-
3 0106 of this article. Such plans shall be transmitted to the temporary
4 president and the minority leader of the senate and the speaker and the
5 minority leader of the assembly within ninety days of the effective date
6 of this act or of the effective date of any statute authorizing such
7 program. Program plans shall describe the goals and objectives of each
8 program, operational priorities and administrative procedures to be es-
9 ablished in administering each program, shall guide the development of
10 operating procedures and administrative rules and regulations governing
11 each program, shall set forth the manner in which the program shall be
12 coordinated with other solid waste management programs and shall set
13 forth a description of the operating relationships with the department
14 of environmental conservation, other relevant agencies and authorities
15 and regional and local public and private organizations.

16 § 12. Section 27-0707 of such law, as amended by chapter two hundred
17 thirty-three of the laws of nineteen hundred seventy-nine, subdivision
18 two as amended by chapter five hundred fifty-two of the laws of nineteen
19 hundred eighty, is amended to read as follows:

20 § 27-0707. Permits for new solid waste management facilities.

21 1. On and after the effective date of the initial rules and regula-
22 tions of the department promulgated pursuant to subdivision one of sec-
23 tion 27-0703, no person shall commence operation, including site pre-
24 paration and construction, of a new solid waste management facility un-
25 til such person has obtained a permit pursuant to this title.

26 2. The rules and regulations adopted by the department to implement
27 this article and the provisions of article [70] seventy of this chapter
28 and rules and regulations adopted thereunder shall govern permit appli-
29 cations, renewals, modifications, suspensions and revocations under this
30 article. The administration of such permit applications shall be in ac-
31 cordance with article [8] eight of this chapter. The rules and regula-
32 tions adopted by the department to implement this article shall specify,
33 at a minimum:

34 a. that an application for a permit to construct, or to renew a permit
35 to operate, a solid waste management facility shall not be complete un-
36 less the application includes a description of how the proposed facility
37 is consistent with the state solid waste management policy identified
38 under section 27-0106 of this article.

39 b. that after January first, nineteen hundred ninety an application
40 for a permit to construct a solid waste management facility made by or
41 on behalf of a municipality in a planning unit shall not be complete un-
42 til a local solid waste management plan is in effect for such municipal-
43 ity pursuant to section 27-0107 of this article. For purposes of this
44 paragraph, "planning unit" shall have the same meaning as set forth in
45 subdivision one of section 27-0107 of this article.

46 [(a)] c. that a permit will be issued only if:

47 (1) the proposed facility will be in full compliance with the applica-
48 ble rules and regulations in effect on the date of submission of the
49 permit application; and

50 (2) there has been opportunity for public review and comment at
51 relevant stages of the project planning process; and

52 (3) a determination has been made that the proposed facility will not
53 result in unfair competition between municipalities and scrap dealers,
54 processors and consumers; and

55 [(b)] in the case of a permit application for which an environmental
56 impact statement pursuant to article 8 of this chapter must be prepared,

1 that such statement shall include a description and evaluation of the
2 status of the proposed activity in light of the New York state solid
3 waste management plan in effect on the date of the application]

4 (4) the applicant has received or will receive the written opinion of
5 counsel to each municipality or public authority which has entered into a
6 contract, lease or rental agreement with the proposed facility that such
7 contract, lease or rental agreement is in compliance with the applicable
8 requirements of sections one hundred one, one hundred three and one hun-
9 dred twenty-w of the general municipal law.

10 3. Where a permit for a solid waste management facility has been
11 granted, the commissioner may upon request make available such depart-
12 ment personnel and expertise as may be needed to inform the public as to
13 the nature of the facility which has been granted a permit, the nature
14 of the facility operations authorized by the permit, and the effect of
15 the permit conditions, if any, which are imposed in connection with the
16 permit.

17 4. Where the commissioner denies a permit application, he shall
18 provide to the applicant a written statement of the reasons for this
19 determination.

20 [3.] 5. Receipt of a permit pursuant to this section shall not
21 relieve any person of the responsibility of constructing such facility
22 in full compliance with any applicable laws, rules or regulations or of
23 operating the facility in full compliance with all applicable laws,
24 rules and regulations, including rules and regulations of the department
25 promulgated pursuant to [subdivison] subdivision one of section 27-0703
26 and taking effect after the date application was made to the department.

27 [4.] 6. Nothing herein shall relieve any person of the responsibility
28 of fully complying with all applicable laws, rules and regulations, in-
29 cluding regulations of the department, promulgated pursuant to subdivi-
30 sion one of section 27-0703, in the operation of a solid waste manage-
31 ment facility not subject to the department's review under this section
32 [27-0707].

33 § 13. Section 27-0715 of such law is REPEALED and two new sections 27-
34 0715 and 27-0717 are added to read as follows:

35 § 27-0715. Solid waste management technical assistance.

36 1. The department shall conduct a comprehensive program of technical
37 assistance to local governments, the private sector and individuals to
38 enhance their capabilities to properly plan for and implement solid
39 waste management programs consistent with the state solid waste manage-
40 ment policy set forth in section 27-0106 of this article. This program
41 will establish continuing and comprehensive programs of technical as-
42 sistance designed to consolidate, simplify, or expedite the development
43 and implementation of such solid waste management programs.

44 2. In conducting the program set forth in this section, the department
45 shall prepare, provide and distribute to municipalities, and may dis-
46 tribute to other persons, information and other technical assistance
47 concerning development and implementation of solid waste management
48 plans, programs and facilities. Such information and assistance may be
49 in the form of manuals, generic assessments or technical assistance
50 documents and other written materials and, as may be appropriate, con-
51 sultation services. Such information and assistance may be provided by
52 the department directly or by contract, shall be directed toward fur-
53 thering the implementation of the state solid waste management policy
54 established pursuant to section 27-0106 of this article and the develop-
55 ment of local solid waste management plans pursuant to section 27-0107
56 of this article and shall address:

1 (a) available techniques and technologies for various forms of solid
2 waste management and recommendations concerning methods by which to
3 achieve an appropriate balance among those techniques and technologies,
4 and an assessment of their feasibility and usefulness under varying
5 local circumstances;

6 (b) applicable regulatory programs and permit processes;

7 (c) with the assistance of the commissioner of economic development,
8 and in cooperation with the bureau of waste reduction and recycling es-
9 tablished pursuant to this article, assistance in developing and imple-
10 menting waste reduction, source separation and recycling programs;

11 (d) the potential availability of financial assistance from existing
12 state programs and other sources for any or all aspects of a proposed
13 solid waste management program;

14 (e) with the assistance of the attorney general, the state comp-
15 troller, and other appropriate officers and agencies of the state, the
16 development and implementation of contracts and service agreements,
17 qualifications of vendors, and use of the procurement process, so as to
18 promote compliance with the applicable provisions of the general municip-
19 al law and federal and state anti-trust statutes;

20 (f) model local laws or ordinances to effectively implement sound
21 solid waste management programs, including source separation and recy-
22 cling efforts and regional disposal, management, and marketing activi-
23 ties;

24 (g) generic analyses of factors associated with the construction and
25 operation of municipal solid waste management facilities;

26 (h) a clearinghouse of information and suggestions from other states,
27 agencies, and municipalities, the federal government, and other sources
28 pertaining to development and implementation of solid waste management
29 programs, including those relating to cost avoidance, public education
30 and information efforts and potential host community incentives; and

31 (i) the availability of consultation services pertaining to the issues
32 identified and referred to in this section.

33 3. In effectuating the state solid waste management policy set forth
34 in section 27-0106 of this article, the technical assistance personnel
35 and resources of the department and local officials should work as a
36 team, each bringing their respective authority and responsibility to
37 bear in the development and implementation of a viable local solid waste
38 management program, or, as may be appropriate, as required to address
39 specific problems associated with such programs. Accordingly, within the
40 limits of appropriation therefor, upon designation of the local partici-
41 pants by a requesting local government, the department shall provide
42 staff and other resources, as appropriate, to work jointly and in coop-
43 eration with the requesting local government on a continuing basis, as
44 needed. State and local officials when working as a team should make
45 available to interested parties periodic assessments of the status and
46 effectiveness of the team's efforts.

47 4. In addition to providing technical assistance to municipalities and
48 planning units in addressing the issues identified in subdivision two of
49 section 27-0107 of this article as they relate to the particular circum-
50 stances confronted by such municipalities and planning units, the
51 department shall assist municipalities in identifying and evaluating:

52 (i) alternatives available for management of current and future solid
53 waste, including costs and impacts of specific waste management methods;
54 and

55 (ii) regulatory requirements associated with the implementation of
56 such alternatives.

1 5. In administering the provisions of this section, the department
2 shall provide to the governor, the legislature, and local governments on
3 or before December thirty-first, nineteen hundred eighty-eight and annu-
4 ally thereafter, a report assessing the assistance programs established
5 pursuant to this title, including the number of municipalities and other
6 entities which received assistance, a description of the services
7 provided and an assessment of program effectiveness.

8 6. The department shall submit to the director of the division of the
9 budget, the chairman and ranking minority member of the senate finance
10 committee and the chairman and ranking minority member of the assembly
11 ways and means committee an evaluation of the assistance programs esta-
12 blished in this section, and their implementation, prepared by an entity
13 independent of the department. Such evaluation shall be submitted by
14 September first, nineteen hundred ninety and by September first, every
15 two years thereafter.

16 7. In administering assistance programs pursuant to this section, the
17 commissioner shall consider the potential for coordination and consoli-
18 dation of solid waste management practices, including marketing efforts
19 associated with source separation and recycling programs, among munici-
20 palities and shall encourage such cooperation and consolidation where it
21 is practicable and would result in enhanced environmental protection and
22 cost effectiveness.

23 8. To effectuate the purposes of this section, the department may
24 request and shall be entitled to receive, from any state agency or pu-
25 blic authority and the same are authorized to provide, such assistance,
26 services, facilities, and data as will enable the department to carry
27 out its functions, powers, and duties.

28 § 27-0717. Bureau of waste reduction and recycling.

29 1. The commissioner, with the approval of the director of the division
30 of the budget, shall establish within the department a bureau of waste
31 reduction and recycling. Such bureau shall be a separate entity to as-
32 sist in the development and promotion of local waste reduction, source
33 separation and recycling programs. Such programs shall promote the
34 source separation, collection, intermediate processing and marketing of
35 waste materials that are now being disposed of as municipal solid waste
36 in New York state. The bureau shall:

37 (a) promote the development and implementation of programs by munici-
38 palities;

39 (b) serve as a clearinghouse for information regarding existing source
40 separation and recycling programs;

41 (c) identify special needs and problems in developing and implementing
42 source separation and recycling programs, and recommend approaches and
43 solutions to address such identified needs and problems; and

44 (d) coordinate its activities with other solid waste assistance pro-
45 grams of the department.

46 2. Pursuant to regulations promulgated in accordance with the state
47 administrative procedure act, the bureau shall establish an official
48 state recycling emblem and conduct a consumer awareness program with
49 respect thereto. Such emblem shall be of a design to include terms or
50 symbols for "New York State", and "recyclable" and/or "recycled" and/or
51 "reuseable". Standards for such terms or symbols shall be developed pur-
52 suant to regulations which with respect to (a) "recyclable" shall ad-
53 dress material for which technologies or systems for reuse as a sec-
54 ondary material exist; and (b) "recycled" shall address material contain-
55 ing a specified minimum percentage by weight of secondary materials con-
56 tent; and (c) "reusable" shall address ability to be repeatedly

1 returned for refilling or reuse with the original product. Further, such
2 regulations may stipulate prohibitions on the unauthorized use of the
3 state recycling emblem.

4 3. The bureau shall implement and conduct a program of public educa-
5 tion and information to inform the public and private sectors of the
6 state as to the merits of the use of secondary materials and for consum-
7 ers to actively seek consumer products which contain secondary materials
8 or which are easily recycled or reused. Such program shall communicate
9 the importance of minimizing the need for new solid waste disposal capa-
10 city and of conserving natural resources, avoiding harm to the environ-
11 ment or public health, and promoting resource conservation, recovery and
12 reuse by industry, the state of New York, public and quasi-public agen-
13 cies and authorities, local governments and the general public of the
14 state.

15 4. The bureau shall be responsible for the administration of the New
16 York state local resource reuse and development program established pur-
17 suant to sections 27-0403 and 27-0405 of this article.

18 § 14. The public authorities law is amended by adding a new section
19 twelve hundred eighty-five-i to read as follows:

20 § 1285-i. Commercial and industrial waste audits. a. The corporation
21 shall establish and be responsible for administration of a commercial
22 and industrial waste audit program to help businesses identify and eval-
23 uate the potential at their New York facilities for reducing the amount
24 of solid waste generated, increasing new materials recovery programs and
25 otherwise reducing the amount of waste ultimately requiring disposal.
26 The corporation shall in implementing said waste audit program coordi-
27 nate activities with and actively foster the waste exchange program of
28 the corporation and other waste reduction programs as is appropriate,
29 and is further authorized to obtain the services, as necessary, of waste
30 management specialists to conduct such waste audits.

31 b. In implementing the commercial and industrial waste audit program,
32 the corporation shall:

33 (i) establish an application process consistent with the rules and
34 regulations of the program;

35 (ii) establish by rule and regulation a commercial and industrial
36 solid waste audit program application evaluation procedure consistent
37 with the requirements of this section; and

38 (iii) establish by rule and regulation, upon consultation with the
39 director of the budget, a sliding fee schedule to offset the costs of
40 the audit. The fee schedule established pursuant to this section shall
41 be intended to provide revenues sufficient to meet solely the costs in-
42 curring by the corporation in performing such audits. The chairman is
43 authorized and directed to deposit all money received in payment of fees
44 under this section in an account within the miscellaneous special reve-
45 nue fund.

46 c. Waste audits conducted pursuant to this section may include but
47 need not be limited to identification of:

48 (i) all waste generated within the facility;

49 (ii) the regulatory requirements associated with the recovery, reuse
50 or disposal of such waste, and the implications of such requirements for
51 various reduction and reuse options;

52 (iii) any methodologies, processes, equipment, or production changes
53 that could be utilized to reduce the amount of waste generated and con-
54 sumer waste resulting from the product, process or service manufactured,
55 distributed or sold;

1 (iv) on site recycling or waste treatment technologies that could be
2 utilized to reduce the need for waste disposal capacity;

3 (v) potential markets for waste generated by the facility, including
4 local materials recycling programs, and the ability of such markets to
5 readily absorb the wastes generated by such facility; and

6 (vi) economic practicality of alternative waste reduction strategies.

7 d. Any person for whom a waste audit is prepared shall within one hun-
8 dred eighty days submit to the corporation findings with respect to the
9 report and the status of steps to implement any recommended strategies
10 identified in such audit.

11 e. Beginning January first, nineteen hundred eighty-nine, the chairman
12 shall make an annual report concerning the activities undertaken pur-
13 suant to this section which shall include, at a minimum (i) the number
14 of businesses which received assistance, (ii) the nature of assistance
15 provided through the programs, (iii) needs and problems confronted by
16 such businesses in establishing and implementing programs, and (iv) the
17 number of businesses which applied for assistance. The chairman shall
18 submit to the director of the division of the budget, the chairman and
19 the ranking minority member of the senate finance committee and the
20 chairman and the ranking minority member of the assembly ways and means
21 committee an evaluation of the program prepared by an entity indepen-
22 dent of the authority. Such evaluation shall be submitted by September
23 first, nineteen hundred ninety and by September first every two years
24 thereafter.

25 § 15. Such law is amended by adding two new sections twenty-eight hun-
26 dred seventy-eight-a and twenty-eight hundred seventy-eight-b to read as
27 follows:

28 § 2878-a. Purchasing of paper products. 1. When purchasing paper pro-
29 ducts made with and without significant recycled content, recovered from
30 materials otherwise destined for disposal, the public authority, cor-
31 poration, or commission shall, wherever the price is reasonably competi-
32 tive and the quality adequate for the purpose intended, purchase the re-
33 cycled paper products. For the purpose of this section "recycled paper"
34 shall mean any paper products which have been manufactured from materi-
35 als otherwise destined for the waste stream including, but not limited
36 to, old newspapers, magazines, paperboard boxes, tabulating cards, mixed
37 waste, used fibrous material such as rags and overstock or obsolete in-
38 ventories from distributors, wholesalers, printers and other companies
39 as defined in rules and regulations promulgated by the commissioner of
40 general services provided that such term does not include those materi-
41 als and by-products generated from, and commonly reused within an origi-
42 nal manufacturing process.

43 2. For the purposes of subdivision one of this section, "reasonably
44 competitive" shall mean a comparable recycled paper product manufactured
45 in whole or in part with secondary materials with a cost premium of no
46 greater than ten percent.

47 3. Whenever the public authority, corporation or commission shall pur-
48 chase or cause the purchase of printing on recycled paper, it shall
49 require the printed material to include a printed statement or symbol
50 which indicates that the document is printed on recycled paper.

51 § 2878-b. Source separation of wastes. 1. No later than September
52 first, nineteen hundred eighty-nine each public authority, corporation
53 or commission shall devise and institute a program to source separate
54 waste paper generated within its facilities.

55 Such program shall include marketing arrangements and appropriate
56 procedures to ensure the recovery of discarded paper in a noncontami-

1 nated condition. This program may be phased in, utilizing those office
2 facilities most conducive to operation of a source separation program,
3 but shall be fully implemented by July first, nineteen hundred ninety.

4 2. No later than July first, nineteen hundred ninety, each public
5 authority, corporation or commission shall devise and institute a pro-
6 gram to source separate all other waste generated within its facilities
7 that is not covered by this section. Such program shall include market-
8 ing arrangements and appropriate procedures to ensure the recovery of
9 waste for which the full avoided costs of proper collection, transporta-
10 tion and disposal of source separated materials are equal to or greater
11 than the cost of collection, transportation and sale of said material
12 less the amount received from the sale of said material. This program
13 may be phased in, utilizing those office facilities most conducive to
14 operation of a source separation program but shall be fully implemented
15 by July first, nineteen hundred ninety-one.

16 3. A public authority, corporation or commission occupying facilities
17 made available or provided by the office of general services may comply
18 with the provisions of this section by participating in a program con-
19 ducted by the office of general services pursuant to subdivisions four
20 and five of section one hundred seventy-seven of the state finance law.

21 § 16. Paragraphs j, k, l and m of subdivision five of section one hun-
22 dred eighty-one of the economic development law are relettered para-
23 graphs m, n, o and p and three new paragraphs j, k and l are added to
24 read as follows:

25 j. Evaluate the relationship between estimated supply and likely
26 demand for recovered materials in order to target the department's ef-
27 forts to bring about utilization of (i) materials for which supply ex-
28 ceeds demand to the greatest degree; (ii) materials which would have the
29 greatest impact on the waste stream if recovered or recycled; and (iii)
30 materials for which a market can most readily be obtained;

31 k. Develop and facilitate the establishment of markets necessary for
32 implementation of solid waste management programs;

33 l. Provide information concerning local and regional markets for
34 secondary materials;

35 § 17. Section one hundred eighty-one of such law is amended by adding
36 two new subdivisions fifteen and sixteen to read as follows:

37 15. Reports. Beginning on January first, nineteen hundred eighty-nine,
38 the commissioner shall make an annual report to the governor and the
39 legislature which shall include, at a minimum, the status of the activi-
40 ties undertaken pursuant to paragraphs a, c, d, e, f, i, j and k of sub-
41 division five of this section, the status of any other activities under-
42 taken pursuant to this article, and recommendations for programs or
43 policies that will further the objectives of expanding the utilization
44 of secondary materials recovered for reuse within the state. The provi-
45 sions of this subdivision shall not be deemed to require or authorize
46 the disclosure of confidential information or trade secrets.

47 16. Evaluation. The department shall submit to the director of the
48 division of the budget, the chairman and ranking minority member of the
49 senate finance committee and the chairman and ranking minority member of
50 the assembly ways and means committee an evaluation of this program pre-
51 pared by an entity independent of the department. Such evaluation shall
52 be submitted by September first, nineteen hundred ninety and by Septem-
53 ber first, every two years thereafter.

54 § 18. Section one hundred eighty-two of such law, as added by chapter
55 six hundred fifteen of the laws of nineteen hundred eighty-seven, is

1 renumbered section one hundred eighty-one-a and a new section one hun-
2 dred eighty-one-b is added to read as follows:

3 § 181-b. Waste reduction and recycling program. 1. When used in this
4 section, "solid waste" or "waste" shall have the same meaning as is
5 found in subdivision one of section 27-0701 of the environmental conser-
6 vation law, but shall not include source, special nuclear or by-product
7 material as defined in the atomic energy act of 1954, as amended, or
8 hazardous waste which appears on the list or satisfies the characte-
9 ristics of hazardous waste promulgated pursuant to section 27-0903 of
10 the environmental conservation law, or low level radioactive waste as
11 defined in section 29-0101 of the environmental conservation law.

12 2. The department shall serve as a clearinghouse for information per-
13 taining to the reduction and recycling of solid waste generated by com-
14 mmercial and industrial enterprises, including the potential for such en-
15 terprises to coordinate their activities with existing and potential
16 local recycling programs, and on methods and strategies which commercial
17 and industrial enterprises within the state can undertake to reduce
18 waste generation.

19 3. The commissioner, in consultation with the commissioner of environ-
20 mental conservation, is hereby authorized and directed to confer and
21 cooperate with authorities of other states and of the United States with
22 respect to the development of regional markets for secondary materials
23 and the reduction of waste from residential, commercial and industrial
24 activities.

25 4. The department shall provide to the governor, the legislature, and
26 local governments on or before December thirty-first, nineteen hundred
27 eighty-eight and annually thereafter, a report assessing the status of
28 commercial and industrial waste reduction and the development of markets
29 for secondary materials, and all other aspects of solid waste management
30 for which the department is responsible. Such report shall include eval-
31 uations prepared in consultation with the department of environmental
32 conservation and the environmental facilities corporation of the ex-
33 pected levels of waste reduction from present and future utilization of
34 such practices, the anticipated effectiveness of such practices in meet-
35 ing waste reduction goals, and associated savings due to avoided han-
36 dling and disposal costs and program implementation costs. Such evalua-
37 tion shall be submitted by September first, nineteen hundred ninety and
38 by September first, every two years thereafter.

39 § 19. Section one hundred seventy-seven of the state finance law, as
40 amended by chapter eight hundred forty-nine of the laws of nineteen hun-
41 dred eighty-seven, is amended to read as follows:

42 § 177. Purchasing of paper for state use. 1. When purchasing paper
43 products made with and without significant recycled content, recovered
44 from materials otherwise destined for disposal, the commissioner of gen-
45 eral services and other state agencies shall, wherever the price is
46 reasonably competitive and the quality adequate for the purpose in-
47 tended, purchase the recycled product. For the purpose of this section:
48 "recycled paper" shall mean any paper products which have been manufac-
49 tured from materials otherwise destined for the waste stream including,
50 but not limited to, old newspapers, magazines, paperboard boxes, tabu-
51 lating cards, mixed waste, used fibrous material such as rags and over-
52 stock or obsolete inventories from distributors, wholesalers, printers
53 and other companies as defined in rules and regulations promulgated by
54 the commissioner of general services provided that such term does not
55 include those materials and by-products generated from, and commonly
56 reused within an original manufacturing process, and "reasonably

1 competitive" shall mean a comparable recycled product with a cost pre-
2 mium of no greater than ten percent.

3 2. The commissioner of general services shall review the procurement
4 specifications currently used by the office in order to eliminate,
5 wherever feasible, discriminations against the procurement of products
6 manufactured with recovered materials; and shall annually review the
7 paper specifications to consider increasing the percentage of recycled
8 paper in paper product purchases.

9 3. Whenever the commissioner of general services or whenever other
10 state agencies shall purchase or cause the purchase of printing on recy-
11 cled paper, he shall require the printed material to include a printed
12 statement or symbol which indicates that the document is printed on re-
13 cycled paper.

14 4. No later than July first, nineteen hundred eighty-seven, the com-
15 missioner of general services and, no later than July first, nineteen
16 hundred eighty-nine, each state agency shall devise and institute a pro-
17 gram to source separate waste paper generated within state office
18 facilities. Such a program shall include marketing arrangements and ap-
19 propriate procedures to ensure the recovery of discarded paper in a non-
20 contaminated condition. [This] The commissioner's program or the program
21 of a state agency may be phased in, utilizing those office facilities
22 most conducive to operation of a source separation program, but shall be
23 fully implemented by July first, nineteen hundred eighty-nine or July
24 first, nineteen hundred ninety, respectively.

25 5. No later than July first, nineteen hundred eighty-eight, the com-
26 missioner of general services and, no later than July first, nineteen
27 hundred eighty-nine, each state agency shall devise and institute a pro-
28 gram to source separate all other waste generated within state office
29 facilities that is not covered by subdivision four of this section. Such
30 program shall include marketing arrangements and appropriate procedures
31 to ensure the recovery of waste for which the full avoided costs of
32 proper collection, transportation and disposal of source separated
33 material are equal to or greater than the cost of collection, transpor-
34 tation and sale of the recovered material less the amount received from
35 the sale of said material. This program may be phased in, utilizing
36 those [office] facilities most conducive to operation of a source
37 separation program but shall be fully implemented by July first,
38 nineteen hundred ninety.

39 6. In addition to carrying out the provisions of subdivisions four and
40 five of this section, the commissioner, within ninety days of the effec-
41 tive date of this subdivision, shall identify and begin implementation
42 of specific steps which will reduce, to the maximum extent practicable,
43 waste generated in state facilities and maximize the recovery and reuse
44 of secondary materials from such facilities. Such steps and their imple-
45 mentation shall be reviewed from time to time but no less frequently
46 than annually or upon receiving recommendations for additional steps
47 from the solid waste management board, the department of environmental
48 conservation or the environmental facilities corporation.

49 7. All state agencies shall fully cooperate with the commissioner of
50 general services in all phases of implementing the provisions of this
51 section.

52 [7.] 8. The commissioner of general services shall report annually to
53 the governor and the legislature concerning the quantities of recycled
54 paper purchased by the office of general services and by state agencies
55 pursuant to subdivision one of this section, and concerning the amounts
56 of waste recycled from state [office] offices and other facilities pur-

1 suant to subdivisions four and five of this section, the extent of waste
2 reduction, the kinds of materials eliminated from the waste stream, the
3 full avoided costs of proper collection and disposal costs of implement-
4 ing the programs under this section, the specific activities undertaken,
5 goals for the subsequent year resulting from the implementation of steps
6 pursuant to subdivision six of this section, and remaining issues and
7 areas for improvement. Such reports shall be widely disseminated as a
8 means of assisting those outside state government in the design and im-
9 plementation of waste reduction and recycling programs, through discus-
10 sion of the state's experience in implementing all program aspects such
11 as collection, sorting, handling, storage and marketing, and the resul-
12 ting accomplishments.

13 9. The office shall submit to the director of the division of the
14 budget, the chairman and ranking minority member of the senate finance
15 committee and the chairman and ranking minority member of the assembly
16 ways and means committee an evaluation of the source separation programs
17 for paper and other waste prepared by an entity independent of the
18 office. Such evaluation shall be submitted by September first, nineteen
19 hundred ninety and by September first, every two years thereafter.

20 § 20. Subdivision four of section one hundred sixty-one-a of such law,
21 as added by chapter five hundred ninety-seven of the laws of nineteen
22 hundred seventy-nine, is amended to read as follows:

23 4. The commissioner shall (investigate the possibility of the use by
24 the state of recycled refined oil and shall utilize such recycled
25 refined oil wherever, in his judgment, such use is found to be
26 feasible): (a) examine the feasibility of a program to utilize to the
27 maximum extent feasible, rerefined used oil for state lubricating oil
28 needs and to provide for the state's used oil as the oil feed stock to a
29 rerefiner or rerefiners.

30 (b) compile an inventory of state facilities that have the capacity
31 for high efficiency combustion and are capable of complying with the
32 regulations promulgated pursuant to paragraph a of subdivision one of
33 section 19-0301 of the environmental conservation law. If such capacity
34 exists, the commissioner shall purchase such reprocessed oil for use as
35 fuel oil for state facilities pursuant to sections one hundred sixty-
36 three and one hundred sixty-four of this chapter.

37 (c) develop a feasibility study with cost estimates for the retrofit-
38 ting or replacement of state combustion facilities to the extent neces-
39 sary for compliance with the regulations promulgated pursuant to para-
40 graph a of subdivision one of section 19-0301 of the environmental con-
41 servation law.

42 § 21. The county law is amended by adding a new section six hundred
43 twenty-six to read as follows:

44 § 626. Purchasing of paper for county use. Notwithstanding the provi-
45 sions of section one hundred three of the general municipal law, when
46 purchasing paper products made with and without significant recycled
47 content, recovered from materials otherwise destined for disposal, the
48 county purchasing agent may, wherever the price is reasonably competi-
49 tive and the quality adequate for the purpose intended, purchase the
50 recycled product. For the purpose of this section, "recycled paper"
51 shall mean any paper products which have been manufactured from materi-
52 als otherwise destined for the waste stream including, but not limited
53 to, old newspapers, magazines, paperboard boxes, tabulating cards, mixed
54 waste, used fibrous material such as rags and overstock or obsolete in-
55 ventories from distributors, wholesalers, printers and other companies
56 as defined in rules and regulations promulgated by the state commis-

1 tioner of general services provided that such term does not include
2 those materials and by-products generated from, and commonly reused
3 within an original manufacturing process, and "reasonably competitive"
4 shall mean a comparable recycled product with a cost premium of no
5 greater than ten percent. Whenever the county purchasing agent shall
6 purchase or cause the purchase of printing on recycled paper pursuant to
7 this section, he shall cause the printed material to include a printed
8 statement or symbol which indicates that the document is printed on re-
9 cycled paper.

10 § 22. The general municipal law is amended by adding a new section one
11 hundred four-a to read as follows:

12 § 104-a. Purchasing of paper for public use. Notwithstanding the
13 provisions of section one hundred three of this chapter, when purchasing
14 paper products made with and without significant recycled content,
15 recovered from materials otherwise destined for disposal, the officer,
16 board or agency of any political subdivision or of any district therein
17 charged with the awarding of public contracts may, wherever the price is
18 reasonably competitive and the quality adequate for the purpose in-
19 tended, purchase the recycled product. For the purpose of this section,
20 "recycled paper" shall mean any paper products which have been manufac-
21 tured from materials otherwise destined for the waste stream including,
22 but not limited to, old newspapers, magazines, paperboard boxes, tabu-
23 lating cards, mixed waste, used fibrous material such as rags and over-
24 stock or obsolete inventories from distributors, wholesalers, printers
25 and other companies as defined in rules and regulations promulgated by
26 the state commissioner of general services provided that such term does
27 not include those materials and by-products generated from, and commonly
28 reused within, an original manufacturing process, and "reasonably
29 competitive" shall mean a comparable recycled product with a cost pre-
30 mium of no greater than ten percent.

31 Whenever such officer, board or agency shall purchase or cause the
32 purchase of printing on recycled paper pursuant to this section, he
33 shall cause the printed material to include a printed statement or sym-
34 bol which indicates that the document is printed on recycled paper.

35 § 23. Section one hundred twenty-aa of such law, as added by chapter
36 five hundred fifty-two of the laws of nineteen hundred eighty, is
37 amended to read as follows:

38 § 120-aa. Source separation and segregation of recyclable or reuseable
39 materials. 1. The legislature hereby finds that [there are circumstances
40 when] it is in the public interest, in order to further the purposes of
41 the state policy on solid waste management articulated in section 27-
42 0106 of the environmental conservation law, for a municipality to adopt
43 a local law or ordinance to require the source separation and segrega-
44 tion of recyclable or reuseable materials from solid waste.

45 2. a. Pursuant to the authority of this section, no later than Sep-
46 tember first, nineteen hundred ninety-two, a municipality [may] shall
47 adopt such a local law or ordinance to require that solid waste which
48 has been left for [municipal or municipally-contracted] collection or
49 which is delivered by the generator of such waste to a [municipally-
50 owned] solid waste management[-resource recovery] facility, shall be
51 separated into recyclable, reuseable or other components for which
52 economic markets for alternate uses exist. For purposes of this section,
53 the term "economic markets" refers to instances in which the full
54 avoided costs of proper collection, transportation and disposal of
55 source separated materials are equal to or greater than the cost of col-

1 lection, transportation and sale of said material less the amount
2 received from the sale of said material.

3 [These components may] b. For purposes of this section, "components"
4 shall include [newspapers, corrugated containers, magazines, different
5 colored glass containers, aluminum, metal containers] paper, glass,
6 metals, plastics, garden and yard waste, and may include other elements
7 of solid waste.

8 c. Prior to exercising the authority of this section to enact such a
9 local law or ordinance, the municipality shall hold a public hearing
10 relating to its proposed provisions and shall give due consideration to
11 existing source separation, recycling and other resource recovery activ-
12 ities in the area, to the adequacy of markets for separated materials,
13 and to any additional effort and expense to be incurred by residents in
14 meeting the proposed separation requirements. The authority provided in
15 this section shall be in addition to and without limitation upon the
16 authority vested in municipalities under any other statute.

17 d. In fulfillment of the provisions of this section a municipality may
18 use public lands or buildings or private lands or buildings, open to the
19 public, upon written consent of the owner, as a recycling center or
20 depot for the storage of recyclable materials. The office of general
21 services and any other agency, authority or commission holding title to
22 lands or buildings in the name of the people of the state shall fully
23 cooperate with any person acting under the authority of this section to
24 establish a recycling program, provided that such use is not incon-
25 sistent with the principle purpose of such lands or buildings, subject
26 to local zoning restrictions.

27 § 24. The town law is amended by adding a new section one hundred
28 twenty-two-a to read as follows:

29 § 122-a. Purchasing of paper for town use. Notwithstanding the provi-
30 sions of section one hundred three of the general municipal law, when
31 purchasing paper products made with and without significant recycled
32 content, recovered from materials otherwise destined for disposal, every
33 officer, board or agency of a town may, wherever the price is reasonably
34 competitive and the quality adequate for the purpose intended, purchase
35 the recycled product. For the purpose of this section, "recycled paper"
36 shall mean any paper products which have been manufactured from materi-
37 als otherwise destined for the waste stream including, but not limited
38 to, old newspapers, magazines, paperboard boxes, tabulating cards, mixed
39 waste, used fibrous material such as rags and overstock or obsolete in-
40 ventories from distributors, wholesalers, printers and other companies
41 as defined in rules and regulations promulgated by the commissioner of
42 general services provided that such term does not include those materi-
43 als and by-products generated from, and commonly reused within, an ori-
44 ginal manufacturing process, and "reasonably competitive" shall mean a
45 comparable recycled product with a cost premium of no greater than ten
46 percent. Whenever such officer, board or agency shall purchase or cause
47 the purchase of printing on recycled paper pursuant to this section, he
48 shall cause the printed material to include a printed statement or sym-
49 bol which indicates that the document is printed on recycled paper.

50 § 25. The village law is amended by adding a new section 5-525 to read
51 as follows:

52 § 5-525. Purchasing of paper for village use. Notwithstanding the
53 provisions of section one hundred three of the general municipal law,
54 when purchasing paper products made with and without significant recy-
55 cled content, recovered from materials otherwise destined for disposal,
56 every officer, board or agency of a village may, wherever the price is

1 reasonably competitive and the quality adequate for the purpose in-
 2 tended, purchase the recycled product. For the purpose of this section,
 3 "recycled paper" shall mean any paper products which have been manufac-
 4 tured from materials otherwise destined for the waste stream including,
 5 but not limited to, old newspapers, magazines, paperboard boxes, tabu-
 6 lating cards, mixed waste, used fibrous material such as rags and over-
 7 stock or obsolete inventories from distributors, wholesalers, printers
 8 and other companies as defined in rules and regulations promulgated by
 9 the commissioner of general services provided that such term does not
 10 include those materials and by-products generated from, and commonly
 11 reused within, an original manufacturing process, and "reasonably
 12 competitive" shall mean a comparable recycled product with a cost pre-
 13 mium of no greater than ten percent. Whenever such officer, board or
 14 agency shall purchase or cause the purchase of printing on recycled
 15 paper pursuant to this section, he shall cause the printed material to
 16 include a printed statement or symbol which indicates that the document
 17 is printed on recycled paper.

18 § 26. That part of section one of chapter fifty of the laws of
 19 nineteen hundred eighty-eight relating to the state operations budget,
 20 entitled SOLID WASTE MANAGEMENT is amended to read as follows:

21 STATE OPERATIONS - MISCELLANEOUS
 22 SOLID WASTE MANAGEMENT

23 General Fund - State Purposes Account

24 For services and expenses, including per-
 25 sonal service, for solid waste management
 26 programs [pursuant to a chapter of the
 27 laws of 1988] in accordance with the fol-
 28 lowing schedule 26,000,000
 29 =====

30 For allocation to state departments, agen-
 31 cies and authorities for services and ex-
 32 penditures related to solid waste management
 33 programs established pursuant to the solid
 34 waste management act of 1988. Allocation
 35 of such funds shall be in accordance with
 36 a programmatic and financial plan to be
 37 approved by the director of the budget and
 38 filed with the chairman of the senate
 39 finance committee and the chairman of the
 40 assembly ways and means committee 3,500,000
 41 =====

42 For services and expenses for the department
 43 of environmental conservation for small
 44 scale, low technology approaches to
 45 resource recovery pursuant to section 51-
 46 0905 of the environmental conservation
 47 law. Allocation of such funds shall be in
 48 accordance with an annual financial plan
 49 to be approved by the director of the
 50 budget. Notwithstanding any other provi-
 51 sion of law, the director of the budget is

1 hereby authorized to transfer up to six
 2 million dollars of this appropriation to
 3 the capital projects fund for carrying out
 4 the purposes of this appropriation 6,000,000
 5 *****

6 For services and expenses of the department
 7 of environmental conservation for one time
 8 grants to municipalities to implement the
 9 local resource reuse program pursuant to
 10 sections 27-0403 and 27-0405 of the en-
 11 vironmental conservation law. Allocation
 12 of such funds shall be in accordance with
 13 an annual financial plan to be approved by
 14 the director of the budget and filed with
 15 the chairman of the senate finance commit-
 16 tee and the chairman of the assembly ways
 17 and means committee 6,000,000
 18 *****

19 For grants to municipalities for local solid
 20 waste management planning assistance pur-
 21 suant to sections 27-0107 and 27-0109 of
 22 the environmental conservation law 7,500,000
 23 *****

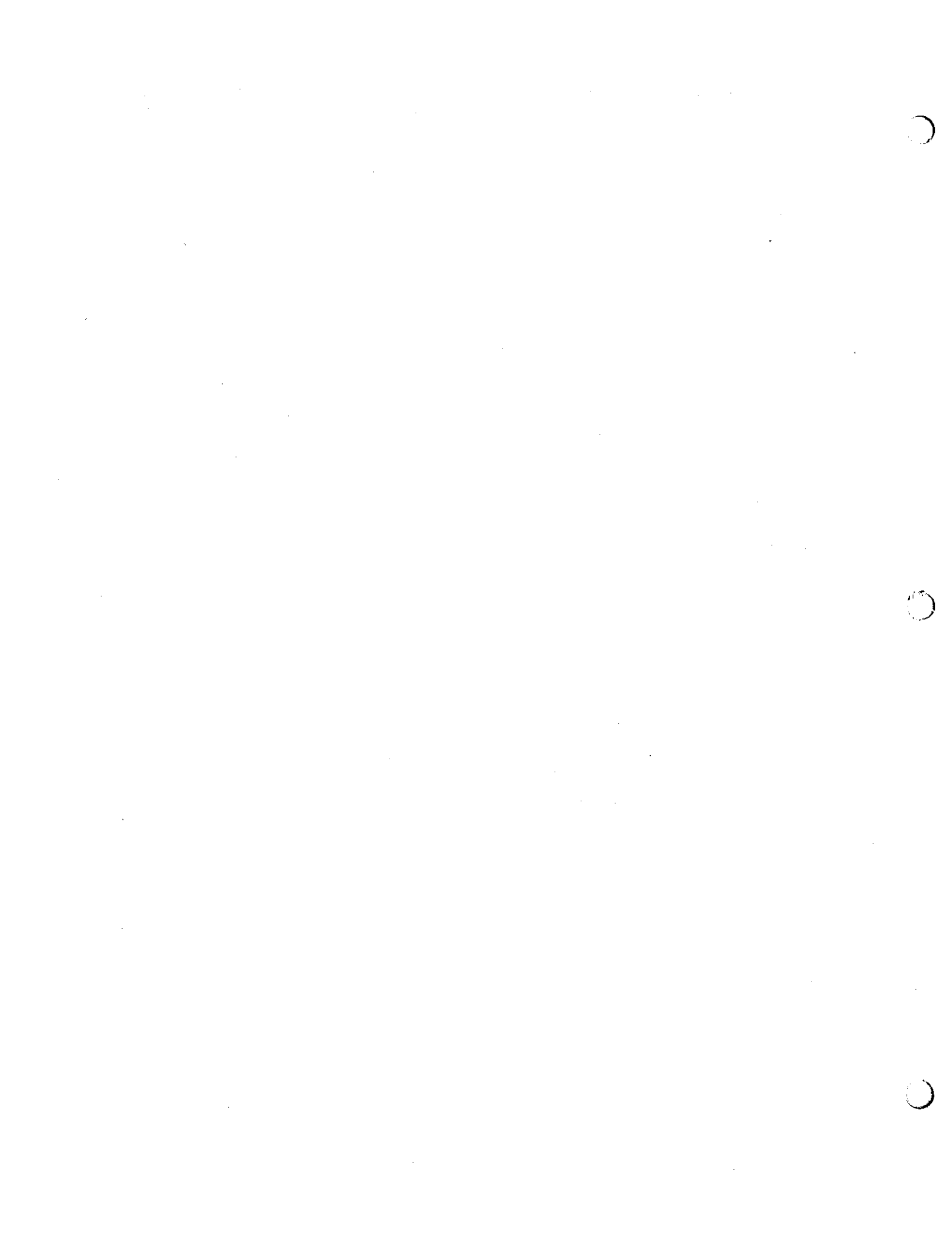
24 For services and expenses of the department
 25 of economic development related to the im-
 26 plementation of secondary materials utili-
 27 zation technologies pursuant to section
 28 one hundred eighty-one of the economic
 29 development law. The department shall
 30 suballocate funds for these purposes from
 31 this appropriation to public benefit cor-
 32 porations and public authorities through
 33 certificates of approval submitted to and
 34 approved by the director of the budget and
 35 filed with the chairman of the senate
 36 finance committee and the chairman of the
 37 assembly ways and means committee 3,000,000
 38 *****
 39

40 § 27. Nothing in this act shall be deemed or is intended to diminish
 41 the requirements otherwise imposed pursuant to the state administrative
 42 procedure act.

43 § 28. The provisions of this act shall be severable and if any portion
 44 thereof or the applicability thereof to any person or circumstances
 45 shall be held invalid, the remainder of this act and the application
 46 thereof shall not be affected thereby.

47 § 29. This act shall take effect immediately, except that sections
 48 four, eight, eleven and twelve of this act shall take effect on the
 49 first day of April, nineteen hundred eighty-nine; provided, however,
 50 that all actions and procedures with respect to the proposed adoption,
 51 amendment, suspension or repeal of any rule or regulation necessary to
 52 the implementation of the provisions of this act, except for sections
 53 four, eight, eleven and twelve of this act, are directed and authorized

1 to be completed on or before January first, nineteen hundred eighty-
2 nine.



APPENDIX G

- **List of Curricula**
- **Sample of Public Education Material**
- **DEC Pamphlets**
 - **Sorry Full**
 - **Reduce, Reuse, Recycle**
 - **STOP**
 - **Easy Backyard Composting**



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID WASTE
BUREAU OF WASTE REDUCTION AND RECYCLING

EXAMPLES OF
EDUCATIONAL CURRICULA
ON RECYCLING

Title: Waste in Place
By: Keep America Beautiful, Inc.
Address: 9 West Broad Street
Stamford, CT 06902
Phone: 203-323-8987
Cost: \$49.95 + \$5.50 p&h
Grades: 7 - 12
Copyrighted: Yes

Title: Waste, A Hidden Resource
By: Keep America Beautiful, Inc.
Address: 9 West Broad Street
Stamford, CT 06902
Phone: 203-323-8987
Cost: \$49.95 + \$5.50 p&h
Grade: K - 6
Copyrighted: Yes

Title: AVR Teacher's Resource Guide for Solid Waste
and Recycling Education
By: Association of Vermont Recyclers
Address: PO Box 1244
Montpelier, VT 05602
Phone: 802-229-1833
Cost: \$47.00
Grade: K - 12
Copyrighted: Yes

Title: Oscar's Option Book II
By: Department of Environmental Management
Address: Providence, RI 02908
Phone: 401-277-3434
Cost: \$50.00
Grade: K - 12
Copyrighted: Yes

Title: Here Today, Here Tomorrow
By: New Jersey Teachers and Solid Waste Professional
Address: Department of Environmental Protection
Division of Solid Waste Management
CN 414
Trenton, NJ 08625-0414
Phone: 609-292-8879
Cost:
Grade: 4 - 8
Copyrighted: No

Title: Wizard of Waste
By: SWRL Educational Research and Development for
California Solid Waste Management
Address: California State Dept. of Education
P.O. Box 271
Sacramento, CA 95802
Phone: 916-445-1260
Cost: \$20.00
Grade: 2 - 4
Copyrighted: Yes

Title: Trash Monster
By: SWRL Educational Research and Development for
California Solid Waste Management
Address: California State Dept. of Education
P.O. Box 271
Sacramento, CA 95802
Phone: 916-445-1260
Cost: \$23.00
Grade: 5 - 7
Copyrighted: Yes

Title: Recycling Study Guide
By: Wisconsin Dept. of Natural Resources
Address: PO Box 7921
Madison, WI 53707
Phone: 608-266-2621
Cost: No Cost
Grade: 4 - 12
Copyrighted: No

Title: A-Way with Waste
By: Washington State Dept. of Ecology
Address: 4350 150th Avenue, N.E.
Redmond, WA 98052
Phone: 206-867-7000
Cost: \$14.00
Grade: K - 12
Copyrighted: No, but reference all reprints

Title: Meet Rick and Roxanne
By: Refuse Industries Productions, Inc.
Address: PO Box 1011
Grass Valley, CA 95945
Phone: 916-272-7289
Cost: \$120.00
Grade: K - 12
Copyrighted: Yes

Title: Teacher's Guide: Ed. Material in Resource Recovery
By: Minnesota Pollution Control Agency
Address: Minnesota Department of Education
644 Capitol Square Building
St. Paul, Minnesota 55101
Phone: 612-296-4069
Cost: No Cost
Grade: K - 12
Copyrighted:

Title: The Class Project: Rubbish Research Activity
By: National Wildlife Federation
Address: 1400 16th Street, NW
Washington, DC 20036
Phone: 202-797-6800
Cost: \$13.25 + \$3.25 p&h
Grade: 7 - 9
Copyrighted: Yes (environmental, no recycling)

Title: Let's Recycle! Lesson Plans for Grades K-6 and 7-12
By: USEPA
Address: Office of Water and Waste Management Phone:
Washington, DC 20460
Phone: 202-475-7230
Cost: Free
Grade: K - 6, 7 - 12
Copyrighted: No

Title: The Recyculum
By: Eco - Alliance, Inc.
Address: Resource Recycling
P.O. Box 10540
Portland, OR 97210
Phone: 503-227-1319
Cost: \$7.50
Grade: K - 6
Copyrighted: Yes

Title: Recycle for Reuse (publication # 362)
By: Wisconsin Cooperative Extension
Address: Wisconsin Cooperative Extension
610 Langdon Street
Madison, WI 53703
Phone: 608-262-3346
Cost:
Grade: Camps, clubs, projects, etc.
Copyrighted: No

Title: Draft - Solid Waste Camp Project
By: Cornell Waste Management Institute
Address: 468 Hollister Hall
Ithaca, New York 14853-3501
Phone: 607-255-7535
Cost: No Cost
Grade:
Copyrighted:

Title: Coloring Books
By: Delaware Solid Waste Authority
Address: P.O. Box 455
Dover, Delaware 19901
Phone: 302-736-5361
Cost: No Cost (may limit numbers)
Grade: K - 6
Copyrighted: No

Title: Recycle Alaska
Developed: Department of Environmental Conservation
Address: Pouch O
Juneau, AK 99811
Phone:
Cost: No Cost
Grade: K - 8
Copyrighted:

Title: Operation Separation
Developed: Onondaga County
Address: Solid Waste Management
Division of Research and Communication
John H. Mulroy Civic Center, 13th Floor
421 Montgomery Street
Syracuse, New York 13202-2983
Phone: 315-425-2412
Cost:
Grade: K - 6
Copyrighted: No

Title: CURB
Developed: Town of Brookhaven
Address: Department of Waste Management
3233 Route 112
Medford, New York 11763
Phone: 516-451-6222
Cost:
Grade: K - 12
Copyrighted: No

Title: A Case of Waste
Developed: Cornell University
Address: Cooperative Extension
Division of Nutritional Sciences
Ithaca, New York 14853
Phone: 607-255-
Cost:
Grade:
Copyrighted: No

Title: Walter Wastenot
Developed: Waste Alternatives
Address: 1730 Rhode Island Avenue N.W.
Suite 1000
Washington, DC 20036

Phone:
Cost:
Grade: K - 6
Copyrighted: Yes (but permission to photocopy will be given)

These curricula are available for review, short term bases only, by contacting the Bureau of Waste Reduction and Recycling at 518-457-7337. This is not meant as a complete listing and the NYSDEC is not endorsing the use of any particular curriculum.

Any questions may be directed to Debbie Jackson, Bureau of Waste Reduction and Recycling at 518-457-7337.



Recycling Study Guide

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PUBL-IE-020 87
January 1988

Introduction

To Educators

Is it your turn to take out the trash? Pile your trash with all the food scraps, paper, old chairs, pop bottles and other solid waste thrown away in Wisconsin every year, and you get 6.5 million tons of stuff. Why are we making all this trash, and where does it end up?

This study guide is intended to help you and your students understand what solid waste is, where it comes from, why it's a problem and what can be done about it. The guide includes an overview of solid waste and recycling, a glossary, suggested activities and a list of resource publications, audio-visual materials and organizations. It is designed to stand alone, yet complements the Wisconsin Department of Natural Resources (DNR) free publication, *Special Recycling Edition* (see Resources).

You are encouraged to use the information and activities in this guide and the *Special Recycling Edition* with your students in all disciplines. The Department of Public Instruction's *Guide to Curriculum Planning in Environmental Education* has suggestions for infusing subjects like solid waste and recycling into your social studies, art, English/language arts, health, mathematics, science, environmental education and other classes. You also may want to consult other resources listed in this guide and check newspapers and magazines for current

articles that address solid waste and recycling issues. Many excellent curriculum materials exist and we hope that you will send for and use them.

Consider talking with your students about solid waste and recycling before beginning your lessons to learn what they already know and think about it. Why is trash collected? Where is their trash taken? Have they ever visited a landfill? What did people do before there were plastic bags or aluminum cans or trash removal services? Do people in other countries make as much trash as Americans do? By finding out your students' thoughts and opinions, you can help them connect new concepts with what they already know.

The activities in this guide are designed for use in grades 4-12. With modifications, they should be useful in other grade levels. We encourage you to tailor the activities to meet your students' needs. You are welcome to revise and/or reproduce any part of this guide for distribution to students and other educators.

NOTE:

- Words that appear in italics are defined in the glossary.
- Sections marked with * are based on materials from the *A-Way With Waste* curriculum guide, a program of the Washington State Department of Ecology (see Resources).

Sizing Up Solid Waste

Every day we throw out everything from toothpaste tubes to old TV sets, grass clippings to plastic milk jugs, jelly jars to paper. You may not personally stuff 7.5 pounds of *solid waste* into the *trash* bag every day, but if you add up all the waste from your house, classroom and school cafeteria, from the restaurant where you ate, from the factories that made your clothes or paper, from the utility that generated your electricity and from the stores where you shopped, it amounts to about 7.5 pounds a day per person. Multiply that by 365 days per year, then by 4.8 million Wisconsin citizens, and your results show that Wisconsin throws away more than 6.5 million tons of stuff each year!

But where is "away?" Is there such a place?

Six and one half million tons of waste is enough to pile a typical city street six-feet deep, curb to curb, for 500 miles — more than the distance from Superior to Chicago! Or if compressed, the way it is in *landfills*, that much waste would bury a 200-acre farm under 30 feet of trash each year. So...

Wisconsin's Annual Trash Tally



Total Waste	6.5 million tons
Municipal Waste	3.5 million tons
Paper	1.4 million tons. Equal to a forest of 20-25 million trees a year. Largest portion of solid waste.
Food & yard waste	600,000 tons. 15-20% of the total.
Glass bottles	200,000 tons. 750 million bottles, half for soda and beer. On the decline, as more beverages are packaged in plastic and foil bottles, pouches, and boxes.
Metal cans	91,000 tons (30,000 tons aluminum, 57,000 tons steel, 4,000 tons bimetal). 2.5 billion a year, including enough aluminum soda and beer cans (1.4 billion) to circle the earth 4 times.
Tires	60,000 tons. 4 million a year. An estimated 15-20 million tires are stockpiled in Wisconsin.
Motor oil	58,000 tons (50,000 tons or 12.5 million gallons from service stations; another 8,000 tons or 2 million gallons from people who change car oil at home). State law requires stores and communities to set up collection centers.
Plastic containers	25,000 tons. 400 million a year. Growing rapidly.
Other waste	1 million tons. Composed of wood, demolition debris, old furniture, clothing, other plastic, etc.
Non-municipal waste	3 million tons. Composed of pulp, ash, and foundry waste.

Where Does It All End Up?

Most of Wisconsin's solid waste ends up in the state's 1,100 licensed *landfills*. A landfill is a place where waste is dumped, compacted and covered with dirt. Covering the trash controls blowing paper, odors, insects and rodents.

Of the 1,100 licensed landfills in Wisconsin, only 90 are *sanitary landfills* — designed, built and operated according to state-of-the-art standards to prevent *pollution* problems. These engineered or "approved" landfills are constructed only after the Wisconsin DNR approves the site and the operating plan. The DNR checks the site for soil type, potential for contaminating *groundwater* and surface water, proximity to buildings and future land use. It reviews plans for landfill construction, operation, *leachate* and gas control, closure and long-term care. Approved landfills must be maintained by the owner for 20-30

years after the site is closed. When the owner's responsibility ends, the state takes over maintenance duties. The owner, however, remains liable for any damage that his landfill does to other people or property.

The remaining licensed landfills are unengineered or "nonapproved." They were built before we realized the importance of strict environmental standards. Most of these facilities are scheduled to be closed by 1999. A closed landfill, however, can continue to affect the environment many years after it's sealed up and forgotten. Owners of unapproved landfills must take care of them as long as they own the land and are liable for any resulting damage.

In addition to licensed, operating landfills, Wisconsin has more than 2,700 closed landfills. The same long-term liability and care described

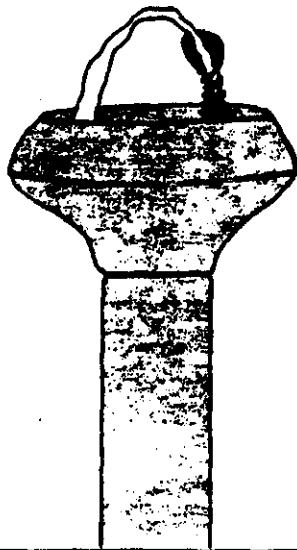
above for approved and nonapproved landfills apply to these closed landfills.

Unfortunately, waste sometimes is dumped along roadsides, on the "back forty" or in other nonapproved locations. Except for household wastes discarded on the homeowner's property, it's illegal to discard or incinerate *garbage*, trash, industrial waste, farm chemicals and other waste in places that aren't approved by the state. Discarding waste in unsafe ways and in nonapproved places can endanger the environment upon which we depend. Thus, each of us becomes responsible for what we throw away and the impacts this waste may have on our environment.

So What's The Problem?

Water Pollution

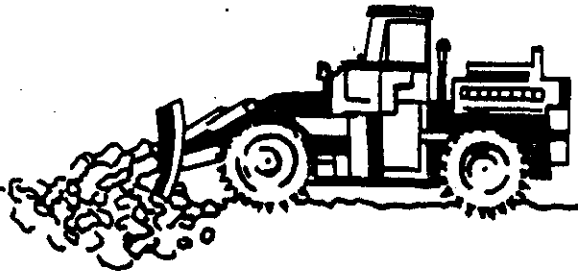
What happens when rainwater or melting snow seep through buried trash? A liquid called leachate forms that can flow out of the landfill. Leachate contains concentrated contaminants that can be harmful, especially if they seep into surface water and groundwater supplies. Groundwater quality is a major concern, since two out of every three people in Wisconsin drink groundwater. The *hazardous wastes* in leachate come from many sources, including items we commonly throw out at home, like motor oil, paint, garden pesticides and household cleaners.



Land Use

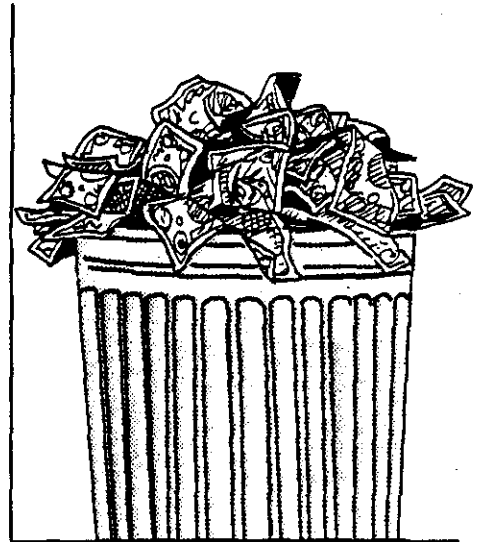
In 1985, 14,000 acres of Wisconsin land — the equivalent of 70 typical Wisconsin farms — were being used for landfills. Some people question whether this is a wise use of our land. As we continue to make waste, the landfills are filling up, creating what has been called a "garbage crisis" in

many states. The DNR estimates that most existing landfills in Wisconsin will be full within 10 years. In some areas, landfills will reach capacity even sooner. Thus, the need for developing new *recycling systems* and landfills in Wisconsin is increasing and urgent.



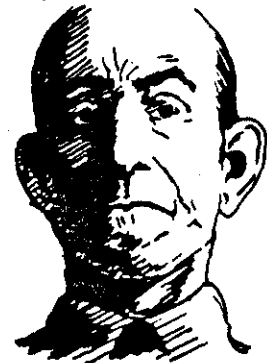
Economics

Wisconsin citizens pay \$50-\$75 million a year to construct and manage sanitary landfills. Collecting and transporting garbage to the landfills adds an estimated \$150-\$200 million more. Costs have risen rapidly in the past 5-10 years, primarily due to the expense of handling and burying wastes in ways that protect the environment.



The NIMBY Phenomenon

Finding places to put landfills isn't easy. Few people are eager to live near a landfill, an attitude sometimes called the NIMBY phenomenon: "Not In My Back Yard!" Many people believe landfill construction and operation result in traffic, noise, dust, aesthetic loss, declining property values, groundwater contamination and other hazardous waste pollution. While fears often have been justified, modern landfill design, construction and management can minimize most of these problems.



Hazardous Gases

Methane gas can form in landfills as a result of *decomposition* of organic materials like grass clippings and food wastes. Methane is flammable and toxic, and can move through the soil into the air or into nearby basements. Recently, researchers have discovered that when some plastics and other human-made chemicals decompose, they liberate small amounts of even more hazardous gases, like vinyl chloride and hydrogen sulfide.

Resources Recovered in Wisconsin (1984)

Materials	Estimated Tons/Year
Municipal wastewater plant sludge.....	8.2-8.5 million
Cheese whey.....	4.1 million
Ferrous metals.....	1.5 million
Pavement.....	1.5 million
Waste wood.....	1.5 million
Scrap paper.....	1.3 million
Sulfite liquor from paper mills.....	1.0 million
Coal ash.....	280,000
Rendered materials (animal remains).....	250,000
Pulp/paper mill sludge.....	100,000
Hazardous wastes.....	70,000
Waste burned for energy.....	70,000
Glass.....	35,000
Aluminum cans.....	12,000
Leaves municipally composted.....	4,000
Plastics, barrels and drums, pallets, clothing, non-ferrous metals.....	?

What Else Can We Do With The Trash?

Wisconsin already *reuses*, *recycles*, *composts* or *recovers energy* from more than 20 million tons of waste each year. This reduces the need for landfill space, saves the cost of disposal and reuses valuable *natural resources*. Under state law (SS 144.792), Wisconsin has adopted policies to encourage waste reduction and recovery as alternatives to landfilling. The law requires that Wisconsin (in order of priority):

1. **Reduce** the quantity of waste produced. For example, packaging can be designed to use less material, to be recyclable and to contain fewer hazardous chemicals. We can encourage redesign of packaging by selective shopping and by expressing our views about packaging to retailers, industry and government.

2. **Reuse** items. Soda bottles, old furniture, clothes, tires, appliances and automobiles or their parts, industrial shipping containers (barrels, pallets, cardboard boxes) and many more items can be reused.

3. **Recycle**. Recycled newspaper can be made into newsprint, paper bags, cellulose insulation, egg cartons, animal bedding or cardboard. A state beverage container deposit law (sometimes called a *bottle bill*) could provide us with the incentive to return beverage containers for a deposit. Glass and aluminum from beverage containers can be made into new containers. Cooking oils and

meat fats can be made into chemicals and cosmetics, coal ash into shingles and concrete and plastic bottles into artificial lumber and winter jackets. The DNR's goal is to recycle at least 10% of the waste now landfilled.

4. **Compost** organic wastes. Gardeners know both the ease and the value of composting food and yard wastes to create rich *humus* that improves soil fertility and texture. Some businesses also can compost their organic wastes. For example, cheese whey, organic sludges from paper mills and sewage treatment plants and remains from cleaning fish can be composted. The DNR's goal is to compost 10% of the municipal waste now landfilled.

5. **Recover energy** from waste. Each ton of solid waste has the energy equivalent of 70 gallons of gasoline — enough energy to drive a small car from coast to coast. Wisconsin's goal is to recover energy from 55% of the state's municipal waste.

6. **Landfill** nonrecoverable items. We may always need landfills, but Wisconsin is working to reduce this need. Using the techniques described above, Wisconsin aims to cut the need for landfills in half by 1990. The long-term goal is a 75% reduction.

None of these options is the sole solution to our waste disposal problem. Each option has side effects

that must be considered when we're selecting the best solution to each solid waste problem.

What Can You Do?

You can start by looking at what you throw away at home. Each person's "drop in the bucket" adds to the trash problem. If each drop becomes smaller, the problem will be reduced.

Everyone produces some waste, but you don't have to be a "super-consumer." Think about the goods, services and activities you buy or support. In what ways do they contribute to the solid waste problem? How could you purchase and dispose of items in ways that generate less trash? What can you do to voice your opinion about solid waste issues in your community? For example, consider:

- buying goods in returnable and recyclable containers.
- learning where you can take items to be recycled and showing your support by recycling.
- composting food wastes, leaves and grass clippings.
- finding people in your town who are interested in reducing waste, promoting recycling, inventing new uses for old materials, fighting *litter* or encouraging local merchants to sell goods in returnable containers. How can they help you? How can you assist them?
- taking an active interest in how your *solid waste management* tax dollars are spent. Compare your community's hauling and disposal costs with those of neighboring towns. Investigate the quality of your local landfill and measures being taken to make it as safe and long-lasting as possible.
- learning how nature recycles materials. Is much wasted?

Wisconsin's solid waste management goal is to find the best political, economic, social and personal ways to reduce waste and keep our environment healthy. Our most creative solutions are those that imitate the natural systems that have successfully recycled waste products for millions of years.

Each of us contributes to the solid waste problem. Each of us can help solve it.

Glossary

biodegradable: the property of a substance that permits it to be broken down by microorganisms into simple, stable compounds such as carbon dioxide and water. (See "decompose.")

bottle bill: a law requiring deposits on beverage containers, like aluminum cans and plastic bottles. Encourages recycling and discourages littering and landfilling. More accurately called a beverage container deposit law.

composting: waste management process that creates an optimal environment for decomposition by layering organic wastes like food scraps and grass clippings so they'll decay into fertile humus.

conserve: to protect from loss or depletion. Conservation is the wise use of natural resources to minimize loss and waste.

decompose: to break down into component parts or basic elements; to rot. Decomposition is imperative for the continuation of life since it makes essential nutrients available for use by plants and animals.

dump: open, unsanitary disposal site used before existence of licensed, controlled burial sanitary landfills. Now illegal in Wisconsin.

energy recovery: the generation of energy by burning solid waste.

garbage: spoiled or waste food that is thrown away. Generally defined as wet food waste; excludes dry material (trash). The term is often used interchangeably with the word "trash."

groundwater: water beneath the earth's surface that fills the spaces and moves between soil particles and rock. Supplies wells and springs. Two out of every three Wisconsin citizens drink groundwater.

hazardous waste: waste that causes special problems for living organisms or the environment because it is poisonous, explosive, burns or dissolves flesh or metal, ignites easily with or without a flame or carries disease. Some hazardous wastes cause only one problem, others cause several.

humus: organic material consisting of decayed vegetable matter that provides nutrients for plants and increases the ability of the soil to retain water.

landfill: a site for the controlled burial of solid waste.

leachate: liquid that has percolated through solid waste and/or been generated by solid waste decomposition and contains extracted, dissolved or suspended materials. May contaminate groundwater or surface water.

litter: waste materials discarded in an inappropriate place. Littering is illegal in Wisconsin.

methane: a colorless, odorless, flammable, potentially dangerous gaseous hydrocarbon (CH₄) present in natural gas and formed by the decomposition of organic matter. Can be used as a fuel.

natural resource: valuable, naturally occurring material such as soil, wood, air, water or minerals.

nonrenewable resource: a natural resource that, because of its scarcity, the great length of time it takes to form or its rapid depletion, is considered finite in amount (e.g., coal, copper, petroleum).

organic: derived from living organisms.

pollution: harmful substances deposited in the environment, leading to a state of dirtiness, impurity or unhealthiness.

raw material: unprocessed natural resource or product used in manufacturing.

recover energy: see "energy recovery."

recycle: the collection and reprocessing of manufactured materials for reuse either in the same form or as part of a different product.

renewable resource: a natural resource derived from an endless or cyclical source (e.g., sun, wind, water, wood, fish). With proper management and wise use, replacement of these resources by natural or human-assisted systems can be approximately equal to their consumption.

reuse: to extend the life of an item by using it again, repairing it, modifying it or creating new uses for it.

sanitary landfill: a specially engineered site for disposing of solid waste on land. Constructed in a way that reduces hazards to health and safety.

solid waste: all solid and semi-solid wastes, including trash, garbage, yard waste, ashes, industrial waste, swill, demolition and construction waste and household discards such as appliances, furniture and equipment.

solid waste management: the controlling, handling and disposal of all solid waste. One goal of solid waste management is to reduce waste to a minimum.

trash: material considered worthless, unnecessary or offensive that is usually thrown away. Generally defined as dry waste material; excludes food waste (garbage) and ashes. The term is often used interchangeably with the word "garbage."

Activities

Out of Sight, Out of Mind

Part 1 — My Ton of Trash

Goal: To help students visualize how much waste is generated for each person in Wisconsin and understand how the number of people living in our state and country affects this amount.

Subjects: Mathematics, social studies, science, environmental education, health.

Grades: 6-12

Materials:

- 7.5 pound bag of miscellaneous trash (wash containers, avoid items with sharp edges)



Procedure:

1. Describe trash and list some examples. Discuss:

- What qualities does an item have that makes you decide it's trash?
- What different kinds of trash are there?

2. Dump the 7.5 pound bag of trash on the floor. Discuss:

- Does this seem like a lot of trash? This much trash is thrown out each day for every person in Wisconsin.
- How do you think the number "7.5 pounds" was calculated? Who figured out this number? Will the number ever change? Why?
- How do you feel about the fact that you're responsible for 7.5 pounds of trash that is thrown out each day?

3. Calculate:

- If you generate 7.5 pounds of trash each day, how many pounds do you make every week, month and year?
- Convert these numbers from pounds into tons. How many tons of trash do you make every week, month and year?
- To help you visualize how much a ton weighs, add the weights of students in the class until you reach one ton. How many students does it take to make a ton? How many "students-worth" of trash do you make every week, month and year?

- How many people are in your family? If 7.5 pounds of trash is generated each day for every person, how many pounds or tons of trash does your family make every week, month and year?

- How many people live in Wisconsin? How many pounds or tons of trash is generated each day in Wisconsin?

Discuss:

- What happens to all the trash you throw away?
- Where is "away?" Is there such a place?
- What do you think happens to waste at the landfill? (See activity: Where Has All the Garbage Gone?)
- What are possible problems with piling waste in landfills?
- What would you do with your family's trash if there was no truck that came to take it away? How might this affect the amount of trash your family makes?

4. Research the rate of human population growth in Wisconsin and the U.S. since 1650. Discuss:

- What relationship might there be between an increasing human population and the amount of solid waste generated?
- How might the amount of solid waste generated be influenced by

changes in lifestyles since 1650? (See activity: How Times Have Changed.)

- How might the amount of solid waste generated be influenced by family income?
- How have increases in numbers of people and amounts of solid waste affected the environment?
- What are the predictions for future human population growth?
- What predictions might you make for the amounts of solid waste we'll produce in the future?
- What impacts might an increasing population have on our use of natural resources?

5. Calculate:

- If every person in Wisconsin threw away one less pound of trash per day, how much less trash would end up in our state's landfills?

Discuss:

- What could you do to reduce the amount of waste you make?

Pre- and Post-Activity Questions:

- How many pounds of trash do you think are thrown out each day for every person in Wisconsin?
- What relationship, if any, is there between the number of people and the amount of trash?

Goal: To have students calculate the amount and types of trash thrown out by their class at school and investigate where it's taken.

Subjects: Mathematics, social studies, science, environmental education, health.

Grades: 7-12

Materials:

- trash generated by your class on a typical day (save for use with Part 3)

Note to Teacher: Students will need to be familiar with the concepts of weight, volume and number in order to do the following activity and understand its implications. Consider using this activity as part of a mathematics lesson that addresses these concepts.



Procedure:

1. List the items you throw in the classroom and lunchroom wastebaskets on a typical day. Now categorize them according to what material they're made of (e.g., food, paper, plastic, aluminum, glass). Predict what four types of materials make up the greatest portion of the waste by: weight, volume, number of items. Record your predictions.

2. Collect and save the trash your class generates (in the classroom, artroom, shop, lunchroom, etc.) on a typical day (wash jars and cans, place food trash in a sealed container). You can save trash for more than one day, if you wish. This will enable you to calculate the average amount generated by your class each day.

3. Dump the trash on the floor. Sort items into piles according to the type of material of which the items are made.

4. Count the number of different items of each type (e.g., 47 pieces of paper, 3 aluminum soda cans, 8 juice boxes, 11 plastic bags, 1 broken pencil). What types of items comprise most of the trash by number? Draw a bar graph to illustrate this. Place the trash types in separate bags.

5. Select the four types of items you estimate make up most of the trash by weight. Use one of the following methods to determine the exact or approximate weight of each type:

- If you have a grocery scale in your classroom, weigh the items.
- If you have a bathroom scale:
 - Stand on the scale. example: What is your weight? 100 lbs.
 - Pick up a bag. Now what is your weight? .. 102 lbs.
 - How much does the bag weigh?..... 2 lbs.
- If you don't have a scale, find objects in the classroom that are of a known weight. Compare the weights of your object and the trash (use a balance if you have one). Estimate the weight of the trash.

6. Calculate the volume of trash in each bag by measuring the width, length and depth of items in it. How might volume differ if the glass, cans or boxes are crushed? Does weight change if volume changes?

7. How do your calculations compare with the predictions you made in step 1?

8. How much trash does your class throw out in a day, week, month and school year by weight, volume and number? Calculate the average amount each student throws out in one day.

9. How much space will one school year's-worth of your class's garbage fill if the garbage is not compressed? Calculate the volume of your classroom. If you didn't remove any of your class's trash from the classroom, how much of the room would be filled with trash by the end of the year? How much room would be left for you?

10. If the number of students in your class is average for your school, calculate how much trash your school generates each school year. Discuss:

- Do you think your class makes a lot of trash? Not so much? Explain reasons for your response.
- When the trash from each class in your school is added together, do you end up with a lot of trash? Explain reasons for your response.

11. Investigate where your school's trash is taken. (See activity: Where Has All the Garbage Gone?)

Pre- and Post-Activity Questions:

- How much trash do you think your class throws away each day?
- What types of trash do you think your class throws away on a typical day?
- What happens to your school's trash?

Part 3 — Trash or Treasure?

Goal: To have students find out why, how and where they should recycle or reuse what they typically throw away.

Subjects: Science, social studies, language arts, environmental education, home economics, marketing.

Grades: 4-12

Materials:

- same as Part 2

Procedure:

1. Is there anything else you can do with what you throw away? List your ideas. Most of them will fit into one of the following four categories: reuse, recycle, recover energy, landfill. Write these four categories on the board. What trash items might fit best into each category? List them under the proper category heading.

2. Do a) and/or b), then answer the discussion questions:

a) To the teacher: Give each student a copy of the following checklist to fill out, or put the list on the board and work through it as a group. For younger students, you may want to use pictures of the items listed below. Feel free to add your own items.

Directions:

Put an X next to items you threw in the wastebasket this week.

- ___ Paper bag
- ___ Newspaper
- ___ Book
- ___ Magazine
- ___ Paper milk carton
- ___ Other paper
- ___ Napkin
- ___ Aluminum can
- ___ Apple core
- ___ Old clothes
- ___ Plastic milk carton
- ___ Tin can
- ___ Glass jar
- ___ Gum wrapper
- ___ Orange peel
- ___ Plastic bag
- ___ Broken toy
- ___ Grass clippings
- ___ Other

Now circle all the items you think could have been reused or recycled.

Discuss:

- What items did you circle?
- How could you have reused items?
- Did you wonder whether the napkin was paper or cloth? What difference might this make?
- What could you have done with the recyclable items?
- What could you have done with apple cores and orange peels?
- Which items are difficult to reuse or recycle? Why?
- Should we as a society be making products that aren't reusable or recyclable?
- Should items that are wrapped in difficult-to-dispose-of packaging cost more?
- Did any of your classmates reuse or recycle any of the items you circled?
- How did they reuse or recycle the items?
- Was reusing or recycling them easy to do? Why or why not?
- What do you think happens to the items you didn't circle?

b) Sort the items that your class threw out in one day (see Part 2) into the following categories: reuseable, recyclable, other. Discuss:

- Why did you place each item in the category you chose?
- Does your class recycle any of the items?
- Should your class recycle them? Why?
- Are there some items your class could recycle but doesn't? Why doesn't your class recycle them?
- Are there places in school aside from the classroom where you discard trash during the day? Think about how much food and how many food wrappers, cans and bottles you discard at lunch, how many paper towels you use to dry your hands, etc.
- What happens to the items that aren't reuseable or recyclable?

3. Investigate where in your community you can take items to be reused or recycled.

- How can you find out about local recycling programs? (Contact: local natural resources and environmental protection agencies, glass manufacturers, recycling businesses, municipal public works departments,

used furniture and clothing stores and environmental organizations.)

- Make a list with the following information about the businesses or organizations that recycle: name, address, telephone number, materials recycled, hours of operation, whether the organization will pay you for materials, any other useful information. This information is available in: **Wisconsin's Community Recycling Collection Programs Directory and Markets for Wisconsin's Recycled Materials** (see Resources).

4. Investigate and discuss:

- What are some advantages of recycling? (*Conserves* natural resources, saves energy, protects the environment, can make money, creates jobs for people involved in recycling and reduces our dependence on imported materials.)
- What are some disadvantages of recycling? (*May cost* money, takes time, takes space for storage, takes away jobs from people who make new products and depends on recycling markets.) (See activity: *The Cost of the Toss*.)
- What are the pros and cons of energy recovery and landfilling?

5. Brainstorm the steps your class might take to design and implement a recycling project for your classroom or school. (See activity: *Time for Action*.) Select a project that is feasible. For example, collect and recycle paper from the school's copy machine and classrooms. Who can you contact to help you with your project?

6. Consider doing your project!

Pre- and Post-Activity Questions:

- What is recycling? What are reuse, energy recovery and landfilling?
- What types of solid waste can be recycled, reused, recovered or landfilled?
- What can you do in your school to recycle solid waste?

Part 4 — Cutting Class Trash

Goal: To have students realize that reuse and recycling of materials aren't the only or main solutions to the solid waste problem. A key step is to cut down on the use of materials that become solid waste.

Subjects: Home economics, social studies, mathematics, science, environmental education.

Grades: 5-12

Procedure:

1. In what ways can you reduce the amount of trash you throw out at school? Don't forget to consider waste from the artroom, shop, lunchroom, etc. Write your ideas on the blackboard and request that it not be erased for one week.

2. For one week, cut down on your use of paper, food packaging and other materials. Refer to the suggestions on the blackboard. Note: It isn't fair to "cut down" by throwing things out in other trashcans in the school.

3. At the end of each day, calculate the amount of trash and list what individual items make up most of the trash. (See Part 2 for instructions.)

4. Compare your findings with the amounts calculated in Part 2.

Calculate:

- Did you throw out less trash when you tried to cut down? How much less?
- If your class cut down on use of materials for the school year, how much less trash (in pounds) would you send to the landfill?

Discuss:

- How easy is it to cut down on how much you use?
- Do you feel that it is worth doing? Why?
- Will you continue to cut down on your use of materials, or is this class activity a one-shot deal?

Pre- and Post-Activity Questions:

- How can you reduce the amount of trash you generate in your class/school each day?



Going Beyond:

- Take home a copy of the checklist and questions from Part 3 and fill it out. Note to teacher: Include a cover letter to parents explaining that the class is studying solid waste and recycling, and that you would like them to help their children see what kind of solid waste is generated at home. Discuss:
 - What did you find out about what your family throws away?
 - How do you feel about your findings?
 - What ideas do you have for what you could do with the trash generated at home?
- Trace the "afterlife" of one of the items on the checklist from Part 3. For example, what happens to the plastic bag or paper milk carton after it's taken to the landfill? Does it decompose? Does its decomposition create harmful byproducts? What impacts might its decomposition have on air, soil, water and health?
 - Create a reusable item from something you're going to throw away.

- Investigate what used materials organizations like the Salvation Army and Goodwill Industries need and what they do with the materials they receive.

- Discuss the role of yard sales, garage sales or tag sales in recycling and reusing materials.

- Investigate how the amounts and types of wastes generated by a bank, grocery store, clothing store and hospital differ. How does each business dispose of its waste? Do any recycle materials?

- Americans generate more trash per person and more trash in total than the people of any other country in the world. How do you feel about this?

- Research and report on waste disposal habits of other countries. How do they deal with solid waste? Why don't they make as much trash as Americans?

Right in My Hometown

Part 1 — Natural Resources: Handle With Care *

Goal: To have students examine their own use of *renewable* and *nonrenewable natural resources*, determine which are essential for their survival and suggest ways they might change their lifestyles to make more careful use of natural resources.

Subjects: Language arts, science, social studies, environmental education, industrial education.

Grades: 6-12

Procedure:

1. What is a natural resource? List several examples.

2. Define the terms "renewable" and "nonrenewable" resource. (Some renewable resources are: solar energy, water, food and wood. Some nonrenewable resources are: petroleum, tin, bauxite, coal, copper and lead.)

3. Do a, b or c below:

a) List the products you used or consumed during a specific time period, e.g., between the time you got home from school yesterday and the time you went to bed; between the time you got up this morning and the time you left for school.

b) Describe a scenario or event and as a group, list what products were used.

c) Have the teacher select and read a story in which people use a variety of products. As a class, list what products were used.

Discuss:

• Which products are made of: renewable resources, nonrenewable resources?

4. Classify each product as: essential to survival, necessary for maintaining my present lifestyle, a luxury. Discuss:

• What criteria did you use to define what is essential, is necessary for maintaining your present lifestyle or is a luxury?

• Which, if any, items listed in the "essential" category are really not essential for survival? Explain your response.

• Do you think your parents or grandparents would place the products in different categories? Why or why not?

5. After discussing the lists, suggest alternatives for each item, making an effort to replace items that you think are inefficient or wasteful with items that are less wasteful. Discuss:

• Would using alternatives increase your use of renewable resources? (e.g., switching from aluminum foil to wax paper.)

• Would using alternatives increase your use of nonrenewable resources? (e.g., switching from paper cups to most plastic cups.)

• How might changes in the production and consumption of these products influence the economy and the environment?

6. Look at the list of items you listed as luxuries. Which items could you give up without a major change in your lifestyle?

7. Make a list, beginning with the easiest item to give up and ending with the most difficult. Could you give up the top three items on this list for a day, week or month? Try it. How do you feel?

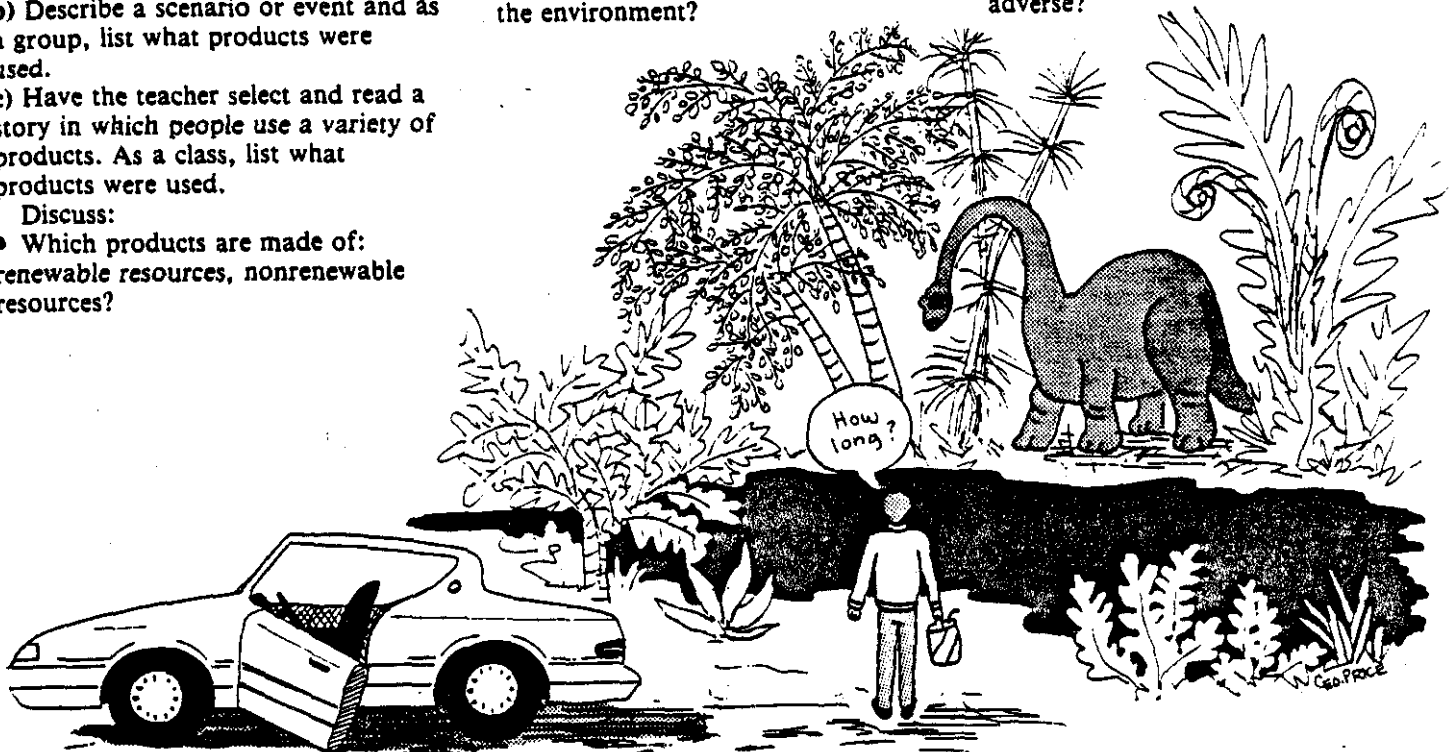
8. Think of several ways to reuse or recycle items you decide you can't give up.

9. Identify some of the economic, cultural and environmental impacts of any changes you make or recommend. Consider the implications if your entire family, school, community and country made such changes.

Pre- and Post-Activity Questions:

• Define and give examples of: natural resource, renewable resource, nonrenewable resource.

• List four items you use that aren't essential for your survival. What impact does their production or disposal have on the environment? Would you be willing to give them up if you discovered that the impact is adverse?



Where Has All The Garbage Gone?

Part 1 — Making a Mini-Landfill *

Goal: To have students examine the materials that comprise the products they use, describe whether these materials are renewable or nonrenewable resources, observe what happens to materials when placed in a landfill and decide whether they should be disposed of in a different way.

Subjects: Science, social studies, environmental education.

Grades: 4-6

Materials:

- four large clear glass jars
- soil
- miscellaneous solid waste
- crayons
- masking tape

Procedure:

A) 1. Choose one item you threw away today. What is your item made of? Into which of the following four categories of solid waste does your item fit?

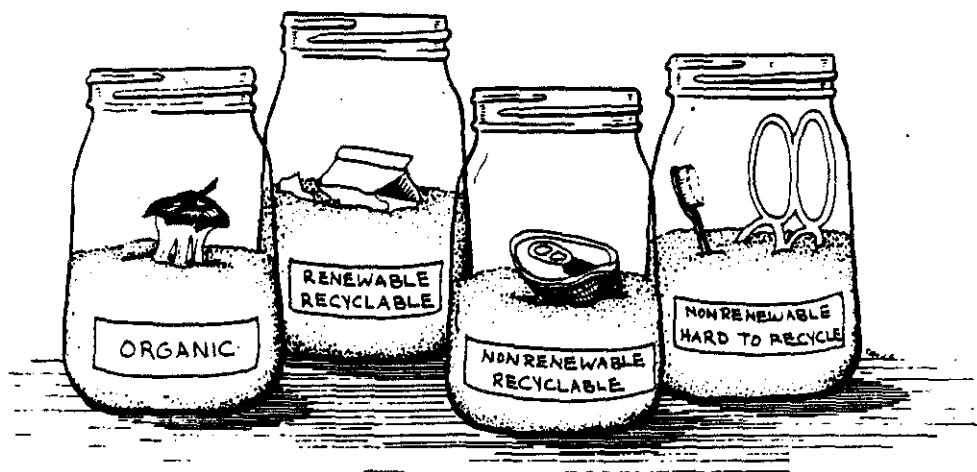
- a) organic (e.g., potato peels)
- b) renewable resource/recyclable (e.g., newspaper)
- c) nonrenewable resource/recyclable (e.g., aluminum cans)
- d) nonrenewable resource/hard to recycle (e.g., plastic toothpaste tube)

2. What happens to the item you threw away? Discuss:

- Where is away?
- What is a landfill?
- How might the material that a piece of trash is made of determine how you should dispose of it?

3. List ways you can avoid disposing of your item in a landfill.

4. If your goal is to save natural resources and reduce solid waste, from which category (a-d) would you buy products? Which category would you avoid?



B) 1. With crayons and masking tape, label each glass jar with one of the four category headings above.

2. Fill each jar about half full with soil.

3. Sort each miscellaneous solid waste item into its proper category (a-d). Put a small sample of each into the jar with the corresponding label. Cover with soil and keep damp with water. Leave the lid off and place the jar on a shelf away from people and out of direct sun. Stir occasionally.

4. Predict what you think will happen to the solid waste in each jar. Record your predictions.

5. Observe and record what changes occur during a 2-3 week period, if any. Discuss:

- What happened to the items made of organic and renewable resources?
- What happened to the items made of nonrenewable resources?
- How did what happened compare with your predictions?
- What comparisons can you make between your mini-landfill and a real landfill?

C) 1. Keep a record of your family's purchases from two trips to the grocery store. Divide the items into the four solid waste categories listed above. Discuss:

- What does your family do with the waste from its store purchases?
- Is there anything else your family could do with this waste?
- Could you substitute items from "d" with items from "a-c"? Is this a worthy goal? Why?
- If your goal is to reduce solid waste, which items would you eliminate from your shopping list?

Pre- and Post-Activity Questions:

- Define and give examples of: organic material, renewable resource, nonrenewable resource.
- What do you think will happen to items made of renewable or nonrenewable resources when they're dumped in a landfill?
- List four items you use everyday that you could recycle.

Part 2 — Follow That Garbage!

Goal: To have students see where their garbage goes and investigate their community's solid waste disposal issues.

Subjects: Social studies, science, health, environmental education.

Grades: 4-12

Procedure:

1. a) Contact your municipal landfill and obtain permission for your class to visit it. Arrange for the site manager, owner or other resource person to guide your trip and be available to answer questions. A list of local waste disposal sites can be obtained by contacting your DNR district solid waste management specialist. (Be sure to follow all safety precautions while visiting the site.)

b) If you're unable to take a field trip, ask a guest speaker to come and discuss local solid waste management with your class. Resource people you might contact are: waste disposal site operators, private waste haulers, Extension agents, environmental health officers, government officials, environmental organization representatives, DNR and local solid waste managers and public works personnel.

2. Before visiting the municipal landfill or having a guest speaker, develop a list of questions you would like answered. Investigate possible answers to your questions. Then send the questions to the guide or guest speaker in advance so they can prepare responses. Questions to consider include:

- Where is the garbage from your school or home taken?
- How does it get there?
- Why was the landfill located on this site? What factors must be considered when a site is selected? What tests were done at the site before it was opened? What were the results?
- What laws govern solid waste disposal in your community?
- Is the landfill an engineered or unengineered site?
- Who owns the landfill? When did it open? What was the cost of constructing it?

- Who does the site serve? Who can bring wastes to the landfill?
- What is the fee for using the landfill?
- How much does your family pay for trash collection?
- How much does it cost to take care of trash once it's in the landfill?
- How much solid waste is disposed of at this site daily, weekly and yearly?
- Who works at the site? Do they monitor what is dumped?
- What happens to the trash once it's dumped in the landfill?
- Are any of the materials hazardous? Are there regulations or procedures for dealing with hazardous wastes?
- What is the land adjacent to the landfill used for? Is the landfill a problem for nearby landowners? If so, in what ways?
- How is the site managed for control of blowing trash, odors, noise, animals, erosion, surface runoff and leachate?
- Are tests performed regularly at the site (groundwater, soil, methane gas)? What are the results?
- Is there a resource recovery program at the site? If so, what is recovered? How?
- What impacts does resource recovery have on the economy and environment?
- How many years is the landfill expected to last? How much time does the community have to find a new site?

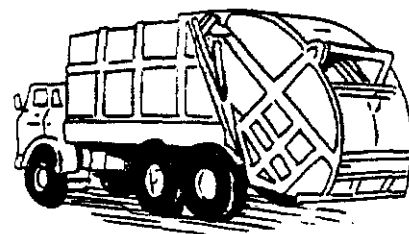
- How will the landfill be cared for after it is closed? Who is responsible for its care? What will be done with the land at the site?
- What alternatives for waste disposal has your community considered for the future?
- When will these alternatives be carried out?
- How can you participate in making the decisions that develop future waste management plans in your community?

3. Now that you know more about landfills:

- How do you feel about them?
- Are they the best way to dispose of trash? What are possible alternatives?
- What can you do to help reduce solid waste?

Pre- and Post-Activity Questions:

- Where is the trash you throw away taken?
- What eventually happens to your trash there?
- What is the difference between a *dump* and a sanitary landfill?



Going Beyond: For older students...

- If your community has a solid waste incinerator designed for energy recovery, visit it. What are the pros and cons of incineration?
- Investigate waste disposal techniques, problems and laws in other parts of Wisconsin, the U.S. (e.g., New Jersey, California) and the world. Consult individuals, books, newspapers, magazines and state agencies.
- Survey your parents' knowledge and attitudes about solid waste.
- Conduct a hearing to decide where to locate a landfill in your

community. Take on the roles of people involved in the decision: local landowners, politicians, industry representatives, environmentalists, waste managers and others.

• Landfills often have been developed in wetlands, although this is now illegal in Wisconsin. Consider the following questions:

- Why were landfills often located in wetlands?
- What problems might exist with placing landfills in wetlands?
- Are wetlands an important ecosystem? Why?

Composting: A Great, Rotten Idea

Part 1 — Is It Rotten?

Background: When we mention "recycling," we often think of recycling glass bottles, aluminum cans and newspapers. But another 30% of the household garbage we throw out also can be recycled. These recyclables are food scraps, leaves, grass clippings and other *biodegradable* organic wastes. Organic wastes can be recycled by composting. Simply stated, composting creates optimal conditions for decomposition to occur. Decomposition is the biochemical process by which bacteria, fungi and other microscopic organisms break organic "wastes" into nutrients that can be used by plants and animals. Decomposition occurs in nature whenever a leaf falls to the ground or an animal dies. It is essential for the continuation of life on earth. The result of decomposition in a compost pile is a nutrient-rich humus that is excellent for improving soil quality and plant growth.



Goal: To have students investigate the pros and cons of composting.

Subjects: Science, health, environmental education, vocational agriculture, home economics.

Grades: 4-12

Materials:

- rotting log, grass clippings, leaves or food scraps

Procedure:

1. Define: recyclable, biodegradable. List items that are recyclable and/or biodegradable.

Discuss:

- Are there recyclable materials that aren't biodegradable? Are there biodegradable materials that aren't recyclable?

2. Feel, smell and look at the rotting log, grass clippings, leaves or food scraps. What words would you use to describe these materials? List these words. Do the words have positive and/or negative connotations? Why?

3. Explain what is happening to the rotting material. Discuss:

- What is the natural process that breaks biodegradable material into particles that can be used again by plants and animals? (decomposition)
- What organisms assist in this decomposition process? (fungi, bacteria, earthworms, springtails, mites, etc.)
- What will your rotting material finally become? (humus)

4. Imagine a world where decomposition doesn't take place.

Discuss:

- What would happen to organic materials like dead animals, leaves or sewage?
- Could plants and animals survive if decomposition doesn't occur? Why or why not?
- Is decomposition important? Why?

5. Now think of words to describe rot or decomposition. List them. Do the words have positive and/or negative connotations? Why?

6. List items you throw away that are biodegradable. Discuss:

- How might you and your family recycle these materials?
- What is composting?
- Why do you think people compost household organic wastes?

7. What are some benefits of composting household food and yard wastes? For example:

- Doesn't require the purchase of expensive plastic bags often used for disposing of household and yard wastes.
- Saves the cost of transporting wastes to and handling wastes at the landfill. Wisconsin discards 2.4 million tons of compostable waste every year. It costs \$50 per ton to collect wastes in urban areas and \$15-\$25 per ton to dispose of them. How much money do Wisconsin citizens spend each year disposing of their compostable wastes?
- Saves space in the landfill. Wisconsin's landfills are filling up fast. Within 10 years, most will be filled to capacity. Thus, Wisconsin already has a serious problem — where will we put all our waste?
- Reduces pollution from landfills.
- Creates nutrient-rich humus you can use to fertilize and improve the texture of your yard and garden soil; saves money you might spend on mulch or fertilizer.

8. What are some possible problems with composting? What suggestions do you have for solving the problems? For example:

- It's too much work. Mowing the lawn and washing the car are work, too, but we choose to do these activities because they're satisfying — so is composting! And composting has a positive impact on the environment, which can make us feel good.
- You'd have to run outside everytime you eat an apple or peel a potato. Just place scraps into a plastic container with a lid. Keep the container in or under the kitchen sink, then take the waste to the compost pile whenever the container is full.

- It's easier to use the trashbag or garbage disposal. Once you make it into a routine, composting is easy, too. It can make you feel good about doing something positive for the environment by using instead of wasting the fertilizing potential of your garbage. Also, landfilled yard wastes and food scraps take up space and may release harmful methane gas. Food waste put down the garbage disposal ends up in the sewage system, where treating it can

tax the system and costs money. If you can afford a garbage disposal, perhaps you can afford a "no work" composter. Easy-to-use, compact and attractive composting bins are available commercially. Contact your garden center or the DNR Bureau of Solid Waste Management for details.

- It might smell and attract rats. If you maintain your compost pile according to basic guidelines in publications like **Home Composting: Reap a Heap of Benefits** (see

Resources), your pile shouldn't smell or attract rats.

- The neighbors might not like it. If you locate, build and maintain your pile properly, it shouldn't be offensive. Take the opportunity to explain what you're doing to your neighbors and why you feel composting is important.

9. How would/do you compost your household wastes? Where can you find information to help you? Write or call for information.

Part 2 — Readin', Rottin' and 'Rithmetic: Classroom Composting

Goal: To have students learn about recycling in nature and actually recycle organic matter by composting.

Subjects: Science, health, environmental education, mathematics, home economics, vocational agriculture.

Grades: 4-12

Materials:

- fish aquarium
- organic waste materials (be sure to add a variety of materials, not all one kind, i.e., use sawdust, hair, wood ash and leaves in addition to food scraps; avoid meat scraps, fats and oils, which inhibit decomposition and in outdoor compost piles can attract dogs, rats, raccoons and other animals)
- lawn fertilizer that contains nitrogen (but not herbicides or insecticides); manure and green grass clippings also contain large amounts of nitrogen. A ratio of 25-30 parts carbon to 1 part nitrogen is ideal.
- soil
- 1-2 dozen red earthworms (obtain from yard, garden, school grounds or local bait shop)
- thermometer
- trowel or large kitchen spoon (for turning, or aerating, the pile)

(Note: Air circulation is important to decomposition, thus the best compost bin is one with wire or screen sides. Mass also is important, since approximately one cubic yard of

compost is needed to generate good decomposition temperatures (104-170°F). Thus, an aquarium, with its small size and glass sides, isn't the best compost container. Consider constructing an outdoor compost pile with wire sides on the school grounds. Composting instructions are available from: DNR Bur. of Information and Education.)

Procedure:

1. What "ingredients" do you think are needed to construct a compost pile? Why? List ingredients. For example:

- **soil:** contains microorganisms that help decomposition.
- **organic wastes:** such as leaves, food scraps and grass clippings. Wastes should be varied, including materials with both carbon and nitrogen. By alternating layers of high-carbon and high-nitrogen materials, you can create good environmental conditions for decomposition to occur.
- **nitrogen:** many of the organisms responsible for decomposition need nitrogen, thus nitrogen is necessary for rapid and thorough decomposition. Nitrogen is found naturally in many organic wastes, and in many commercial fertilizers.
- **worms:** they eat the waste, helping to break it down; make droppings, which enrich the soil; tunnel through and aerate the waste, facilitating decomposition; and eventually die and become part of the compost.
- **water:** necessary for normal functioning of life. Too much water



in a compost pile may make it soggy and slow decomposition by reducing needed oxygen.

- **air:** the biological activity of fungi, bacteria, small insects and other organisms results in decomposition.

Most biological processes require adequate amounts of oxygen.

- **time:** decomposition takes time. To speed up decomposition, aerate your pile every few days; otherwise, just leave it and wait.

- **heat:** heat is produced by chemical reactions resulting from increased

biological activity that occurs during decomposition. Heat helps sanitize compost by killing certain organisms (e.g., weed seeds, pathogens, harmful insect larvae).

• **mass:** in order to generate enough heat for optimal decomposition, the pile must contain at least one cubic meter of organic material. Thus, the temperatures generated in an aquarium compost pile may be different from those generated in one that is larger.

2. Design a plan for making a mini-compost pile in the classroom. Decide which ingredients students will provide and which will be supplied by the teacher. Set a date for constructing your pile.

3. Suggestions for creating a mini-compost pile:

a) Chop the organic wastes into small pieces. You can leave some large pieces of the same materials to compare rates of decomposition between large and small items. Why might there be a difference?

b) Alternate layers of the materials as follows (amounts are approximate): inch of soil, two inches of organic waste, sprinkle of fertilizer, sprinkle of water, repeat.

c) Cover with an inch of soil. Water the pile enough to make it moist but not soggy. It should feel like a damp sponge (it feels moist, but you can't squeeze water out of it).

d) Add the earthworms and observe their behavior.

e) Place your compost pile where it will be at room temperature (not in direct sun).

4. Place the thermometer in the middle of the pile. Wait an hour or so, then record the temperature.

5. Record the temperature from the same location and depth, and at the same time each day. Why is it a good idea to be consistent with location, depth and time of recording? Does temperature change? Why or why not? Make a graph to show your temperature results.

Gently mix the compost once a week to aerate it. A good time to mix the compost is after the temperature peaks and begins to decline.

Why? Be sure to record the temperature before you turn the compost that day.

7. Be patient. Occasionally check the moisture and add water if needed.

8. Make a chart to help you keep a daily record of temperature and other observations during the next month or two. Observe:

- Which materials break down the fastest? Slowest? Why?
- Are there any odors? Why do you think decomposition has an odor?
- Does the texture of the compost change? In what ways?

9. Once the materials in your compost pile have decomposed into humus, conduct the same feel, smell and look test that you did in Part 1, #2.

10. Now decide what your class should do with this rich soil. When you clean out the aquarium, should you: dump the humus in the trash; take it outside and dig it into the soil; use it for growing plants in the classroom?

11. Discuss:

- How does composting reduce the amount of waste you would have thrown out?
- What do you think happens to organic wastes that end up in the landfill?
- Is the landfill a gigantic natural compost pile, or are there problems with placing large amounts of organic material in landfills?

12. Now that you have constructed and maintained a mini-compost pile in the classroom, how would you go about constructing and maintaining one at home?

Pre- and Post-Instruction Questions:

- What is composting?
- What are the necessary "ingredients" for a good compost pile?
- How is composting related to the concept of recycling?
- How can composting reduce waste?

Going Beyond:

- Create a compost pile as in Part 2, but also add manufactured items like a soda can, paper clip, bottle cap, aluminum foil, iron nail, pencil, crayon, paper, plastic bag, rubber band, etc. Predict rates of decomposition or lack of decomposition and observe actual changes, if any.

- Take a field trip to a local woods or park. Examine a rotting log or leaf litter. Place a sample of rotting humus in a white enamel pan and sort through it carefully, looking closely for "decomposers." What decomposers (insects, mites, fungi, etc.) can you find? What do you think they're doing? Read about their life histories. (Do activity: A Rottin' Place to Live, in booklet *Trees are Terrific*. See Resources.)

- Make a Berlese funnel to help you capture tiny soil animals. Examine them using a magnifying glass or binocular microscope. Make drawings of them and try to figure out what kind of animal they are. Read about their life histories. (See: *Soil Animals, Living Earth and The Natural History Guide*, in Resources.)

- Visit someone who maintains a compost pile. Why do they compost? What do they do with the compost?

Have they had any problems? Would they recommend composting?

- Investigate what happens to the leaves your community discards each autumn. What do you think should be done with them?

- If your community has a municipal composting center, take a field trip to it. Be sure to prepare questions to ask the guide.

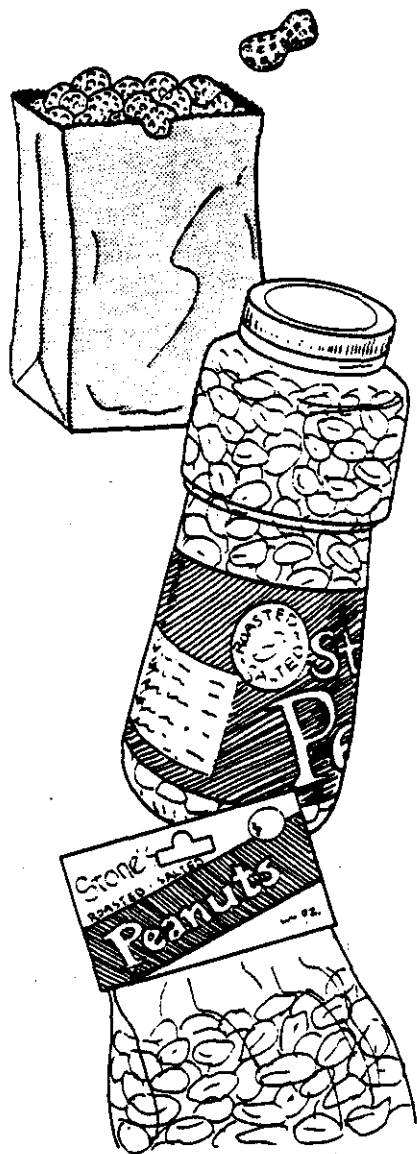
- Have students design experimental compost piles. For example, make a pile that: is low in nitrogen; lacks moisture; has little air circulation; or is made of a single ingredient (e.g., just grass clippings). Also create a good compost pile for comparison. Compare rates and temperatures of decomposition between piles.

- Fill flower pots with different soil types, including one type that has your humus mixed in. Plant seeds or grow seedlings in the pots. Make 4-5 pots with each soil type so that you're comparing more than one plant grown in each type (i.e., so that you have a large enough sample size to make a valid judgement). Do the plants in different soil types grow at different rates, with different vigor, color, etc? What are possible explanations for any differences?

Is It A Waste?

Part 1 — All Wrapped Up •

Background: Why do we buy one product instead of another? Often it's because of the packaging. Packaging accounts for 10-15% (and sometimes more than 50%) of the cost of a product and 40-50% of all consumer wastes. While packaging often is designed to protect merchandise, it also is designed to sell products. Excess and non-recyclable packaging add to our energy and waste problems. We can cut down on packaging.



Goal: To have students investigate the purpose of packaging and identify wasteful packaging.

Subjects: Home economics, marketing, social studies, language arts, health, science, environmental education.

Grades: 4-12

Procedure:

1. Bring in an example of food packaging. Discuss:
 - Why is the product packaged? (To protect the product, protect health, prevent theft, provide advertising, provide convenience, promote purchasing, make the product look larger or more appealing?)
 - Is the packaging essential or wasteful? Why or why not? What criteria are you using to make your decision?
 - What influence do you think packaging has on the salability of the product?
2. Design a way to categorize the packaging. For example, sort it according to "natural" packaging (bananas, apples, peanuts); "older" packaging (paper bags, returnable bottles); and "modern" packaging

(plastic wrap, styrofoam, plastic milk containers). Discuss:

- What happens to the packaging once the product is used?
- Which packaging is/isn't: recyclable, biodegradable?
- Which packaging is/isn't made from: recycled materials, renewable resources?
- What are the environmental pros and cons of making and disposing of each type of packaging?
- Which packaging would you label: most wasteful, least wasteful? Why?

3. Brainstorm ways that you could reduce the amount of packaging you purchase. For example, could you purchase products in bulk? How would this help reduce packaging? (A 3 ounce tube of toothpaste requires 50% more packaging per ounce than a 7 ounce tube.)

Pre- and Post-Activity Questions:

- List three examples each of recyclable and non-recyclable packaging.
- What criteria might you consider when deciding whether packaging is necessary or wasteful?
- What happens to most of the packaging you purchase? What do you think about this?

Part 2 — What's the Appeal? •

Goal: To have students quantify the number of times television and radio ads try to sell products for reasons not related to product quality and list some of the techniques advertisers use to promote products.

Subjects: Social studies, mathematics, language arts, home economics, marketing, environmental education.

Grades: 7-12

Procedure:

1. Find samples of different advertisements for the same type of item (soda, detergent, potato chips). Select ads for different name-brands and types of packaging. Discuss:

- Which product would you buy? Why?
- What is advertising? What is the purpose of advertising?
- Does advertising influence what you buy? How?
- Which advertisement do you like best? Why?
- Do your reasons have anything to do with the quality or function of the product?
- Do you purchase name-brand items instead of generic items? Why?

2. Discuss ways in which products are promoted on television, radio and in print. Analyze at least 25 ads. Note the following:

- What strategy does the advertiser use to sell the product?

- What is the advertisement really selling: convenience, health, sex appeal, status, fun, quality?
- Does the advertisement mention the packaging?
- Is the packaging reusable or recyclable?
- Does the ad suggest what you should do with the packaging?

3. Design a chart to help analyze characteristics of these ads. A sample follows (feel free to add other categories):

4. Make a composite chart that shows the results of all the surveys done by students. Discuss:
- Which marketing strategies were used most often to promote packaged products?
 - What strategies were used that were not listed on the sample form?
 - What usually happens to the packaging?
 - Do you think the manufacturer of the product should be responsible for what happens to the packaging once

the product is used? Why or why not?

Pre- and Post-Activity Questions:

- Name three reasons you buy one type of packaged product instead of another.
- How often are your reasons based on the quality or function of the product?
- Discuss ways in which advertisements may influence what you choose to purchase.

Name of Product	Television	Radio	Print (magazines, newspapers)	Other	Status	New and Improved	Convenience	Sex Appeal	Symbols	Self-Image	Famous People	Flashy Packaging	Band Wagon	Vague Pronouns	Keeping Up With the Joneses	Other

Part 3 — How Many Ways Can You Wrap An Apple?

Goal: To have students design packaging and advertising strategies to sell a product, analyze why they decided on their strategies and consider why they buy one product instead of another.

Subjects: Social studies, language arts, art, drama, environmental education.

Grades: 6-12

Materials:

- an apple or other object (hammer, child's toy, batteries) for each student or group of students. Each student or group should have the same item.

Procedure:

1. You have just gotten a job as an advertizing agent for an apple company (you can work either individually or with a group of other students). Your first assignment is to develop a packaging design and ad campaign to sell apples. Keep track of the reasons why you chose your particular design and sales pitch. Your campaign can consist of skits,

poems, songs, posters or whatever you believe will sell the product.

2. Present your ad campaign to the class.

3. Display the "products" (numbered in some way). Vote for the apple you would buy (each classmember should vote anonymously on slips of scrap paper). Tally the results. Discuss:

- Why did you choose the product you did?
- How much packaging was involved in the "winning apple?" Was the packaging necessary? Why or why not?
- What influence does the packaging have on the quality of the product?
- Why was the product packaged?
- Who pays for the packaging?
- Who should pay for disposal of the packaging?
- Was the manufacturer of the product concerned about disposal of the packaging?
- If the manufacturer is primarily interested in selling the product, is it

more important to package the item to sell than to package it to have low environmental impact? Are these two concepts mutually exclusive? Could you design a package that sells but doesn't use a lot of energy or resources to produce or dispose of?

- Who should pay for the disposal costs of packaging that isn't recyclable or reusable?
- Do you have any choices about how much packaging you purchase?

Pre- and Post-Activity Questions:

- Who do you think makes decisions about what packaging to use on a product?
- What main factors do you think they consider when deciding how to make their product sell?
- Why do you think people buy products that have a lot of packaging?
- How often do you think manufacturers consider the impact of packaging on the environment?
- Do you have to purchase highly packaged items?

Part 4 — Packaging: Is It A Waste?*

Background: In 1974, the Environmental Action Foundation published research showing that the energy used to produce the packaging used annually by McDonald's fastfood restaurants was equal to the amount of energy required to supply the people of Boston, Washington, San Francisco and Pittsburgh for a year.

Goal: To have students consider solutions to the problems of energy and resources wasted due to excessive

packaging and become aware of how complex and energy-intensive food processing has become.

Subjects: Home economics, social studies, language arts, marketing, mathematics, environmental education.

Grades: 7-12

Procedure:

1. Examine the following chart.

Discuss:

- Which forms of the potato are most highly processed and packaged?
- Which are most expensive per pound?
- Which form of potato would you purchase if you were interested in reducing solid waste or saving money?

2. Working with a partner, choose a fresh food item to investigate, such as a potato, tomato or corn. If possible, go as a class to the grocery store (or go independently after school). Calculate and/or record the price per pound of the fresh product as well as 5-10 items that are processed forms of the product.

Discuss:

- Which form of your food item is most expensive per pound? Why?
- Which do you think uses the most energy to produce?
- What relationships are there among cost and amount of processing and packaging?

3. Make a chart like the one above for the product you are investigating.

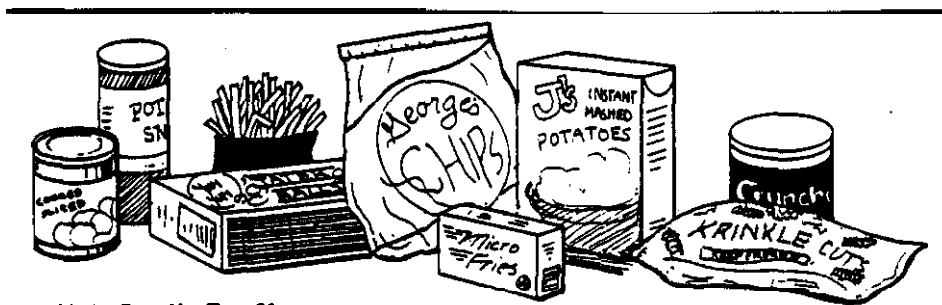
Discuss:

- What conclusions can you make about the relationships among cost, processing and packaging?
- Which packaging do you think is least wasteful of energy and raw materials? Which is most wasteful?
- Does the product need the packaging?
- What do people do with the packaging?
- Which packaging: weighs the least per pound of product; takes up the least space in the landfill; decomposes most or least quickly; doesn't produce toxic materials when it decomposes?

4. Which of these products will you buy in the future? What criteria will you use for making your decisions about what to buy and what not to buy?

Pre- and Post-Activity Questions:

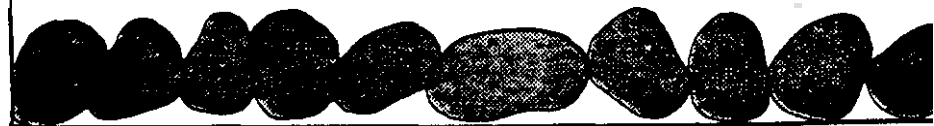
- What percentage of the cost of packaged foods do you think is due to packaging?
- Which of your favorite foods could you buy without packaging?
- How can packaging of foods be reduced?



This Spud's For You

Product *	Package Size	Price	Price per Pound
Fresh Idaho Potatoes	10 lb.	\$2.99	\$.30
Fresh Idaho Potatoes	5 lb.	1.98	.40
Fresh Idaho Potatoes	loose	.59	.59
Kohl's Canned Sliced Potatoes	8.5 oz.	.33	.62
Oreida Tater Tots	4 lb.	2.99	.75
Oreida Tater Tots	2 lb.	1.69	.85
Oreida Tater Tots	1 lb.	.99	.99
Kohl's Crinkle Cut French Fries	5 lb.	2.99	.59
Kohl's Crinkle Cut French Fries	2 lb.	1.33	.67
MicroMagic Microwave French Fries	15 oz.	1.69	1.80
MicroMagic Microwave French Fries (3-3 oz. pkgs.)	9 oz.	1.25	2.22
Small Order McDonald's French Fries	2.5 oz.	.59	3.78
Betty Crocker Potato Buds	28 oz.	2.59	1.48
Betty Crocker Potato Buds	13.75 oz.	1.49	1.73
Betty Crocker Potato Buds	5.5 oz.	.65	2.08
Planter's Potato Crunchies	6.5 oz.	1.19	2.54
Durkee Potato Sticks	7 oz.	1.49	3.41
Durkee Potato Chips (8-9/16 oz. pkgs.)	4.5 oz.	1.29	4.59
Pringle's Potato Chips (reg.)	7.5 oz.	1.49	3.18
Jay's Potato Chips (twin pack)	8 oz.	1.39	2.78
Jay's Potato Chips (12-0.5 oz. pkgs.)	6 oz.	1.89	5.04

*All items priced on June 22, 1987, at Kohl's II Food Stores and McDonald's in Madison, WI.



Part 5 — What Can I Do To Change Packaging?

Goal: To have students identify steps that can be taken to affect the packaging options available in the marketplace and encourage them to act on an option (See activity: Time for Action).

Subjects: Language arts, social studies, environmental education.

Grades: 5-12

Procedure:

1. Brainstorm what you can do to encourage change in packaging procedures. List your ideas. For example:

- Write letters encouraging retailers to carry beverage containers that can be returned or recycled.
- Write to the manufacturers of an item with a particularly wasteful package and ask them to suggest ways you can reuse or recycle the packaging they are producing.

- Write to legislators urging them to require standardization of materials of which containers are made. This would make possible an expanded system of returnable or recyclable containers.

- Organize a consumer's advisory committee to recommend packaging or bagging changes in your local supermarket.

- If you are dissatisfied with a product's packaging, write the manufacturer and send a copy to the local Consumer Protection Division of the federal government or appropriate agency.

- Write to packaging companies urging them to use recyclable materials.

(For all of the above, be sure to request a response to your letters.)

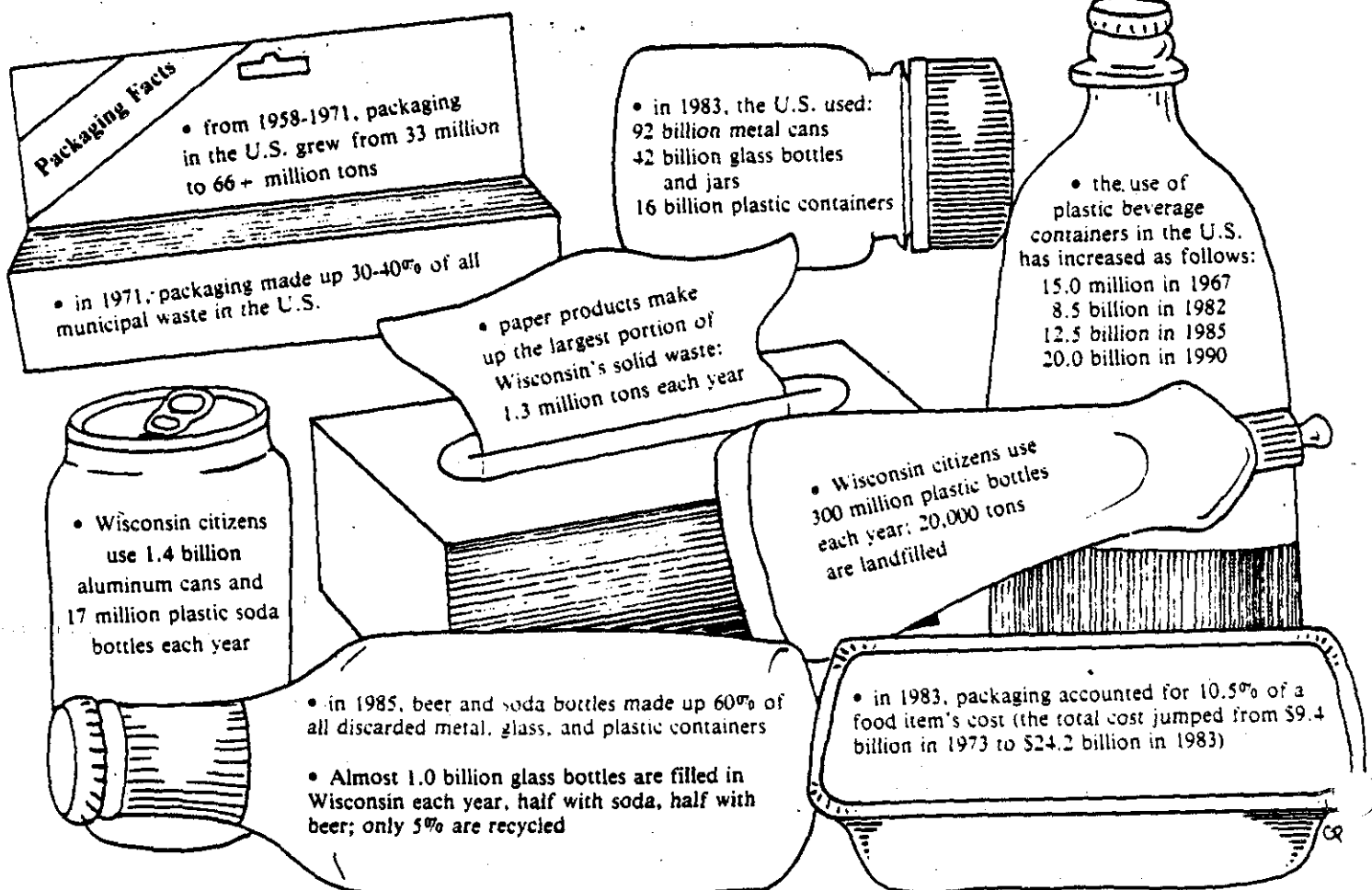
- Refuse to purchase over-packaged items in stores and tell the manager why.

- Refuse to accept bags and extra wrappings from the store cashier and bagger and tell them why.

2. Do some of the things you suggest.

3. Evaluate your results. Discuss:

- Did you receive a response to your letter? If not, send another copy.
- Did the response you received address your concerns and answer your questions adequately?
- Do you feel that your action has had an influence on reducing unnecessary packaging or encouraging use of recyclable materials? Remember, even if your influence was small, every "drop in the bucket" counts.
- Who can you contact to assist you in your goal?
- Would you personally be willing to do without the conveniences and appeals of packaging? Why or why not?



Facts from: *Special Recycling Edition*, July-August 1985. *Wisconsin Natural Resources*, Vol. 8, No. 4.

Going Beyond:

• Read the following true-life scenarios. Based on what you now know about how packaging creates solid waste and how consumers are influenced by advertising, convenience, etc., analyze and discuss what is going on in each scenario. How do you think people in these scenarios might behave differently to reduce the amount of trash they discard?

Scenario 1:

Mr. Jones and his young son, Sammy, are at the convenience store to buy a gallon of milk. Mr. Jones picks up the plastic jug of milk and heads for the check-out. In the meantime, Sammy has been eyeing the candy, and asks if he can have some. Mr. Jones says yes, and Sammy places his choice (individually wrapped jaw-breakers) on the counter. The clerk rings up the purchase and puts the milk jug in a paper bag. Sammy demands his own bag for his candy, and the clerk looks questioningly at Mr. Jones. Mr. Jones nods to the clerk, who gives Sammy his own bag. Once out of the store, Sammy takes his candy out of the bag and throws the bag away. Mr. Jones does the same with his bag when he gets home.

Scenario 2:

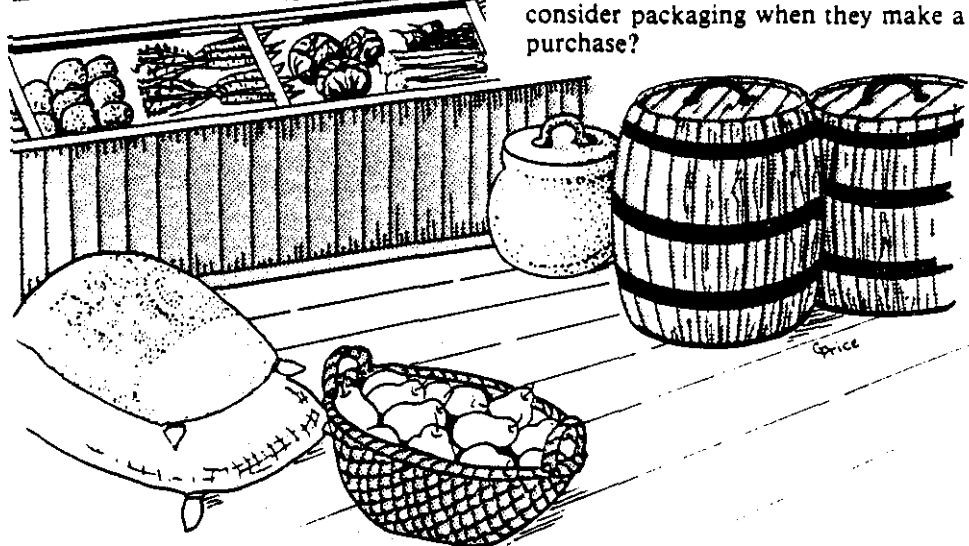
Ms. Smith has just finished mowing the lawn and asks her daughter, Kate, to help rake the grass clippings and stuff them into plastic bags. Kate also rakes up some leaves that have blown into the shrubs. Ms. Smith and Kate haul the bags to the curb for garbage collection. Their neighbor, Carol, walks by and asks why they are putting the grass and leaves in plastic bags. Kate responds that she doesn't know how else you're supposed to get rid of them — people always dispose of them that way (she points to the house across the street, which also has thrown out grass in plastic bags). And besides, it's the way her mom asked her to do it. Ms. Smith explains that the ads on TV said bags were good to use for throwing away trash like grass and leaves. She buys the heavy-duty ones with the built-in tie because she had a coupon, and because the ad said they are tough to break and easy to use.

Scenario 3:

Luke and Jennifer are on their way home from school and are starving. They stop at the fast-food restaurant for a burger, fries and soda. They pay, pick up the bag with their order and go to the nearby park to eat. Luke opens the bag and takes out the sodas and paper napkins. He puts a plastic straw through the plastic spill-proof lid on his paper cup, then grabs for the cardboard container holding the fries. "You like ketchup?," he asks Jennifer, as he opens the plastic

ketchup packet. Meanwhile, Jennifer is eating her burger, having stuffed the styrofoam box, designed to keep the burger warm, back into the bag. She adds some pepper from the little paper packet, but decides she doesn't need the salt she got, so leaves it in the bag. When they're finished eating, Luke and Jennifer put the garbage (from two burgers, two sodas and one french fries) in the trash can and head home.

- Purchase a large box of cereal and a variety pack that contains an equal weight of cereal. Remove (or eat!) the contents. Measure the area of the cardboard, foil and/or wax paper packaging. Which item (large box or variety pack) has more packaging per unit of cereal? Which costs more per unit of cereal? Why do you think it costs more? If you want more cereal for your money, which would you buy? If you want less packaging for the same amount of cereal, which



would you buy? Why is cereal packaged in variety packs? Can any of the packaging be recycled?

• Talk with an older person in your community about what grocery shopping was like 50 years ago. Were the stores the same size or arranged inside like they are today (e.g., did shoppers take their own groceries from the shelf or did the clerk do it for them)? Where did the term "supermarket" come from? Why have there been changes in the way food is marketed? Were there as many items to choose from then? Why? How were the items wrapped?

• Write down what you had for lunch and list all the containers and packaging that came with the food. Discuss the items that could be reused or recycled.

• Interview grocery shoppers to find out why they buy certain products. What do they do with the packaging? How often do they consider packaging when they make a purchase?

How Times Have Changed

Goal: To have students investigate and think about how technologies, lifestyles and values change through time and how these changes alter the

production and handling of wastes. To encourage students to develop a greater understanding of history and to express themselves through language.

Subjects: Social studies, language arts, science, art, environmental education.

Part 1 — What, No Video Games?

Grades: 5-12

Materials:

- tape recorder (optional)

Procedure:

1. Imagine yourself as a reporter investigating how times have changed since your parents and grandparents were children. To help you begin thinking about how things have changed, read either Section 1 or 2, or investigate the past by consulting books, the local historical society, old magazines, antique stores, museums, etc. As you do this, think about how you'd answer the questions that follow each section. Discuss your answers in class.

2. Interview your parents, grandparents or other adults to find out what they used in their everyday lives for toys, clothing, food wrappings, trashcans, etc., how these items have changed through time and how they feel about these changes. You can either design your own interview or read Section 1 or 2 to the person(s) you are interviewing, then ask the accompanying questions. (If you have a tape recorder, tape the conversation. Be sure to ask the person being interviewed if they mind being taped.)

3. Discuss your interview results in class.

Section 1: Sayings and Slogans

You've all heard sayings like:

"A stitch in time saves nine."

"Waste not, want not."

"An ounce of prevention is worth a pound of cure."

"Built to last a lifetime."

More recently, we hear slogans like:

"Quick and easy to use."

"No mess, no bother."

"Disposable."

"Individually wrapped for your convenience."

"They sure don't make 'em like they used to."

Questions:

- What other similar sayings and slogans can you think of?
- What are these slogans saying about our lifestyles and how they've changed?
- Which messages point out product quality? Which emphasize product convenience?
- Are products today built to be durable, convenient to use, or both? Why? What do you think about this?

- What qualities in products did people appreciate when you were growing up? Has that changed over time? How?

- Did people take better care of their belongings when you were growing up than they do now? Why? How many pants, dresses or pairs of shoes did you have? What were the clothes made of? When clothes tore or wore thin, were they repaired or were new ones purchased? What did you do with old clothes?

- Can you show me a family heirloom and describe the qualities that make it so special?

- Why are we attracted to items that are "new and improved?"

- Are we more wasteful today? In what ways? Why?

- What types of things did you throw out in the trash? Were they similar to what we throw out today? What containers did you use for trash? What did you do with trash? Did you have as much trash to throw away then as you do now?

Section 2: Toys for Us

Toys have changed through the years. At one time, most were made of natural objects. Then they were made of papier-mache, or were handmade country toys like whirligigs, bean shooters, yo-yos, limber jacks and tops. Over time, commercially manufactured toys became available, like wooden Lincoln Logs and Tinker Toys and metal Erector Sets. Then plastic toys came on the market — toy guns, frisbees, hula hoops and plastic models. Now, battery-operated and electronic toys, pinball games, video games and computers are popular.

Questions:

- What were your favorite toys when you were little? How many toys did you have?

- What were your toys made of? Who made them?

- How long did your toys last? Could they be fixed if they broke? Would it have been cheaper to fix the toy or get a new one? Why? Could you fix a broken toy at home or did someone else have to fix it?

- If broken toys could not be repaired, what did you do with them?

- How are toys sold today different from those you had?

Part 2 — The Garbage Guzzler Strikes Again

Grades: 4-7

Procedure:

1. Read the following unfinished story.

2. Write a final paragraph that describes what the Garbage Guzzler dumped in Jody's backyard. Read and discuss your concluding paragraphs in class.

3. Discuss possible answers to the questions that follow the story. Did your endings answer some of these questions?

4. For an art assignment, draw your image of the Garbage Guzzler.

Questions:

- From what dates in history did the Garbage Guzzler collect garbage?
- What items might Sam and Jody find in each garbage pile?
- What are these items made of?
- How many of the items do you think would be recyclable?
- Compare the items in the different piles. What do the differences indicate about the lifestyles of people at each location and each period in history? What might people from each period in history think about the garbage from other periods?
- What will happen to the items if they stay in Jody's backyard for a year, ten years, fifty years?
- What predictions do you have for what we will be throwing away in ten years, fifty years?
- What predictions do you have for the amount of trash we will throw away in ten or fifty years compared to how much we throw away now?
- Is there anything you can do to influence what trash will be like or how much trash there will be?

The Garbage Guzzler Strikes Again

Sam and Jody's teacher has given their class an assignment to write about recycling and how the stuff Americans throw away has changed throughout history. Sam and Jody are having a tough time with the paper. Lucky for them, the Garbage Guzzler suddenly appears and offers to lend a hand!

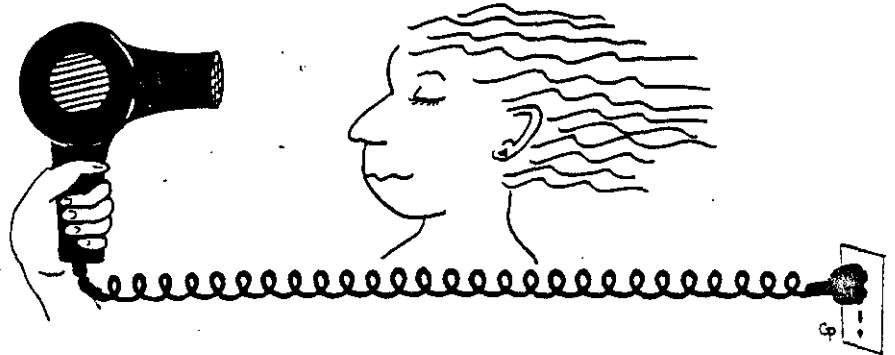
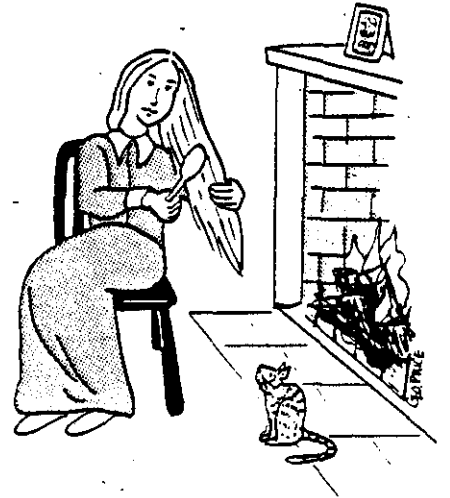
The Guzz picks up the trashcan behind Jody's house and takes off in his Time Machine. Sam and Jody have no idea what the Guzz is up to. Are they surprised when he returns with a can of garbage he collected from a Pilgrim's house in Plymouth,

Massachusetts! The Guzz makes three more trips in the Time Machine, returning with garbage collected from a Philadelphia house during the meeting of the first Continental Congress, from a miner's shack near Sutter's Mill during the California Gold Rush and from a Wisconsin house the day after Mount St. Helens erupted. He dumps all four cans of garbage in separate piles in Jody's backyard.

Sam and Jody are amazed by what they see in each pile. The Pilgrims had thrown out...

Going Beyond: Consider how other products we use in our homes have changed through time. Discuss:

- What did people do before there were products like Scotch tape, hairdryers, toilet bowl cleaner, soda cans, toothpaste tubes and pumps, plastic cups, power lawnmowers, disposable diapers, plastic wrap, vacuum cleaners, plastic shampoo bottles, microwave ovens, etc.?
- What did they do with their leaves and garden clippings before there were plastic bags?
- How do changes in technology affect our living habits, our waste habits, our opportunities for recycling and our environment?

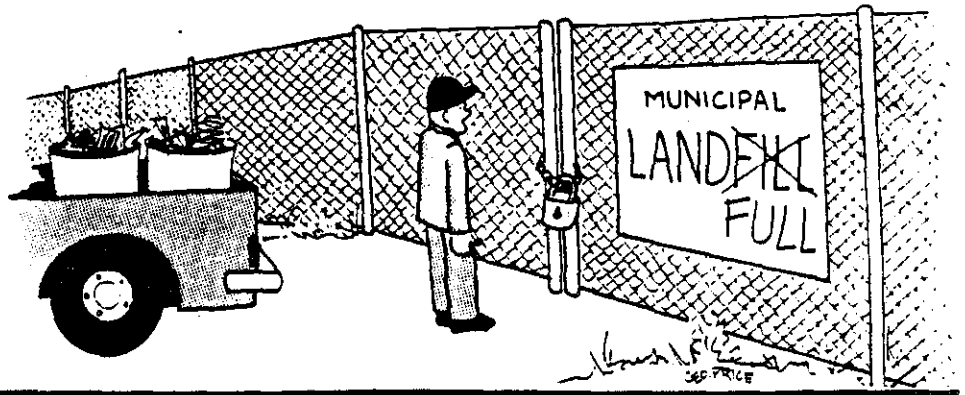


The Cost of the Toss

Goal: To have students develop a better understanding of what options exist for managing solid waste, and the costs and benefits of each option.

Subjects: Social studies, mathematics, environmental education, science, health.

Grades: 6-12.



Part 1 — Decisions, Decisions

Procedure:

1. Imagine yourself as the mayor of Wonderful, Wisconsin. Yours is a pleasant city of 65,000 people. Unfortunately, Wonderful is in the midst of a not-so-wonderful crisis: your landfill must be closed because it doesn't comply with present standards for protecting the environment. What's Wonderful going to do with all its garbage?

As mayor, you're responsible for investigating new options for managing Wonderful's solid waste. You begin by forming a solid waste committee to study the options. Who do you think should sit on this committee (town treasurer, public works director, citizen representative, landfill developer, etc.)? Assign fellow classmates to play these roles and decide on a name for your committee.

2. Call a meeting of the committee. Your assistant has prepared the chart, "Managing Garbage From Homes," to help members see some options and impacts of managing garbage from Wonderful's homes. Study the chart and, as a group, consider the following questions:

- At first glance, which waste disposal option seems best? Why? Do you all agree? Is there one best option?
- What criteria and values are you using to judge options? Are you pro-business, pro-taxpayer, pro-environment, pro-convenience? Discuss how your personal points of view might influence how you judge the importance of each potential impact.
- For how many years into the future are you planning? Why is this an important consideration (population

growth, long-term economic and environmental impacts, etc.)?

- How big is 52,000 cubic yards? How much space will you need if you choose to landfill Wonderful's garbage for that many years?
- Compare the pros and cons of citizen convenience and environmental impacts for each option. Do you consider citizen convenience more important than environmental impacts or vice versa? Why? How does your view affect which option you think is better?
- What is the relationship between net cost and citizen convenience? Is what's convenient the least/most expensive? If saving money is your main concern, which option would you choose? Should saving money be your only concern?
- Does this chart calculate in the "costs" of each option's long-term environmental impacts or use of natural resources? What might these "costs" be? How much should your committee be concerned about these "costs" in making your decision? How easy is it to put a dollar value on environmental damage?
- If creating jobs is high on your list of priorities, which option would you choose? What do you think about the often-made statement that recycling eliminates jobs?
- You have read somewhere about composting municipal solid waste. Where can you find out more about composting? Why might your community consider composting as a valid option for waste disposal? Which wastes could be composted?

- What are the pros and cons of incineration? Do you think the benefits (landfill space saved, energy produced, convenient) outweigh the costs (landfill still necessary, toxic ash and air pollutants produced, expensive)? What are the experiences of other communities that already have installed incinerators? How do the pros and cons of incineration compare with those of recycling?
- Recycling newsprint sounds like a great way to save landfill space and trees. But you've heard that some newspapers use ink that contains lead, a hazardous metal. What happens to this lead when the paper is landfilled, recycled, composted, burned? What have newspaper manufacturers substituted for lead inks?

3. Investigate what is required by your local, state, and federal governments for choosing the waste management option(s) for Wonderful (e.g., public hearing, citizen referendum, DNR approval, environmental impact statement).

4. Do you feel you have enough information to make a wise decision for your town? If not, where can you find this information?

5. Now that your committee has investigated and discussed the options for Wonderful's solid waste management plan, make a decision about which option(s) the town should enact.

6. List suggestions for what you can do to ensure the success of Wonderful's new waste management plan (e.g., community education, providing containers for recycling).

Managing Garbage From Homes: Options & Impacts ☆

Option	No. of employees	Landfill needs/yr. cubic yards)	Net Cost (\$/yr.) (includes sale of any energy produced)	Amount of Energy (gallons of gas equivalent)	Environmental Issues	Citizen Convenience
a) Landfill everything (landfill 15 mi. away)	Collection 40 Landfill 2 Total 42	52,000 yd ³	Collection \$1,300,000 Landfill 520,000 Total \$1,820,000	Collection 30,000 gal. Landfill 13,000 Total Used 43,000 gal.	— is unattractive — uses land — can pollute water & air — can create hazardous gases (methane) — bury/lose natural resources	— just put waste at curb
b) Voluntary Recycling Curbside pickup of: glass, newsprint, plastic, aluminum. Landfill remainder.	Collection 44 Recycling center 8 Landfill 2 Total 54	47,000 yd ³	Collection \$1,400,000 Recycling (profit) 10,000 Landfill 470,000 Total \$1,860,000	Collection 33,000 gal. Recycling (saves) 300,000 Landfill 12,000 Total Saved 255,000 gal.	— reduces impacts at landfill — reduces pollution from manufacturing — reuses natural resources	— need to separate recyclables — builds good habits
c) Mandatory Recycling (as in "b" above)	Collection 48 Recycling center 15 Landfill 2 Total 65	42,000 yd ³	Collection \$1,500,000 Recycling (profit) 60,000 Landfill 420,000 Total 1,860,000	Collection 36,000 gal. Recycling (saves) 600,000 Landfill 9,000 Total Saved 555,000 gal.	same as voluntary recycling above	— need to separate recyclables — requires enforcement for non-compliance — builds good habits
d) Mandatory Composting of yard waste. Landfill remainder. (#s assume 1/2 yard waste is composted at home)	Collection 42 Composting 1 Landfill 2 Total 45	45,000 yd ³	Collection \$1,350,000 Composting 50,000 Landfill 450,000 Total \$1,850,000	Collection 33,000 gal. Composting 1,000 Landfill 10,000 Total Used 44,000 gal.	— reduces need for landfill — reduces methane gas pollution — reduces strength of leachate — produces fertile humus — reuses natural resources	— need to separate yard waste — builds good habits
e) Incinerate for energy recovery. Landfill ash & non-burnables. (incinerator in town)	Collection 38 Incinerator 12 Landfill 1 Total 51	10,000 yd ³	Collection \$1,250,000 Incineration 750,000 Landfill 200,000 Total \$2,200,000	Collection 28,000 gal. Incinerator 840,000 (produces) Landfill 2,000 Total 810,000 gal. Produced	— reduces need for landfill — produces fly ash high in heavy metals that requires special handling — produces air pollutants — consumes natural resources	— just put waste at curb

☆ Example compares costs for a community producing 100 tons/day, 5 days/week. Numbers presented are realistic but not specific to any one community. Other options and combinations of options exist.

Part 2 — Paying the True Price of Pop

Procedure:

1. Bring pop containers made of different materials to class to help you focus your inquiry on real objects. Discuss:

- What materials are your containers made of?
- How might this determine how you should dispose of them?
- What do you think are the best ways to manage the future of your containers? Why?
- How much of the cost of the pop do you think is packaging, how much is the cost of the pop itself?

2. Study the information in the chart, "The True Price of Pop."

Discuss:

- How much of the cost of the pop is packaging?
- How do you feel about paying for the packaging?
- Who do you think should be responsible for its disposal?

3. List possible costs and benefits of disposing of your containers. Consider waste management impacts on economics, environment, energy use, jobs, etc. For example:

- Do the manufacturer and retailer of your containers pay for disposal, or is this cost passed on to you, the consumer? What do you think are their main concerns when they manufacture and sell your pop containers?
- What impacts might the disposal of your containers have on the environment? Who pays for the environmental impacts of waste disposal?
- If you are concerned about reducing solid waste in your town, then which container(s) would you buy?



The True Price of Pop (per 16 ounce serving)			
Container	Cost to Consumer	Energy to make, transport, etc. (oz. of gas equivalent)	Solid Waste crushed (in ³)
Returnable glass bottle	21¢	1.4 oz.	1.4 in ³
Non-returnable glass bottle	35¢	6.3 oz.	5.8 in ³
Plastic bottle	40¢	3.1 oz.	7.0 in ³
Aluminum can	48¢	8.5 oz.	4.0 in ³

Going Beyond:

- Investigate how your town disposes of its solid waste. How much is landfilled? recycled? composted? incinerated? What plans does your town have for handling solid waste in the future? What do you think about these plans?
- Contact your trash collector to find out the total costs of collection, transportation and disposal per ton of solid waste. Discuss:
 - If your family produces two tons of trash each year (the average produced per family of five), then how much should your family pay for trash removal service?
 - How much does your family pay each year for trash service?
 - Do you think the cost for care of your solid waste is reasonable or unreasonable? Why?
 - Would you be willing to pay more to dispose of your trash? Why or why not?

- How does the amount your family pays for trash service compare with the amount it pays for water or sewage services?
- Would you be willing to recycle some household trash items if your town made it easy (e.g., curbside pickup of newspaper, glass, aluminum)?
- Investigate how society subsidizes some methods of handling waste. What do you think about such subsidies? For example:
 - Do your property taxes fully cover the cost of your local landfill?
 - Does government give tax breaks to people who grow trees to be used for making paper? Are similar tax breaks given to people who use recycled paper (instead of trees) to make newspaper?
 - How many of your tax dollars are spent on educating citizens about recycling and composting?

Time For Action

Goal: To help students understand the process of taking environmental action. To have them identify a specific waste management problem in their community, design a research question addressing it, conduct the research and decide how and whether to take action to help solve the problem.

Subjects: Social studies, science, language arts, environmental education.

Grades: 7-12

Procedure:

1. What are several key solid waste management issues in your community? Find out about them by reading local newspapers, attending meetings of solid waste planning groups, talking to municipal or state solid waste managers, finding out the viewpoints of local environmental groups or reviewing local budgets for hauling and disposing of trash. For ideas and information, refer to the **Special Recycling Edition** (see Resources).

2. Select a local solid waste issue to investigate individually or as part of a small group. Focus on an issue that can be investigated within a reasonable amount of time. For example:

- What can be done if the local landfill is almost full?
- Is incinerating waste for energy an economically and environmentally sound management option?
- What steps could you take to reduce the amount of solid waste you make at home?
- How can people be informed about changing their buying and living habits to reduce how much they throw out?
- How much does the community spend handling trash compared to the budget for education, recreation, snow removal, police and fire protection or housing for the elderly?
- How do different fast food restaurants compare in what and how much waste they generate?
- How much methane gas is generated from solid waste? Is methane gas a problem? What are possible solutions?

• How much water falls on a landfill during the year? How much of this becomes runoff and leachate?

• What are the pollutants in leachate? What are the sources of these pollutants? Which are the most harmful?

3. Define your issue as precisely as possible, develop a research question(s) and conduct the research to answer your question. Possible research techniques for collecting data to help answer the question could include telephone interviews, development and use of surveys and questionnaires, and use of both primary and secondary references.

4. Prepare a research report to present in class. The report should include a description of: a) the issue; b) the research question; c) the method of investigation; d) the data gathered; e) how you analyzed the data; f) what conclusions you made from the study (both the knowledge gained and what value that knowledge has) and g) what concepts, values and beliefs influenced why you asked the question, why you selected the research method and how you interpreted the results.

5. Questions to consider as you investigate your issue and before you decide to take action include:

- Who is involved in the issue and what are their beliefs, values and attitudes?
- What are my beliefs and values about this issue?
- What specific types of action will I take? (persuasive, consumer, political, legal, direct, and/or personal action?)
- Is there sufficient evidence to warrant action on this issue?
- Are there alternative actions that I could take?
- Is the action I chose the most effective one available?
- What are the legal, social and economic consequences of this action?
- Do my personal values support this action?
- Do I understand the procedures necessary to take this action?
- Do I have the skills needed to take this action?

• Do I have the courage to take this action?

• Do I have the time needed to take this action?

• Do I have all of the other resources needed to make this action effective?

• What are the ecological consequences of this action?

(Questions from: **Investigating and Evaluating Environmental Issues and Actions: Skills Development Modules**. See Resources.)

6. If you decide to take action, choose strategies for which there is a likelihood of success within a realistic amount of time. For example:

- Survey litter production on your block, instead of surveying litter production in your entire town.
- Begin by writing letters to the editor of the local paper encouraging people to recycle, instead of aiming to convince the city council to start a mandatory recycling program. You might try to get editorial support for your viewpoint.
- Before you try to set up a community recycling center, see if your family is willing to recycle household wastes for a few months.

7. Add a conclusion to your report that describes the action you took and any results.

Going Beyond:

- Invite a member of your city's common council or county board to talk about how solid waste disposal and community recycling decisions are made. Consider giving your guest a list of questions you would like answered before he/she comes to your class.
- Attend a common council or county board meeting to observe local politics in action.

More Activity Ideas!

- Note what people in your neighborhood throw out on trash day. Do you see items that could be reused or recycled (e.g., window frames, old appliances, chicken wire, plastic plant trays, grass clippings, leaves, glass bottles, wood scraps)? Why do you think these items are being discarded instead of given away, recycled or reused? What might you do about this? (e.g., offer to take materials to or contact Goodwill, Salvation Army, recycling companies; hold a yard sale; find others who could use the materials.)

- Read the Dr. Seuss story, *The Cat in the Hat Comes Back*. Discuss the concept of "away." Is there such a place? What do you think about The Cat in the Hat's solution to the problem?

- Investigate the United States' nationwide efforts to recycle during World War II. What was recycled? Why was recycling during the war so successful? How was recycling promoted and encouraged? Why is it harder to get people to recycle today?

- Collect and discuss examples of objects that can be reused in ways different from their original purpose.

- Visit a car "graveyard" to learn what parts of junked cars are reused or recycled. Note how changes in car design and materials have changed what's considered recyclable.

- Conduct a litter survey of your neighborhood or school grounds.

- Examine the pros and cons of using returnable beverage containers. What states have "bottle bills" (beverage container deposit laws)? Contact one or more of these states for information about how the legislation was accomplished

politically, how it has been implemented and what impacts it has had on recycling, litter, jobs, public opinion, energy use, etc. Contact Wisconsin legislators, businesses, agencies and organizations and ask for their viewpoints and reasons for supporting or opposing beverage container deposit laws in Wisconsin. What do you think about a state or federal bottle bill?

- Collect photographs of life in other countries. Which countries do you think have the greatest solid waste problems? Why?

- Brainstorm ideas for how you can help reduce solid waste.

- Write slogans and make posters or mobiles about solid waste problems and solutions.

- Think about how you feel about solid waste — is it ugly or pretty? A problem or not?

- Ask everyone in your class to pick up a piece of litter on the way to school. What is litter? What items often end up as litter? Why? How much of what you collected could be recycled? How do you feel about litter? How do you feel about collecting it? Why do we have a litter problem? What is meant by the slogan, "Every litter bit hurts?" Is littering common in other countries? What is different about countries where littering is not common? What suggestions do you have for helping solve the litter problem? Are the suggestions realistic and something that you will do?

- Find out what the solid waste management laws are in your community. What are they designed to do? What do you think of them?

Do they work well? If not, do you have suggestions for how they could be better?

- Consider the fact that the United States has 6% of the world's population, but uses 40-50% of the world's nonrenewable resources? What do you think about this?

- Conduct a survey of several fast-food restaurants and record the types of packaging (e.g., styrofoam, paper, aluminum foil) they use for similar items (e.g., soda, plain hamburger, fish sandwich, french fries, coffee). Note which containers/packages are made from renewable vs. nonrenewable resources. Is the packaging necessary or excessive? What criteria are you using to make your judgement? If you were concerned about the impacts of solid waste on the environment, which restaurant would you patronize? Could you influence the restaurant to change its packaging policies? How?

- Go to a fast-food restaurant and ask to be served a drink in your own cup or a hamburger on your own plate. Will/can the restaurant serve you? Why or why not? What do people think of you if you ask to be served in this way? What are the health requirements for packaging fast foods? Why were these rules made?

- Visit your local solid waste disposal service to learn how it disposes of your community's waste.

- Gather trash from school or home and design useful objects from it (musical instruments, toys, bird feeders, planters, doorstops, etc.) For ideas, write for the DNR's *Crafts from Trash* or *Ranger Rick: Recycling Reprints* (see Resources).

• Examine the contents of the classroom trash can at the end of the school day. Record each piece of trash as it's removed. Can you reconstruct the day's activities from the clues in the trash can? Are any of the items recyclable?

• Investigate why archaeologists and anthropologists are interested in old garbage dumps. What can studying the contents of old dumps tell us about earlier peoples? What is an Indian midden? What do you think people in the year 3000 would think about our culture if they were to do an archaeological dig in our landfills?

• Select and analyze an article about solid waste management from your local paper. What is the headline? Who, what and where is the story about? What are the conclusions? What do you think about the article? Does it present the facts you need to understand the issue? Does it interpret the facts well? Is it well written?

• Conduct a school or neighborhood yard sale to reuse unwanted objects. What do you think about the saying, "One person's trash is another's treasure?"

• Take a field trip to a nearby woods or old field. Look for evidence of nature's recycling processes. For example, find natural objects that are decomposing (dead plants and animals, animal droppings, feathers, fur, etc.) and what "decomposers" are assisting this process (fungi, insects, molds, etc.). Investigate what you find carefully, and discuss what you see, smell and feel. Why is decomposition such an important natural process?

• Visit a paper manufacturing plant. Does the plant use only virgin materials or does it also manufacture recycled paper? What are the pros and cons of manufacturing paper from virgin materials vs. recycled materials?

• Investigate the Wisconsin tax advantages/disadvantages of using virgin materials vs. recycled materials to make paper. What do you think about these tax laws?

• Investigate how newsprint in your community is recycled. Do many people recycle their newspaper? Why or why not?

• Consider why we've shifted from glass milk bottles delivered to the door to plastic or plastic-coated paper containers purchased at the store? What are the economic, environmental and social impacts of this shift?

• Place 20 objects, both natural and human-made, on the floor. Name the objects and decide if they are natural or human-made and why. How completely do natural objects decompose compared to human-made ones? Which objects are more likely to release harmful chemicals to the environment as they decompose?

• Find out about ways in which litter harms animals. Investigate the possible impacts of: discarded fishing line and plastic six-pack holders on waterbirds (they can get tangled); old soda or beer bottles on shrews and other small mammals (they enter a tilted, slippery bottle and can't get back out); flip-tops on fish (small fish can get stuck in the rings); and cigarette butts, tin cans and other

litter on deer, raccoons and other mammals (they eat the litter or can cut their tongues on sharp edges). Humans also can be hurt. Have you ever cut your foot on broken glass or a discarded nail? Think of other ways that litter can harm people and other animals. How can such problems be prevented? Contact your state legislator for an update on Wisconsin laws that address these problems.

• Contact a glass manufacturing company and ask for an estimate of the amount of energy required to produce, recycle and reuse a ton of glass bottles. What other costs should be considered when choosing which strategy for handling glass is best (e.g., costs of collection and transportation)? What do you think your family should do with its glass? How much energy would your actions use/save? Should we recycle bottles to save energy? Why? What impacts might this have on jobs, the environment, trash removal costs, etc.?

• Set up a recycling plan for your school. Determine what can be recycled, find sources for the sale of recyclable materials, establish a procedure for recycling, elicit support from school organizations (e.g., service clubs could help coordinate the plan, shop class could make or design recycling bins), discuss your plan with school administrators and present your proposal to the school board. Enact your recycling plan.

• Investigate what happens to old tires. What are the problems associated with tire disposal? Research the causes and effects of the tire fire that began in Somerset, Wisconsin, on October 18, 1986. What sources of information can you consult to find out about the fire?

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Reduction, Reuse, Recycling (K-12). Assoc. of Oregon Recyclers, 1615 NW 23rd Ave., Suite 1, Portland, OR 97210.

Teacher's Guide: Educational Materials in Resource Recovery (K-12). 1984. Cathy A. Berg. ERIC/SMEAC, 1200 Chambers Rd., 3rd Floor, Columbus, OH 43212. ED 258 835.

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The Trash Monster. 1980. Calif. State Solid Waste Manage. Board, 1020 9th St., Suite 300, Sacramento, CA 95814.

Waste: An Instructional Module for the Tenth Grade. 1980. M-STIS, P.O. Box 1603, Wausau, WI 54401.

The Wizard of Waste. 1980. Calif. State Solid Waste Manage. Board, 1020 9th St., Suite 300, Sacramento, CA 95814.

Audio-Visual Materials

Audio-Visual Aids on Recycling: Resource List. 1985. Bur. of Solid Waste Manage., Wis. DNR. Order from: Bur. of Info. and Educ.

Dodge County Says Please Recycle. 15 min. slide-tape. Dodge Co. Library Service, 311 N. Spring St., Juneau, WI 53039.

Energy Where You Least Expect It. 28 min. film. Third Eye Films, 12 Arrow St., Cambridge, MA 02138.

The Trash Monster. 12 min. filmstrip. Calif. Solid Waste Manage. Board, 1020 9th St., Suite 300, Sacramento, CA 95814.

The Wizard of Waste. 12 min. filmstrip. Calif. Solid Waste Manage. Board, 1020 9th St., Suite 300, Sacramento, CA 95814.

Agencies and Organizations

Wisconsin

Citizens for a Better Environment, 150 W. Juneau Ave., Suite 206, Milwaukee, WI 53202; 111 King St., Madison, WI 53703; 1270 Main St., Green Bay, WI 54302.

League of Women Voters, Wisconsin Chapter, 121 S. Hancock St., Madison, WI 53703-3447.

Sierra Club, John Muir Chapter, 111 King St., Madison, WI 53703.

Waste Facility Siting Board, 132 E. Wilson St., Madison, WI 53702.

Wisconsin Counties Solid Waste Management Association, 802 W. Broadway, Suite 308, Madison, WI 53713.

Wisconsin Department of Natural Resources, P.O. Box 7921, Madison, WI 53707. (Environ. Educ. Specialist, Bur. of Info. and Educ., 608-266-6790; Recycling Coordinator, Bur. of Solid Waste Manage., 608-267-7565)

Wisconsin Department of Public Instruction, Environ. Educ. Supervisor, P.O. Box 7841, Madison, WI 53707-7841.

Wisconsin Recycles, P.O. Box 2842, Oshkosh, WI 54903.

Wisconsin's Environmental Decade, 14 W. Mifflin St., Madison, WI 53703; 230 W. Wells St., Suite 309, Milwaukee, WI 53203; 214½ E. College Ave., Appleton, WI 54911.

University of Wisconsin-Extension, Community Dynamics Institute, Lowell Hall, 610 Langdon St., Madison, WI 53706; also, contact your County Extension office.

United States

The Aluminum Association, 818 Connecticut Ave. NW, Washington, DC 20006.

American Paper Institute, 260 Madison Ave., New York, NY 10016.

Environmental Defense Fund, 1616 P St. NW, Washington, DC 20036.

Environmental Task Force, 1346 Connecticut Ave. NW, Suite 912, Washington, DC 20036.

Glass Packaging Institute, 1133 20th St. NW, Rm. 321, Washington, DC 20036.

Institute of Scrap Recycling Industries, 1627 K St. NW, Washington, DC 20006.

Izaak Walton League of America, Inc., 1701 N. Fort Myers Dr., Suite 1100, Arlington, VA 22209.

Keep America Beautiful, 99 Park Ave., New York, NY 10016.

National Audubon Society, 950 3rd Ave., New York, NY 10022.

National Recycling Coalition, 29-28 41st Ave., 5th Floor, Long Island City, NY 11101.

National Solid Waste Management Association, 1120 Connecticut Ave. NW, Washington, DC 20005.

National Wildlife Federation, 1412 16th St. NW, Washington, DC 20036.

The New Alchemy Institute, 237 Hatchville R., E. Falmouth, MA 02536.

Resources for the Future, 1616 P St. NW, Washington, DC 20036.

The Society of the Plastic Industry, 1275 K St., Suite 400, Washington, DC 20005.

U.S. Environmental Protection Agency, 401 M St. SW, Washington, DC 20460 (Office of Solid Waste Manage. and Emergency Response; Office of Public Awareness; Office of Pesticides and Toxic Substances); Region V, Office of Public Affairs, 230 S. Dearborn St., Chicago, IL 60604.

The purpose of Department of Natural Resources study guides is to help increase Wisconsin citizens' knowledge about and understanding of our state's environment. We hope to provide information about important environmental issues, encourage respect for the environment and help citizens become active stewards of our natural resources.

Credits and Acknowledgements

Authors: Anne Hallowell, Carrie Morgan,
John Reindl, Dan Sivek, Larry Sperling,
Dennis Yockers
Editor and Project Coordinator:
Anne Hallowell
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Your comments and suggestions about this study guide are welcome. Address your comments to:

Education Programs
Bureau of Information and Education
Wis. Dept. of Natural Resources
P.O. Box 7921
Madison, WI 53707

For further information about recycling in Wisconsin, contact:

Recycling Coordinator
Bureau of Solid Waste Management
Wis. Dept. of Natural Resources
P.O. Box 7921
Madison, WI 53707
(608) 267-7565



The

Trash

of

the

Jeffersons



(A recycled drama using every hackneyed phrase available)

by Mildred Michos

and the Third Grade Students

Room 415



Thursday, December 15, 1988

11:00 a.m. 1:00 p.m.

Friday, December 16, 1988

1:00 p.m.

Large Group Room

Port Jefferson Elementary School

Port Jefferson, New York

Performed as a Public Information Service in preparation for

Refuse Recovery Program, Port Jefferson Village



Jennifer



Pee Wee

Scene I

The Jefferson's kitchen. Mrs. Jefferson and the children are just returning from shopping. Mr. Jefferson is reading the paper at the kitchen table.

Mrs. Jefferson: I am TIRED!!! I hate to go grocery shopping. First, you take the groceries off the shelf.....

PeeWee:then you put them in the cart.....

Jenny:then you take them OUT of the cart and put them on the checkout counter.....

Mrs. Jefferson: and THEN you take them off the counter and put them BACK in the cart.....

PeeWee: Then you push the cart out to the car and

Jenny: Take the groceries OUT of the CART and put them into the CAR.....

Mrs. Jefferson: Then you drive home through all the traffic, and GUESS WHAT?

PeeWee and Jenny: YOU TAKE THE GROCERIES OUT OF THE CAR AND CARRY THEM INTO THE HOUSE AND

Everyone: Take them OUT of the grocery bags and put them all away!!!!!!

Mrs. Jefferson: Well, we might as well finish the job.
(Notices Mr. Jefferson) Hello, dear!

Mr. Jefferson: Hello! What did you get for us to eat.

Mrs. Jefferson: We'll unpack and see. You sort things, Mr. Jefferson, and I'll put things in the refrigerator.
PeeWee, you put things on the shelves, and Jenny, you put things in the pantry.

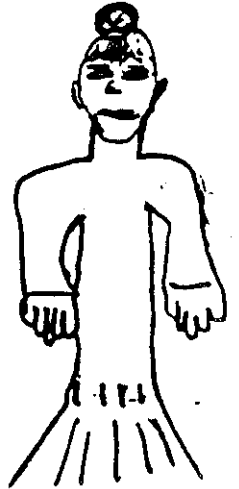
(They begin working. Papers and packages and wrappings fly all over. Mr. Jefferson calls out "Pantry" or "Shelves" or "refrigerator" as he pulls each package out of the grocery bag. Finally one little microwave tray is left and that is all there is to eat. Everything else is packaging.)

Mr. Jefferson: Is this it? Is this all there is to eat?
Look at all this garbage we have.

PeeWee: Oh, boy, look at that! Wow! What are we going to do with all that?

Mrs. Jefferson: We'll have to clean it up. Let's get going.

Jenny: Yuck! That's garbage. I'm not cleaning it up!
I'm not touching it. That's garbage!! Yuck!!!!



Peewee: Oh, boy. Sisters are a real PAIN!! I bet I'll get stuck with the job!

Mr. Jefferson: Don't be a silly goose, Jenny! You help too!

Jenny: Oh, all right!!!

They all begin trying to pick up the garbage. It fills their garbage can and overflows it.

Mrs. Jefferson: Look at all these newspapers. They have piled up too! Our house is filled with garbage!!

Everyone: OH, MY GOSH!!! (They sing the garbage song.)

We went out to the grocery store
and we came back with so much more
Than we had ever bargained for,
We put the wrappings on the floor....

It's garbage (Cory Cardboard comes out)
garbage (Allie Aluminum comes out)
garbage (Penny Plastic comes out)
garbage, garbage, garbage, garbage.

(The "garbage" lines up behind the Jeffersons so they can't be seen. The "garbage" sings along with the Jeffersons and makes faces at them while singing.)

There's plastic wrapping on the meat,
The styrofoam does not look neat.
The garbage piled up around our feet,
And went right out the door.....

It's garbage (Styrofoam Stallone comes out)
garbage (Glen Glass comes out)
garbage (Tommy Tin Can comes out)
garbage, garbage, garbage, garbage.

The tin cans came around the peas,
Glass held the honey from the bees,
The paper bags used up twenty trees,
Just to hold some of our groceries,

It's garbage (Nana-banana Peel comes out)
garbage (Lucy Lettuce comes out)
garbage (Coffee grounds comes out)
garbage, garbage, garbage, garbage.

We're filling up our house with garbage,
Oh, what shall we do when we are all through
And there's no place to put all our
garbage, (etc.)

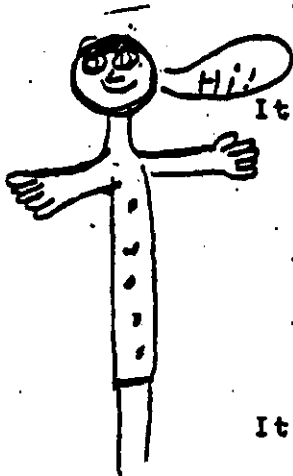


Cory Cardboard



Allie

Aluminum



Penny Plastic

Mr. Jefferson: This is ridiculous!!! We can't get this cleaned up for awhile. Let's get out of here, rake up the leaves and clean up the yard and THEN tackle this again.

Mrs. Jefferson: Good idea! Jenny and PeeWee and I will rake and you can stuff the leaf bags.

Jenny: Do I have to? Oh, Yuck.

PeeWee: Oh, come on, you silly goose. We can jump in the leaves when we are through.

Jenny: O.K. You rake up the leaves and I'll jump in them.

PeeWee: Oh, boy! Sisters are a PAIN.

(They exit.)

Scene II: The Garbage Speaks

(All Trash act out "How the Trash Pile Grows")

Buy it, try it,

Throw the trash away!

Take it, break it,

Throw the trash away!

Get it, use it,

finish it, lose it.

Throw the trash away!

Soda pop, box top,

once you start, you can't stop!

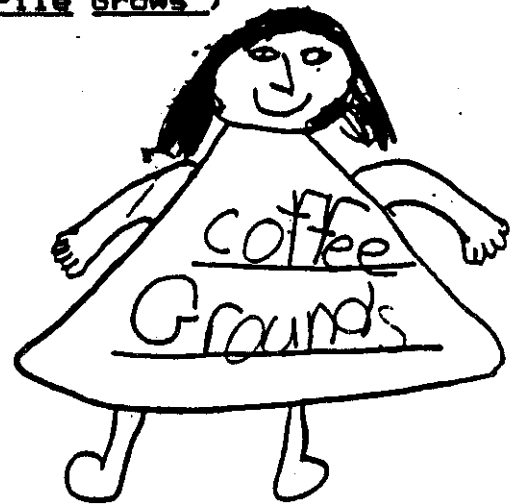
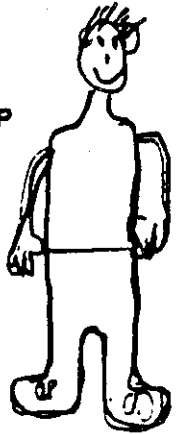
Buy it, show it, nothing left but throw it!

Throw the trash away!

OH, NO--WHERE IS AWAY?

Garbage: There IS no away!!!!!!

(They all laugh!!!!!!)



Cory Cardboard

Cory Cardboard: Last name's Cardboard,
First name's Cory-----
Listen now folks,
Here's MY story!!!



Use me once and
Then throw me away
I'll be around for
Five years
And a day"

I biodegrade Realllllllll Sl-o-o-o-o-w!

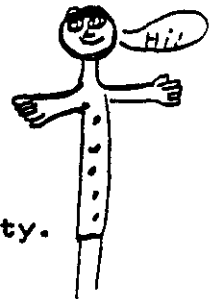
Allie Aluminum: I'm Allie Aluminum and I'm here to say
Allie Aluminum I bring you sweet treats every day:
Banana nut bread, doughnuts, apple pie,
Chocolate cake to eat on the sly,



People buy the sweets, then what they do
Is throw me in the garbage...well, wouldnt you?
But when they do, believe me, my dears...
I stick around for one hundred years!!!

It's true!!!! I do!!!!

Penny Plastic: I'm Penny Plastic. I'm light. I'm clear.
I carry many things from there to here.
People now depend upon plastic.
Without me, they'd go spastic.

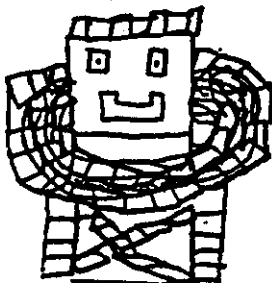


Then they throw me away, just anywhere
You'll see me here, you'll see me there.
What they don't know is...I'm no lady
I stay around for years....just about eighty.

Styrofoam Stallone:

See me!!! I'm strong. I'm hearty.
You see me at every party.....
Holding hot coffee or being a plate...
Keeping things cold for folks who are late.
I never, never--NEVER--discentigrate!
I'm strong and hearty Styrofoam Stallone.
Bring me home and you'll NEVER be alone.....

Heh, heh, heh, heh, heh!!!!!!!!!!



I was Styrofoam
Stallone.

(The Biodegradables Dance to the Front)

We...are.....the BIODEGRADABLES,
Nanna-banana Peel, Lucy Lettuce and Coffee Grounds.

When you put us in the bag
That you hide under to sink
If you forget us, we'll pay you back
'Cause we'll begin to stink!

We...are.....the BIODEGRADABLES,
Nanna-banana Peel, Lucy Lettuce and Coffee Grounds.

Nanna-banana Peel:

Peewee eats the banana, then throws me away,
He hides me right under the rug,
I stay hidden about a day
Then I begin to decay.....ooooooooooooooooooooo

Lucy Lettuce

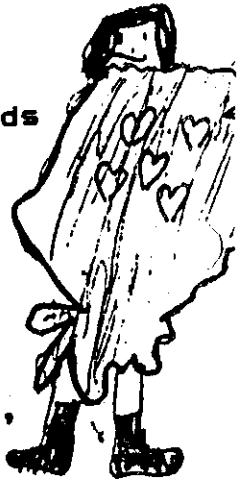
(All) We...are.....the BIODEGRADABLES,
Nanna-banana Peel, Lucy Lettuce and Coffee Grounds

Lucy Lettuce:

I'm Lucy Lettuce and I'm here to say
I can make sandwiches taste great,
But if you don't clean up after me,
I'll make a sight you will hate.....

All brown and slippery and gooey....ooooooooooooooooooooo

(All) We...are.....the BIODEGRADABLES,
Nanna-banana Peel, Lucy Lettuce and Coffee Grounds.



Coffee Grounds:

Mr. Jefferson gets up before dawn,
He puts coffee in the pot,
And when the coffee is nice and hot,
He throws me away, like as not.

Sometimes he misses the garbage
and I go all over the floor,
Then Mrs. Jefferson sees me and she yells at him,
"I wish you'd wake up and smell the coffee!!"



(All) Oh-h-h-h-h-h-h-h-h-h,

Nanna-Banana Peel

We...are.....the BIODEGRADABLES
Nanna-banana Peel, Lucy Lettuce and Coffee Grounds!!

Glenn
Glass



Glenn Glass and Tommy Tin Can:

GG: My name is Glen Glass
TTC:and I'm Tommy Tin Can.
GG: I come in clear and green and brown
TTC: It takes a long time to rust me down.
GG: Ha! Rust? I NEVER decay.
I never, never go away!



Nellie Newspaper:

My name's Nellie. You always see me,
Blown on the roads, on the beach, in a tree.
I'm black and white and read all over,
And I'll never let you be litter free.

I'm read every day from front to back,
Then you throw me away, you give me the sack.
Well, I'll get you, I'll spoil your year..
You must admit, I've got the knack.

You use up the forest and many trees,
Making paper just for holding a sneeze,
For printing the news in big magazines,
You think you can waste as much as you please?

I fill up your landfill, I take up space
Fifty-three pounds a month is my pace
You're trying to clean up? Not a chance!!!
I'm way ahead in the polluting race.

Remember me.....Nellie's my name....
And making garbage is my game.

Tommy Tin can



Scene III: The Jeffersons Return.
(Garbage characters hide.)

Nellie

Mr. Jefferson: I'm bushed!!!!

Newspaper

Mrs. Jefferson: Well, the yard isn't. PeeWee, why did you
pull up all those bushes?

PeeWee: I thought they were dead.

Jenny: They weren't dead, you silly goose! They just lost
their leaves. Don't you know what deciduous means?
It means plants that lose their leaves in winter.

PeeWee: Sisters! They are a PAIN!

Mrs. Jefferson: Leaves, leaves, leaves!!! I think I raked
a ton of leaves.

Mr. Jefferson: We raked two ton of leaves! I read somewhere that two tons of leaves fell on every acre each fall. Look....its a warm day....let's go to the beach. It will be our last chance before winter.

Mrs. Jefferson and Kids: Great idea!! We'll buy some McDonalds hamburgers on the way!!

(Jeffersons leave. Linda Leaves and Bonny Branches come on stage.)

Linda Leaves: They have some nerve to complain!
They're the ones that give me a pain.
If they'd just leave the leaves on the ground
We'd all be soil when spring came around.

Bonny Branches:
But no, they can't leave us there to rot.
That shows how much sense they've got.
They'd rather spend money fertilizing
The cost of that is quite surprising!
Then they find they'll to pay and pay
To have someone haul us away.

All: They went to have fun at the beach---
They'll find we're not out of reach...
They won't enjoy the beach so much...
'Cause we'll be everywhere they touch!!!!

Cory Cardboard: I'll be messing up the water...
Allie Aluminum: I'll be found by their daughter....
Penny Plastic: They'll find pieces of my plastic
On the beach from here to Mastic!
Styrofoam: They'll see me out their floating
Nellie: I'll be litter from people boating...
Glenn Glass: I'll be on the beach, broken and sharp
Tommy Tin Can: I'll be hiding under a tarp.

The Biodegradables:

We'll be left from some picnic.
The sight of us will make them sick!!!

They all recite: "How the Trash Pile Grows"

They all laugh!



Scene V.

(The garbage freezes---they hear the Jeffersons coming. The Jeffersons come in. They sit down, with chins in hand.)

Mrs. Jefferson: That was so sad! Our last day and the beach.....

Jenny: And the beach was a mess. All that garbage. Yuck!!

PeeWee: I felt so sad about that bird caught in the plastic rings.

Jenny: Me, too.

PeeWee: At last we agree about something!!

Jenny: Of course we do, you silly goose! We both love animals.

Mr. Jefferson: I'm not going to stand for this any more! The ocean is getting polluted. Even the whales are in danger. We've got to clean things up! But we need help!

Jenny: Look! Out there.....it's a bird....

PeeWee:its a plane.....

Jeffersons: ITS A MONSTER!!!! *(They hide. All the garbage characters begin to shake.)*

MONSTER: Never fear! Help is here!
I've been cleaning up another planet
I can see you're without cheer!
We'll clean up...I'll help you plan it.

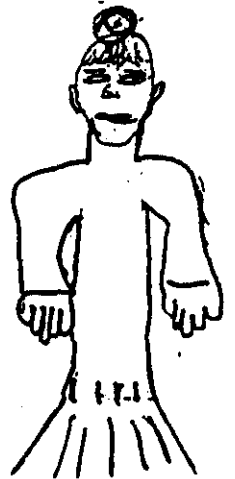
(The Jeffersons come out. Garbage stays hidden.)

First, we'll take the BIODEGRADABLES...
Cute little things, aren't they!
We'll put them in a compost pile.
They'll be soil in a little while.

(They take the BIODEGRADABLES and put them in a box marked COMPOST.)

Now, Cory, Allie, Penny, Glen and Tommy too,
We are going to RECYCLE you.

Cory Cardboard: When I come back I want to be
A gameboard like Monopoly!



Mrs. I? Jefferson

Allie Aluminum: When I am metamorphized,
I want to be a sculpture prized.

Penny: I don't want to be a bottle
I want to be a spaceship throttle.

Glen Glass: I'd like to hope, but I hardly dare--
I'd like to come back as Steubenware.

Tommy Tin Can: I've always been a terrific fan
Of Dorothy's friend, the nice Tin Man.
I know he has lots of heart
And I also think he's very smart.

(Styrofoam Stallone hides)

Linda Leaves and Bonny Branches:

We'd rather not be hauled away.
This is where we'd like to stay.



Linda Leaves

MONSTER: And so you may.
(All the garbage is sorted out and put into the correct container. Mrs. Jefferson takes care of the tin cans and glass bottles. Mr. Jefferson folds up the cardboard. PeeWee puts the aluminum cans in a bag labeled aluminum. Jenny puts the plastic in a container.)

Mrs. Jefferson: PeeWee and Jennifer, you be in charge
of returning the bottles and cans to the
grocery store when we go shopping. You can keep
any of the money you make. Divide it 50-50.

Pee-Wee: But what if she tries to cheat?

Jenny: I won't cheat, you silly goose!!!!

Pee-Wee: Sisters are a pain.

MONSTER: Now we have something to do!
Styrofoam: We won't need you!
When you're on a package, we won't buy it.
We'll live without you: Yes, we'll try it.

Styrofoam Stallone:
I've been expecting this day by day:
I'll go quietly.....I'll go away.
But you'll still have lots of me around
I don't decay even under ground.

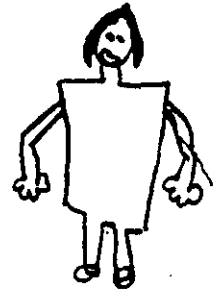
MONSTER: I have time for just one caper:
Let's recycle Nellie Newspaper.
We don't need a string, we don't need a tag:
We just need a strong, strong paper bag.



Peggy Paper Bag

Paper Bags: Here we are!

We'll help you, Monster, in your capers!
We'll hold those old messy newspapers!



MONSTER: That's just the thing: its sure to do:
Put newspapers in; I'll show you.

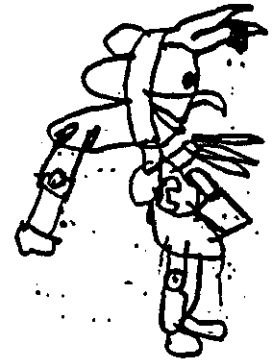
Patty Paper Bag

(They all put newspapers in the paper bag. Right before she goes in, Nellie says---)

Nellie: I hope that when I come back
I'll be a big, strong, brown bag.

MONSTER: Jeffersons, beginning on January nine,
Put out your papers; they'll be fine.
The carters will, with a little luck
Take the papers away in a big truck.

Now I'll be back, I'll see you soon
I've got to go up to the moon.
Man is leaving lots of garbage there
And I don't think thats really fair!!!



Good-bye!!! *(Monster runs off stage)*

Jeffersons: Good-bye! Good-bye!! Thank you! Good-bye!

Mrs. Jefferson: What was his name?

Mr. Jefferson: I don't know. I didn't hear it.

PeeWee: Maybe he doesn't have a name....

Jenny: Everyone has a name, you silly goose!!! But
I didn't hear his name either?

JEFFERSONS: WHAT IS HIS NAME?

WHO IS THAT MONSTER?

(Mrs Michos announces the "Name the Monster" contest to name the Clean-up Mascot of Port Jefferson for our recycling logo.)

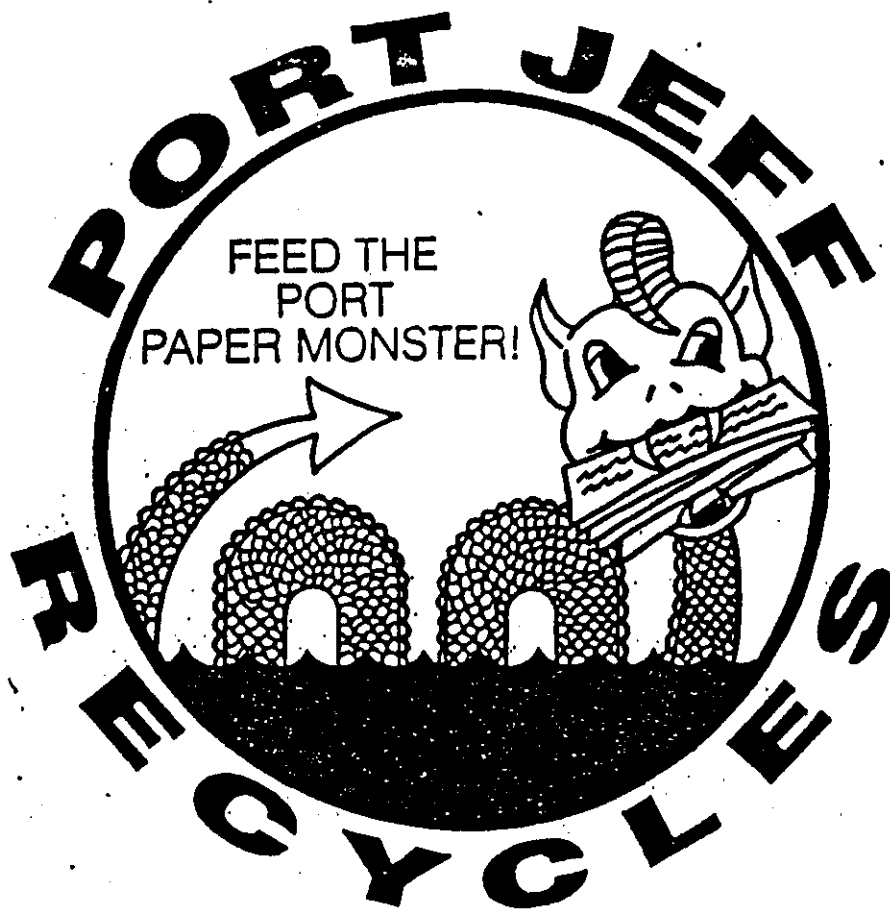
This play was presented in the Large Group Room of Scraggy Hill Elementary School, Port Jefferson, New York, on Thursday, December 15 and Friday, December 16, 1988.

Name: _____

Date: _____

Homeroom: _____

Teachers: _____



My name for the Port Paper Monster is

I think this is the best name because _____

Return to Room 415 by Thursday, December 22, 1988.

Have a Happy Holiday!!!!!!

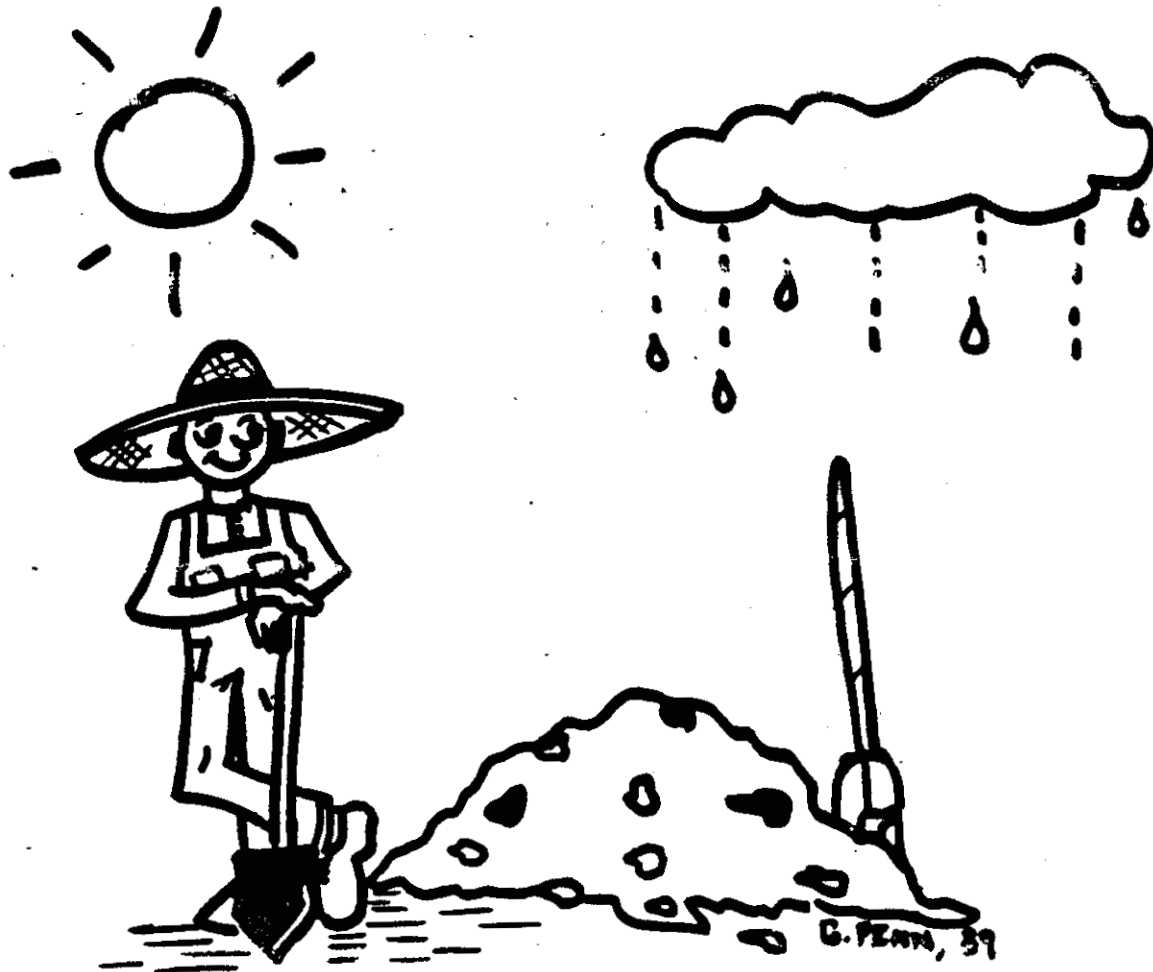


TOWN OF HUNTINGTON



The art of composting

A community recycling handbook



MEMBERS OF THE TOWN BOARD

Toni Rettaliata, Supervisor
Sandra P. Triolo, Deputy Supervisor & Councilwoman
Richard K. Hanse, Councilman
William B. Rebolini, Councilman
Quentin Sammis, Councilman

Introduction

This handbook offers simple and easy methods of turning yard debris and garden wastes into fertilizer, soil amendments, mulch or potting soil. Information is provided on the compost process itself, building compost piles, maintenance and use and problem solving. With this book and a little common sense, anyone can learn the "art of composting."

Composting is a form of recycling, a way of returning needed nutrients to the soil. Compost is also a valuable soil conditioner. It improves the quality and increases the yield of produce and can save money ordinarily spent on soil additives, such as manure and peat moss. Composting has a social benefit. It helps save the amount of landfill used for garbage disposal by diverting these wastes to productive uses. Composting, like other methods of recycling, conserves resources and helps us get the most for our money by making the best use of things we buy and reusing materials around us.

The compost process

Composting is a process that constantly occurs in nature as vegetation falls to the ground, slowly decays and provides minerals and nutrients needed by soil, plants and small animals. Home composting speeds up the process through accelerated management techniques. The process can take as little as two weeks or as much as a year, depending on the care given.

Rapid decomposition results from a combination of the following ingredients:

- Raw organic material
(including a good source of nitrogen, such as grass, weeds, manure and bloodmeal)
- Moisture
- Air
- Heat
(generated through rapid decomposition)
- Organisms present in the soil

In the composting process bacteria and other organisms attack plants and other organic material. Bacteria break organic matter into a dark-brown substance called humus. Humus, rich in nutrients and minerals, is an excellent soil conditioner. Humus increases a garden's productivity by breaking up heavier soils and improving fertility. It also contributes to a plentiful harvest.

The best environment for accelerated composting provides a balanced diet for organisms as they work through the material. Nitrogen (soft, fresh green matter such as weeds and grass clippings) and carbon-rich carbohydrates (leaves, straw, stems and prunings) combined with moisture, air and heat provide optimum conditions for these creatures to grow and do their work.

All organic material is compostable, although some materials break down faster than others. The most commonly used organic wastes are:

- Yard wastes
(including grass clippings and garden wastes)
- Leaves
- Wood chips
- Sawdust
- Vegetable food waste
(meat, grease or bones should not be composted since they decompose slowly and attract pests)
- Other household organic wastes such as wool, cotton, dust and wood ashes

Non-household materials that can add nutrients to the compost include:

- Bloodmeal
- Bone meal
- Fish scraps
- Hops
- Limestone
(in small amounts)
- Manure
- Straw

Earthworms can also help the composting process in its later stages. They accelerate the decay of materials and help produce a richer humus. Earthworms burrow through a pile, providing ventilation, which aids decomposition. Their waste products are rich in nitrogen, potassium and other minerals and also enrich the humus. Earthworms should be added only at later stages when cooling begins.

Aerobic compost piles typically become very hot, up to 160 degrees in the center. Active compost piles, like fires, require frequent airing (oxygen) to work. Unlike fires, they also require sufficient moisture to maintain proper environmental conditions for decomposition.

Planning to compost

For a successful composting project, three conditions must be met:

- A commitment to properly maintain the pile
- A workable system for producing compost
- Gardens where compost can be used or an outlet for its sale

Most people compost for personal reasons, such as a need for fertilizer or soil humus in their gardens. Other desires stem from a commitment to recycling wastes or involvement in community organizations. Whatever the motivation, a clear understanding of the requirements for composting is necessary. Otherwise, you will be left with a smelly and unsightly mess.

Composters should define their goals and expectations and make preliminary plans outlining the scope of the project. Most people will compost only their own materials. Some will need more compost than they can produce and will consider allowing others to dispose of raw materials in their compost piles. Still others, who want to sell their compost to non-composting gardeners, require an even larger supply of compost materials. Goals and expectations for a composting effort will determine which method is used and the level of maintenance necessary.

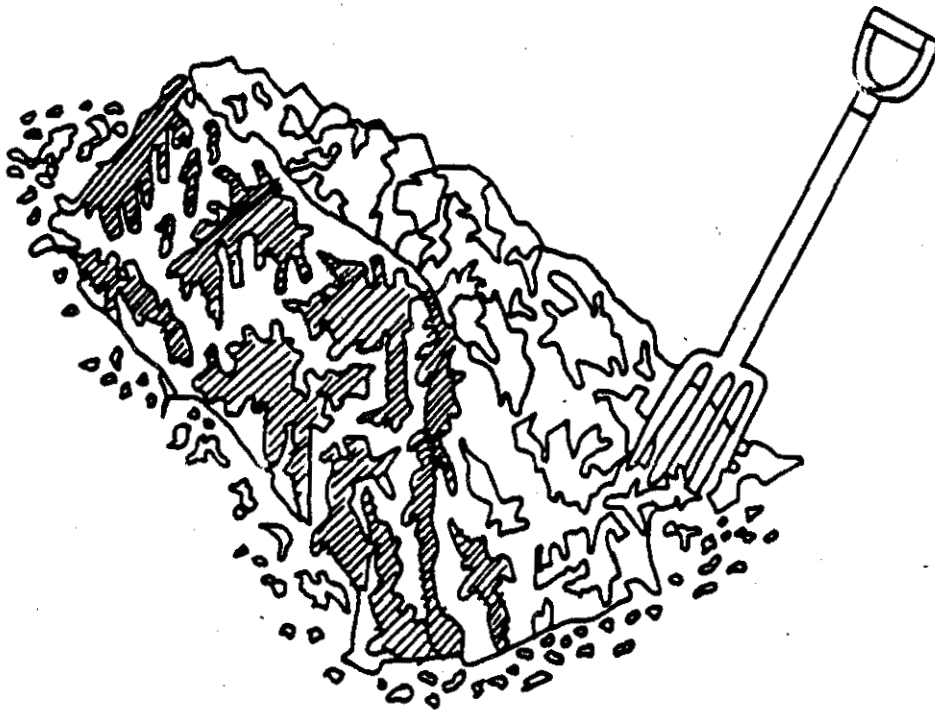
Designing the compost system

The compost system should best suit the needs of the individual. Several different composting methods can be used, as well as varying types of structures. The method and structure chosen will depend upon the available space, amount of compost needed, availability of raw materials and how much time and money can be put into the project. Different compost systems are:

- Windrowing
- Cylindrical pen
- Three-bin wooden box
- Perforated steel drum

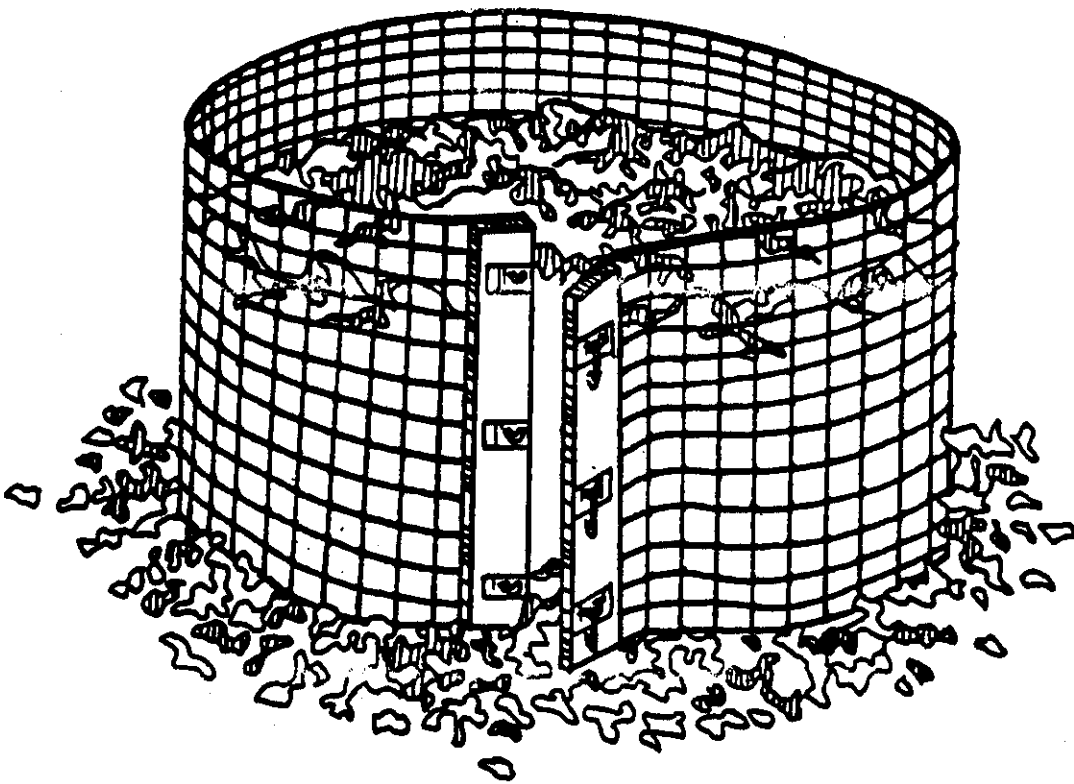
Windrow Composting

Perhaps the simplest system to use is windrow composting, since it does not require building structures to contain the compost. In this system, raw materials are layered on the ground in an elongated pile 2 to 5 feet high. The pile is turned periodically to expose all parts to air and to mix the materials. During the rainy season, the pile can be covered with a tarp to protect it from excessive moisture and nutrient-drain.



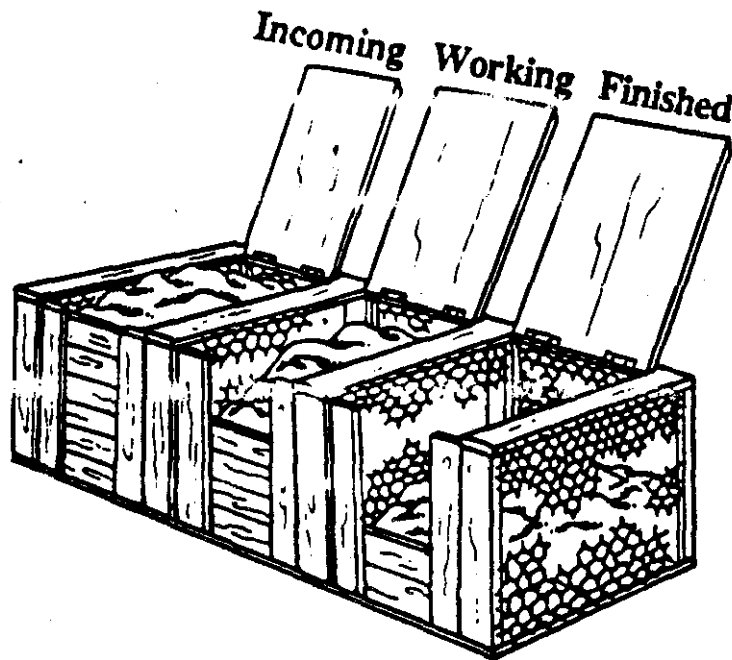
Cylindrical pen

Another method is to build a pile within a disconnectable cylindrical pen of woven wire. The structure usually is 3 to 5 feet in diameter and about 4 feet high. There are advantages to this kind of enclosure: free circulation of air through the pile and the ease of moving it to another location. To turn the pile, the cylinder itself is disconnected and moved and the ingredients then turned back into it. This system is usually adequate for producing small amounts of compost. Larger projects may be better served by a box-type structure containing several bins.



Three-bin wooden box

Most larger-scale projects use a wooden box structure about 3 feet wide, 4 feet high and 10 feet long. The three bins dividing the structure have removable lids and fronts to facilitate turning the compost from one bin to another. The advantage of using this type of structure is the processing system inherent in its design. Three piles of material can be maintained in varying degrees of decomposition at the same time.



The three-bin wooden box system is the most successful method we know of for treating organic debris because of the enclosed (but air-passable) and efficient design. Materials are subject to high heat throughout the action of decomposition. The system is ideal from a health point of view, since it allows for good pest management. The bins are attractive as well.

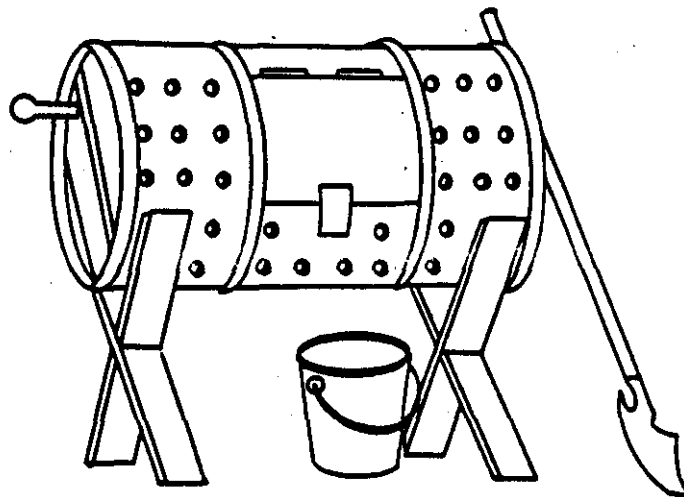
The key to the three-bin system is the rotation of compost in varying degrees of decomposition through the system. The first batch of compost is started in the first box and allowed to heat up for three to five days (much like fast composting). It is then turned into the second box for

another four to seven days. In the meantime, a new batch of material is started in the first box.

The second box is emptied into the third bin for cooling, while the first is emptied into the second. Get the system? Three piles of compost can be processed in varying stages of decomposition at the same time. Turning the piles into other boxes also helps the aerobic process so vital to fast composting. Bins should be constructed with removable lids and fronts so that the material can be turned easily. Heavy galvanized wire mesh can be substituted for wooden sides to increase airing.

Perforated steel drum.

A large 55-gallon steel drum with a secure lid can be used for composting. Cut holes in the sides to allow air to circulate and excess moisture to escape. At least 50 percent of the drums' overall surface should be perforated using a 1/2-inch drill bit. Fill the drum about 3/4 full, secure the lid and roll around the yard every couple of days. The material will be mixed and, most important, aeriated by the rolling action. This is a relatively easy system to use and to maintain. Unless weather is excessively rainy, the lid should be removed after turning to enhance air penetration.



Building the compost pile

The compost pile should be built in layers. This helps ensure a proper mix of nitrogen and carbon-rich carbohydrates (which later aid in air circulation). The first layer put down should be some absorbent material to prevent juices from running out the bottom of the bin. Sawdust or crushed dry leaves are good for this. Add successive layers of at least three different materials, with one layer being a material rich in composting bacteria and enzymes (garden soil or manure). Other layers should alternate between green matter like grass clippings and leaves and carbon-rich carbohydrates like shredded prunings, small twigs, branches and dried leaves. Each complete pile should be at least three cubic feet in size to guarantee sufficient heat generation.

Kitchen scraps can be introduced with the carbon material. This will prevent the scraps from smelling during the initial composting stages.

Between each completed system of layers, water should be added to maintain a sufficient moisture content. The pile should not be soaked, but watered to the consistency of a wrung-out sponge. While the material should be moist, it should still crumble when balled up in your fist. Wood ashes can be added to each system of layers – about one coffee can by volume per layer. Kitchen scraps, pet hair, vacuum sweepings and other organics also can be added to completed layer systems.

The frequency of turning compost piles depends upon how soon the compost is needed. Fast composting can take as little as two weeks using the aerobic composting method. Slower composting usually is done during the winter months and requires much less turning. With any system, however, turning the pile periodically is essential to maintain the air supply to the aerobic bacteria feverishly working on the material.

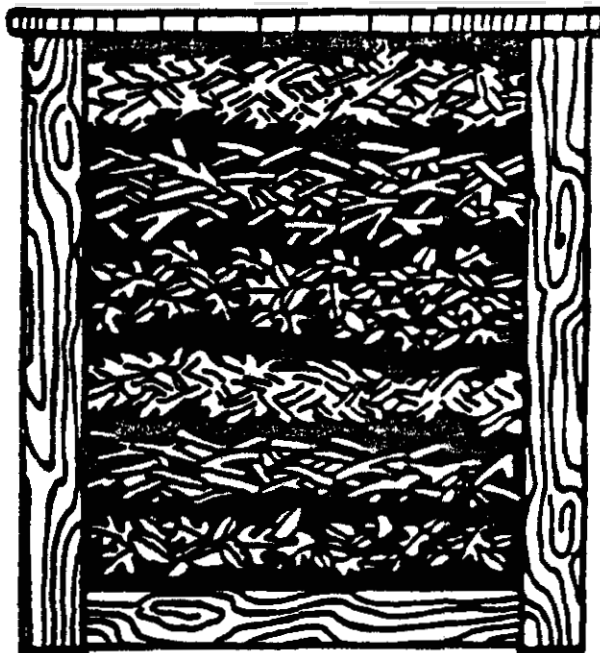
Aerobic composting

In nature, decomposition usually is a slow but sure process. The aerobic composting method accelerates nature's process by regularly introducing air into specially constructed piles of processed organic materials.

The method begins with a good mix of materials rich in nitrogen and carbon-rich carbohydrates. Layering at least three different types of material is a good rule of thumb. Shredding or chipping large leaves, twigs and branches is necessary to reduce surface areas and inflict damage for entry of bacteria and other organisms. Maintaining the rich moisture content will provide the optimum environment for bacterial action.

Finally, each pile should be turned at least once every three days to renew the critical air supply to the bacteria.

Aerobic compost can heat as high as 180 degrees in the center and decompose in as little as 10 days. Don't be surprised to find steam rising from the piles. That means the conditions for bacterial action are at their best.



1. Nitrogen source/
green material
(grass clippings)
 2. Bulking agents
(chipped twigs and
branches, dry leaves)
 3. Inoculants
(compost, garden
soil, manure)
-
1. Nitrogen source
 2. Bulking agents
 3. Inoculants

Composting systems

Fast composting

Fast composting can be used with no structure or with any of the types mentioned as long as the sides are open to air passage. The three-bin wooden box structure works best because it provides an efficient system for moving the material through the compost process.

First, ingredients are layered and watered lightly. Bacterial activity builds until temperatures reach about 140 degrees. This takes two to four days. The compost should be turned three to five days after the initial layering. More waste may be added at this time (especially green waste, such as grass clippings). The compost is allowed to heat up and decompose for another four to seven days. Finally, when the compost begins to cool, it can be turned again. Using this method, about 18 cubic feet of compost can be produced (from a 1-cubic-yard pile) every two to three weeks.

Slow composting

During the winter months, when low temperatures inhibit growth of bacteria in the pile and working conditions are unpleasant, you can choose to compost more slowly. This can be done by decreasing the amount of nitrogen-rich material and by less frequent turnings. Food wastes should not be used with slow composting because they require frequent turning to prevent odors from seeping out.

Anerobic composting

Raw material can be laid to rest and never turned using the anerobic process. Using a diversity of materials, build a pile on a dry piece of ground that receives about equal amounts of sunlight and shade. Shredded papers and other unusual organic material can be added. Cover the pile with a plastic tarp and seal it around the perimeter with bricks or rocks. The pile will slowly decompose in two to four months in a cool manner (high temperatures won't be reached). Earthworms can be added at the beginning of this process to increase its productivity.

Generally, fast composting should be turned every three days. Winter piles can be turned as little as once a month. Piles should be protected from heavy rains to control saturation and odors.

Maintenance of a compost pile

After the compost pile has been constructed, extra materials such as earthworms, manure, bloodmeal, small amounts of ground limestone or other organic minerals can be added to enrich the finished material.

Care should be taken to discourage unwanted odors and eliminate pests. Strong odors usually mean the pile has not been turned often enough. Rats, flies and other pests can mean the same thing, or that improper materials such as bones, fat, grease and meat have been added. Check the appendix for a list of possible problems and their solutions.

Herbicides or pesticides added to raw materials may contain toxic substances. Try to keep non-organic matter away from your pile. The best way to avoid contamination is by knowing the origin of the ingredients. For example, grass clippings obtained from yards near freeways could have a high concentration of herbicides. If herbicides (such as "weed n' feed") are used in the yard, the debris should be slowly integrated into the piles to ensure the dilution of its toxicity.

If you do put food wastes into your compost, it is best to bury them inside the pile. These materials give off slight odors that can attract flies and other small pests if allowed to decompose in the open.

Using compost

For best results, apply the compost liberally (up to the one pound per square foot limit). Unlike the case with chemical fertilizers, there is little danger of plant burn with compost. It can be added once or twice a year, depending on soil fertility and how liberally it is used.

Some composters may wish to produce a partially decomposed material called mulch to use in gardens and around shrubs. Mulch is a heavier and less flaky material than compost. It adds some nutrients and improves soil structure, but its main purpose is to help conserve moisture, maintain soil temperature and reduce weed growth. Mulch is also especially good for breaking up hard soil and clods. Producing mulch is practical if your pile uses a lot of rough-textured, decay-resistant material — tree trimmings, wood chips or straw. Often it is best to start a separate windrow-type pile to produce this compost. Keep as much nitrogen-rich matter like grass clippings and weeds as possible out of these piles.

Compost is ready for use when it has turned a rich, dark brown color and has decomposed into small, leafy material. Compost does not have to be completely crumbly to be used. It is ready to apply after it has cooled, although it is best to wait for a few days after cooling to apply. It is good practice to screen the compost through a 1/2-inch screen and return the unfinished material to the bin or pile for further decomposition.

Before applying, turn the soil and break up any large clods. Apply the compost in layers of 1 to 3 inches. Mix compost and soil well, working the compost well into the ground. It is best to add no more than one pound of compost per square foot of soil. The exact amount depends on the soil fertility. Heavier soils need more while lighter soils require less.

Tools, methods, and materials

Certain tools and materials are needed to manage a compost pile. The most common ones are pitchforks, shovels, rakes and tools for chopping or shredding the raw materials (such as a machete, rotary lawnmower or home shredder). Most large-scale projects and yards with lots of annual woody waste will find that an investment in a home shredder or grinder is extremely valuable. These machines speed decomposition and result in a finer-textured compost. A machete or rotary lawnmower work just as well on smaller projects.

Many people line their compost piles with plastic. This should be avoided. Plastic lining will block the free flow of air through the pile, thereby inhibiting the odor-free aerobic process so important to the system. If a tarp is used during rainy periods, allow for a smooth flow of air under and within the pile.

Shredding

To use a rotary lawnmower as a shredder, lay out the material in a thin layer on the ground and run the mower over it. This works especially well for leaves and small stalks, twigs and branches. Do not hand-feed anything into a lawnmower. Flying material can injure hands and fingers. Larger branches can be cut with a chainsaw (and used for firewood) or broken with a machete and run over with a mower. At all times, goggles should be worn to prevent any material from flying into your face and damaging your eyes. Small twigs, branches and stringy material work best with this method.

General principles

1. **The best piles are made with a variety of compostable materials.**
2. **The smaller the pieces, the faster the pile will decompose.**
3. **Make sure the nitrogen content of your compost is sufficient. Manure, grass clippings and young weeds are especially high in nitrogen. The optimum ratio of carbon to nitrogen in a pile is 30:1.**
4. **Keep the compost moist, but not soggy. The right moisture content is essential to rapid decomposition. Compost should be watered to the consistency of a "wrung out sponge."**
5. **Turn the pile often. It helps supply oxygen to interior parts of the pile and activates bacteria that decay the ingredients.**
6. **Don't compost bones, meat, fat or grease; this will only attract unwanted pests.**
7. **Be aware of where your raw material is coming from and try to keep any herbicides, pesticides or toxic substances from entering the pile. An organic compost is the best.**

Finally, have fun with your compost pile. The satisfaction from working with the earth and taking part in the natural cycles of the environment are a large part of the attraction of gardening and working with nature. The art of composting is more than a method of disposing of yard debris and getting free fertilizer. It is more truly the art of understanding and appreciating how nature works to maintain itself, grow and be fruitful. Participating in this natural cycle of life and death is an expression of values and a demonstration of our stewardship of this earth. The art of composting is really an art of living, a conscious decision to give back to the earth that which we take. We hope you enjoy this handbook and learn the art of composting.

Appendix

Problems and their solutions

Compost heap does not heat up.

Cause	Solution
Too wet: the compost materials are soggy.	Turn the heap, adding dry absorbent material, like sawdust.
Too dry: there has not been enough moisture.	Water heap with hose. Be sure it penetrating heap without saturating it.
Not enough nitrogen. The compost heap is moist, but isn't decomposing. The heap contains too much material which is high in carbon, and not enough green matter.	Turn the heap, adding a material rich in nitrogen, like manure or grass clippings.

Compost heap has putrid odor (like rotten eggs).

Cause	Solution
Too wet/not enough oxygen; compost heap is putrefying, not decomposing.	Turn heap to aerate it and add dry, absorbent material.

Compost heap has odor of ammonia.

Cause	Solution
Too much nitrogen: excess nitrogen is released to the atmosphere in form of ammonia gas.	Turn heap and add sawdust or other high carbon material. The goal is to keep nitrogen in the pile and not release it as gas.
Too alkaline: the loss of nitrogen in form of ammonia increases when compost heap is very alkaline (high ph). Adding too much limestone to heap will make it alkaline.	Turn heap and add acid material like sawdust, oak leaves, or kitchen garbage.
Too wet/not enough oxygen.	Turn heap and add dry absorbent material.

TOWN OF HUNTINGTON

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Recycling Hotline

351-3294

*

RECYCLING CENTER

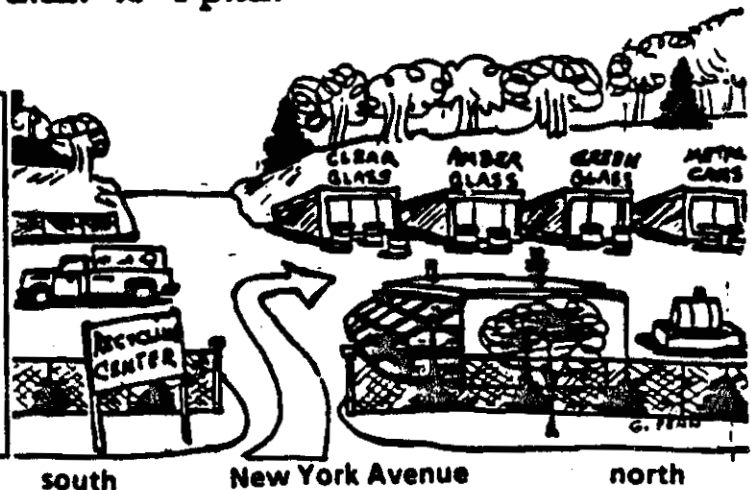
(just north of Big H Shopping Center)
641 New York Avenue
Huntington, New York 11743
427-6377

Monday through Saturday
Hours 8 a.m. to 4 p.m.

FACILITY ACCEPTS:

- Glass Containers
- Metal Cans
- Plastic Containers
- Corrugated Cardboard
- Newspapers and Magazines
- Used Motor Oil
- Used Household Batteries
- Used Automotive Batteries

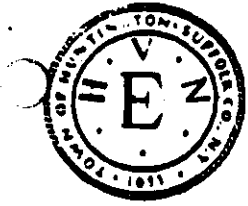
* Free woodchips for residents
(please bring your own container)



south

New York Avenue

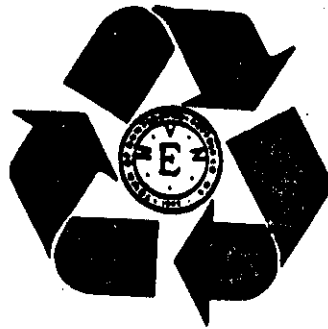
north



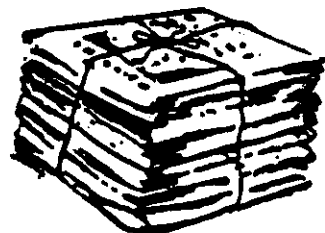
TONI RETTALIATA
Supervisor

Town of Huntington

Huntington

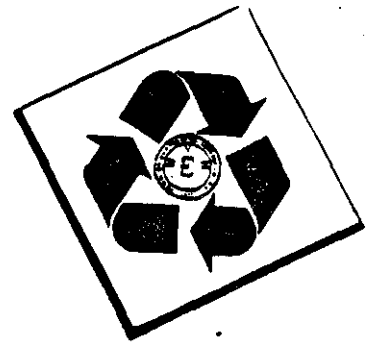


RECYCLES





TRASH – WHAT'S THE PROBLEM?



Suppose that the next time you are asked to take out the garbage, you carry it to a pile in the corner of the yard. Imagine tomorrow's garbage tossed on top of the pile. Try to picture what would happen in a week, a month or even a year. Suppose you had to dispose of your broken television or rusty car on that same pile. You wouldn't have much of a yard left. You'd have a dump!

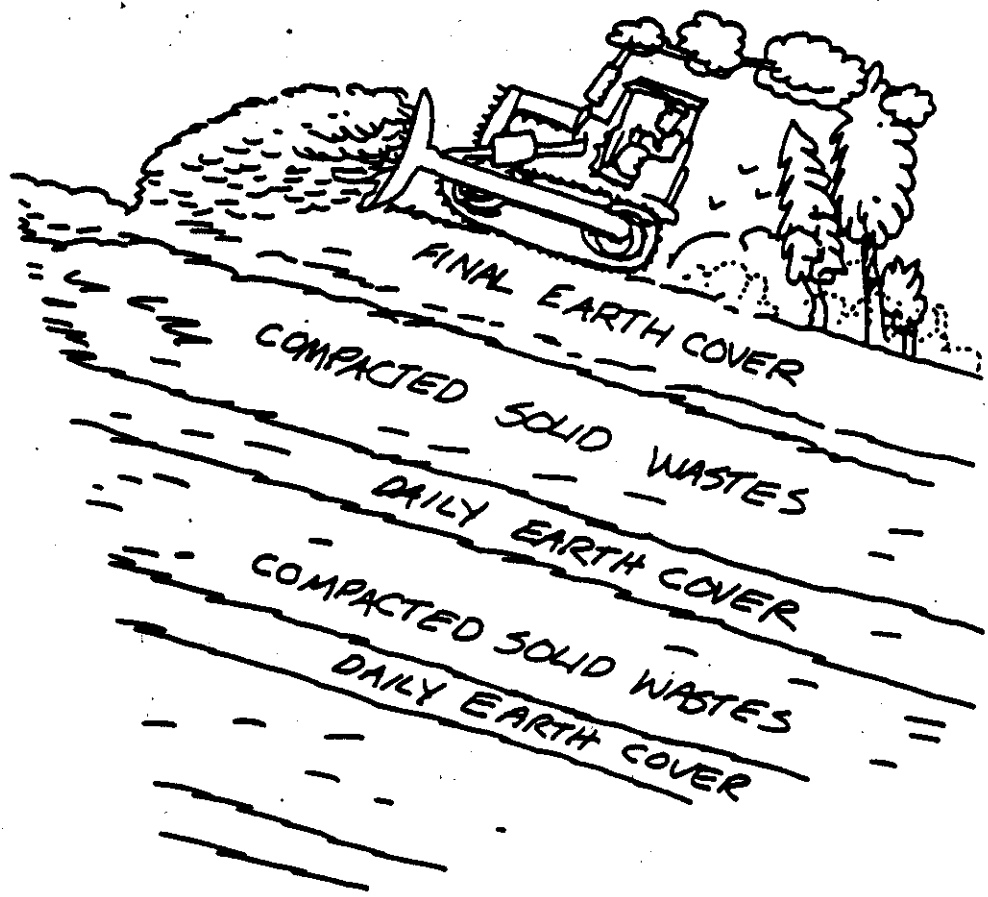
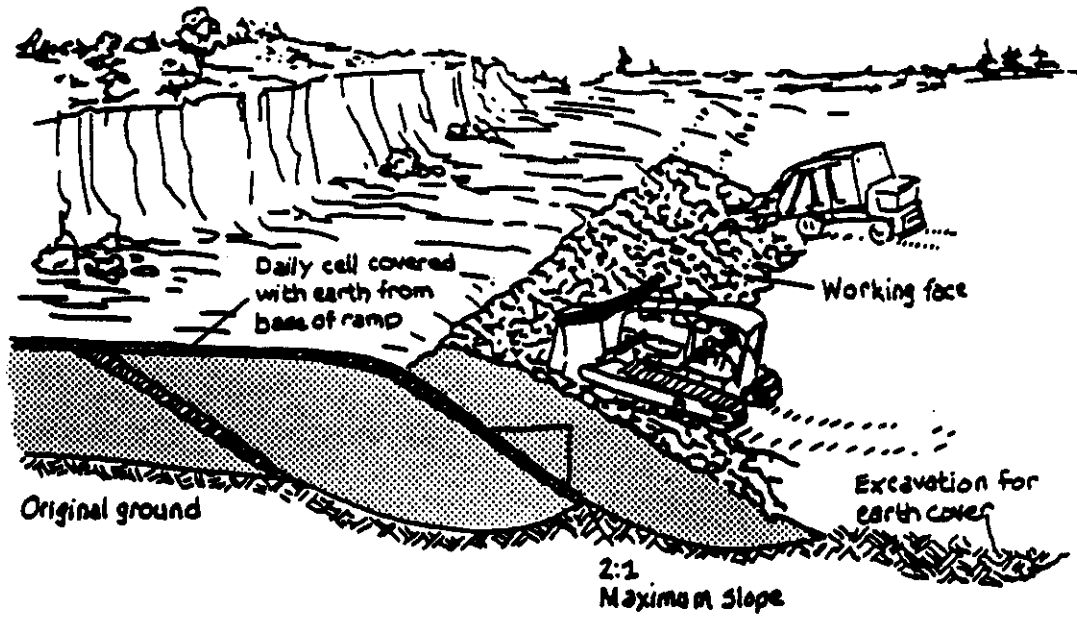
Many years ago, people chose a place on their land for disposal of items they could no longer use. A muck heap or home dump took care of all of the waste. Later, more people moved in, homes were closer together, and consumers threw away more and more. Soon, home dumps didn't make sense anymore.

Towns and cities began to pick up the waste and haul it in trucks to one big dump. Some communities were so far away that their garbage trucks had to stop at a transfer station. There, trash from several trucks was packed into one big truck which then traveled to the dump. This kept the backyards clean, but it made a huge mess at the dump. Horrible smells, rodents, insects and just sheer ugliness resulted. Burning the refuse polluted the air. Rain washed harmful contaminants into the ground. Town dumps were not a good answer to the growing trash problem.

Landfills are the present trash solution. Trucks bring the waste to the landfill. Each truck is weighed and the town pays for each ton of waste. Then the truck drives to the working face of the landfill and dumps its load of garbage. The garbage is spread several feet deep, then packed down by heavy machines. Each day, the open site is covered with six inches of clean soil. This speeds decay and protects us from health hazards. A huge amount of valuable topsoil is used. Landfill machinery makes noise and dust. The steady stream of garbage trucks may cause problems for landfill neighbors. In spite of careful planning, some wastes may ruin our water supply. To be sure that hazardous wastes do not leach into the groundwater, we need special, sealed landfills.

Landfills alone can't deal with the five pounds of waste each person in the United States creates daily. We must reduce the amount of waste we produce. We'll need new methods like recycling and resource recovery to help. The final solution to the trash problem has still not been found.

LANDFILL



BURN IT UP!

Incinerate means to burn to ashes. The burning takes place in a container called an incinerator. When waste is burned, there is less waste. If we cannot use landfills for our solid waste, we need to find a new disposal method. Incineration may be a way to solve the problem.

Burning waste creates heat which may be used to produce steam. The steam can generate electricity for homes and businesses. Burning waste to produce energy is known as resource recovery.

Resource recovery protects ground and drinking water and saves valuable land space. Since the waste is inside a building, there is less odor. Fewer rats, birds, and insects are attracted to the waste. But, the truck traffic, dust and noise are the same as at a landfill.

Solid waste is a problem. Since we can't make it go away, we must look for new ways to deal with it. An incinerator is one way to solve this crisis.



Town of Huntington

NINETY-TWO POUNDS OF TROUBLE

Plastics have changed our way of life. Each year, items once available in glass or paper appear in new plastic packaging. Is this good news or bad?

The good news is that plastic really does have a lot of advantages. It is flexible and strong. It won't break when you drop the bottle with soapy hands. It can be shaped and colored in many different ways. The cost to manufacture it is fairly low.

What, then, is the bad news? As of 1986, Americans were throwing away 92 pounds of plastic per person each year! That means that the raw materials and the energy needed to make the plastics are wasted. Since plastic is permanent, it will stay in a landfill forever.

What should we do? Here are four possible answers: ban, biodegrade, bury and burn. But banning plastic won't work. We like its convenience. Very few plastics now made will biodegrade. To bury the plastic in a landfill takes up too much space. Some people think that burning plastics in an incinerator is the best idea. Plastics do help all the other types of solid waste to burn better. But, 60 - 90% of the energy used to make plastic is still lost. Also, the air released from burning may be harmful to our health.

As you may have guessed, recycling is the best ending to the life of a plastic bottle. There are many different kinds of plastic in use. Thus, there are some problems. Only plastics whose chemical makeup is the same can be recycled together. Milk bottles are made of a chemical known as HDPE. Soda bottles are formed from another plastic known as PET. The two plastics can't be mixed. Sorting and separating plastics first, and then recycling them makes sense. We can save energy, resources and money. More than \$20 billion could be saved each year if we recycled all waste plastics.

Recycled bottles are compacted into bales, shredded into strips, or ground into small flakes. Then they are hauled away to be reformed. Such plastics are now used in fiberfill (for jackets, sleeping bags, and pillows), car seats, straps for movers, wall tile, toys, and scrub pads. Some plastics can be reformed into fiberglass tubs, showers, boat hulls and swimming pools. A new type of "plastic lumber" is now being used in some construction projects.

Using plastics may be a habit that's hard to break. We need to form the recycling habit as well. Then the cost, to our environment and ourselves, will be much less.



ONCE IS NOT ENOUGH!

An aluminum can, left outside, will not just disappear. It will take the sun, wind and rain 500 years or more to break it down into dust. Why? Why is aluminum so long-lasting? Its chemical composition protects it. This is helpful as long as the item is being used. But even when we are finished with it, the can lasts for a long time.

METAL (clean)

- juice cans
- soda cans
- aluminum pans & plates
 - aluminum foil
 - food cans
- animal food cans

Aluminum is made by mining bauxite and mixing it with other alloys. It is useful when a lightweight yet strong material is needed. Many aircraft materials are aluminum. So are beverage cans, pie plates, frozen food trays, and foil. Building materials like siding, gutters, and window frames are also aluminum. They can all be recycled.

Recycling saves the natural resources used to make the end product. It saves energy – 20 recycled cans can be made using the same energy as one new can. It saves the earth, which must be mined to take out the bauxite. And it saves money. Some towns and cities require people to recycle cans. Some civic groups collect them. In each case, the cans are worth money. Can dealers pay by the pound for the cans brought in. It takes about 23 twelve-ounce aluminum cans to make one pound.

Not all cans are aluminum. How can you tell which ones are? They don't have side seams, they won't stick to a magnet, they are lightweight and easy to crush.



NO

- Oil Cans
- Paint Cans
- Poisons

When cans are recycled, they follow a circular path. First, magnets remove any steel cans accidentally mixed in. Then the cans are flattened and shredded into pellets or baled. Next, the aluminum goes to a smelting plant where it is melted. Furnaces melt the aluminum with flux for 18 hours to skim off impurities. Then it is poured into molds and cooled. Next it goes to a manufacturer who can hot-roll it into strip aluminum to form more cans. The cans are filled, sold and the contents consumed. Then they can be recycled – again and again.

Nationwide, we now recycle over half of all the aluminum cans we use. Are you doing your part?



WAITER, THERE'S SAND IN MY GLASS!!

GLASS (clean)

FOOD & BEVERAGE
BOTTLES & JARS
RINSE CLEAN

- liquor bottles
- wine bottles
- soda bottles
- juice bottles
- salad dressing & sauce bottles
- food jars



Glass bottles have been in use for a long time. Four thousand years ago, the Egyptians used them. Americans have produced glass since the time of the Pilgrims. Why is glass so popular? The materials are easy to get and the containers can be used in many different ways.

Silica (which is sand), limestone and soda ash are needed to make glass. Silica is the most common substance in the earth's crust. It is a non-renewable resource, but still quite plentiful.

These ingredients are mixed to make a "batch" of glass. Pieces of recycled glass, called cullet, can be mixed in. The batch rides to a very hot furnace on belts or in buckets. It is fed into the 2,700° furnace by machine. The mixture melts, bubbles, and boils. It's so hot that a bright white glow results. Workers must wear dark glasses to protect themselves from the glare.



When the batch is completely melted, it flows through a skimmer. There it is refined and moves to an automatic feeder. Hot "gobs" are dropped into a mold. Compressed air blows it into the bottle's final shape. This formation takes just 13 seconds! A conveyor belt then moves the bottles slowly through a cooling tunnel. In about an hour, the bottles are cool enough to touch. This slow cooling, plus a protective coating, strengthens the glass. Then the bottles can be filled and labeled. They are ready to go to the store for you to buy. In the U.S., 80 million bottles are made daily.

What happens when you are finished with the bottle? You *could* throw it away. You'd be wasting all the natural resources and energy that went into making it, though. You could recycle it. Then the glass could be remelted and used again. Eighty-three percent of a new batch of glass can be made up of recycled glass. The used glass could be mixed with asphalt to make roads. It can even be used in building materials, sewer pipes, jewelry and chicken grit!



Recycling the glass is smart for lots of reasons. Natural resources are saved. Energy is saved because a batch with recycled glass will melt at a lower temperature. Part of our solid waste problem is solved. Instead of lying in a landfill for thousands of years, the bottles will be useful over and over again!



TONI RETTALIATA, SUPERVISOR

Recycling Hotline: 351-3294

WORD SEARCH – things that can be recycled

D	E	A	G	N	C	O	N	C	R	E	T	E	P	T
R	M	O	T	O	R	O	I	L	S	F	Q	S	I	C
U	W	F	Z	K	L	U	O	T	N	X	S	R	H	O
V	L	F	C	J	Z	D	G	W	A	I	E	T	D	R
R	T	I	N	C	A	N	S	L	C	S	I	A	A	R
E	S	C	O	P	P	E	R	N	M	M	B	C	E	U
P	H	E	G	X	O	Z	O	W	U	E	V	L	L	G
A	D	P	A	P	E	R	S	Q	N	T	A	T	L	A
P	L	A	S	T	I	C	S	W	I	A	J	L	Z	T
S	T	P	I	Z	U	H	T	O	M	L	M	A	W	E
W	B	E	C	U	B	D	E	O	U	S	I	H	R	D
E	G	R	A	G	S	T	E	D	L	N	D	P	Z	S
N	F	D	A	W	A	O	L	E	A	V	E	S	P	Q
C	E	O	X	S	U	H	A	J	C	H	C	A	R	S
E	G	L	A	S	S	A	L	G	F	T	Z	I	N	C

TOWN OF HUNTINGTON

TOWN BOARD

TONI RETTALIATA, SUPERVISOR

SANDRA P. TRIOLO, Deputy Supervisor and Councilwoman

RICHARD K. HANSE, Councilman

WILLIAM B. REBOLINI, Councilman

QUENTIN B. SAMMIS, Councilman

**Recycling Center
641 New York Avenue
Huntington, New York 11743
427-6377**

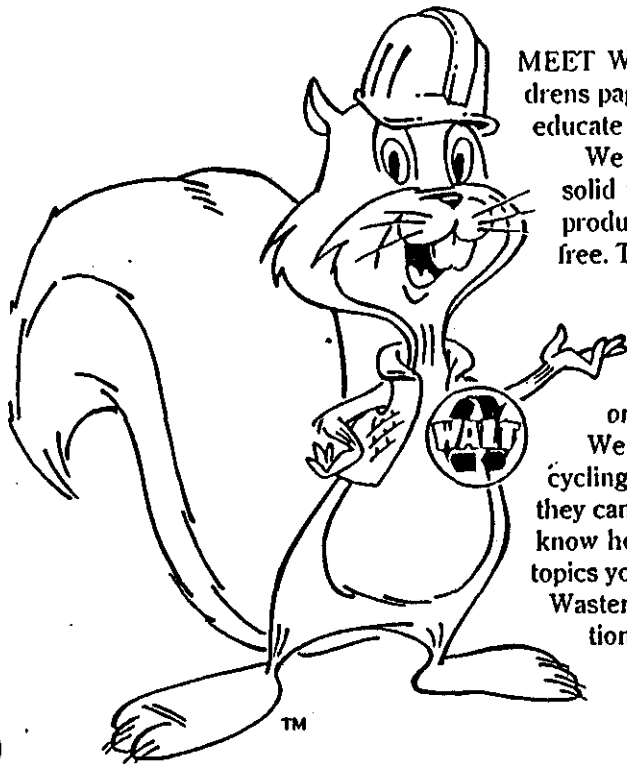
Hours: 8 a.m. to 4 p.m. - Monday through Saturday

RECYCLING HOTLINE

351-3294



Kids Love To Recycle



MEET WALT WASTENOT™ AND THE WASTE ALTERNATIVES CHILDRENS pages. Walt and the next four pages have been developed to help you educate children in your community about recycling.

We realize that producing educational tools about recycling and other solid waste issues can be expensive. Therefore, Waste Alternatives has produced education materials that municipalities or companies can use free. Two things are all that needs to be done to use these pages. First, fill out the coupon below and explain how the pages will be used. By returning the coupon, our permission to copy and use the copyrighted material free is automatically given. Second, copy or mimeograph the next four pages—and distribute them to children or schools in your community.

We recommend that you distribute the children's pages with other recycling information or contact your community's school teachers to see if they can use the materials in their classrooms. Eventually, we would like to know how the materials were received by the community and what other topics you would like to see covered in the childrens pages. Obviously, Walt Wastenot and our children's pages will only be a small part of your educational program, but we hope it becomes a valuable part. ■



Complete this coupon. By completing it and returning it to Waste Alternatives, 1730 Rhode Island Ave. N.W., Suite 1000, Washington, D.C. 20036, Waste Alternatives automatically assigns permission to use the copyrighted materials.

How do you plan to use Waste Alternatives' childrens page? _____

How many copies do you plan to distribute? _____

What other solid waste topics would you find useful covered in the childrens pages? _____

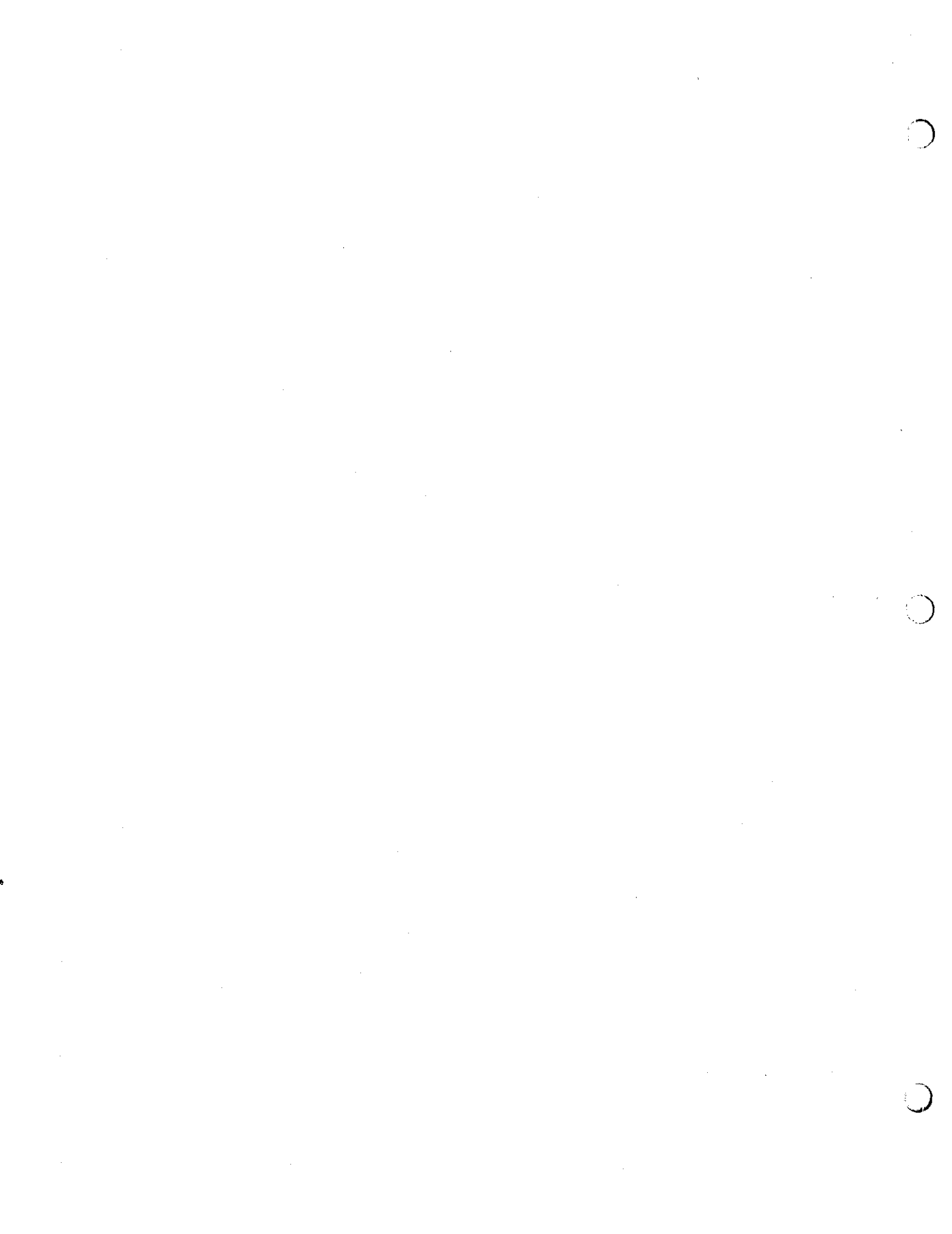
Name _____

Title _____

Municipality or company _____

Street _____

City, state, and zip code _____



RECYCLING IS

FUN!

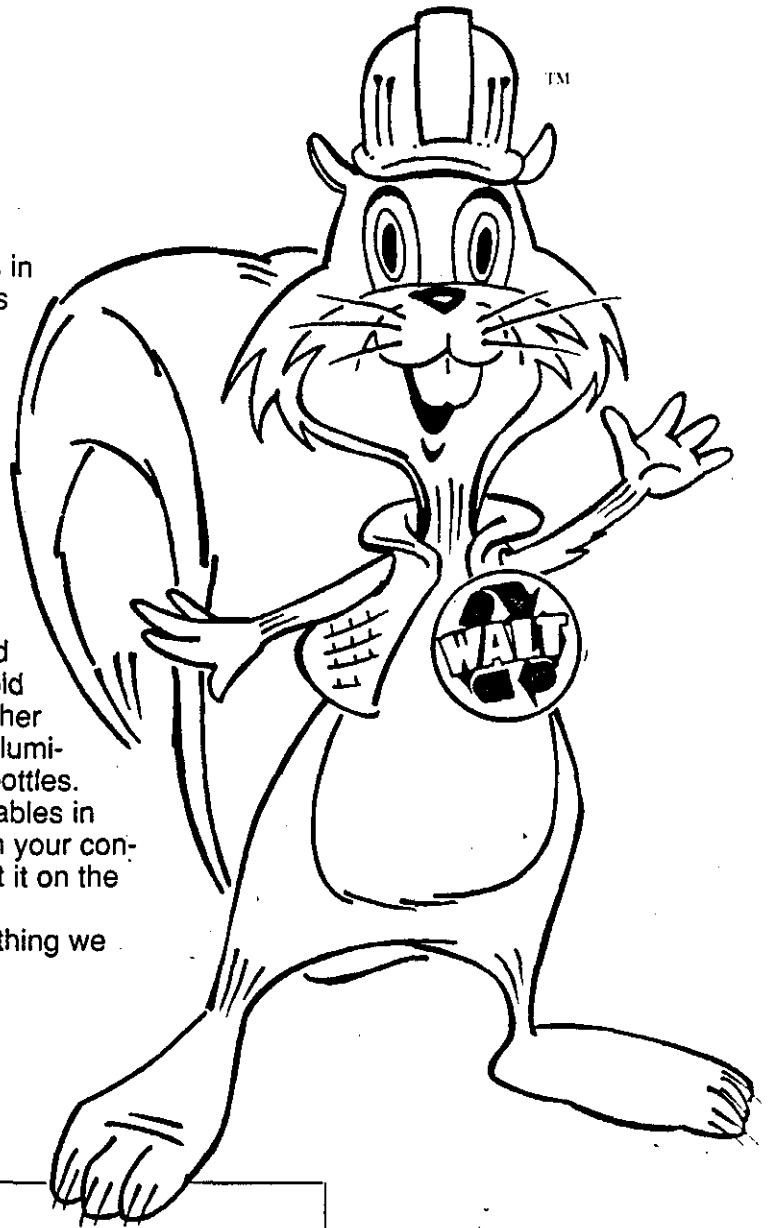
Do you throw your dishes in the trash after dinner? Do you throw your clothes out when they get dirty? Of course not. You clean and use them again.

Recycling is almost the same thing. Instead of throwing out a bottle, can, or newspaper, we try to reuse it to make something new. It is important. When we reuse something, there is less garbage to burn or bury and we save our resources — like our trees.

Did you know that it takes 17 trees to make one ton of paper. Americans use 50 million tons of paper each year. That is 850 million trees used to make paper each year. When we reuse old paper to make new paper, we save trees. Other things can be recycled, too — glass, tin cans, aluminum cans, cardboard boxes; and even plastic bottles.

Recycling is easy. Instead of throwing recyclables in the trash, put them in separate container. When your container is filled, take it to a recycling center or put it on the curb for collection.

Remember, recycling is important. It is something we should all do.

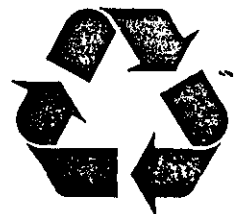


FUN

FACTS

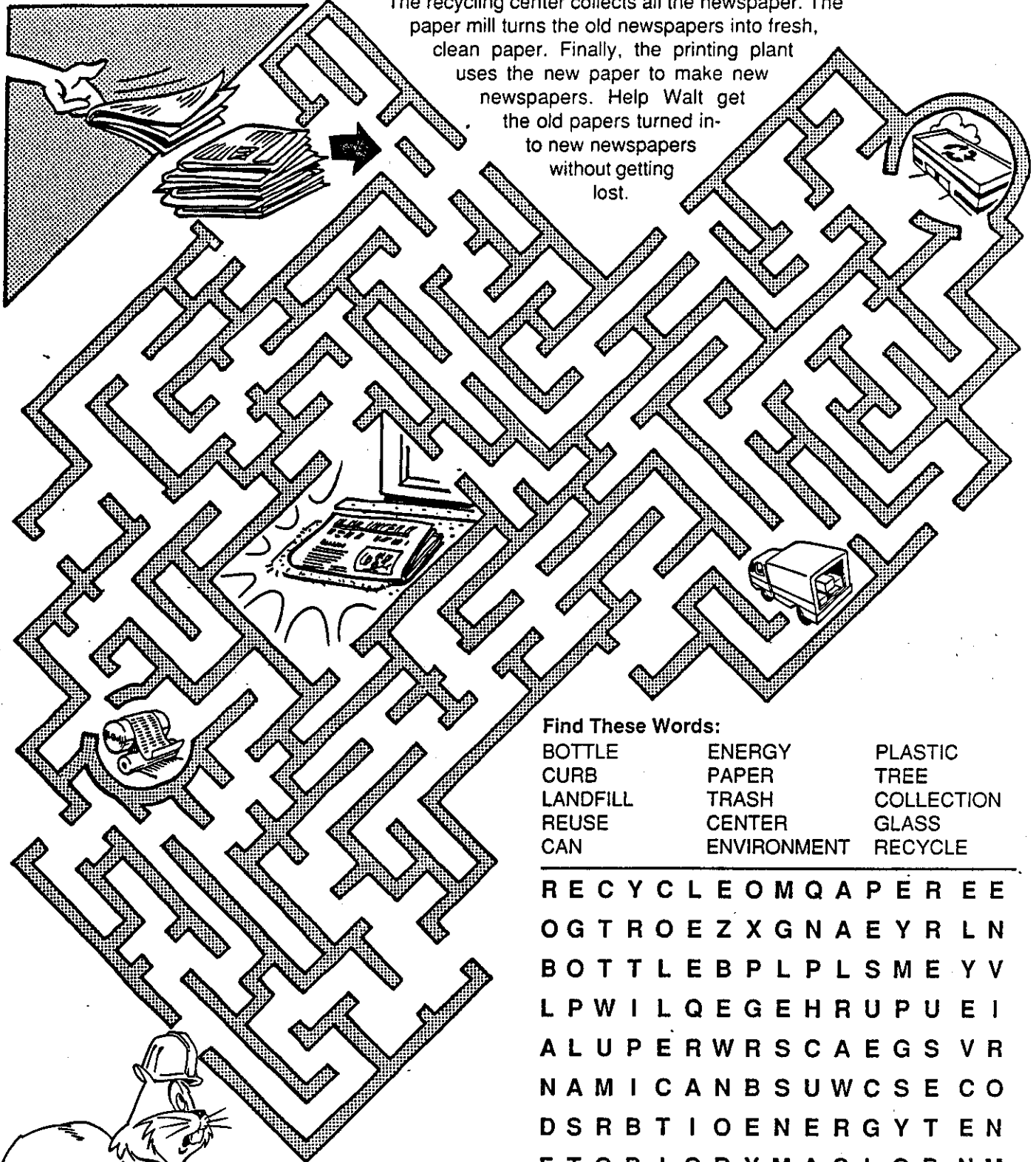
- Did you know that the average American throws away 3.6 pounds of garbage each day. All together Americans throw out 160 million tons of garbage per year. That is enough garbage to bury 27,000 football fields in a layer of garbage 10 feet deep.
- Americans throw away almost 700 million bottles each week. In two weeks, we throw away enough glass bottles to fill up both the twin towers of New York's World Trade Center. Each are 1,350 feet high.

When you see this symbol on something, it means that it was made from recycled materials or that it can be recycled.



Help Walt™ recycle the newspapers

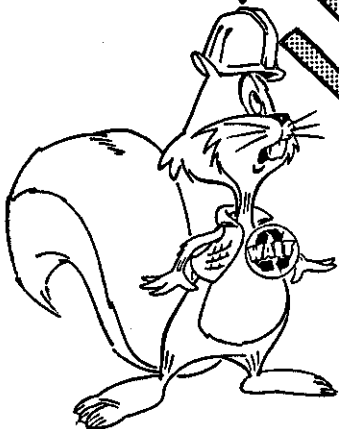
A newspaper stops at many places when it is recycled. The recycling center collects all the newspaper. The paper mill turns the old newspapers into fresh, clean paper. Finally, the printing plant uses the new paper to make new newspapers. Help Walt get the old papers turned into new newspapers without getting lost.



Find These Words:

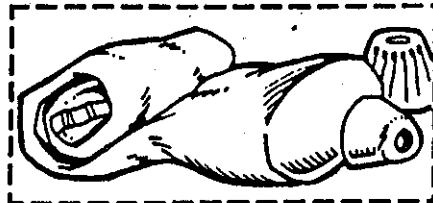
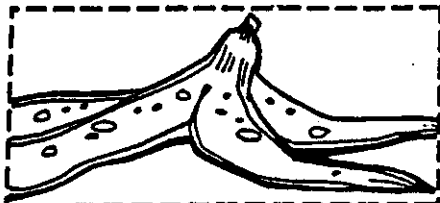
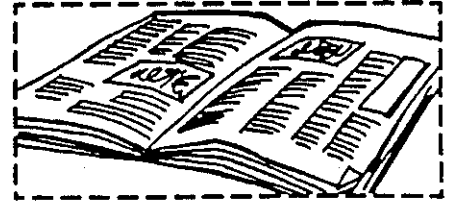
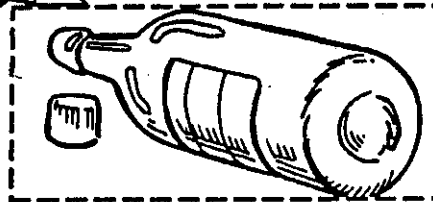
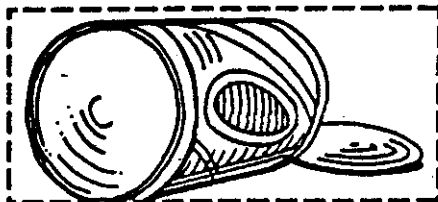
- | | | |
|----------|-------------|------------|
| BOTTLE | ENERGY | PLASTIC |
| CURB | PAPER | TREE |
| LANDFILL | TRASH | COLLECTION |
| REUSE | CENTER | GLASS |
| CAN | ENVIRONMENT | RECYCLE |

R E C Y C L E O M Q A P E R E E
 O G T R O E Z X G N A E Y R L N
 B O T T L E B P L P L S M E Y V
 L P W I L Q E G E H R U P U E I
 A L U P E R W R S C A E G S V R
 N A M I C A N B S U W C S E C O
 D S R B T I O E N E R G Y T E N
 F T O B I C R Y M A S L G B N M
 I I V O O T R E E Z X A R O T E
 L C X G N Q W O P L G S T J E N
 L H S A R T C U R B O S Z A R T





Color this picture:
 Help Walt collect the recyclable products.
 Color the pictures below. Then cut out the
 products that can be recycled and paste them
 into the recycling truck.





Hidden Pictures: Find the hidden objects in this picture.

Here are the objects to look for:



City of Rochester, New York

Thomas P. Ryan, Jr., Mayor



MONROE COUNTY

THOMAS R. FREY, COUNTY EXECUTIVE

IT'S
ONLY
A
SMALL
BLUE
PLANET.



**We can't do
that any longer.
Because we're
running out of
places to put it.**

**So what do
we do with
the mountain
of trash
we generate
each day?**



The City of Rochester, in cooperation with Monroe County, has developed a comprehensive, long-range plan to reduce our waste, conserve energy, and make our environment cleaner and healthier.

The plan will involve waste haulers, other businesses, industries, governmental agencies, and people like you.

But the heart of the plan is a major, City-wide recycling effort that will help us reduce the volume of trash currently going to landfills.

To accomplish that goal, we need *your* help.

The fact is, we *can* solve our trash problem. And recycling will play a big part in the solution.

Of course, recycling will take a little effort on all our parts. But the benefits will far outweigh any minor inconveniences.

And by working together to solve the problem now, we'll make sure our children won't have to worry about it *years* from now.

The big blue box signifies your participation in the City's recycling effort.

Just keep your blue box in a closet, near the back door, in the garage, wherever it's convenient. Then follow the simple recycling instructions in the blue box. And when pickup day rolls around, take it out to the curb.

That's all there is to it. The fact is, recycling should take less than five minutes a day.

Think of it this way. By simply taking the time to recycle, you'll be saying, "I'm willing to do my part."

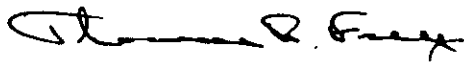
You'll also help clean up your community and save valuable resources. And you'll help make our small blue planet a healthier, happier place for all of us.

That's a pretty good return on an investment of only five minutes a day.

So remember. Don't trash our future. Recycle. After all, it's the right thing to do.

Recycle.

Recycling is an important part of the solution to the problem of solid waste disposal. Thank you for taking part in our program. By doing so, you will be helping the environment. You'll help to conserve energy, and you'll help us to solve the urgent problem of too much trash and too little space. After all, that's not just the county's problem. It's a problem for the nation as well. With your help, we can find a solution that will work now ... and far into the future, so trash won't be something our children will have to worry about. We look forward to your participation in what promises to be an exciting pioneer effort in Monroe County.



Thomas R. Frey
Monroe County Executive

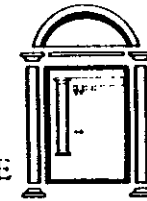
For more information
on recycling, write to:

Monroe County
Division of Solid Waste
1845 Emerson Street
Rochester, New York 14606

Or call the Recycling Hotline at:
254-4225

Printed on Recycled Paper

Monroe County Recycling Program
Division of Solid Waste
1845 Emerson Street
Rochester, New York 14606



MONROE COUNTY

RECYCLING DROP-OFF CENTERS

Don't
trash our
future.

Recycle.

THOMAS R. FREY
MONROE COUNTY EXECUTIVE

WHY RECYCLE

- Reduces the amount of material requiring disposal in a landfill or at an incinerator.
- Saves energy because it takes less energy to produce a product from recyclables than from raw materials.
- Conserves natural resources. For example, the more paper that is recycled, the less trees we have to cut down to create paper.
- Reduces the need for siting or expanding other solid waste disposal facilities.

WASTE REDUCTION TIPS

Waste reduction is just as important as recycling. It begins by making responsible decisions when purchasing and discarding items.

- Buy recycled products.
- Buy durable products instead of disposable ones.
- Reuse household items.
- Repair broken items.
- Donate old clothes, toys, and other items instead of discarding them.
- Don't buy products that are overpackaged.

WHAT TO RECYCLE

NEWSPAPER

- Newspapers, supplements, advertising included with newspapers. Bundle with twine or place in paper bag.
- NO PLASTIC BAGS OR CARDBOARD BOXES
- NO MAGAZINES OR WET NEWSPAPERS

GLASS

- Clear, green, amber. Rinse and separate by color. You do not have to remove labels or neck rings.
- NO LIGHT BULBS,
- NO WINDOW GLASS, OR CRYSTAL.

CANS

- Aluminum, tin, or bimetal cans. Rinse to remove all residue. You do not have to remove labels or neck rings.
- NO OIL OR PESTICIDE CANS.

PLASTIC

- Food, beverage or household containers. Rinse to remove all residue, and flatten.
- NO CONTAINERS THAT BREAK WHEN CRUSHED (like yogurt, cottage cheese or prescription drug containers.)
- NO OTHER PLASTIC SUCH AS FLOWER POTS, TOYS OR BAGS
- NO STYROFOAM

WHERE TO RECYCLE

You can take your recyclable materials to any of the following County Recycling Drop-Off Centers:

RESOURCE RECOVERY FACILITY

1845 Emerson Street, Rochester
Tuesday, Thursday, Saturday
8:00 a.m. - 5:00 p.m.

IOLA COMPLEX

444 East Henrietta Road, Rochester
Monday through Friday
10:00 a.m. - 3:00 p.m.
Saturday 8:00 a.m. - 5:00 p.m.

RUSH TRANSFER STATION

Stoney Brook Road (off West Rush Road)
Friday and Saturday
10:00 a.m. - 4:00 p.m.

CLARKSON TRANSFER STATION

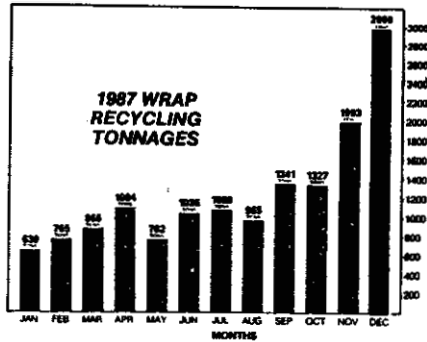
Redman Road (approximately ¼ mile north of Route 104)
Wednesday (May to October)
Saturday (year-round)
8:00 a.m. - 4:30 p.m.

PENFIELD HIGHWAY GARAGE

1607 Jackson Road
Wednesday 10:00 a.m. - 3:00 p.m.
Saturday 8:00 a.m. - 3:00 p.m.

RECYCLING FACTS

An average Islip Town resident discards 7 lbs. of solid waste a day, totalling 2,555 lbs. per year. That's 2,170,000 lbs. every day or 770,000,000 lbs. a year town-wide. For every ton of paper that is recycled, we are able to save 17 trees. It will take 465 trees to provide you with a lifetime of paper. Sadly, the world's forests are being destroyed at the rate of ONE ACRE PER SECOND.



WRAP-a-saurus \ rap-a-sor-us \ n: A protected species committed to the conservation of our natural resources; dedicated to the recycling of glass, metal and paper in the Town of Islip.

A MESSAGE FROM: SUPERVISOR FRANK R. JONES

Dear Resident:

In the Town of Islip our number one strategy for the disposal of solid waste is the source separation of glass, metal and paper.

With the final Townwide distribution of the 20 gallon WRAP container now complete, I am proud to announce the overwhelming acceptance of our recycling program. In some communities 92% of the residents recycle every week.

Islip residents have reaffirmed my long held belief—worthwhile projects such as WRAP can and will succeed.

This brochure is designed to outline the benefits of our recycling program and to help you determine which household items are to be placed in your WRAP container and which should be discarded with your regular household garbage. Keep it handy for ready reference.

We need everyone's help to make this program a success. Your assistance and participation will be greatly appreciated. If you have any questions, please feel free to call our special WRAP HOTLINE: 665-WRAP.

Frank R. Jones
Frank R. Jones
Supervisor

TOWN OF ISLIP



Town Board
NORMAN DeMOTT
FRANK D. BONCORE
ANNE PFIFFERLING
VINCENT GIANNI
Town Clerk
WILLIAM P. TYLER
Receiver of Taxes
EDWIN BOOGERTMAN



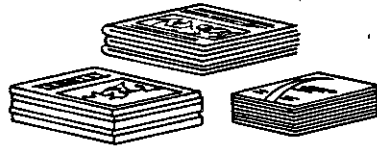
We
Recycle...
America...
and
Proudly

WRAP Instructions

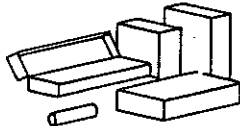
Before 6 a.m. each Wednesday, your WRAP container should be placed at curbside for collection of the following items:

PAPER

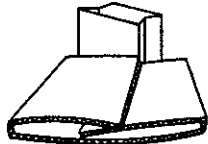
(Clean)



- Newspapers
- Magazines
- Telephone Books



- Clean Food Boxes (Egg cartons, cereal boxes, etc.)
- Gift Boxes
- Paper Towel Rolls
- Toilet Tissue Rolls



- Corrugated Cardboard
- Appliance Boxes
- Paper Bags



- Junk Mail
- Stationery
- Office Papers
- Gift Wrapping Paper (No ribbons)



NO

- Paper Napkins
- Paper Towels
- Puppy Papers



NO

- Paper Plates
- Paper Tablecloths
- Diapers



NO

- Plastic Bags
- Plastic Bottles
- Plastic of Any Kind

NO SOILED PAPER PRODUCTS

Paper products which have been soiled should NOT be recycled. Rather, these items should be discarded along with your regular household garbage.

METAL

(Clean)

FOOD & BEVERAGE CANS

RINSE CLEAN & REMOVE THE LABELS



- Food Cans
- Animal Food Cans
- Juice Cans
- Soda Cans



- Pie Plates
- Aluminum Foil



NO

- Oil Cans*
- Paint Cans
- Poisons

*Do not place WASTE OIL or BATTERIES at the curb. You may dispose of them through STOP (Stop Throwing Out Pollutants) Program or deliver them to our Sayville Recycling Center.

In order to recycle tin—you must REMOVE THE LABELS and rinse the cans of their contents.

GLASS

(Clean)

FOOD & BEVERAGE BOTTLES & JARS

RINSE COMPLETELY CLEAN



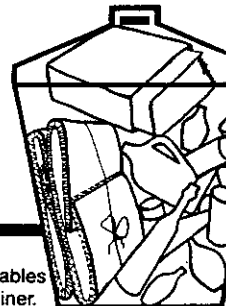
- Liquor Bottles
- Wine Bottles
- Soda Bottles
- Juice Bottles



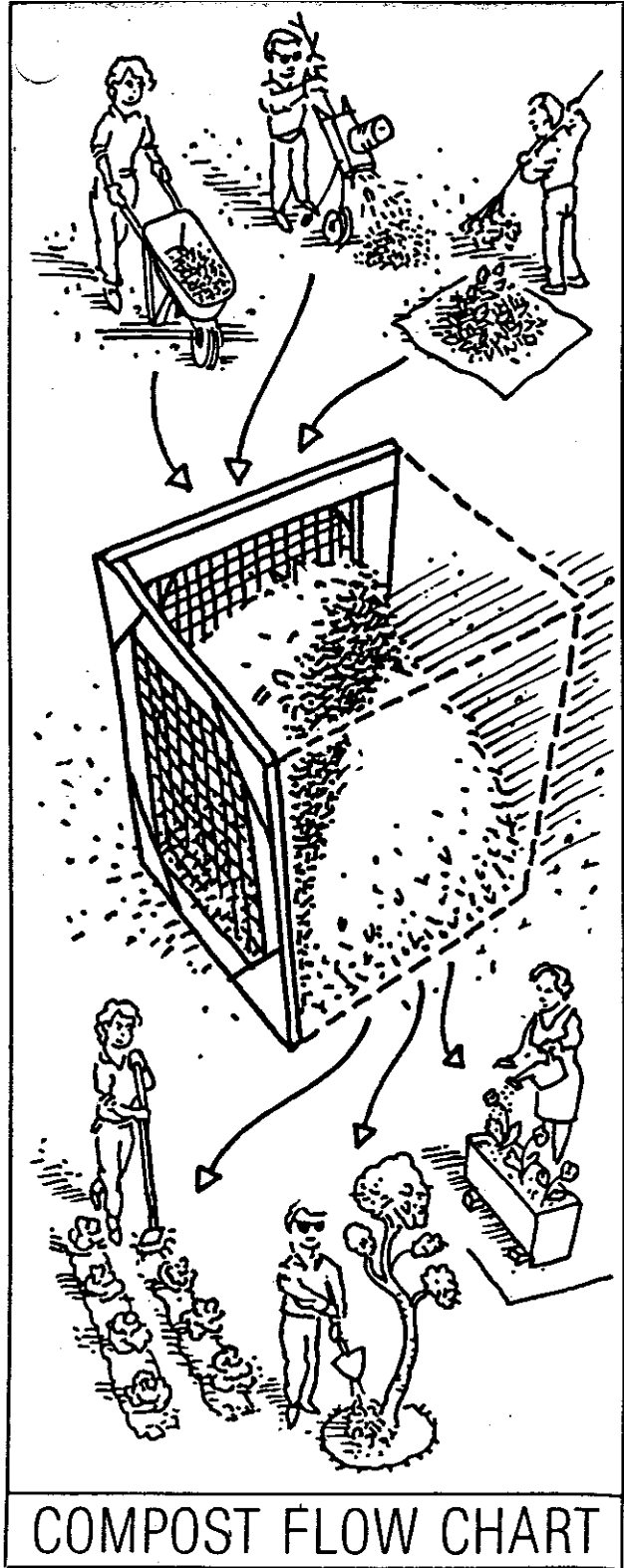
- Food Bottles & Jars
- Medicine Bottles & Jars

RINSE glass bottles and jars so that they are completely CLEAN and free of any food particles. NO mirrors, window panes or windshields.

**WRAP
HOTLINE
665-WRAP**

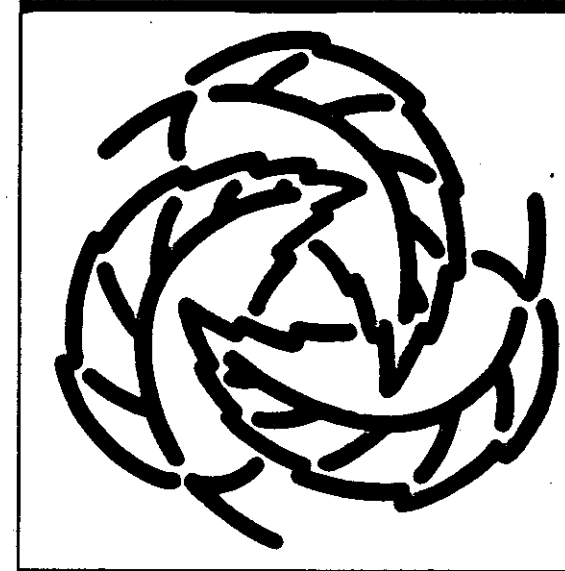


Place all your recyclables in your WRAP container.



Cornell
Cooperative
Extension

HOME COMPOSTING



What Is Compost?

Compost is a dark, crumbly, and earthy smelling form of decomposing organic matter.

Why Should I Make Compost?

Composting is the most practical and convenient way to handle your yard wastes. It can be easier and cheaper than bagging these wastes and taking them to the transfer station. Compost also improves your soil and the plants growing in it. If you have a garden, a lawn, trees, shrubs, or even plant boxes, you have a use for compost.

By using compost you return organic matter to the soil in a usable form. Organic matter in the soil improves plant growth by helping to break up heavy clay soils and improving their structure, by adding water and nutrient-holding capacity to sandy soils, and by adding essential nutrients to any soil. Improving your soil is the first step toward improving the health of your plants. Healthy plants help clean our air and conserve our soil, making our communities healthier places in which to live.

What Can I Compost?

Anything that was once alive can be composted. Yard wastes, such as fallen leaves, grass clippings, weeds and the remains of garden plants, make excellent compost. Woody yard wastes can be clipped and sawed down to a size useful for the wood stove or fireplace or they can be run through a shredder for mulching and path-making. Used as a mulch or for paths, they will eventually decompose and become compost.

Care must be taken when composting kitchen scraps. Compost them only by the methods outlined in this brochure. Meat, bones and fatty foods (such as cheese, salad dressing, and leftover cooking oil) should be put in the garbage.

How Can I Use Compost?

Compost can be used to enrich the flower and vegetable garden, to improve the soil around trees and shrubs, as a soil amendment for houseplants and planter boxes and, when screened, as part of a seed-starting mix or lawn top-dressing. Before they decompose, chipped woody wastes make excellent mulch or path material. After they decompose, these same woody wastes will add texture to garden soils.

The Essentials of Composting

With these principles in mind, everyone can make excellent use of their organic wastes.



The compost pile is really a teeming microbial farm. Bacteria start the process of decaying organic matter. They are the first to break down plant tissue and also the most numerous and effective composters. Fungi and protozoans soon join the bacteria and, somewhat later in the cycle, centipedes, millipedes, beetles and earthworms do their parts.



Materials

Anything growing in your yard is potential food for these tiny decomposers. Carbon and nitrogen, from the cells of dead plants and dead microbes, fuel their activity. The microorganisms use the carbon in leaves or woodier wastes as an energy source. Nitrogen provides the microbes with the raw element of proteins to build their bodies.

Everything organic has a ratio of carbon to nitrogen (C:N) in its tissues, ranging from 500:1 for sawdust, to 15:1 for table scraps. A C:N ratio of 30:1 is ideal for the activity of compost microbes. This balance can be achieved by mixing two parts grass clippings (which have a C:N ratio of 20:1) with one part fallen leaves (60:1) in your compost. Layering can be useful in arriving at these proportions, but a complete mixing of ingredients is preferable for the composting process. Other materials can also be used, such as weeds and garden wastes. Though the C:N ratio of 30:1 is ideal for a fast, hot compost, a higher ratio (i.e., 50:1) will be adequate for a slower compost.



Surface Area

The more surface area the microorganisms have to work on, the faster the materials are decomposed. It's like a block of ice in the sun—

slow to melt when it's large, but melting very fast when broken into smaller pieces. Chopping your garden wastes with a shovel or machete, or running them through a shredding machine or lawnmower will speed their composting.



Volume

A large compost pile will insulate itself and hold the heat of microbial activity. Its center will be warmer than its edges. Piles smaller than 3 feet cubed (27 cu.ft.) will have trouble holding this heat, while piles larger than 5 feet cubed (125 cu.ft.) don't allow enough air to reach the microbes at the center. These proportions are of importance only if your goal is a fast, hot compost.



Moisture & Aeration

All life on Earth needs a certain amount of water and air to sustain itself. The microbes in the compost pile are no different. They function best when the compost materials are about as moist as a wrung-out sponge, and are provided with many air passages. Extremes of sun or rain can adversely affect this moisture balance in your pile.



Time & Temperature

The faster the composting, the hotter the pile. If you use materials with a proper C:N ratio, provide a large amount of surface area and a big enough volume, and see that moisture and aeration are adequate, you will have a hot, fast compost (hot enough to burn your hand!) and will probably want to use the *turning unit* discussed in the next section. If you just want to deal with your yard wastes in an inexpensive, easy, non-polluting way, the *holding unit* (also discussed below) will serve you well.

Composting Food Wastes



Mulching

Yard wastes can be used for weed control and water retention.

Which wastes? Woody yard wastes, leaves, and grass clippings.

How? You can simply spread leaves or grass clippings beneath plantings. For woody materials up to 1" in diameter, rent or purchase a chipper/shredder. Tree services, if they are in your neighborhood, often will deliver wood chips free.

Advantages & disadvantages All yard wastes will work first as a mulch and then, as decomposition proceeds, as a soil enrichment. A disadvantage of mulching with woody yard wastes is that you may have to buy or rent power equipment or make arrangements with a tree service.

Variations Use chipped materials for informal garden paths.



Soil Incorporation

Burying your organic wastes is the simplest method of composting.

Which wastes? Kitchen scraps without meat, bones or fatty foods.

How? Everything should be buried at least 8 inches below the surface. Holes can be filled and covered, becoming usable garden space the following season.

Advantages & disadvantages This is a simple method, but because of the absence of air some nutrients will be lost. Rodents and dogs can become a problem with wastes buried less than 6 inches deep.

Variations Using a posthole digger, wastes can be incorporated into the soil near the drip line of trees or shrubs and in small garden spaces.



Earthworm Compost

Feeding earthworms in wooden bins is a good way to make high-quality compost from food scraps.

Which wastes? Kitchen scraps without meat, bones, or fatty foods.

How? Fill a bin with moistened bedding such as peat moss for the worms. Rotate the burying of food wastes throughout the worm bin. Every 3-6 months the worm population should be divided and moved to fresh bedding. Refer to *Worms Eat My Garbage* by Mary Appelhof (available at some library branches) for more information.

Advantages & disadvantages This is an efficient way to convert food wastes into high-quality soil for houseplants, seedling transplants, or general garden use. The worms themselves are a useful product for fishing. However, worm composting is more expensive and complicated than soil incorporation for dealing with food wastes.

Variations A stationary outdoor bin can be used in all but the coldest months, or a portable indoor/outdoor bin can be used year-round.

For More Information

This brochure was developed by the Community Composting Project of Seattle, Washington. Our thanks to the Seattle Engineering Department and Seattle Filth Association for granting Cornell Cooperative Extension permission to reproduce their material.

For more information about composting, contact your county Cornell Cooperative Extension office.

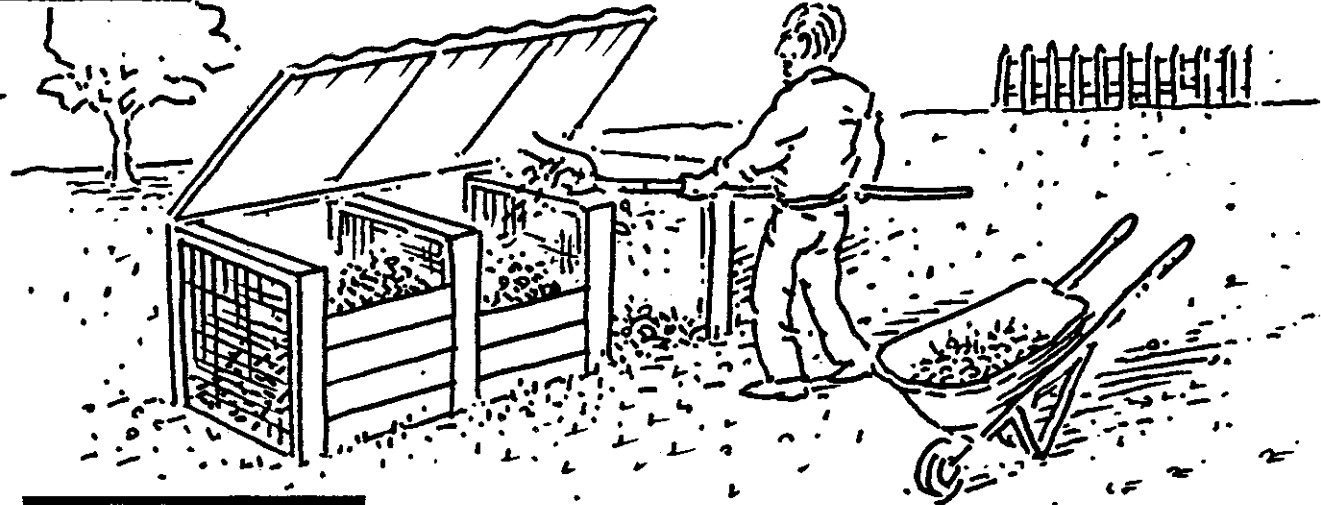
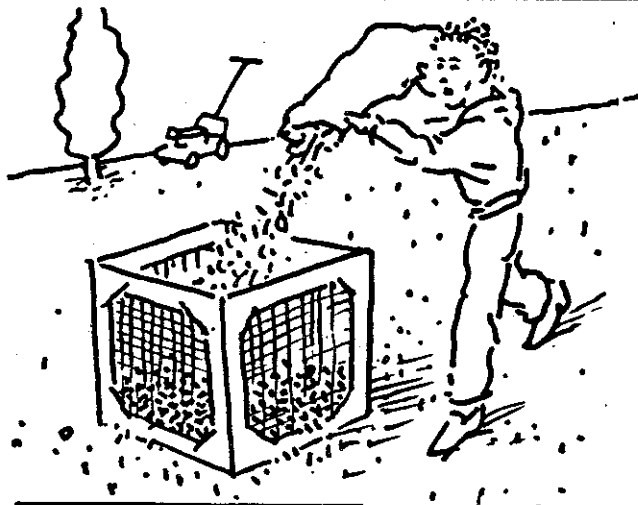


**Cornell
Cooperative
Extension**

Helping You Put Knowledge to Work
Cornell Cooperative Extension provides equal program and employment opportunities.

18/50 9/88; revised 3/89 20M ML E90156G

Composting Yard Wastes



Holding Units

These simple containers for yard wastes are the least labor and time-consuming way to compost.

Which wastes? Non-woody yard wastes are the most appropriate.

How? Place the holding unit where it is most convenient. As weeds, grass clippings, leaves and harvest remains from garden plants are collected, they can be dropped into the unit. Chopping or shredding wastes, alternating high-carbon and high-nitrogen materials, and keeping up good moisture and aeration will all speed the process.

Advantages & disadvantages For yard wastes this is the simplest method. The units can be portable, moving to wherever needed in the garden. This method can take from 6 months to 2 years to compost organic materials, so you only need to be patient.

Variations Holding units can be made of circles of hardware cloth, old wooden pallets, or wood and wire. Sod can also be composted with or without a holding unit, by turning sections of it over, making sure that there is adequate moisture, and covering it with black plastic.

Turning Units

This is a series of three or more bins that allows wastes to be turned on a regular schedule. Turning units are most appropriate for gardeners with a large volume of yard waste and the desire to make a high-quality compost.

Which wastes? Non-woody yard wastes are appropriate. Kitchen wastes without meat, bones or fatty foods can be added to the center of a pile if it is turned weekly and reaches high temperatures.

How? Alternate the layering of high-carbon and high-nitrogen materials to approximately a 30:1 ratio. These should be moistened to the damp sponge stage. The pile temperature should be checked regularly; when the heat decreases substantially, turn the pile into the next bin. Dampen the materials if they are not moist, and add more high-nitrogen material if heating is not occurring. Then make a new pile in the original bin. Repeat the process each time the pile in the first bin cools. After two weeks in the third bin, the compost should be ready for garden use. See the *Rodale Guide to Composting* in your library for more information on hot composting.

Advantages & disadvantages This method produces a high-quality compost in a short time utilizing a substantial input of labor.

Variations The unit can be built of wood, a combination of wood and wire, or concrete block. Another type of turning unit is the barrel composter, which tumbles the wastes for aeration.

The following troubleshooting chart is a guide to more efficient composting using a turning unit.

SYMPTOMS	PROBLEM	SOLUTION
<i>The compost has a bad odor.</i>	<i>Not enough air.</i>	<i>Turn it.</i>
<i>The center of the pile is dry.</i>	<i>Not enough water.</i>	<i>Moisten materials while turning the pile.</i>
<i>The compost is damp & warm in the middle, but nowhere else.</i>	<i>Too small.</i>	<i>Collect more material & mix the old ingredients into a new pile.</i>
<i>The heap is damp and sweet-smelling but still will not heat up.</i>	<i>Lack of nitrogen.</i>	<i>Mix in a nitrogen source like fresh grass clippings, fresh manure, bloodmeal or ammonium sulfate.</i>

WHAT IF I NEED HELP?

Help is available.

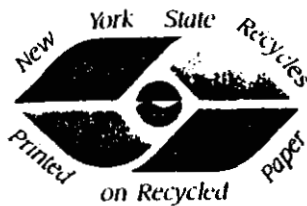
For more details on recycling, ask for these brochures:

**HOUSEHOLDER'S GUIDE TO
RECYCLING • EASY BACKYARD
COMPOSTING • S.T.O.P. (SAVE
THAT OFFICE PAPER)**

For more information or to receive printed materials, write or call

Bureau of Waste Reduction and Recycling
Division of Solid Waste
Department of Environmental Conservation
50 Wolf Road Albany, NY 12233-4015
(518) 457-7337

Remember:
**A LANDFILL IS THE
LAST PLACE WE
SHOULD PUT OUR
TRASH!**

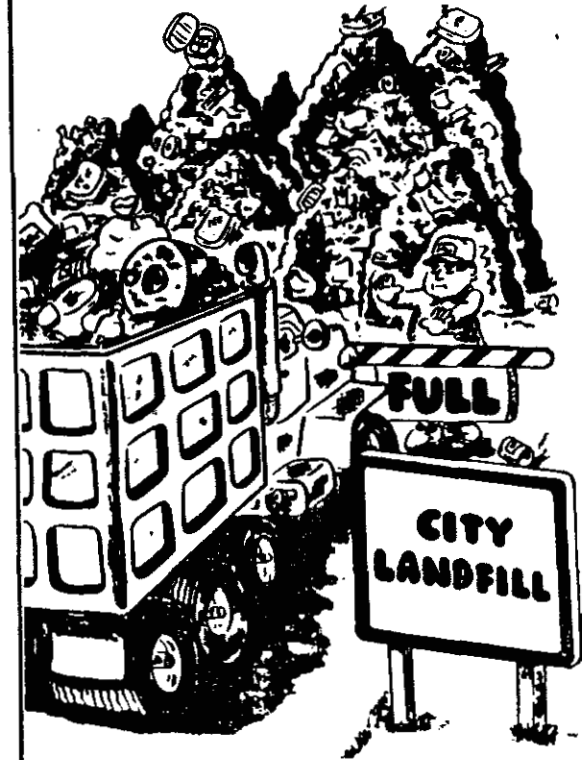


sorrya001 (7/89) 111

Division of Solid Waste
Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-4010

Department of Environmental Conservation

SORRY, FULL...



New York's Landfill Capacity Crisis

New York State
Department of Environmental Conservation

MARIO M. CUOMO, Governor
THOMAS C. JORLING, Commissioner

SIX POUNDS OF WASTE PER PERSON ARE GENERATED EACH DAY IN NEW YORK STATE

In 1988, New Yorkers produced an estimated 20.1 million tons of solid waste.

At least 82 percent was trucked to landfills; the remainder was recycled, incinerated or shipped out-of-state for disposal.

SO WHAT'S THE PROBLEM?

Landfill space is shrinking fast. We're making more trash than ever, but we're running out of landfill space.

In the 1960s, there were more than 1,600 open dumps where we could unload our trash. Today, fewer than 250 landfills are open for business in New York State and they are filling up fast or closing because they can't meet permit requirements.

WHY ARE THERE SO FEW LANDFILLS TODAY?

Many landfills have had to close because they were polluting our environment. DEC regulations now force landfills either to meet stricter standards or to close.

Many communities have simply closed their landfills rather than make expensive improvements. Other landfills have had to be closed because they were filled to capacity.

As the old landfills close, new ones are not being built to take their places.

WHY NOT BUILD MORE LANDFILLS?

A state-of-the-art landfill is expensive to build and to operate.

Today's landfills are very different from the cheap and simple dumps of the past. New York State requires landfills to have combination (composite) synthetic and clay liners, leachate collection and treatment facilities, and groundwater monitoring. It takes highly trained personnel, who must be certified by the state, to operate a modern landfill.

Land is no longer plentiful and cheap. Thirty or forty years ago, it was easy to find some inexpensive, out-of-the-way piece of real estate that could be used for a dump.

In addition, new regulations are very specific about where a landfill can be located. Public reaction to siting a landfill in the community is usually strongly negative—the "Not in My Backyard" (NIMBY) syndrome. Finding a site which is acceptable to neighbors and meets state regulations can be a difficult and lengthy process.

WHY NOT TRUCK WASTE TO THE NEAREST AVAILABLE LANDFILL?

Landfill space is at a premium across the state and throughout the Northeast—the nearest available landfill could be hundreds of miles away.

The cost of trucking wastes out of town for disposal can take a large bite out of a municipal budget. The cost per average household can range from less than \$100 for communities with a nearby landfill to more than \$600 for communities, like some in Long

Island, that must ship their wastes hundreds of miles to distant landfills and these costs are steadily increasing.

As landfill space continues to diminish, wastes will have to be hauled farther and farther away—or have nowhere at all to go, like the infamous garbage barge that roamed the seas looking for a port that would take its cargo.

WHAT SHOULD WE DO INSTEAD?

What we can do is start at the root of the problem—the people who create all that trash—and that's each and every one of us!

The best way we can help is by reducing the amount of wastes going into landfills. New York's Solid Waste Management Plan recommends that we reuse and recycle whatever we can. The Plan establishes a goal of 50 percent waste reduction/reuse/recycling by 1997—8 to 10 percent waste reduction and 40 to 42 percent recycling.

Every month, the average household generates wastes that can be recycled:

- 53 pounds of newspapers
- 19 pounds of glass
- 7 pounds of metals
- 1 pound of aluminum

Other wastes—such as plastics, textiles, wood, food, grass clippings and leaves—can be recycled, too. DEC estimates that recycling now removes only about 8 to 10 percent by weight from New York's waste stream. Working together, we can recycle much more than that.

By September 1, 1992, each community in our state must have recycling ordinances in place. We'll all be learning how to recycle.

Which items you will "source separate" will depend on the decisions your community makes as to what it will recycle. You should store those items separately from the rest of your trash in the way you already do with beverage containers. Food and yard wastes can be composted—Nature's way of recycling!

Most homes have space somewhere that can be used to store recyclables. All you need is about a 3-foot by 3-foot area for boxes, bags, or plastic containers that will hold items to be recycled. (Some communities provide residents with containers for recyclables.) It's important to keep recyclables away from garbage to keep them clean and dry.

Fourth, **RECYCLE!**

This last step will depend on how your community decides to recycle. In some communities, recyclables are picked up at curbside; in others, residents are asked to bring them to a recycling center. Some towns have collection bins—such as those for newspapers—scattered throughout the community.

Find out if your community has a recycling program in place and how it works. Or ask what your community is planning to do about recycling. If recycling is still in the planning stage, your local government will appreciate your input in helping to develop a recycling program that will work for you and your neighbors.

THAT DOESN'T SOUND TOO DIFFICULT—MAYBE I'LL TRY IT.

Good! Because successful recycling depends on you—and on every one of us. Recycling won't work without individual participation.

WHAT IF I NEED HELP?

Help is available.

For more details on recycling, ask for these brochures:

HOUSEHOLDER'S GUIDE TO RECYCLING • EASY BACKYARD COMPOSTING • S.T.O.P. (SAVE THAT OFFICE PAPER)

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Department of Environmental Conservation
50 Wolf Road Albany, NY 12233-4015
(518) 457-7337

REDUCE • REUSE SEPARATE • RECYCLE

• Buy Recycled Products • Promote Recycling • Support Recycling Programs



Department of Environmental Conservation

REDUCE, REUSE, SEPARATE AND RECYCLE!



New York State
Department of Environmental Conservation

MARIO M. CUOMO, Governor
THOMAS C. BOKRING, Commissioner

GARBAGE IS A MIXED BAG

At home and at work, New Yorkers turn out a lot of trash—and it's a mixed bag. We're all in the habit of throwing trash into one receptacle with cans, bottles, paper, garbage, etc., mixed up together.

SO, WHAT'S WRONG WITH THAT?

First, we're throwing things away that can be used again, such as paper, glass, aluminum, metals and other useful materials. Second, we're making too much trash!

When we had plenty of landfills, more than 1600 in the 1960s, it was acceptable to toss all our waste items out in the trash and never give it another thought—out of sight, out of mind. Now, however, New York has only 250 landfills accepting waste across the entire state and these are filling up fast or closing because they can't meet permit requirements. New landfills must meet strict regulations—they're expensive to build and difficult to site. ("Not in my backyard!")

WELL, WHAT ARE WE SUPPOSED TO DO WITH OUR TRASH?

In four words: **REDUCE, REUSE, SEPARATE, RECYCLE.**

THAT SOUNDS LIKE TOO MUCH TROUBLE!

Not really—just a matter of learning new habits. And those new habits will be well worth the time and effort it takes to learn them. Reducing, separating and recycling our solid waste will benefit our communities and the environment. Besides, soon it will be the law. By September 1, 1992, communities across our state will be required to have waste separation and recycling ordinances in place.

OKAY, HOW DO I GO ABOUT IT?

First, **REDUCE...**

Waste reduction requires a little forethought because the aim is to bring home less material that will wind up as trash and to reuse as many items as possible. Analyze your trash for a few days to get familiar with the stuff you throw out. (It might surprise you!) Then, decide how you might reduce your trash by changing some habits.

Here are some suggestions—you will think of more:

Reduce the amount of material that requires disposal:

- Buy bulk-packaged items to cut down on individual packaging.
- Buy products in recyclable or reusable containers, such as glass and aluminum, rather than plastics and paper that can't be recycled.
- Don't buy disposable products when you can avoid them.
- Patronize restaurants and other businesses that use recyclable or biodegradable wrappings.

- Have your name removed from lists that send you unwanted mail. Several services are available to do that—here is one:

Mail Preference Service
Direct Mail Marketing Association
P.O. Box 3861
Grand Central Station
New York, NY 10163-3861
(212) 689-4977

Second, **REUSE...**

- Reuse items as many times as possible.
- Give old magazines, books and catalogs to neighbors, hospitals and nursing homes.
- Give unwanted clothing and repairable appliances to others or donate them to charity. Many churches have annual rummage sales.
- Get together with neighbors, collect unwanted items and have a garage sale. Organize or suggest a community-wide garage sale and promote community spirit along with recycling.

Third, **SEPARATE...**

You'll be hearing the term "source separation" more and more frequently. That just means removing reusable and recyclable items before disposal at the place where the trash is generated—at home, at the office, on picnics, at campgrounds or wherever you make trash.

You're probably already "source separating" without realizing it. If you return beverage cans and bottles to the store to claim your deposit, you already are accustomed to setting them aside from the rest of your trash. Thanks the Returnable Beverage Container law, many New Yorkers already have started source separating.

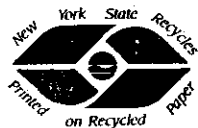
Much of what you do use and eventually throw out can be recycled. New York State's goal is to recycle 40 to 42 percent of the solid waste stream by 1997.

special design, for paper deposit boxes will promote interest and participation in S.T.O.P. Have a contest for the best design to focus attention on the program. Handouts, posters, slide shows and memos from management are good ways to remind employees to participate.

Initiate your S.T.O.P. program with as much fanfare as possible. Official notification from management of the start-up date is very important. Make an "event" out of placing collection boxes in each office. Ask local media for coverage—solutions to the solid waste crisis are hot news.

FOR MORE INFORMATION

Bureau of Waste Reduction
and Recycling
Division of Solid Waste
NYS Department of
Environmental Conservation
50 Wolf Road Albany, NY 12233-4015
(518) 457-7337



S.T.O.P. STARTS WITH EACH EMPLOYEE

An office paper recycling program will be successful if everyone "gets the habit" of placing paper in a S.T.O.P. box rather than in the wastebasket.

PARTICIPANTS NEED TO KNOW:

- About recycling—why it's necessary, how products are produced from recycled paper.
- About the S.T.O.P. program—how to separate paper, where deposit containers are located, when pickups occur.
- That their participation makes a difference—how much paper is being collected, how much money is being saved.

S.T.O.P. is successful when everyone cooperates—office workers, clerical and maintenance staff, office managers and building management. All these people must be informed about the program and know that their participation counts. S.T.O.P. planners should ask for and pay careful attention to comments and suggestions.

SUGGESTIONS FROM COMPANIES WITH S.T.O.P. PROGRAMS

- A colored folder to hold recyclable paper can be placed on each desk. The employee can carry the paper to a deposit box at the end of the day.
- Once they are well under way, successful S.T.O.P. programs can be expanded to include newspaper and other recyclables such as cardboard, plastic and styrofoam.
- Slogans help—such as one company's "If you can tear it, don't trash it!"
- A separate room for recycling is very helpful to a successful S.T.O.P. program.
- Hire workers with disabilities through county or state agencies to work as office-to-office collectors of recyclable paper and to prepare the paper for market. (At DEC's Central Office, S.T.O.P. workers are hired through the Albany County Association for Retarded Citizens.)



Department of Environmental Conservation

S.T.O.P.



New York State
Department of Environmental Conservation
MARIO M. CUOMO, Governor
THOMAS C. JORLING, Commissioner

Recycling is just as important at work as it is at home. In communities with a lot of business and industry, commercial waste can add significantly to the amount of solid waste. You can help to **STOP** some of that waste from going to landfills by recycling good quality office paper with S.T.O.P.

WHAT IS S.T.O.P.?

S.T.O.P. stands for "Save That Office Paper." S.T.O.P. programs collect clean office paper for recycling.

HOW DOES S.T.O.P. WORK?

In most offices, each employee separates recyclable paper at his or her own desk and deposits the paper at a central location. Periodically, paper is collected from the deposit points, prepared and transported to a market which will take recyclable paper. S.T.O.P. works well for all kinds and sizes of businesses.

WHAT KIND OF PAPER CAN BE S.T.O.P. RECYCLED?

Most common office papers are desirable materials for S.T.O.P. recycling:

Do S.T.O.P.:

white bond paper
photocopies
computer printout
white and colored scratch paper
colored tissue copies

Do not S.T.O.P.:

books
newspapers
magazines
sensitized copy sets
combed reports
carbon paper
federal registers
glossy paper
paper with glue
[Note: Some of these types of paper can be recycled through programs other than S.T.O.P.]

STARTING S.T.O.P.

Many companies and government offices throughout New York State already have S.T.O.P. programs in place. If you work in an office that does not have a S.T.O.P. program, suggest one. Give your employer this brochure for guidance. If you are a business manager, you can get a S.T.O.P. program going. S.T.O.P. is relatively easy to organize:

- **Locate a market that will take the paper.**

One good source of information on recycling markets is: American Recycling Market, published annually by Recoup Publishing

Limited, P.O. Box 577,
Ogdensburg, NY 13669, 1-800-267-0707. Also check your local telephone directory under "recycling," "waste paper," or check with local paper mills.

- **Find out what paper the market will accept and how they want it prepared for pick-up.**

If the market does not pick up the paper, arrange for transportation. (Most markets provide pick-up service.) Determine frequency and dates for pick-up.

- **Decide how paper will be separated and collected.**

In many offices, a simple cardboard box or plastic container is used for depositing recyclable paper. A container can be placed near each desk or at a centrally located spot in each office. To avoid confusion with trash receptacles, S.T.O.P. boxes should be clearly labeled.

- **Organize internally for S.T.O.P.**

Contact the building manager, office managers and others who might be affected—they should be informed about S.T.O.P. and may be able to help with logistics.

Locate a space for temporary storage of collected office paper. (If there is no space for storage, paper may have to be removed from the building each day.)

Determine who will make the rounds of offices to collect paper and prepare it for market. (In some offices, workers with disabilities are hired through local social service agencies to perform these tasks.)

Choose a day for collection of paper from individual offices. This might be weekly, biweekly or monthly depending on what works best in your office. Plan collection rounds so that "traffic problems" are avoided. Find ways to minimize staff time for recycling chores.

- **Designate a S.T.O.P. coordinator in each office.**

The office coordinator should remind staff to save paper and be available to help solve problems that might arise. Office coordinators should have the name and telephone number of a building-wide coordinator whose job it is to serve as a central source for information and help with problems.

- **Set a date for collection to begin and plan for an employee education program.**

A general staff meeting—perhaps with refreshments to keep the mood upbeat—is a good way to introduce the S.T.O.P. program. Be sure S.T.O.P. information is included in briefings of new employees.

Use other employee education tools, as well: A clever logo or

COMMUNITY COMPOSTING

Community composting is beneficial because:

- Leaves take up too much space in landfills—many communities now ban leaves from landfills.
- Many householders do not have the time or space to compost large quantities of organic waste, such as fallen leaves.
- Composting is environmentally safer—leaves in landfills generate dangerous gases; burning leaves creates smoke pollution and is unlawful in many communities.
- Some communities will accept leaves and other yard wastes for community compost heaps. Finished compost is usually available free to residents. Find out what's happening in your area. If no program exists, urge your community leaders to put one in place.

WHY SHOULD I MAKE COMPOST?

Composting benefits you and your community.

For you...

- Composting is an easy, practical way to recycle your organic yard and kitchen wastes.
- Compost is an excellent soil conditioner for even the smallest yard and garden—it's safe to use and it costs practically nothing to make.
- Compost grows healthy plants and healthy plants improve the air by removing carbon dioxide and making fresh oxygen.
- For serious gardeners, compost is an inexpensive alternative to peat and other soil improvers.

For your community...

- Composting could remove more than 15 percent from the solid waste stream, if everyone participated.
- Many communities now ban leaves from landfills forcing residents to find other alternatives. Some communities have started composting programs.
- Composting eliminates air pollution caused by burning leaves and other yard wastes.
- Composting recycles nutrients by returning them to the soil.

NYSDDC

Division of Solid Waste Bureau of
Aesthetics, Pollution and Recycling

100 Wall Street

Room 501, New York, NY 10038

TROUBLESHOOTING YOUR COMPOST PILE

SYMPTOM

PROBLEM

SOLUTION

The compost has a bad odor.

Not enough air.

Turn the mixture.

The center of the pile is dry.

Not enough water.

Moisten materials while turning the pile.

The compost is damp and warm in the middle but nowhere else.

Too small.

Collect more material and mix the old ingredients into a new, larger pile.

The pile is damp and sweet-smelling but still will not heat up.

Lack of nitrogen.

Mix in a nitrogen source like fresh grass clippings, fresh manure or bloodmeal.

Steam is rising from the compost pile.

Too hot—pile is too dry.

Add water.

Easy Backyard Composting



New York State

Department of Environmental Conservation

Division of Solid Waste Management

Brooklyn, New York

Department of Environmental Conservation

WHAT IS COMPOST?

Compost is a dark, crumbly, earthy-smelling mixture that consists mostly of decayed organic matter. Composting is a simple, natural process, Nature's way of recycling nutrients and returning them to the soil so that they can be used again. *By taking advantage of this natural recycling process, you can help lighten the load of waste that would otherwise go to a landfill.*

Compost is used for fertilizing and conditioning soil. It can be made from materials that most households throw out.

WHAT CAN I COMPOST?

- Yard wastes, such as fallen leaves, grass clippings, weeds and the remains of garden plants.
- Kitchen scraps EXCEPT FOR meat, fish, bones and fatty foods (such as cheese, salad dressing and leftover cooking oil).
- Woody yard wastes, chipped or shredded, can be used as a mulch or for paths where they will eventually decompose and become compost.

HOW DO I MAKE A COMPOST PILE?

It's easy! Follow these simple steps and in just a few hours, you'll be in business. To build a simple compost bin, you'll need:

- Small-mesh wire fencing or snow fencing
- Seven or more rough boards or stakes, depending on the shape of bin you choose—see the illustration for suggestions



Build a square, rectangular or circular structure—your choice. For a typical home garden, a bin 3 to 4 feet in height and 5 to 8 feet square will do. Locate it away from buildings and combustible materials.

To start your compost pile:

- (1) Spread a layer of plant wastes 6 to 8 inches deep in the bottom of your bin. Moisten the layer thoroughly.
- (2) Make a second layer of high nitrogen fertilizer, such as 10-10-10. This will be a very thin layer—use ONLY about ½

pound or 1 cup to each 30 to 35 square feet. Moisten thoroughly.

- (3) Make a third layer with a few shovelful of garden soil, about 1 to 2 inches deep. This will ensure that plenty of decay organisms are present in your compost pile. Again, moisten thoroughly.

That's all there is to it!

Repeat steps 1, 2 and 3 until you have used up your waste material. To start, your pile should have at least 4 or 5 layers of waste.

Kitchen scraps (minus meat, fish, bones and fatty foods) should be added to the center of the waste layers where heat will be the greatest.

Pile waste material loosely in the bin. Too much compaction inhibits the flow of air through the pile.

It helps to make the top layer slant toward the center where it will catch rainfall. *Water is the key to successful composting.* A compost pile should be

kept damp—but not soggy—especially during dry spells.

Be patient! It will take six months to a year before the compost is ready for use.

COMPOSTING DO'S AND DON'TS

DO add lime, small amounts of wood ashes or crushed eggshells to the compost pile to neutralize acids which may form and cause an odor problem.

DO mix grass clippings with other wastes to loosen them up. They have a tendency to compact.

DO keep compost pile damp, especially during dry spells.

DON'T use unfinished compost. It will rob your plants of nitrogen instead of acting as a fertilizer.

DON'T compost weeds that are heavily laden with seeds. Some seeds will not be killed during the heating process.

DON'T add meat, fish, bones or fatty food scraps to the compost mixture. They will attract animals (dogs, cats, rats, etc.) and they do not decompose readily.

DON'T add diseased vegetable plants to the pile if the compost will be used on a vegetable garden.

FOR MORE INFORMATION

If you want to know more about composting and about other, more elaborate, ways to make good compost, consult books or gardening magazines at your local library—or call your county Cooperative Extension office, listed in the telephone directory.



HOUSEHOLDER'S GUIDE TO RECYCLING

BEFORE YOU RECYCLE . . .

Reduce the amount of material requiring disposal:

- Avoid the purchase of bulky, disposable items
- Pass on magazines, books and catalogs to neighbors, hospitals and nursing homes
- Buy products in reusable containers or in simple packaging
(The average family of 4 pays \$1 for packaging in every \$11 spent for groceries)

Reuse as much as possible

- Plastic containers can be reused for food storage, glass jars for nails, tacks, etc.
- Reuse wrapping paper, plastic bags, boxes and lumber
- Give outgrown clothing to friends or donate it to a local charity
- Buy beverages in returnable containers
- Try to repair before you consider replacement of lawn mowers, tools, vacuum cleaners, TV's
- Donate broken appliances to Goodwill Industries, a local rescue mission or charity or find out if a nearby vocational school can use them for parts or to have students practice repairing them
- Offer furniture and household items no longer needed to college students and friends, or donate to charity
- Join with neighbors and have a garage sale

PREPARING TO RECYCLE

First *Ask* your local government if there is a recycling center in your community or;
Contact your local recycling or scrap dealer to find out which recyclables they accept.

Second *Decide on a storage area*

To store glass, cans and newspapers for one month, you'll need an area about 3'x 3', enough for three boxes or bags—not hard to find around the house:

Third *Get some tools together*

- Some heavy brown bags and corrugated boxes
- Twine for tying bundles of paper and magazines
- A magnet for testing metals
- A can opener for removing ends of cans

**RECYCLE • BUY RECYCLED PRODUCTS •
PROMOTE RECYCLING • SUPPORT RECYCLING PROGRAMS**

For further information write:

New York State Department of Environmental Conservation
Division of Solid Waste
Bureau of Waste Reduction and Recycling
Room 200, 50 Wolf Road
Albany, New York 12233-4015

Telephone Number: (518) 457-7337

New York State is very grateful for the use of this material, which was originally prepared for the
Pennsylvania Department of Environmental Resources .

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RECYCLABLE MATERIALS

Materials

Glass



What Can Be Recycled
Glass containers:
clear, amber and green

What Can't Be Recycled
milk-white glass
plate glass
light bulbs
fluorescent bulbs
crystal

Recycling Preparation

Rinse—labels can stay on
Remove metal rings with awl,
screwdriver or needle-nose
pliers
Separate by color
Store—do not break

Paper

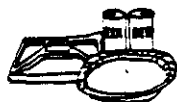


newsprint
corrugated boxes
egg cartons
junk mail
telephone books
computer cards and
print out paper

waxed or plastic-coated
cellophane

Newspapers—keep clean and
dry, stack less than 1 ft. high,
tie with twine or pack in brown
grocery bag or box
Cardboard—break down flat,
stack and tie in small bundles.
Office—stack in separate box.

Aluminum (non-ferrous metal)



all aluminum
foil food wrap, TV trays,
pie tins;
ice cube trays
aluminum siding, storm
doors, windows and
gutters, lawn furniture

Trays, tins, foil; rinse, flatten
and store

Other—

remove foreign materials
cut into 3 ft. lengths
tie or store separately
in bags or bundles

Ferrous Metal



most ferrous metals, but
separated according to type:
cast iron, steel sheet metal,
tin-coated cans, bi-metal cans
(steel and aluminum)

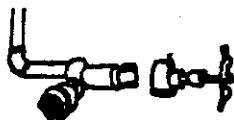
non-ferrous metals cannot be
mixed with ferrous metal; they
can be identified with a magnet,
which *will not* stick to them.

Tin Cans—test with magnet,
rinse, remove labels and ends,
flatten (include ends) store in box
or bag.

Bi-metal Can—Prepare same
way as tin cans, but store
separately.

Other ferrous: check with local
scrap dealer about preparation
and selling.

Non-ferrous Metals



nickel, bronze, copper, brass
and lead

ferrous metals cannot be
mixed with non-ferrous (test
with magnet which will stick
to ferrous metals)

Check with your local scrap
dealer or recycling center
about preparation and sale.

Plastics

all plastic containers

Rinse, remove metal caps.
Flatten and store.

Organic Wastes

non-animal food scraps,
yard and lawn waste

meat and fish scraps (attract
and breed pests)

Ask your local library or
county agricultural extension
for composting instructions.

Motor Oil



oil drained from a car, motor-
cycle, or lawn mower

oil contaminated by anti-
freeze

Drain oil into container. Seal
securely and take to a Used Oil
Collection Site

If you have questions about:

- **Landfill closures**
- **Solid waste planning and planning grants**
- **Solid waste technical assistance**
Call: Bureau of Facility Management
(518) 485-5854
David A. Blackman, Chief

- **Landfill permitting**
- **Sludge management**
Call: Bureau of Municipal Waste Permitting
(518) 457-2051
David R. O'Toole, Chief

- **Solid Waste Management Board**
- **State Solid Waste Management Plan**
- **WASTELINE newsletter**
Call: Bureau of Program Resource Management
(518) 457-2553
Albert H. Muench, Chief

- **Ash residue**
- **Solid waste incineration**
- **Waste-to-energy incineration**
Call: Bureau of Resource Recovery
(518) 457-7336
H. Richard Koelling, Chief

- **Recycling assistance**
- **Recycling education and consumer awareness**
- **Recycling grants**
- **Waste reduction**
Call: Bureau of Waste Reduction and Recycling
(518) 457-7337
William C. (Bud) Colden, Chief

Division of Solid Waste
Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-4010



Department of Environmental Conservation

DEC REGIONAL SOLID WASTE ENGINEERS




New York State
Department of Environmental Conservation

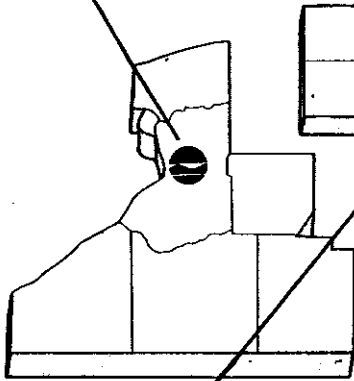
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THOMAS C. JORLING, *Commissioner*



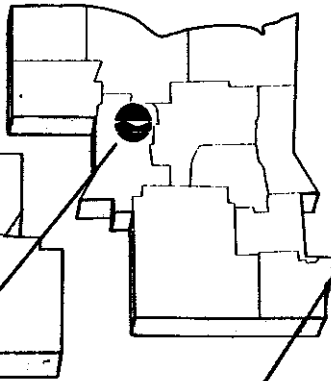
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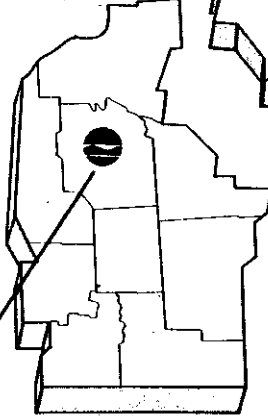
REGION 9 (Allegany, Cattaraugus, Chautauqua, Erie, Niagara, Wyoming)
Robert Mitrey
600 Delaware Avenue
Buffalo, NY 14202
(716) 847-4585



REGION 8 (Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne, Yates)
Edward Kieda
6274 East Avon-Lima Road
Avon, NY 14414
(716) 226-2466 Ext. 255



REGION 7 (Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga, Tompkins)
Larry Gross
615 Erie Boulevard West
Syracuse, NY 13204
(315) 426-7531



REGION 6 (Herkimer, Jefferson, Lewis, Oneida, St. Lawrence)

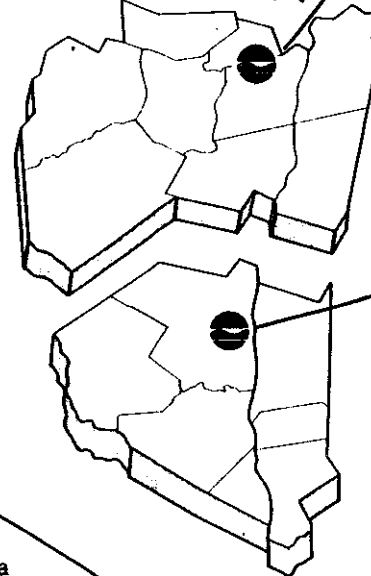
MAIN OFFICE
John Kenna
State Office Building
317 Washington Street
Watertown, NY 13601
(315) 785-2513

SUB-OFFICE
Robert Senior
State Office Building
207 Genesee Street
Utica, NY 13501
(315) 793-2554



REGION 2 (New York City)
Gilbert Burns
Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101
(718) 482-4991

REGION 5 (Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren, Washington)



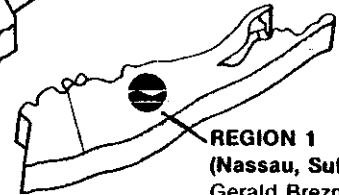
MAIN OFFICE
George Stahler
Route 86
Ray Brook, NY 12977
(518) 891-1370

SUB-OFFICE
Constantine Carayiannis
Box 220
Hudson Street Extension
Warrensburg, NY 12885

REGION 4 (Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady, Schoharie)
Richard Forgea
2176 Guilderland Avenue
Schenectady, NY 12306
(518) 382-0680

DEC CENTRAL OFFICE
Division of Solid Waste
50 Wolf Road, Albany, NY 12233-4010
(518) 457-6603
Norman H. Nosenchuck, Director
John J. Willson, Assistant Director

REGION 3 (Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester)
Richard Gardineer
21 South Putt Corners Rd
New Paltz, NY 12561
(914) 255-5453



REGION 1 (Nassau, Suffolk)
Gerald Brezner
SUNY
Campus Building 40
Stony Brook, NY 11794
(516) 751-2617

 **REGIONAL OFFICES/SOLID WASTE ENGINEERS**
Division of Solid Waste
New York State Department of Environmental Conservation

APPENDIX H

- **Glossary**



GLOSSARY

Amber Glass: Term used by container industry for brown glass.

Avoided Cost: Solid waste management cost savings resulting from waste reduction and recycling measures, for example, avoided waste disposal costs or avoided garbage collection costs.

Baler: A machine in which waste materials are compacted to reduce volume, usually into rectangular bundles.

Bi-Metal Can: A can made from two or more metals, usually a steel body and an aluminum lid.

Biodegradable Materials: Waste materials which is capable of being broken down by bacteria into basic elements. Most organic waste such as paper and food remains are biodegradable.

Boxboard: Paper used in manufacturing of cartons and rigid boxes.

Brown Goods: Obsolete electronic products, including but not limited to: televisions, microwave ovens, air conditioners and stereo components.

Button Battery: A small battery containing mercury, often used in watches, cameras and hearing aids.

Bulky Waste: Large items of waste materials, such as appliances, furniture large auto parts, trees, branches, stumps, etc.

Buy-Back Programs: Programs to purchase recyclable materials from the public.

Classification: To arrange or sort waste materials into uniform categories or classes, usually by size, weight, color, organic/inorganic, etc.

Collection Center: A facility designed to accept materials from individuals, usually for recycling.

Color Sorting of Glass: A technique for sorting by color glass reclaimed from solid waste. Two experimental methods have been developed:

- 1) Optical sorting which compares light reflected from each piece with light reflected from a background standard. Successive passes, with different light source filters and standards, could be color selective.
- 2) Magnetic sorting which utilizes high-intensity magnetic forces on small glass pieces to sort the clear glass from the colored glass (which contains iron compounds).

Combustibles: Various materials in the waste stream which are burnable, such as paper, plastics, lawn clippings, leaves and other light, organic materials.

Commercial Waste: Waste material which originates in wholesale, retail or service establishments such as office buildings, stores, hotels, universities and warehouses.

Compactor: Any power-driven mechanical equipment designed to compress and reduce the volume of waste materials.

Compactor Truck: A large truck with an enclosed body having special power-driven equipment for loading and compressing waste materials.

Composting: A solid waste management technique which utilizes natural processes to convert most organic materials to humus by micro-organism activity. Two common composting processes include aerated windrow composting and static pile composting.

Construction and Demolition Waste: Waste building materials, dredging materials, grubbing waste, and rubble resulting from construction, remodeling, repair and demolition operations on houses, commercial buildings and other structures and pavements.

Contaminant: Foreign material that makes a primary material impure. For instance, food waste on paper products.

Corrugated Paper: Heavy paperboard, molded into parallel ridges and grooves (called linerboard and medium).

Cullet: Scrap glass, usually ground and/or crushed into small uniform pieces.

- 1) Waste or broken glass, usually suitable as an addition to raw batch.
- 2) Foreign cullet-cullet from an outside source.
- 3) Domestic cullet (factory cullet) from within the plant.
- 4) Mixed cullet-scrap glass which is not separated by color.

Curbside Recycling: The generic term for scheduled recycling collection service to households and/or businesses.

Deinking: A process in which most of the ink, filler and other extraneous materials is removed from printed waste paper. This produces pulp which can be used along with varying percentages of virgin paper in the manufacture of new paper, including high quality printing, writing and office papers as well as tissue and toweling.

Detinning: The chemical separation of tin plated steel, including scrap tin cans, into recyclable tin and steel.

Drop-Off Center: A collection location where citizens or businesses can deliver separated secondary materials, such as newspapers, glass containers and leaves.

Durable Goods: Products designed for long-term use, such as furniture, rugs, mattresses, appliances and tires. (Durable goods do not include cars and other motor vehicles.)

End User: The final consumer of collected recyclable materials, where these materials are remanufactured into finished products.

Ferrous: Metals which are predominantly composed of iron. Most common ferrous metals are magnetic. In the waste materials stream, these usually include steel or "tin" cans, automobiles, old refrigerators, stoves, etc.

Flint Glass: Term used by container industry for colorless glass.

Flow Control: A practice by which state or local officials seek to guarantee the flow of all waste to the waste-to-energy plant. This practice stems from officials' need to assure an adequate supply of waste to keep the waste-to-energy facility (see Resource Recovery Facility) operating efficiently. A flow control ordinance can prohibit or even obstruct the free market access to recyclable materials which can be utilized as raw materials for the manufacture of new products.

Garbage: Waste materials which are likely to decompose or putrefy. Usually contains food waste from a kitchen, restaurant, slaughterhouse or food processing plant.

Glasphalt: A trade name for a highway paving material in which recovered ground glass replaces some of the gravel normally used in asphalt.

Hammermill: A type of crusher used to break up materials into smaller pieces or particles, which operates by using rotating and flailing heavy hammers.

HDPE: An acronym for high-density polyethylene plastic.

High Grade Deinking: A paper industry term that refers to recyclable paper that is of a high grade and printed grade that has been deinked.

High Grade Waste: Waste paper that is of the most value in the market place. High grade waste paper includes trimmings and cuttings from converting plants, computer printouts, tabulating cards and desk top paper. High grade waste paper is often collected in offices. In the paper industry, high grade waste paper is referred to as pulp substitutes and high grade deinking.

Industrial Wastes: Unwanted materials produced in or eliminated from an industrial operation. They may be categorized under a variety of headings, such as liquid wastes, sludge wastes, solid wastes.

IGP: Intermediate Glass Processors. Businesses or organizations who purchase cullet from smaller suppliers, process the glass, and sell the contaminant-free cullet to glass plants.

Integrated Solid Waste Management: A solid waste management strategy that incorporates source reduction, reuse, recycling, composting, energy recovery and landfilling.

Intermediate Processor: A company that purchases source-separated materials from municipalities and private sanitation companies, processes the materials, and sells them to an industrial market, where the materials are used as a feedstock in manufacturing.

LDPE: An acronym for low-density polyethylene.

Magnetic Separator: Equipment usually consisting of a belt, drum or pulley with a magnet used to attract and remove magnetic materials from other materials.

MRF: An acronym for materials recovery facility. A facility that recovers materials from the waste stream by separation or processing utilizing manual or automated means.

Mixed Office Papers: Mixed waste paper which is generated in the office and is of high recycling value. This waste paper is of various kinds and quality of high grade waste paper. (See High Grade Waste Paper.)

Mixed Paper: Waste paper of various kinds and quality, usually collected from stores, offices and schools.

Molded Pulp Products: Contoured fiber products molded from pulp for such uses as egg packaging, trays for fresh meat and plates.

Municipal Solid Wastes: The combined residential and commercial waste materials generated in a given municipal area. The collection and disposal of these wastes are usually the responsibility of local government.

Newsprint: The kind or type of paper generally used for printing newspapers.

Nonferrous: Metals which contain no iron. In waste materials these are usually aluminum, copper wire, brass, bronze, etc.

Organic Refuse: Waste materials from substances composed of chemical compounds of carbon and generally manufactured in the life processes of plants and animals. These materials include paper, wood, food wastes, plastic and yard wastes.

Packaging Materials: Any of a variety of papers, cardboards, metals, wood, paperboard and plastics used in the manufacture of containers for food, household, commercial and industrial products.

Paper: In a general sense, the name of all kinds of matted or felted sheets of fiber formed on a fine screen from a water suspension. More specifically, paper is one of two broad subdivisions (the other being paperboard) of the general term paper. Paper usually lighter in basis weight, thinner and more flexible than paperboard, is used largely for printing, writing, wrapping and sanitary purposes.

Paperboard: Relatively heavier in basis weight, thicker and more rigid than paper. There are three broad classes of paperboard:

- 1) container board
- 2) boxboard
- 3) special types such as automobile board, building board, tube board, etc.

Paperstock: A general term used to designate waste papers which have been sorted or segregated at the source into various recognized grades. It is a principal ingredient in the manufacture of certain types of paperboard.

PET: An acronym for polyethylene terephthalate (more commonly called polyester), one of the members of the family of plastic barrier resins.

Plastics: Man-made materials consisting of large molecules called "polymers" containing primarily carbon and hydrogen with lesser amounts of oxygen or nitrogen, frequently compounded with various organic and inorganic compounds as stabilizers, colorants, fillers and other ingredients.

Pulp: Fiber material that is produced by chemical or mechanical means from fibrous cellulose raw materials and from which paper and paperboard is made.

Pulp Substitutes: A paper industry term that refers to a grade of recyclable paper that is print free. (See High Grade Paper and Mixed Office Papers.)

Putrescible: Subject to decomposition or decay. Usually used in reference to food wastes and other organic wastes.

PVC: An acronym for polyvinyl chloride.

Pyrolysis: The process of chemically decomposing an organic substance by heating it in an oxygen-deficient atmosphere. The major products from pyrolysis of solid waste are water, carbon monoxide and hydrogen. Applied

to solid waste, pyrolysis has the features of effecting major volume reduction while producing storable fuels.

Reclamation: The restoration to usefulness or productivity of materials found in the waste stream. These reclaimed materials may be used for purposes which are different from their original use.

Recycling: The reuse or reprocessing of source separated materials from the municipal solid waste stream such that the volume of the waste stream requiring disposal is reduced.

Refuse-Derived Fuel (RDF): A solid fuel obtained from municipal solid waste as a result of a mechanical process, or sequence of operations, which improves the physical, mechanical or combustion characteristics compared to the original unsegregated feed product or unprocessed solid waste.

Residential Waste: Waste materials generated in houses and apartments. The materials include paper, cardboard, beverage and food wastes, glass containers, old clothes, garden wastes, etc.

Resource Recovery: A term describing the extraction and utilization of materials and values from the waste stream either as materials which can be used as "raw materials" in the manufacture of new products which can be converted into some form of fuel or energy source.

Resource Recovery Facility: Facilities that convert materials from the waste stream into some form of fuel or energy source. Also referred to as waste-to-energy plants.

Roll-Off Container: Used primarily by the solid waste industry for collection and storage, the containers come in various sizes, are moved via a special truck, and can be placed and left on the ground.

Sanitary Landfill: A land disposal system by which solid wastes are deposited and compacted before burial in a specially prepared area which provides for leachate collection, treatment and environmental monitoring.

Secondary Materials: All types of materials handled by dealers and brokers that have fulfilled their useful function and usually cannot be used further in their present location, and materials that occur as waste from the manufacturing or conversion of products.

Separation: To divide waste into groups of similar materials, such as paper products, glass, food waste and metals. Also used to describe the further sorting of materials into more specific categories such as clear glass and dark glass. Separation may be done manually or with specialized equipment.

Shredder: A mechanical device used to break up waste materials into smaller pieces by tearing and impact action.

Side-Loaders: A refuse truck in which solid waste is loaded into the side of the vehicle.

Source Separation: The segregation and collection of individual recyclable components before they become mixed into the solid waste stream (e.g. bottles, cans, newspapers, corrugated containers or office papers.)

Tin Can: Essentially a steel can with a tin (approximately .0015 inch) coating. This tin represents one-third of the recycled value of the can while comprising only .25 to .4 percent by weight.

Tin-Free Steel (TFS) Cans: Cans made from low-carbon steel with a very thin anti-corrosion coating of chromium oxide rather than tin.

Tipping Fee: The charge assessed for unloading solid waste at a disposal or transfer site.

Transfer Station: A facility which receives deliveries of solid waste by local collection vehicles and provides for transfer to larger vehicles which deliver wastes more economically to resource recovery or landfill facilities.

Used Motor Oil: Any oil previously used in any machinery. Its main markets are as industrial fuel or in rerefining.

Virgin Materials: Any basic materials for industrial processes which have not previously been used (e.g. trees, iron ore, silica sand, crude oil, bauxite.)

Volume Reduction: The processing of waste materials so as to decrease the amount of space the materials occupy, usually by either:

- 1) mechanical (crushing or shredding);
- 2) thermal (incineration or pyrolysis); or
- 3) biological (composting) processing.

Voluntary Separation: The separation of glass bottles, food and beverage cans or newspaper by hand by individuals or groups of individuals.

Waste Paper: Paper that has been discarded. This paper can be used again as a recyclable material, if the grade of paper is acceptable and if the paper is separated before it enters the waste stream.

Waste Pulper: A pulping system designed specifically for waste material processing.

Waste Reduction: Preventing and/or decreasing the amount of waste at its source by changing societal patterns of design, production or consumption.

Waste Stream: A general term used to denote the waste material output of an area, location or facility.

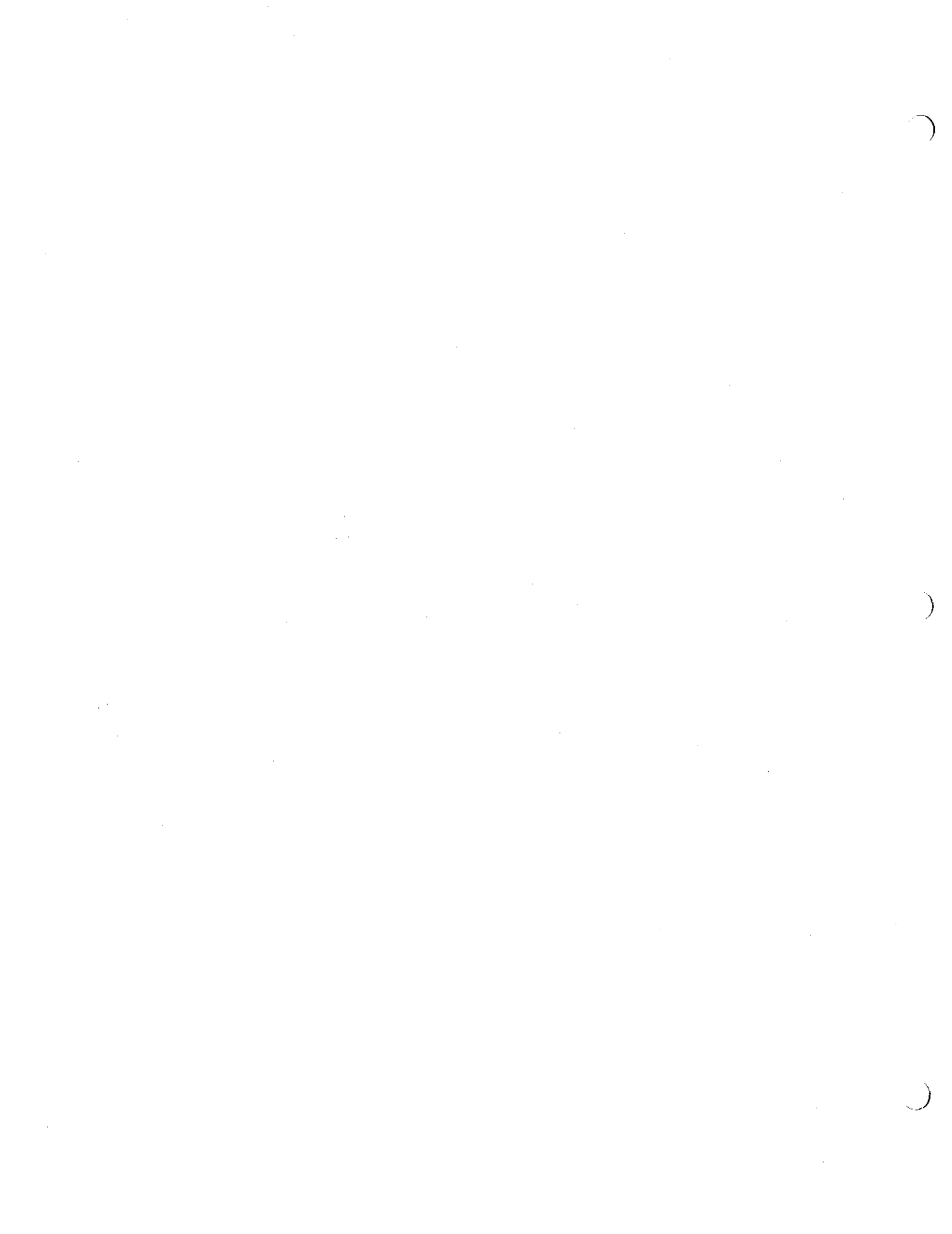
White Goods: Generic term used to describe major appliances such as refrigerators, stoves, washers, dryers, etc.

Wood Pulp: The primary materials from which most papers are made. It is made of small, loose wood fibers mixed with water.

Yard Wastes: Grass clippings, pruning and other discarded material from yards and gardens.

APPENDIX I

- **Public Involvement**



PUBLIC INVOLVEMENT FOR BETTER DECISIONS

December, 1989

Office of Public Affairs
New York State Department of Environmental Conservation
50 Wolf Road, Room 509
Albany, New York 12233-4500

FOREWORD

This book was prepared by DEC communication staff. We hope it will help people who make government decisions, as they inform and consult with the public on whose behalf they are acting.

Contributors:

Bruce Bentley, Citizen
Participation Specialist, Division
of Hazardous Site Remediation

Robert E. Budliger, Chief, Bureau
of Environmental Education

Michael J. Cavanaugh, Acting Chief,
Bureau of Community Affairs

Robert deVilleneuve, Chief,
Publications Production Section,
Bureau of Publications

Larry Ennist, Citizen Participation
Specialist, Division of Hazardous
Site Remediation

Edward Feldmann, Associate Director
of Public Affairs

Mary A. Kadlecek, Chief, Bureau of
Publications

Charles McNulty, Community Affairs,
Division of Solid Waste

Lois A. New, Citizen Participation
Specialist, Division of Water

Compiled and Edited by Mary Kadlecek

Madeline J. Lewis, Assistant Commissioner for
Public Affairs

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Public involvement means an exchange of information, ideas, concerns or preferences related to decisions to be made. Increasingly, government and citizens are recognizing that public involvement can bring important benefits:

- Better decisions, taking into account the perspectives, values and knowledge of the public on whose behalf they are made;
- More lasting commitment to implementation;
- Greater support for government policies, programs or projects, and, often,
- Independent action by individuals and groups to accomplish program purposes.

These benefits can only be achieved if the public is invited to be involved freely and comprehensively in decisions. Open and responsive public involvement will:

- Identify accurately and completely the problem that the program or project is to solve;
- Provide clear, accurate and timely information about the program's rationale and progress;
- Resolve conflicts about program purposes and actions;
- Influence, but not replace, action by decisionmakers.

This manual provides guidance for government decisionmakers and staff on how to plan and conduct public involvement. It includes step-by-step planning guidance and tips for using common public involvement techniques.

The Public Has Many Faces

The word "public" suggests an undifferentiated crowd. For this reason, public involvement planners often speak of "publics" -- groups of people who have the same kind or degree of interest in the pending decision. Publics include:

- Individuals or groups known to be affected by the program or project;
- People who may be affected and people who think they may be affected;

- People whose support is needed to achieve program or project goals.

For environmental projects or programs, typical publics include: industrial, commercial, agricultural, environmental and consumer interests; individuals or businesses subject to regulation; taxpayers; homeowners; local, state and federal government agencies; citizens living or working near a proposed project; resource users.

Public Involvement Roles

Not everyone needs to or can be fully involved in every decision. The level, frequency and purpose of public involvement vary according to the needs of the program and the interests of the publics. For different publics, at different times in the course of a program or project, involvement may mean:

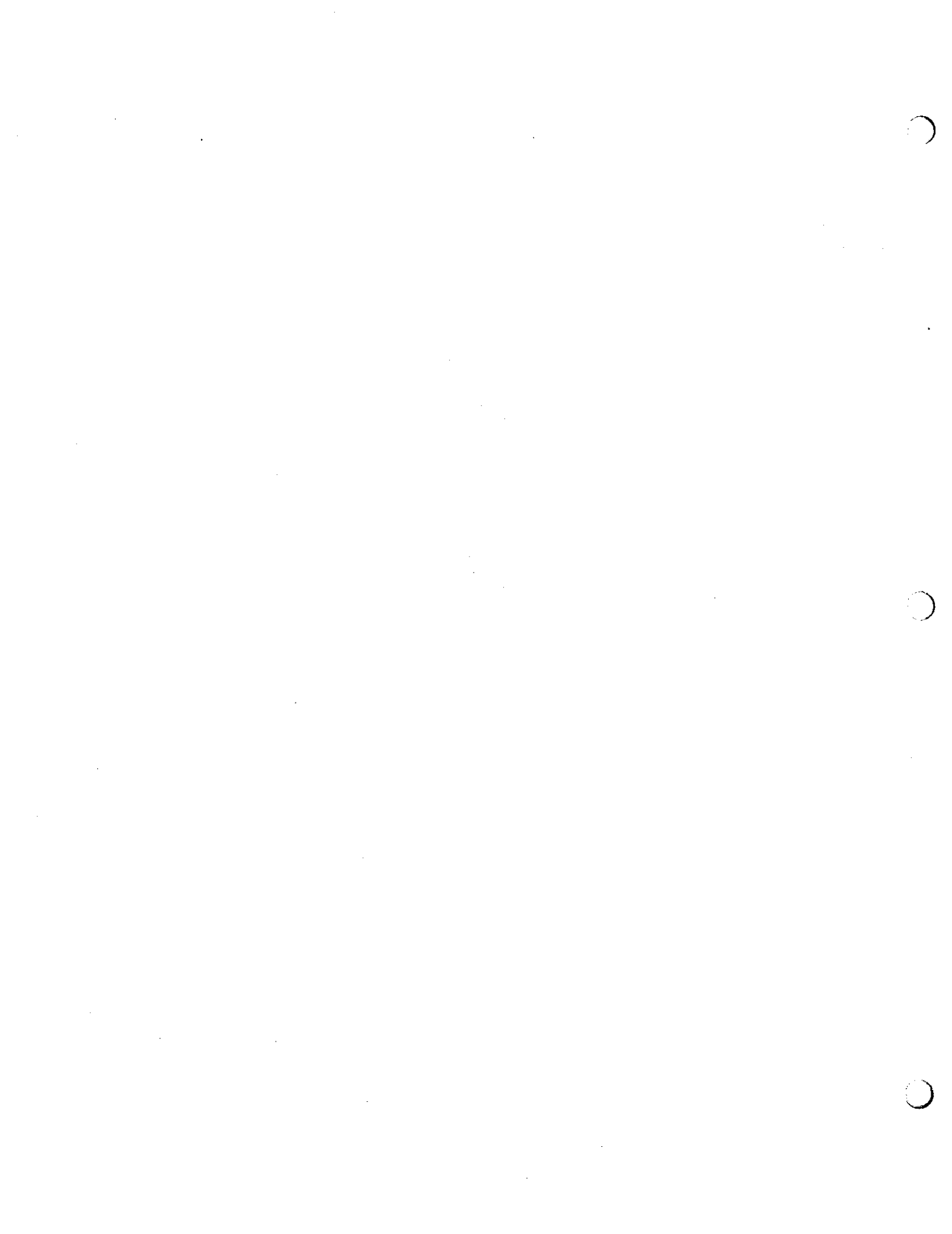
- **Awareness:** being informed about a contemplated decision or learning about environmental problems, issues or proposed solutions;
- **Comment:** reviewing and evaluating proposals; offering opinions and concerns;
- **Participation:** working to create proposals -- providing or analyzing information, suggesting alternative courses of action;
- **Action:** assuming responsibility for actions that will contribute to achieving environmental or program goals.

Principles of Public Involvement

All public involvement is based on these principles:

- There are many different publics.
- The earlier public involvement enters the project, the better both the decisionmaking process and the outcome will be.
- Involvement should continue throughout the decisionmaking process.
- Involvement is based on clear definition of project decision points and of how public input will be factored into decisions.
- Clear, understandable, timely and substantive information must be provided throughout the process.

- Participants must be treated credibly and receive feedback throughout the process.
- Public and decisionmaker needs sometimes change as the project develops, so public involvement plans should be regularly reviewed and modified.



PLANNING FOR SUCCESSFUL PUBLIC INVOLVEMENT

A public involvement program is a series of activities that meet the public's involvement needs and achieve the goals of the decisionmakers. The activities include informing the public, providing opportunities for comment and participation, responding to input and motivating people to act. Because these activities take time and cost money, it is important to plan so that they accomplish their purposes.

While there is no recipe for perfect public involvement, the following eight-step planning process has worked well for many programs:

1. Define the reasons for public involvement.
2. Identify the decision stage of the program.
3. Analyze the public.
4. Identify what information needs to be exchanged.
5. Define public involvement objectives.
6. Design activities to achieve public involvement objectives.
7. Prepare public involvement plan.
8. Incorporate the results of public involvement.

The above is not a rigid formula -- adjust it to fit your own needs and circumstances. The eight steps may not occur in the sequence in which they are given here: several may go on at the same time, or steps may be repeated as ideas develop and are refined. However, in some form all eight steps are necessary for successful public involvement.

This manual gives planning checklists for each step, based on ideas from people experienced in public involvement. Additional public involvement assistance is available from citizen participation staff in the Department of Environmental Conservation's Albany or regional offices.

Public Involvement Planning Step 1:

DEFINE THE REASONS FOR PUBLIC INVOLVEMENT.

You will develop: A written statement of public involvement goals, with decisionmaker signoff. A written goal statement guides public involvement activities; management concurrence will be helpful later, when you propose activities and request resources to carry them out.

TO DO

Obtain a written statement of goals (broad aims) and objectives (measurable steps toward achieving goals) for the program or project about which decisions will be made. Identify any program goals or objectives that are unlikely to be achieved without action by members of the public. If these goals or objectives are important to the success of the program, give them high priority in public involvement planning.

Consult with management and staff of the program or project about what they want to achieve through public involvement. Their first impulse may be only to tell the public about the program. Motivate program managers to listen, as well, actively using public involvement to develop a program that fits community circumstances and has a good chance of being accepted by the public.

Write down public involvement goals -- ways in which the public should have a role in preparing for decisions and carrying out the resulting policy, program or project. Typical public involvement goals might be:

- o Agree with the public on the problem to be solved by the program;
- o Involve the public in designing an acceptable program;
- o Create a program that people will not try to block;
- o Motivate people to take whatever actions are needed for program success.

Obtain written approval of public involvement goals from program management.

Public Involvement Planning Step 2:

IDENTIFY THE DECISION STAGE OF THE PROGRAM

You will develop: An analysis of how decisions are made in the program for which you are planning public involvement.

Any program, project or action goes through a series of decision stages:

- Problem or issue definition and goal-setting;
- Information-gathering (facts, perspectives);
- Formulation and evaluation of alternatives;
- Selection of a course of action;
- Implementation of programs or actions;
- Evaluation and adjustments.

Ideally, public involvement would begin with the earliest stage, problem definition. Sometimes, however, a program has progressed to later stages before the public becomes involved. Involvement planners need to be conscious of the decision stage of the program, and to make clear to the public whether any important decisions have already been made.

TO DO

Outline the decision process used in the program. For each decision stage, list the steps that have been taken or will be taken to accomplish it.

Identify what decision stage the program has reached. Pinpoint the last decision made and the next to be made.

Identify the decision schedule of the program. Estimate how long it will take to accomplish each step. Because some public involvement actions require substantial lead time, the program decision schedule determines what public involvement activities are feasible. Sometimes the decisionmaking schedule can be adjusted to accommodate involvement.

Public Involvement Step 3:

ANALYZE THE PUBLICS

You will develop: Preliminary listing and description of publics; preliminary determination of possible involvement roles for each public.

TO DO

List all individuals and groups who are or think they may be affected by the program, or whose support is necessary for the program's success.

Here are three ways to determine who might perceive themselves as affected by a program:

- Interested people or groups identify themselves by attending a meeting, writing a letter, phoning a hotline, etc.
- Program staff identify interested people, either from previous contacts or by using references such as:
 - o Published lists (telephone directory, direct mail lists);
 - o Demographic analysis (what age groups, income levels, etc. are likely to be affected);
 - o Geographic analysis (tax maps, topographic maps, watershed maps, land use maps, street directories);
 - o User information (from records of licenses or permits issued or registration to use a resource).
- Interested groups or individuals identify others. To encourage this, include a pass-along form in mailings, or ask interested people for names of others.

Group the interested people into "publics" by characteristics such as:

- Attitudes and values (e.g. hostility/support/neutrality; apathy/activism).
- Level of interest (e.g. intense/casual; continuing/sporadic/one-time).
- Type of interest (e.g. economic,

environmental, technical, social, neighborhood).

- Attributes (technical knowledge; community influence; affiliations).
- Communication channels (existing organizations, business or professional contacts, media, direct mail, personal contact).

Identify the role each public seems to want in the different stages of the project or program. Not everyone needs or wants to be fully involved in every program or every action. Make a preliminary identification of:

- o Which publics need or want to be aware of pending decisions or actions and to receive additional information;
- o Which publics need or want to review and comment, providing information or evaluations;
- o Which publics want to participate in creating proposals, and
- o Which publics need or want to assume responsibility for actions.

Repeat this analysis whenever new information comes to light about interested people or organizations, their characteristics and needs.

Public Involvement Step 4:

IDENTIFY WHAT INFORMATION NEEDS TO BE EXCHANGED

You will develop: A list of subjects to be discussed, attitudes, concerns and issues to be surfaced.

TO DO

Be sure the list of information to be exchanged includes:

What the public needs to know --

- _____ How decisions will be made and who will make them;
- _____ What problem is to be solved;
- _____ What issues have been raised about the problem or proposed solutions;
- _____ Information that has been gathered as background for decisions;
- _____ Alternative courses of action that have been identified;
- _____ How public input is incorporated into decisionmaking;
- _____ Other publics' problems, needs, values;
- _____ Any decisions already made.

What decisionmakers need to know --

- _____ Publics' values, beliefs and perceptions;
- _____ Publics' experiences, abilities and resources;
- _____ Prior commitments of publics that might interfere with program acceptance or support;
- _____ What publics already know and what information they want;
- _____ Activities being carried on by the publics that might be affected by the program;
- _____ Each public's preferred channels of communication;
- _____ Each public's evaluation of program actions and decisions.

Public Involvement Step 5:

IDENTIFY PUBLIC INVOLVEMENT OBJECTIVES

You will develop: A written statement of objectives for public involvement. The objectives directly determine the choice of activities for public involvement.

TO DO

_____ State public involvement objectives as roles for the publics you have identified. Statements of objectives might read like this:

- o Increase specific publics' awareness of the problem and of decisions;
- o Increase specific publics' understanding (more detailed than awareness) of problems, alternatives, actions;
- o Obtain information from specific publics;
- o Obtain review and comment from specific publics on problem definition or alternatives for action;
- o Obtain specific publics' participation in defining the problem, developing alternative solutions and proposing implementation strategies;
- o Encourage individuals, organizations and other publics to take actions to achieve program or project goals.

_____ Write separate objectives for each public you have identified and for each decision stage; simplify by combining objectives that are the same for different publics or different decision stages.

Public Involvement Planning Step 6:

SELECT AND DESIGN PUBLIC INVOLVEMENT ACTIVITIES

You will develop: A list of activities that will accomplish the involvement objectives.

TO DO

All public involvement activities use one or more standard communication techniques to give and receive information. The final section of this booklet gives hints for successfully using some common techniques. Choose techniques and design involvement activities in light of the following factors:

Program constraints

- Choose techniques that are comfortable for the people who will carry out the activities (e.g. if staff dislike public speaking, emphasize such techniques as small group meetings, publications, toll-free information numbers).
- Be sure there is time to train staff in necessary skills, and to properly prepare for all activities.
- Do not commit to more cost (in time, money or staff) than the program can bear.

Nature of publics

- Choose techniques and activities that the publics are comfortable with (e.g. publics unaccustomed to public speaking may prefer small, informal meetings to large formal hearings).
- Assess the willingness and ability of publics to get involved and use outreach techniques if people are uninterested.
- If conflicts exist or are likely, use techniques that explore publics' needs and create alternatives, but can be used separately with different groups until conflicts are resolved.
- Consider whether the community is geographically compact enough for people to travel easily to central points, or for neighborhoods to gather for involvement activities.
- Choose activities that are appropriate for the types of people to be involved. As an example, to involve people who have difficulty getting around,

choose telephone contacts or direct mail rather than meetings.

- If the publics do not already know the facts about the issue or if misinformation is common, plan activities that will provide a background of correct information.

Nature of issue

- If the issue depends largely on technical factors, include techniques that will help supply ample background information.
- If the issue depends principally on social factors, plan techniques that will acquaint decisionmakers with publics' values, and publics with one another's values.
- If the issue is controversial, use techniques and structure activities in ways that discourage demagoguery and polarization of opinion.
- If the issue is complex, break it down into small parts and focus public involvement activities on one part at a time.
- Check the history of public involvement on the project or program.
 - o Who has a history of cooperation or conflict with whom? Choose techniques that will encourage cooperators to continue, and keep people in conflict from deepening their divisions.
 - o What techniques have been comfortable or constructive for staff or publics? What techniques have been unsuccessful? Techniques with a good track record bear repeating, but techniques that have caused or increased communication problems should be replaced with other approaches.

Public Involvement Step 7:

PREPARE PUBLIC INVOLVEMENT PLAN

You will develop: A written plan documenting what is to be done, when, by whom, for what objective; include costs and budget information.

TO DO

_____ Write a "scope" for each proposed public involvement activity. The scope should include:

- Publics to be reached;
- Purpose and message;
- Schedule and budget;
- Notes about who will do the work and when and how it will be done;
- Staff and other resources required.

A sample form for scoping a publication appears on the following page. A similar approach can be used for any activity or technique.

_____ Combine schedules from the scope forms to produce the public involvement schedule. If preparatory steps for several activities coincide or the same staff are involved in several activities at once, reschedule, adjust or eliminate activities. Take advantage of situations where the same activity can serve more than one audience or purpose.

_____ Allocate public involvement resources. Refine estimates of costs (staff, budget, space, vehicles, equipment, supplies) and adjust public involvement program, if necessary, to stay within available resources.

_____ Prepare the public involvement plan, incorporating publics and their roles, involvement objectives, schedules, budgets. Present the plan to project management and consider presenting it to affected publics, as well.

You may feel that preparing a public involvement plan is too time-consuming for your busy schedule. But planning may actually save you time: it helps you keep everyone informed about your public involvement rationale and intentions; it provides a coherent basis for the host of day-to-day decisions that involvement planners are required to make; it lets you quickly respond to changes in program or project circumstances or priorities.

DOCUMENT SCOPE

(WORKING) TITLE:

PURPOSE(S): (Objectives the publication is intended to serve)

AUDIENCE: (Publics for whom the publication should be styled)

MESSAGE(S): (Information or themes to be included)

FORMAT: (Size; number of pages; number of sections; color; illustration; style of presentation, such as question and answer, fact sheet, etc; special features)

RESPONSIBILITIES: (Who is to do which steps toward creating the publication)

BUDGET: (Estimated cost of publication development, printing, distribution)

SCHEDULE: (Starting and completion dates of each step in writing and producing the publication)

DISTRIBUTION: (Number of copies and how they are to reach audience -- direct mail, meeting handouts, etc)

SPECIAL CONSIDERATIONS: (Is publication part of a series? Are there special time or audience constraints?)

Public Involvement Step 8:

INCORPORATING RESULTS OF PUBLIC INVOLVEMENT

You will develop: Documentation of how information and evaluations contributed by the public are considered when decisions are made. Such documentation will help you make people aware that their input is being considered and help decisionmakers and publics alike understand the extent to which public input affects decisions.

TO DO

Agree with decisionmakers on how information, evaluations and recommendations from the publics will be incorporated. Consider summarizing each input activity immediately after it occurs. Encourage decisionmakers and program staff to weigh all information and values expressed and to recognize input not only in comments and participation activities, but also in letters, telephone calls and other contacts.

Choose responsiveness techniques to systematize incorporation of input and to inform the public of how input was used.

Ways to document public input and how it has been considered include:

- o Responsiveness summaries -- documents or presentations acknowledging information, alternatives and evaluations from the public and explaining how the input was used, or why it was not used. Formal written responsiveness summaries are often issued after public involvement activities are complete and program decisions are made. But issuing responsiveness summaries after individual decision stages builds credibility, stimulates additional comments and allows decisionmakers to check their interpretations of public input.
- o Other written follow-up -- follow-up letters, minutes of meetings with editorial notes and reminders, revised plans or other documents and verbal reports.
- o Informal and spontaneous personal contacts-- telephone calls or visits with the public involvement specialist or program staff.

USING PUBLIC INVOLVEMENT TECHNIQUES

Which Technique to Use?

Almost any technique can be used to accomplish any public involvement objective -- if the technique is properly tailored to its purposes. How you use the technique is more important than which technique you choose: any well-conducted public involvement activity will enhance your program's credibility, while any poorly-conducted activity will damage it.

Many programs make repeated use of a few techniques with which the staff are comfortable, rather than employing the full range of techniques. Even if you only use a few techniques, you can effectively involve the public if you set up each public involvement activity in the following way:

- Clearly identify and express the purpose of the activity, including information you want to receive from the publics and information you want to communicate to them.
- Satisfy yourself that the technique you plan to use will accomplish your purposes and be useful to the publics; if you are in doubt, consider other techniques, including those you have not previously used.
- Consider how you might combine several techniques in one involvement activity -- for example, open a meeting with an audio-visual presentation, or follow up a call on a telephone information line with a direct-mail fact sheet.
- Attend carefully to the mechanics of communication -- speaker preparation, cleanly printed publications, well-focused slides.
- Be careful about the logistics of your activity (adequate meeting facilities, effective distribution of publications, functioning audio-visual equipment, convenient scheduling and locations).
- Record the outcomes of each public involvement activity -- take notes or record meetings, summarize calls and letters. Respond to input whenever possible, either immediately or later.

How to do it Right?

The following pages give tips on how to use 13 common public involvement techniques, along with suggestions for when to use each technique and brief summaries of advantages and limitations.

ADVERTISEMENT: PAID

Paid use of media to carry content controlled by the advertiser.

Consider Using Paid Advertisements...

- When you want to control how your message is presented in the media -- its content, appearance and timing.
- When the people you want to reach are regular users of a particular medium, such as local television or newspaper or a trade publication.

Tips on Developing Advertisements

- The single most important element in your advertising must be focus. Exactly who are you trying to reach with your ad? What are you trying to achieve?
- Base your ad on what you think will motivate or interest your audience. Self-interest is a powerful force -- relate your message to your audience's self-interest, so they will have a reason to act.
- Keep your message simple and your style concise.
- The most effective advertising medium is the one that reaches the greatest numbers of targeted individuals per dollar spent.
- Some of the ads competing with yours for attention have been carefully crafted by very talented advertising professionals. If possible, spend the additional money to get professional help on your advertisement.
- Explore placing your ad through an advertising agency. The agency gets a discount from the medium and charges you the same price for space or time as that medium would. But you get the benefit of the agency's expertise in designing and placing your ad.
- If you deal directly with the media, take advantage of services they offer to improve your ad.
- Prepare yourself by doing a bit of library research on ad design and copywriting. Seek help from local schools and business colleges. If there is enough lead time, you might be able to get some co-op student time to work on your project, to your mutual benefit.
- Know what you can do to control costs in your advertising. In print advertising, ad size, color and

frequency are cost factors. Length, time of day and frequency are cost factors for broadcast advertising.

- Evaluate your advertising campaign for effectiveness.

Some Advantages and Limitations of Paid Advertising

- Advertisements are a reliable way to achieve mass coverage, without interpretation by reporters and editors.
- Ads provide a record that you attempted to reach the target audience with your message at a specific time.
- Producing and placing an ad that attracts attention -- whether for print or broadcast -- can be expensive.

ADVERTISEMENTS: PUBLIC SERVICE ANNOUNCEMENT

Free time or space donated by print or broadcast media in the public interest.

Consider Using Public Service Announcements...

- When you need mass coverage but cannot afford to buy space or time.
- When your cause is sufficiently attractive to win you valuable media time or space.

Tips for Effective Public Service Announcements

- Submit public service announcements (PSAs) in the videotape or column format used by the medium. Supply print PSAs in camera-ready form.
- Your submission must be of professional quality. No matter how good the cause, media are not going to carry PSAs with glaring technical deficiencies when there is so much high-quality material from which to choose.
- Fit the time broadcast media have available. A 10-, 20- or 30-second spot is more likely to run than a longer spot.
- Don't expect media to run PSAs instead of, or in competition with, paid advertising.
- Celebrities can increase the likelihood of your PSA being used. Feature sports or entertainment figures or (except during political campaigns) a popular local elected official.
- With every PSA mailing, send a cover letter telling clearly when to run the PSA.
- If you want to know what use was made of your PSA, schedule a follow-up telephone call to a sample of the media to whom you sent the PSA. Do not expect busy media staff to return a mail-back use report.

Some Advantages and Limitations of PSAs

- PSAs can give important exposure to your message, without incurring space or time charges.
- Producing and packaging an appealing PSA will cost money.
- PSAs let you control the content of your message, but

do not give you control over whether, when or how often
your message is carried -- no matter how attractive the
PSA, there is no guarantee that it will run.

AUDIO-VISUAL PRESENTATION

Exhibits and displays, signs, slide programs, overhead transparencies, films and videotape presentations.

Consider Using Audio-Visual Presentations

- When the audience you are trying to reach will understand your message better if they can see important aspects of it.
- When the staff people making presentations need relief from being the single focus of an audience during an entire meeting. (However, be careful not to use audio-visuals as a substitute for a well-prepared presentation.)

Tips for Creating Effective Audio-visual Presentations

- Keep slide and video presentations short: no more than 10 to 20 minutes.
- No presentation should try to make more than two or three points -- rigorously select only the most important points.
- Slides or video sequences should appear on the screen for no less than three seconds and for no more than 20 seconds.
- Use only clear and attractive sound and images, even if it is necessary to purchase from professionals.
- Include pictures of the people working on the project.
- To produce a professional-looking presentation on a low budget, check whether nearby schools or colleges could develop audio-visual programs or materials as class projects. Also, public access stations often offer equipment and advice.

Tips on Using Audio-Visual Presentations

- If the presentation is obtained from outside sources, preview to be sure it is relevant and up to date.
- Prepare the audience to view the presentation actively: explain what to look for, define special terminology, ask questions that will be answered in the presentation.
- Accompany slide or video presentations with handouts

that summarize key points, list special concepts or terms, give discussion questions.

- Be sure you know how to use the equipment and that you have spare parts, extension cords and other necessities.

Some Advantages and Limitations of Audio-Visual Presentations

- Audio-visual presentations are attractive, with an immediacy that commands audience interest.
- Audiences accustomed to watching television relate better to communications that have color and movement.
- Audio-visual presentations can acquaint audiences with an issue, program or project when no staff are available to speak.
- Sound and image are powerful communicators.
- There is heavy competition -- because professionally produced audio-visuals are widely available, audiences are readily bored and alienated by amateur efforts..
- Producing quality audio-visual presentations can be expensive and time-consuming.
- Audio-visuals can only be used where equipment is available and the presenter knows how to run it.

BROADCAST TALK SHOW

Live or recorded discussions on radio or television between a guest and a host, often with call-in questions or comments.

Consider Using Broadcast Talk Shows...

- When there is a news event that makes your information timely. If you are getting press calls about a subject, let talk shows know you are available.
- When you are getting "bad press." You may find an appearance on a talk show a useful way to get your story out, but you will have to be certain you are prepared to tackle difficult questions.
- When you have a side of the story that you have had difficulty getting heard. You will have an opportunity to offer a complete explanation, instead of only a 10-second answer to a question as you would on a news show.

Tips for Effective Talk Shows

- Listen to or watch the show you would like to appear on.
- In a letter to the program director, briefly relate your subject to the show's audience and show how you will address issues of interest to the audience.
- Before the show, prepare some brief responses to questions. A good technique is to use file cards, each with a one- or two-word subject heading and two or three notes about the subject. The cards provide reminders -- do not attempt to read them aloud unless you are trained to read on the air.
- If you do not have any calls from listeners -- and that happens sometimes -- the note cards provide conversational tracks to take with the host.
- Do not argue with callers -- you probably will not change their minds. What you may be able to do, however, is persuade listeners who have not made up their minds that you have a reasonable position.
- Offer your well-thought-out responses to hostile questioners, even if they do not call in. You can bring up the subject by saying, "Some people have criticized what we are doing, in fact, I have heard callers on this show say..."

- Be conversational in your responses, as though you were talking on the telephone. Avoid technical or bureaucratic terminology.
- When your subject is controversial, you may be subject to aggressive questioning. Be fully prepared, or you may be overwhelmed.
- Ask your contact at the television station if they can use slides, film or videotape and whether you should bring the material or supply it in advance. Go over the material carefully with station people to arrange to have it ready for cue -- to be shown as you refer to it.
- If you are on TV, dress as you would on any other formal and important day -- as though you were being interviewed for an important promotion. Unless your "field clothes" are an important element of the story you are telling, dress for success.
- To make every radio or TV appearance more effective, tape the show. Review it and decide what you would like to improve.

Advantages and Limitations of Talk Shows

- Radio and television have one important advantage over print media -- immediacy.
- Talk shows are an excellent vehicle for getting your message out. Because they are live and ongoing, new material is constantly needed.
- Radio and television allow active interchange in a discussion, giving the opportunity for both sides to respond.
- TV allows visualization of your subject.
- Radio and television are not substitutes for exposure in the print media.

CITIZEN ADVISORY COMMITTEE

A small group of people interested in or affected by a program, convened to help involve the public or to identify problems or issues.

Consider Creating a Citizen Advisory Committee...

- When assessing problems and issues.
- When developing potential solutions to problems.
- When seeking public reaction to a program.
- To help monitor implementation of a program.
- To educate the public about a program, or about particular problems addressed by the program.
- To demonstrate accountability, openness, responsiveness.

Tips on Creating and Working With a Citizen Advisory Committee

- Avoid the all-too-common trap of first creating a citizen advisory committee, then searching for tasks for it to do. Committees can: serve as sounding boards for ideas or plans; offer advice and suggestions; conduct or review research; develop reports.
- Realistically assess the time and resource demands of an advisory committee, both on decisionmakers and on potential committee members. Determine whether both decisionmakers and committee members are willing to provide enough support to make the committee successful.
- Make clear to prospective committee members that they serve as advisors, not decisionmakers. (This message may need to be reinforced at times during the life of the group.)
- The program has the option of listening to advice and not taking it, but the committee will not be successful unless its advice is seriously considered and decisionmakers show how advice is incorporated.
- Keep the goals and objectives of the advisory committee concrete and measurable, and communicate them to members even before the first meeting. Otherwise, the committee may set goals which do not fit the program,

or may fall apart because it has no goal.

- Plan for adequate staff support for the committee.
- Set a definite date when the committee will terminate its activities or undergo thorough evaluation. This date might coincide with final decisions or a specific stage of implementation.
- Recognize that advisory committees do not represent the community and, no matter how carefully chosen, are not microcosms of the interested public.
- Be sure the committee has enough to do.

Some Advantages and Limitations of Citizen Advisory Committees

- A citizen advisory committee obtains the perspectives, knowledge, attitudes and opinions of the different interests represented on the committee.
- An advisory committee creates a forum for open discussion about problems, issues, potential solutions, reaching a variety of interests in person, at one time.
- Committee members can supplement program staff in certain tasks (e.g. education, fact finding, oversight).
- Forming an advisory committee encourages interaction both between committee members and decisionmakers, and among committee members.
- Advisory committees are time consuming both for decisionmakers and for committee members.
- Skilled staff work is needed to keep an advisory committee focused on its main responsibilities.
- Size constraints usually prevent participation by everyone who wants to be part of an advisory committee.
- Elements of the community sometimes assert that the committee does not represent or "speak" for them. Some people may perceive the committee as a "smokescreen" or as an undesirable filter of public opinion.
- An advisory committee established for public relations or image value only, and not for the advice of its members, will quickly be seen as such and damage program credibility.
- Interested or affected people not serving on the committee often see committee members as co-opted or specially privileged.

CONTACT (MAILING) LIST

Names, addresses and telephone numbers of individuals, organizations and media to be involved.

Use Contact Lists ...

- Whenever you are involving the public in any program.

Tips for Creating a Contact List

- Include people who indicate interest through communication or action (e.g. attending a meeting, writing a letter, lobbying); individuals or groups suggested by program staff based on similar projects or location; individuals or groups likely to be affected socially, politically or economically; people suggested by others already involved.
- Find names for the contact list by consulting resource people and published lists: municipal clerks, public works departments (sewer or water system user lists) telephone or municipal directories, special directories (economic, political, social), newspapers, tax rolls, maps. Publics also may be identified through physical inspection of a project area or through advertising.
- Categorize and cross-reference contact lists, particularly when they are large, to help when targeting subgroups for specific communication. Cross-reference geographically (e.g. location within a town or county, proximity to a project site), by affiliation (e.g. unit of government, adjacent property owner, environmental, civic or business group), by background or by public involvement role.
- Consider creating a short list of "key" contacts -- individuals and organizations likely to play an important participatory role.
- Update the contact list regularly throughout the program. Individuals and organizations will gain or lose interest or change roles in a program at different stages. The need for information from certain publics will change as the program progresses.
- Large contact lists can most efficiently be maintained on a computer. Software may be obtained to help to create and categorize lists. Computers also can generate printouts and printed labels of all or selected portions of contact lists.

Some Advantages and Limitations of Contact Lists

- A contact list helps to identify the interested and affected public, as well as their affiliations, locations and levels of interest, and to pinpoint particular groups and individuals for different kinds of contact.
- A contact list makes telephone and written communication with the public systematic and efficient, and helps track public contact as the program progresses.
- A contact or mailing list helps you inform publics directly, without media and others filtering the information.
- A contact list, particularly a large one, requires staff time to create, update and maintain in useful form. An outdated mailing list is worthless.
- Usefulness of lists may be limited by the availability or capability of computers.

DOCUMENT REPOSITORY

A public building where interested people can gain access to program-related documents.

Consider Using a Document Repository...

- When studies, reports and other information should be made available to the interested public in a timely way.
- When reports and studies are summarized in a fact sheet, media release or meeting, and you want to make the full documents available for review. (Summaries should note locations where the complete report is available.)
- When the project or program is complex or technical and decisions will be based on extensive information or analysis.

Tips for Establishing and Using a Document Repository

- Choose one or more locations near where interested and affected people live or work for document repositories.
- Ask town and county clerks, librarians, school officials and other members of the community where to locate a repository. Consider not only the location, but also hours of operation, access for disabled people, proximity to public transportation, availability of photocopying. Try to get a location that is open after normal business hours.
- Contact the potential repository and explain that you would like to keep program documents in an accessible spot at the location. Follow up the conversation with a letter confirming the agreed-upon terms and conditions for the repository.
- Send studies, reports and other information to the repository. The public may review the documents at that location, but should not remove them. Extra copies of documents may be made available on overnight loan.
- When the repository is established, publicize its location, hours of operation and contents through direct mail, media release or announcement at meetings.
- Consider mailing a "document availability notice" to the contact list when new reports, studies or other documents are placed in the repository. Briefly describe or summarize the document or note sections of greatest interest.

- Consider including an updated inventory sheet with each new document sent to the repository. The inventory sheet lists the documents available at the repository, may index them by subject or chronologically, and may include a short abstract of each.
- Develop "supplemental" document repositories by providing local officials, active groups, organizations and individuals with copies of documents which they can share with others.

Some Advantages and Limitations of Document Repositories

- Repositories make it possible to use short presentations highlighting the information found in lengthy studies and reports.
- Repositories save mailing costs for large, heavy documents.
- Repositories must receive documents soon after they are generated.
- Even with repositories, most people do not read full documents.

MEETINGS: One-on-one

Availability sessions -- scheduled gatherings of program representatives and members of the public in an informal setting, without presentations or agendas but usually focusing on a specified subject.

Workshops -- working sessions to achieve a defined outcome, such as definition of a problem, generation of possible solutions.

Consider Using One-on-One Sessions ...

- When questions, concerns and issues are of particular interest to individuals or small groups, rather than the public at large.
- When identifying or clarifying issues, problems and concerns, or exploring potential solutions to problems.
- When participants are uncomfortable in a large group.
- When you want to discourage grandstanding, posturing and other unproductive behavior often encountered at large public meetings.
- When gathering different viewpoints.
- When seeking compromise.

Tips on Holding Meetings with One-on-One Emphasis

- For availability sessions, set a time period during which the public is welcome to drop in to meet with program staff. During this time, program representatives will discuss the public's questions, either with individuals or with small groups of people. Bring to the session materials (e.g. maps, reports, studies) which people are likely to want to discuss.
- For workshops, invite people with sufficient background about the program to contribute ideas, information or evaluations. Prepare questions or discussion materials delineating the work the group will be expected to accomplish. Schedule enough time (or a series of meetings) to do the work, and plan to record the proceedings in some fashion.
- Select a location convenient to the people involved. A small conference room, section of a library, even a table at a restaurant may be appropriate if the group is small enough.

- Notify part or all of the contact list well in advance, through telephone calls, media release, invitation letters, announcement at another meeting, posted notice or other means.
- Consider following up the session with a responsiveness summary.

Some Advantages and Limitations of One-on-One Sessions

- The flexible time of availability sessions helps to meet individuals' scheduling needs.
- Availability sessions do not require prepared presentations and are significantly faster, easier and less expensive to plan and conduct than formal meetings.
- Availability sessions and small workshops can be held in small meeting rooms, making possible a greater variety of convenient locations.
- If very few people take advantage of an availability session, staff can use the time for other work.
- Workshops invite the public to provide detailed and substantive input, but require careful preparation to be productive.
- Program representatives should be prepared to follow up one-on-one sessions, particularly when questions have been asked for which no immediate response could be provided.
- Some people may charge that workshops and availability sessions "divide and conquer" the interested public, stifling interaction and preventing the public from showing unity and resolve. Follow-up can minimize these concerns.
- One-on-one sessions allow for extensive and detailed dialogue, opportunity for mutual exploration of information and concerns and discussion of very personal or individual concerns or interests.

MEETINGS: Large-Group Sessions

Public hearings, large-group meetings,
facility or site tours.

Consider Using Public Hearings...

- When clarifying issues.
- When gathering information, positions, opinions.
- As an opportunity for people to vent and "speak their piece."

Consider Using Large-Group Meetings...

- When identifying problems and issues.
- To ensure that program information is received and understood by a large audience.

Consider Using Site Tours...

- When physical inspection of the site will promote information exchange.
- When identifying and clarifying problems and issues.
- To gather different viewpoints.
- When discussing potential or proposed solutions.

Tips for Holding Large-group Sessions

- Public hearings are usually formal proceedings. Often, transcripts of hearing testimony are taken, which together with other documents constitute a hearing record. Many times a public hearing is held within a time period in which public comments are officially taken and the hearing record is created.
- Large-group meetings and site tours are flexible meeting formats that can include presentations, interaction and question-and-answer components.
- All large meetings require extensive planning well ahead of time: purpose, target audience, role of the meeting in the decisionmaking process, publicity and meeting logistics.
- Select a meeting location and time convenient for the public. Try for a location accessible to persons with

disabilities and close to public transportation, and check to be sure your date does not conflict with other popular public events.

- If possible, visit the meeting location well ahead of time. Check the adequacy of parking and seating, heat and light, public address system (important if the meeting is expected to be large), screens and audio-visual equipment. If the conditions are not acceptable, select another location for the meeting.
- Develop meeting objectives and an agenda to accomplish them. Include formal presentations, handouts and other elements to communicate with a wide variety of people.
- Publicize the meeting well in advance (at least two weeks if possible), using direct mail, media release, advertisements, announcements or even personal letters and telephone calls.
- Announcements should include reasons for holding the meeting, agenda, list of participants, what the public can expect to get from the meeting.
- Meet with staff members to review information to be presented, discuss presentations, handouts and visual materials. Rehearse and critique presentations, if possible, before the day of the meeting. Discuss questions and comments that you expect to have to answer, as well as questions staff may want to ask the public.
- Entire books have been written on meeting techniques and dynamics, the effects of physical arrangement of the room and other aspects of meetings. If you want to study these subjects in more detail, consult one of these references.
- One person should be selected to take care of meeting logistics and the last-minute "detail" work. A logistics checklist can help.
- Program representatives should talk informally with people who arrive early, to determine the "flavor" of public concerns and questions and exchange information.
- During the meeting, nonparticipating program representatives should be attentive to the speakers. The public will take their cue from the program representatives.
- It is often advisable to follow up the meeting with a responsiveness summary. Do not limit the mailing to just those who attended the meeting.
- Do not rely on media coverage of large-group sessions to reflect events as you would like to see them

reported. Print and electronic journalists have their own priorities, agendas and interests.

Advantages and Limitations of Large-group Sessions

- Large-group sessions help to ensure that the message reaches a large audience, with decisionmakers available to receive questions and comments.
- Preparation, attending sessions and followup for large public meetings require significant commitment of time and money.
- Some people are uncomfortable making formal presentations before a large audience. Training can help somewhat to put program staff at ease.
- Public hearings often take place toward the end of the decisionmaking process. Public hearings, required or voluntary, do not alone constitute an effective public involvement program.
- Little personal interaction can take place at a large public session. The setting often becomes formal and impersonal.
- You may have trouble distinguishing the positions which attendees take from their real or underlying interests. Often people feel compelled to take firm stands, or to "posture" for their constituents, for peers or for the media.
- Some people are reluctant to speak out at public meetings. They may be uncomfortable with speaking before a group, or may be reluctant to disagree with friends, neighbors, associates, employers.
- Most public involvement objectives can be best served through activities other than large group meetings. Workshops, availability sessions and "targeted" meetings with small groups are good ways to promote personal interaction and information exchange.

MEETINGS: "Piggyback"

Presentations or discussions at a meeting sponsored by another organization such as a town board or a non-governmental group.

Consider Using a "Piggyback" Public Meeting...

- When you want to talk about the program with the particular interest or constituency represented by the sponsoring organization.
- When you want to gather information from the people associated with the sponsoring organization, or communicate information of particular interest to the organization and its associates.
- To build public involvement credibility.

Tips for Using "Piggyback" Meetings

- Many groups, organizations and units of government may invite or allow program staff to make presentations at their meetings. Accept or seek opportunities to appear before groups that have an interest in your program.
- Be sensitive to the interests and needs of the organization. Meeting sponsors may need to emphasize the informational role of the meeting and avoid the impression that they support or condone your program.
- As with a meeting you sponsor, define involvement objectives, prepare presentations and discuss potential questions before the meeting; use visual or handout materials.
- After the meeting, obtain a list of attendees. Follow up with a responsiveness summary.
- Remember to thank the sponsoring organization: a telephone call and follow-up letter usually are appropriate.

Advantages and Limitations of "Piggyback" Meetings

- You may reach a large group, without having to plan, publicize and conduct the meeting.
- The presentation reaches an interested audience.
- Participating at another organization's meeting tends to make the presentation less of an "event" and less sensational than when a meeting is organized and held

for the sole purpose of involving the public in your program.

- Participating at an organization's meeting can make the organization appear to be getting special privileges or status from the program.
- The sponsoring organization may surprise program representatives at the meeting with a "hidden agenda," a concern or an item pulled seemingly from nowhere. This may be designed to unbalance program staff, nurture the organization's image or distance the organization from the program.

NEWS MEDIA

News releases, press conferences, letters to the editor or op-ed pieces (short essays that run on or opposite to the editorial page).

Consider Using News Media...

- When the information needs to get to the general public quickly.
- When you need to establish a record that information has been released to reach a large audience.
- To respond to or comment on an event that has been covered by news media.

Tips on Relating Constructively with News Media

- Identify local media outlets: check newsstands, consult the Yellow Pages.
- Provide accurate information, expressed clearly, concisely and straightforwardly.
- Issue timely and newsworthy news releases, preferably distributed in conjunction with an event or action; follow up with telephone calls.
- Get to know reporters, writers and editors covering your issues. Make yourself a valuable source of news and comment.
- Learn what types of information are most likely to be used by the media. Include a local angle wherever possible.
- Meet media deadlines with statements and releases.
- Write letters to the editor and op-ed pieces simply, logically and concisely. Avoid technical terms, use active sentences and limit paragraphs to one or two sentences. Be accurate and document your facts. Establish the author's expertise on the subject being discussed.
- Hold press conferences only when there is something important and new to announce. Do not use press conferences or news releases too often -- they will lose their effectiveness.
- Provide charts, graphs or other visuals for television and the print media, along with press releases, written copies of the speaker's statement and background

materials.

- When interviewed for television news, convey a positive impression and cover basic facts. Keep your responses under 20 seconds and stick to your most important points. If you are not good on camera, let someone who is do the talking.
- Keep press relations in perspective. Even though the press may seem adversarial at times, work to build and maintain a constructive relationship.

Some Advantages and Limitations of News Media

- In most communities, news media reach nearly everybody.
- News media can publicize information within a very short time.
- News media may use opposing comments to balance news release material or op-ed pieces.
- News media retain full control over what they will use, how, when and where.
- Headlines often are written to attract attention, rather than to clarify the story.
- News media may emphasize the interesting, rather than the substantive aspects.

PREPARING A NEWS RELEASE -- A news release should contain the following information: date of release and date of preparation; contact person with telephone number; name of organization distributing release. Releases should be double spaced and no longer than two pages. The first two paragraphs should tell who, what, where, when and why. Quotes from organization spokespersons are often used to underline the significance of the news being released. Type and double space text. Get your news out promptly.

HOLDING A PRESS CONFERENCE -- Send press advisories a week in advance, if possible, to announce the time, date, place and subject of the press conference. Begin the conference with a brief statement from a representative of your organization, then answer questions from the press. Allow only representatives of the media to ask questions. Keep the conference to 30 minutes or less.

PUBLICATION

Pamphlets, flyers, books, newsletters and other printed materials for wide or selective distribution; summaries of documents, written issues for discussion, fact sheets.

Consider Using Publications...

- When a large audience needs timely information.
- When you want to control the content of your message.
- When you need to provide information to, or request information from, people who do not attend meetings or consult background documents or with whom you do not come into personal contact.
- When you want readers to keep your message, pass it on to others, refer to it later.
- To prepare for, supplement or reinforce a meeting or audio-visual presentation.
- To provide directions and instruction that readers can use at their own convenience.
- When your subject requires a visual presentation.
- When you want to motivate readers to take action.

Tips for Creating Effective Publications

- To check the concept for your publication, be sure you can answer all these questions:
 - o Who is the audience?
 - o What do you want readers to remember?
 - o What do you want them to do?
 - o Why should the audience read this publication?
 - o Are there similar publications competing for the readers' attention?
 - o How does your publication relate to other publications in your organization?
 - o How will readers get your publication?The document scope on page 15 provides a method of quickly noting these points.
- Outline your message, either before you start writing or after you have written your first draft. Do not forget to check all your facts for accuracy.
- If you are having trouble getting started writing:
 - o Try starting with your favorite part, even if it will appear in the middle or end of the

- publication.
- o Write a summary using the who, what, why, when, where and how formula to clarify your thinking.
- o Look for an interesting or appealing "angle" to get your main point across -- a story, contrast, first/biggest/last.
- o Flesh out your outline with details, without trying to write text.
- o Pretend you are talking to the audience and write down or record and transcribe your words.

- Use a writing style that speaks directly to your readers:
 - o Avoid long, complex sentences filled with trade jargon.
 - o Write at about ninth grade level -- sentence length should average about 20 understandable words.
 - o Eliminate cliches and pretentious words. Use active verbs.
 - o Ask people unfamiliar with your program to read your drafts; rewrite what is not clear to them.

- Edit your material for conciseness, accuracy and readability:
 - o Be sure that all quoted material, current and historical, is accurate.
 - o To maintain consistency and save editing time for long documents, keep a style sheet citing special usages, terminology, capitalization, abbreviations, titles, hyphenation.

- To answer questions about grammar, some 20 universities maintain Grammar Hotlines. For a directory, send a stamped, self-addressed envelope to: Donna Friedman, Grammar Hotline, Tidewater Community College, Crescent, Virginia Beach, VA 23456. Or buy and use a good grammar textbook.

- To write issues for discussion, focus on decisions that have yet to be made, show what effects alternative approaches will have, and provide just enough background to enable readers to understand the issue.

- To summarize a long document, do not merely list the subjects covered by the document, but tell what the document says about each important subject. Begin the summary with important conclusions or findings and supplement with background facts as space allows.

- To write a fact sheet, focus rigorously on one or two points and eliminate all extraneous material. Four pages is about the maximum length -- develop several fact sheets in a series, rather than one that is too long. Always include a contact name, address and telephone number; identify any longer documents from

which the fact sheet is derived.

- If you are going to print a picture of anyone who is not a public figure, be sure you get a release.
- Insist on good publication design -- not design that shows off, but design that makes the reader's life easier by providing a visual structure that strongly relates to the content.
- Keep design elements (paragraph indents, margins, spaces between columns, repeating visual motifs, typefaces) consistent throughout the publication.
- Remember that most brief publications have about 30 seconds to get the reader's attention -- be sure the cover and the first panel or page you see when you open the publication are clear and attractive.
- Think of your printer as a friend who may save you from yourself. If you do not know how to tell the printer what you want, ask. Then listen to the printer's opinion and follow his or her recommendations.
- Before printing begins, proofread your copy carefully:
 - o Check headlines, text heads, captions, titles, names and first lines of new paragraphs with particular care.
 - o Carefully proofread any page where you find several typos -- there usually will be more.
 - o Check typeset copy for consistency -- e.g. if heads are in bold face, be sure they are that way throughout.
 - o Use standard proofreaders' marks -- they are a universal language and will save time and money.
- Budget cutters:
 - o Standardize your publication design, size and paper.
 - o Print several publications at the same time.
 - o Always print two-sided.
 - o Try your hand at doing your own layouts.
 - o Request proofs and read them carefully -- they may save you from an expensive mistake.
 - o Make a rough dummy of your publication to show the printer what you want.
- Choose an effective distribution for your publication: mail, meetings, response to requests, handouts at public locations. Do not rely on requests alone for effective distribution.

Some Advantages and Limitations of Publications

- Publications can add to or summarize information provided at meetings or in audio-visual presentations.

- Publications are often passed on to secondary readers (studies estimate five to seven additional people for each primary reader).
- Publications can create a desirable image or mood (professionalism, decisiveness, activity) by the way they look and read.
- The offer of an attractive or useful publication can motivate people to register for targeted mailing lists or to respond to questionnaires.
- Publications do not reach people who seldom or never read.
- Unless the publication's message is clearly stated and immediately apparent, reader interest is quickly lost.

RESPONSIVENESS SUMMARY

Summary report of public questions and comments, with responses from decisionmakers or program staff.

Consider Using a Responsiveness Summary...

- After public events, such as meetings, hearings or comment periods, or at any time during a program or project when you want to make it clear that public questions and comments have been heard accurately.
- When you want to acquaint people with other people's questions and comments, or let people who did not attend an event know what issues were raised and what responses were made.
- To create a written record that demonstrates the extent to which the public's questions, comments and concerns have been considered and used in decisionmaking.

Tips on Preparing a Responsiveness Summary

- Obtain information for the responsiveness summary from: meeting notes, hearing transcripts, letters, telephone calls and personal contacts.
- Choose a "user friendly" format. Summarize questions and comments received and responses to each; group the materials by category or subject. The introduction should clearly explain the format and emphasize that, if a question or comment has been misunderstood or misstated, you want to know.
- It is often useful to develop more than one responsiveness summary during the course of the project, to show how the program and the sponsoring agency's thinking change and, possibly, to prompt further public comments.

Some Advantages and Limitations of Responsiveness Summaries

- Producing responsiveness summaries helps to ensure that the public's comments are given real consideration.
- Producing a good responsiveness summary can require substantial staff time and resources.
- Commitments and promises made in a responsiveness summary are binding.

SCHOOL PRESENTATION

Addressing a school class or assembly to tell about your program.

Consider Using School Presentations...

- When your program has a "future dimension" -- that is, it will need continued support in coming years, as schoolchildren mature into adults.
- When understanding your program can help the school teach about decisionmaking, responsible citizenship and critical thinking.
- When your program's goal is to educate people while they are young to change behaviors or attitudes.

Tips for Effective School Presentations

- Rather than waiting to be asked, take the initiative. Plan and prepare class activities that will fulfill both your communication needs and the school's educational needs.
- Know your reason for conducting school presentations-- fostering understanding and appreciation of the issue your program deals with or of your program's role, or bringing credit to the program and its personnel. Establish priorities among possible purposes.
- Know the school's purposes for the presentation. Schools may intend a range of purposes, from increasing knowledge to providing entertainment. A well-designed presentation can satisfy several of these purposes at the same time. If you have been requested to visit the school, ask what purpose the student or teacher has in mind.
- Know how your program ties in with the school curriculum. Learn as much as possible about the school's curriculum in areas relating to your program: study each course syllabus to find opportunities to communicate information and concepts about your program.
- Understand and respect the organization and mechanics of a school:

Secondary schools are highly organized and compartmentalized, with class periods of about 40 to 45 minutes and science courses oriented to concepts and content surveys. Most secondary teachers break up the class

period into two or three different learning activities. For greater effectiveness, develop background material to prepare a class or follow up your presentation.

Often, secondary schools combine several classes into one large group in an auditorium for your presentation. This saves time, reduces repetition and may also allow a longer presentation. However, unless the presentation is very carefully designed, effectiveness is usually sacrificed. Avoid after-lunch scheduling of these large groups.

Elementary school classes are self-contained, with most subjects taught by the same teacher. Because elementary students have short attention spans, presentations need to include a variety of activities and assemblies are less effective than with secondary students. Follow-up materials are very useful. Generally speaking, elementary school science is more open and flexible than secondary, and is heavily experiential and process oriented.

At both levels, social studies classes offer good opportunities for presentations about government programs.

- Few people have the background and experience to develop effective educational presentations. Most teachers and school administrators are happy to help develop learning activities for their students -- take advantage of their expertise. Specialized education professionals, such as environmental educators, can also help.

Some Advantages and Limitations of School Presentations

- School presentations represent an investment in future awareness and understanding of your program and of the social or scientific principles on which your program is based.
- One of the most important outcomes of investing in school programming is the impact on attitudes and awareness of teachers. These busy professionals are community leaders and role models and any effort at enhancing their sensitivity to your program purposes is worthwhile.

SPEAKERS BUREAU

A group of experts willing to address groups about the program.

Consider Using a Speakers Bureau...

- To demonstrate that the program is accessible and responsive to public requests for information.
- When the public is interested in expert presentations on specific parts of the program.
- When the program needs an efficient way to identify and schedule appearances.

Tips for Establishing and Using a Speakers Bureau

- Identify program or contractor staff with specialized expertise who feel comfortable before an audience or on media. Or train program experts in public speaking skills to increase their confidence before a group.
- Consider inviting volunteers, outside "experts," even individuals with opposing opinions to be part of the speakers bureau.
- Speakers expert in one particular aspect should be able to effectively discuss the entire program.
- Publicize the speakers bureau at public meetings, in publications or media releases. Identify a contact person who can decide whether to send a speaker.
- If supplying a speaker serves the needs of the program and the requesting organization, schedule the expert whose specialized knowledge most closely matches the interests or concerns of the requesters.

Some Advantages and Limitations of Speakers Bureaus

- Speakers help the public to see that a variety of individuals are involved in the program, each with value and expertise.
- A speakers bureau that includes outside and opposing interests shows openness and credibility.
- Some staff are not comfortable speaking before groups or before electronic media. Even with training and experience, some potential speakers never develop the skills to be truly effective.

TOLL-FREE INFORMATION NUMBER

A toll-free telephone number answered by representatives of the program.

Consider Using a Toll-Free Information Number...

- For quick and easy communication between the public and decisionmakers or staff.
- When you want an "early warning" or monitoring system for a project.
- To involve people who normally cannot or will not participate in other public involvement activities.
- To build or maintain credibility by being accessible and responsive.
- To help identify problems and generate solutions.

Tips for Establishing and Using a Toll-Free Number

- Determine what purpose a toll-free number will serve and whether the program has sufficient resources to pay for and staff the number.
- If the agency already maintains a toll-free number for another purpose, consider the possibility of using this existing number. If you do this, advertise a date after which the number is no longer available for your program.
- Develop a strategy for publicizing the toll-free number: at meetings and availability sessions, in program publications, letters, information sheets, media releases. Always explain why the toll-free number has been created and what callers should expect, especially if answering machines or other devices will be used. To avoid a deluge of unrelated telephone calls, use discretion in the extent of promotion and be specific in explaining the purpose.
- It is almost always best to avoid the term "hotline," which creates an image of crisis. Unless the number truly has been created to provide instant information or action, use another label, such as "toll-free information number."
- The toll-free number can be serviced in several ways:
 - o If many calls are received and sufficient staff are available, the number can be staffed full-time during normal working hours, with calls recorded at other times.

- o If calls are intermittent or staff cannot be assigned full-time to answer, the line may be staffed part-time and calls recorded at other times.
- o Usually calls are taken and recorded 24 hours a day and a program staff person contacts the caller as soon as possible (try to do this the same day the call is recorded, if it is recorded during business hours). Even if staff cannot answer all of a caller's questions, they should return the call to say they received the message and are working on obtaining answers.
- Staff who respond to calls should note the caller, address and/or telephone number, and summary of questions, comments and information. Add callers to the contact list if they wish.
- To keep the public updated about a rapidly developing program, the toll-free number can offer recorded information about the program from an answering machine. This technique is particularly useful when a program is controversial and there is a high degree of public interest, or when a number of decisions are made in a short time period.

Some Advantages and Limitations of Information Numbers

- Information numbers can provide an easy way for the program to interact with many people and to gather many different opinions, questions and facts.
- Information numbers help to build program credibility by demonstrating openness and responsiveness.
- You must demonstrate that, in some fashion, you have considered the questions, comments and information received over the information line and show how you are factoring them into decisionmaking.
- Despite your best efforts, some people may perceive the information number as a program "hotline" and may demand immediate responsiveness.

RESOURCES

Print

Barnes, Gregory A.: Write for Success; ISI Press, University City Science Center, Philadelphia, PA 19104; 1986.

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Parker, Roger: Looking Good in Print; Ventane Press, Inc., 1988.

Schoenfeld, Robert: The Chemist's English, Second, Revised Edition; VCH Publishers, New York, N.Y. 10010; 1986.

Strunk, William, Junior, and White, E.B.: The Elements of Style; MacMillan Publishing Company, Inc., New York, N.Y. 10022; 1979.

University of Chicago Press: The Chicago Manual of Style, Thirteenth edition; University of Chicago Press, Chicago, Ill., 69637; 1982.

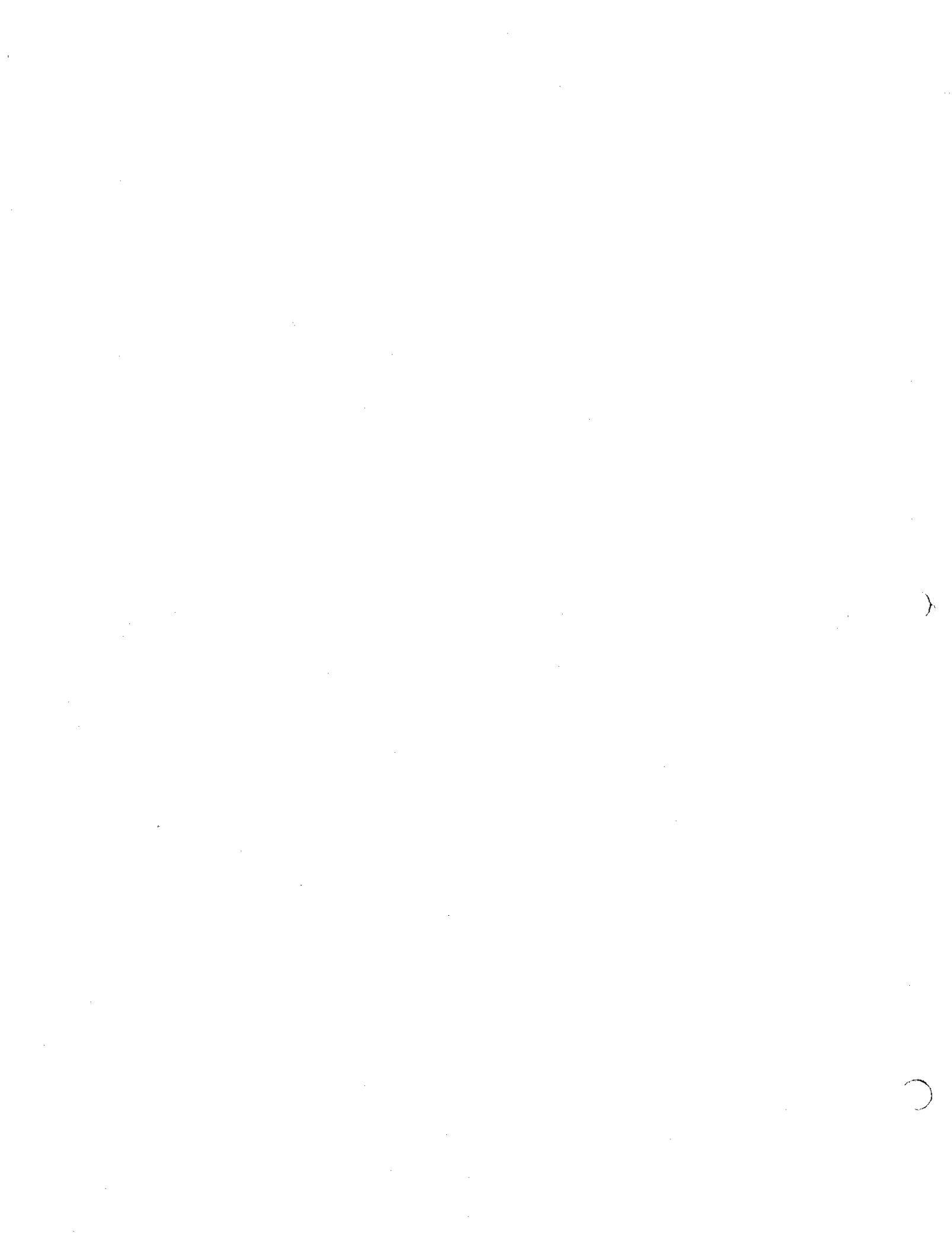
Woolston, Donald C., Robinson, Patricia a., Kutzbach, Gisela: Effective Writing Strategies; Lewis Publishers, Chelsea, Michigan; 1988.

These books and style manuals served as sources for this booklet. Public involvement planners are encouraged to consult any of the myriad excellent references available today about how to write, manage meetings, construct effective audio-visuals and deal constructively with people.

Planners should also consider using professional communication consultants and other resources to help with planning public involvement and with selecting and carrying out involvement activities.

APPENDIX J

- **NYCRR Part 360 Solid Waste Management Facilities**



Most recipients of the Recycling Manual have previously received copies of 6 NYCRR Part 360, Solid Waste Management Facilities Regulations. The New York State Department of Environmental Conservation, in the interest of conserving paper and ultimately reducing the solid waste stream, has not included 6 NYCRR Part 360 Solid Waste Management Facilities Regulations, in your copy of the Recycling Manual. If you need a copy of Part 360, please send the form below to:

The New York State Department of Environmental Conservation
Division of Solid Waste
Bureau of Municipal Waste Permitting
50 Wolf Road
Albany, New York 12233-4013

The New York State Department of Environmental Conservation
Division of Solid Waste
Bureau of Municipal Waste Permitting
50 Wolf Road
Albany, New York 12233-4013

Please forward a copy of 6 NYCRR Part 360 Solid Waste Management Facilities to:

NAME: _____

AFFILIATION: _____

ADDRESS: _____
