

THE BOARD OF CHOSEN FREEHOLDERS

Ocean County
Toms River, New Jersey
08753

Ernest A. Buhr
Freeholder Director



201-244-2121
Ext 321

November 30, 1976

To: Residents and Municipal Officials of Ocean County

I am very pleased to submit to you Volume II of the Ocean County Solid Waste Disposal and Resource Recovery Management Study. This report presents the Proposed Regional Solid Waste Disposal Management Plan for Ocean County and incorporates the findings of Volume I including existing solid waste systems and background information on Solid Waste.

The Ocean County Solid Waste Management Study was initiated by the Board of Chosen Freeholders by a resolution adopted on April 24, 1974. The study was prepared in accordance with the guidelines established in Senate Bill 624 (Chapter 326 Laws of 1975 approved on February 23, 1976), the County Solid Waste Planning and Management Act. The study was divided into two phases. The first phase consisted of compiling and evaluating data on existing solid waste management systems in the County; types of solid wastes produced; environmental and physical descriptions of the County; recycling activities in the County; legal, administrative and financial aspects of solid waste management; solid waste disposal management and planning constraints in the County and other background data on solid waste management. These materials were presented in Volume I of the study which was published in December 1975.

The second phase of the study dealt with the development of a recommended regional solid waste disposal management plan for the County. The plan is contained in this Volume II. The plan provides for a solid waste disposal strategy of acquiring two existing private landfill sites, upgrading the sites environmentally, phasing in two transfer stations on or near the two barrier beach islands, development of a staged resource recovery program, and elimination of disposal of wastes from outside the County. The proposed plan recommends a County owned and operated waste disposal system which will meet all environmental criteria established by State and Federal agencies, will meet administrative and operating criteria established by the Public Utilities Commission and will provide for a long-term solution to the solid waste disposal problem in Ocean County while providing for resource recycling and energy recovery capabilities and opportunities.

Adoption and implementation of a regional solid waste disposal management plan for Ocean County is mandated by the New Jersey Solid Waste Management Act. Ocean County however, has worked on developing a plan for more than two years and is aware of the importance of implementing a comprehensive, long-term plan to prevent future solid waste disposal problems.

On behalf of the Board of Chosen Freeholders and Mayors Committee on Solid Waste, I urge you to review the recommendations of the proposed plan contained in this report. While the final decision of implementing a County solid waste management plan rests with the Board of Chosen Freeholders, your input, recommendations and support of a long-term waste disposal plan are important if the plan is to succeed in terms of effectiveness, efficiency and environmental integrity.

Very truly yours,

Ernest A. Buhr
Freeholder-Director
EAB/cey



OCEAN COUNTY
SOLID WASTE DISPOSAL
AND
RESOURCE RECOVERY MANAGEMENT STUDY

VOLUME II:

PROPOSED REGIONAL SOLID WASTE
DISPOSAL MANAGEMENT PLAN
FOR OCEAN COUNTY

Prepared For

THE OCEAN COUNTY BOARD OF CHOSEN FREEHOLDERS
in cooperation with
THE MAYORS COMMITTEE ON SOLID WASTE

November 1976

Prepared By

M. DISKO ASSOCIATES
CONSULTING ENGINEERS
99 NORTHFIELD AVENUE
WEST ORANGE, NEW JERSEY 07052



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OFFICIALS FROM SECONDARY MATERIALS INDUSTRIES

OFFICIALS FROM INDUSTRIAL, COMMERCIAL, INSTITUTIONAL,
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THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

THE NEW JERSEY DEPARTMENT OF LABOR AND INDUSTRY

THE NEW JERSEY DEPARTMENT OF PUBLIC UTILITIES

In addition, we offer a special thanks to Thomas A. Thomas, Director, and the staff of the Ocean County Planning Board for their assistance to A. Morton Cooper, Chairman of the Ocean County Environmental Agency and to the Ocean County Administrator, Mr. Charles M. Pike, for his overall guidance.



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I. INTRODUCTION

During the past decade, Ocean County has experienced rapid residential, commercial, and industrial growth. With this growth have come increasing quantities of solid waste which require efficient disposal. Many municipal officials, especially in the communities along the coast, have long recognized this problem. Solid waste disposal costs have escalated as haulage distances to distant landfill sites have increased. Many municipalities have limited landfill capacity remaining and poor prospects for acquiring new landfill areas locally.

Faced with these problems of ever-increasing solid waste quantities and dwindling areas for close-in landfill sites, many municipalities are finding it increasingly difficult and expensive to provide for proper solid waste disposal. With this in mind, the Ocean County Board of Chosen Freeholders initiated a county-wide solid waste disposal study in May 1974 with M. Disko Associates as solid waste consultant. The Ocean County Solid Waste Disposal and Resource Recovery Management Study is divided into two phases: (1) background and analysis (2) proposed regional solid waste management plan.

The basic objectives of the Ocean County Solid Waste Disposal and Resource Recovery Management Study are as follows:

- To define and explain in detail the natural, physical, and environmental conditions which exist in Ocean County and explain how these conditions interact in the formulation of a solid waste disposal management plan.

- . To define and explain in detail the types and categories of solid waste as they relate to Ocean County. To determine from which sectors of government, industry, and the public the waste quantities are generated.

- . To define the existing solid waste collection and disposal practices for the Ocean County municipalities. Every community was studied in depth to evaluate its collection and disposal system.

- . To define and evaluate the existing recycling programs in Ocean County.

- . To define and evaluate the legal, administrative, and financial aspects of solid waste collection and disposal.

- . To evaluate the potential markets for re-sale of salvagable components of municipal solid waste and to evaluate whether or not certain components should be recovered and marketed.

- . To review and explain in detail the current state-of-the-art of materials and energy recovery from municipal solid waste. Every new approach, as well as tried and true systems, were evaluated and described.

- . To define and explain in detail how the utilization of solid waste transfer stations can effectively reduce

haulage distances and municipal expenditures for solid waste disposal and to evaluate the suitability of utilizing transfer stations in Ocean County.

These objectives were achieved by Volume I of the Ocean County Solid Waste and Resource Recovery Management Study. Volume I is a 356 page comprehensive study of the existing collection and disposal practices of the County's 33 municipalities. In order to better understand the intent and direction of Volume I, some of the most important sections will be summarized in this report.

This report, Volume II, is a presentation of a proposed regional solid waste program for Ocean County. The program and plan has evolved over a period of two years and has included major input by the Ocean County Board of Chosen Freeholders, the Ocean County Planning Department, County Staff and advisory groups. This report was presented to the Board of Freeholders on November 24, 1976 and authorization was given for publication and distribution at that time.

II. SUMMARY OF EXISTING SOLID WASTE COLLECTION
AND DISPOSAL SYSTEMS IN OCEAN COUNTY

TYPES OF SOLID WASTES PRODUCED IN OCEAN COUNTY

The solid waste generated in Ocean County is comprised of many different components. "Solid Waste" is a general term used to describe many types of wastes including: garbage, trash, rubbish, clean-up wastes, yard debris, municipal debris, sewage treatment plant sludges, road sweepings, abandoned automobiles, and commercial, industrial, institutional and agricultural wastes. Generally, liquids such as chemicals, and semi-liquids from industrial operations are excluded from classification as solid wastes.

Typically, the components are wastes from residential, commercial, industrial, municipal and agricultural sources, including special wastes such as pathological, abandoned vehicles and clean-up wastes. The percentages of the components vary according to the time of the year, population fluctuations, weather conditions, etc.

In the spring months a large increase in lawn, leaf, and gardening wastes develops. Many municipalities conduct clean-up programs in the spring and early summer. Refrigerators, washing machines, and other bulky items are discarded during these times. The solid waste tonnages in the summer months increase dramatically. Officials in several municipalities reported a ten-fold increase in population and two municipalities reported a twenty-fold summer population increase. Obviously, as the population base increases, the solid waste quantities increase proportionally.

Residential solid wastes are typically composed of the throw-away wastes associated with day-to-day living. Residential solid wastes include wastes generated within the household, including paper, rubbish, and garbage, and wastes from the yard, including leaves, grass, hedge trimmings and branches, etc. It is from the residential solid waste collection that many recyclable components can be extracted. Table 1 shows the estimated analysis of residential solid waste in Ocean County.

Commercial solid wastes are generated by a number of non-manufacturing businesses which include offices and laboratories, wholesale and retail stores, hospitals and institutions, markets, theaters, etc. The composition of the wastes vary depending on the nature of the businesses. Generally, commercial firms have large percentages of paper, corrugated cardboard, metal and wood. Food packing plants or restaurants have major food scrap percentages. Many commercial waste generators are a valuable source of paper fiber suitable for reclamation.

Industrial generators dispose of a wide variety of solid wastes. Industrial solid wastes include discarded by-products of production, residues, and wastes from utility companies, transportation systems, communication firms, manufacturing firms, etc. They include shipping, office, plant packaging and cafeteria wastes. Chemicals, sludges, and dissolved or suspended solids in wastewaters are generally classified as liquid industrial waste. Industrial waste quantities are generally related to the number of employees and the type of manufacturing process. Some industrial

TABLE 1

ESTIMATED ANALYSIS OF RESIDENTIAL SOLID WASTE
COLLECTION COMPONENTS FOR OCEAN COUNTY

<u>COMPONENT</u>	<u>TYPICAL PERCENTAGES</u>	
	<u>Rural Sections of the County</u>	<u>Urban Areas of the County</u>
<u>DIRT</u>	2%	2%
<u>GARBAGE:</u> Food Wastes, Fats, Meat Scraps, Rinds and Seeds, Vegetable Wastes	20%	12%
<u>GLASS:</u> Bottles, Ceramics	14%	10%
<u>METALS</u>	10%	11%
<u>PAPER:</u> Corrugated, Mail, News- papers, Kraft, Magazines, Cartons, Tissues	40%	42%
<u>PLASTICS</u>	4%	4%
<u>TEXTILES</u>	1%	2%
<u>WOOD</u>	2%	1%
<u>YARD</u> Leaves, Grass, Branches <u>WASTES:</u> Garden Plants	2%	13%
<u>MISCELLANEOUS</u>	5%	3%
<u>TOTAL</u>	<u>100%</u>	<u>100%</u>

SOURCE: Studies by M. Disko Associates in Hunterdon, Monmouth, Passaic, Union, and Ocean Counties, including sampling programs to categorize and weigh household wastes. Percentages should be considered as typical, but may vary in a particular municipality.

firms practice continual recycling of all or part of their wastes. In addition, some of the larger industrial facilities dispose of all of their solid wastes on their own property.

Table 2 lists a comparison of the three major waste sources, residential, commercial and industrial, on a waste component basis.

As previously mentioned, there are several other sources of solid waste that make up the total amount requiring disposal daily. Many municipalities generate large quantities of clean-up waste and leaves during certain periods of the year. In addition, many municipalities are forced to remove and dispose of abandoned automobiles.

EXISTING SOLID WASTE COLLECTION AND DISPOSAL SYSTEMS IN OCEAN COUNTY

Ocean County's municipalities utilize three types of solid waste collection systems. Figure 1 illustrates the distribution of the types of collection systems. The municipal collection system, which uses municipal workers and trucks to collect the solid waste is used by the following municipalities: Beach Haven, Beachwood, Berkeley, Brick, Dover, Eagleswood, Island Heights, Lacey, Lakehurst, Lakewood, Lavallette, Little Egg Harbor, Ocean Gate, Pine Beach, Point Pleasant Beach, Seaside Heights, Seaside Park, Ship Bottom, South Toms River, Stafford, Surf City, and Tuckerton.

The municipally-contracted collection system involves a private contractor hired by the municipality to provide collection and

TABLE 2

TYPES OF RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL
SOLID WASTES IN OCEAN COUNTY

<u>COMPONENTS</u>	<u>PERCENT FROM RESIDENTIAL SOURCES</u>	<u>PERCENT FROM COMMERCIAL SOURCES</u>	<u>PERCENT FROM INDUSTRIAL SOURCES</u>
PAPER	41.0	45.0	22.5
PLASTIC	4.0	6.8	1.8
METAL	10.5	3.9	7.9
CERAMIC	0.0	0.3	0.7
ORGANIC CHEMICALS	0.0	0.0	13.5
INORGANIC CHEMICALS	0.0	0.0	0.2
GLASS	12.0	1.7	0.7
FOOD WASTES	16.0	17.8	25.2
TEXTILES	1.5	0.2	0.7
WOOD PRODUCTS	1.5	5.3	21.8
LEATHER	0.0	0.0	0.3
RUBBER	0.0	2.4	0.4
MIXED COMMERCIAL	0.0	1.7	0.5
PETROLEUM PRODUCTS	0.0	0.5	0.4
STONE, SAND, PLASTER	2.0	1.0	3.2
OTHER WASTES	<u>11.5</u>	<u>13.4</u>	<u>0.2</u>
TOTAL	100.0	100.0	100.0

OCEAN COUNTY SOLID WASTE DISPOSAL MANAGEMENT STUDY

RESIDENTIAL SOLID WASTE COLLECTION SYSTEMS

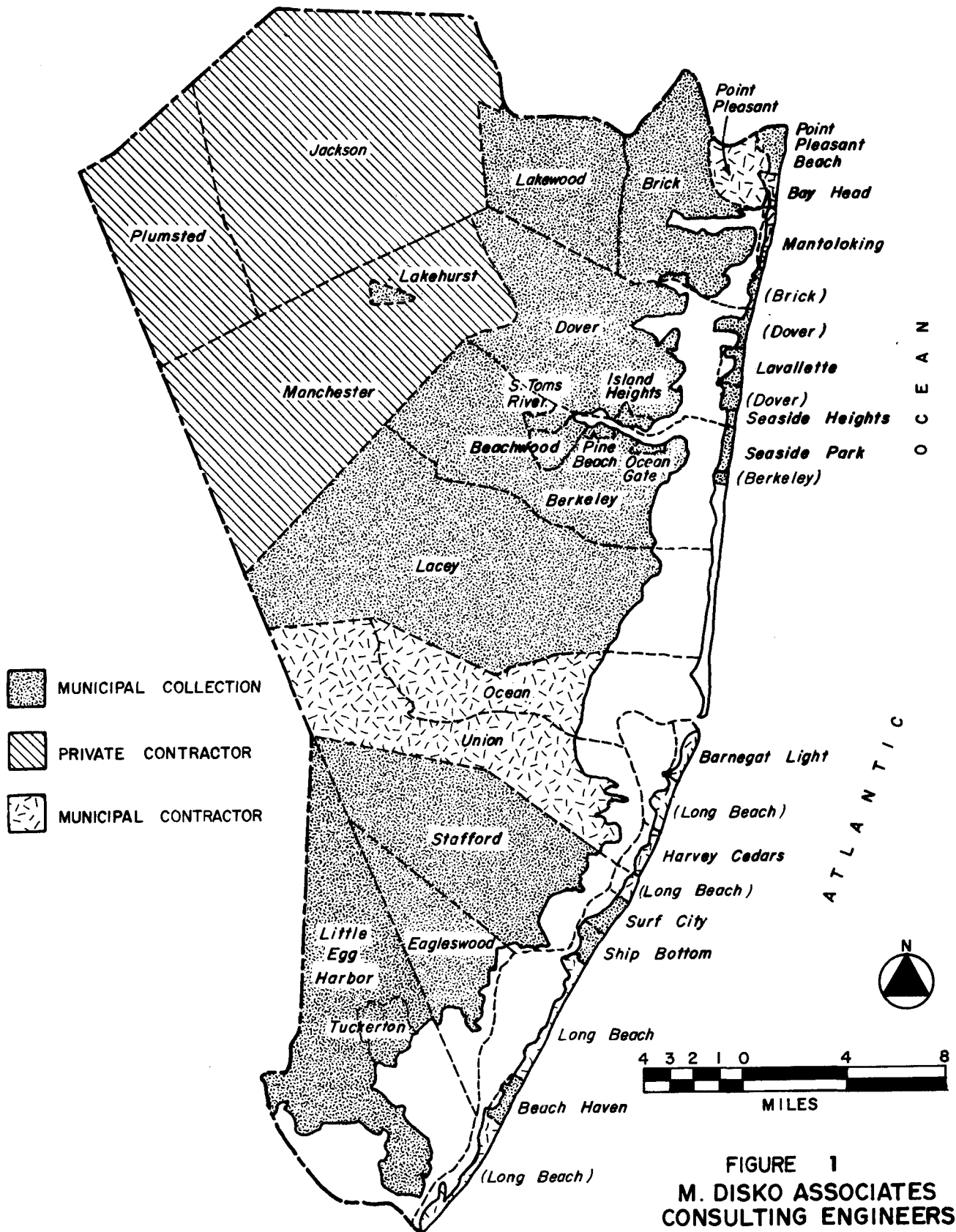


FIGURE 1
M. DISKO ASSOCIATES
CONSULTING ENGINEERS

disposal services to the entire municipality. The following municipalities use this system: Barnegat Light, Bay Head, Harvey Cedars, Long Beach, Mantoloking, Ocean, Point Pleasant, and Union.

Three communities, Jackson, Manchester and Plumsted, require the individual property owners to contract with a private contractor for refuse collection and disposal. With this private contractor system, the municipality does not become involved in the waste collection process.

As previously explained, Ocean County utilizes three basic solid waste collection systems. However, there are many variations in these three systems concerning frequency of collection during the week, curb or backyard pick-up, clean-up weeks, etc. Therefore, when comparing the costs for solid waste collection and disposal between municipalities, the level of service must first be determined to insure that the systems are providing comparable services. That is why there is such a large range in costs for the municipalities as outlined in the table below. The estimated per capita costs are calculated with a weighted population figure which compensates for the vary large population and waste quantities during the ten week summer season.

<u>TYPE OF COLLECTION</u>	<u>NUMBER OF MUNICIPALITIES</u>	<u>1974-1975 RANGE OF ESTIMATED COST PER YEAR PER CAPITA</u>
Municipal, curbside	20	\$ 3.34 - \$31.06
Municipal, backyard	2	\$10.35 - \$12.40
Contract, curbside	6	\$13.48 - \$16.79
Contract, backyard	2	\$30.81 - \$55.14
Private, curbside	3	\$12.82 - \$20.63

An important task when planning a solid waste disposal strategy is to estimate the quantities of solid waste generated each day in the County. This is often a difficult and complex task because many municipalities have limited records of their collected tonnages. Solid waste collections vary because of seasonal or holiday influences. In the shore communities, peak summer tonnages may go up 10 to 15 times over the non-peak winter quantities. The estimates presented below must be considered as having a 10 to 15 percent, plus or minus, accuracy. The values were obtained from municipal officials, contractors, engineering computations, and the records of the New Jersey Department of Environmental Protection and the New Jersey Public Utility Commission.

<u>COMPONENT</u>	<u>1974-75 ESTIMATED TONS/YEAR</u>	<u>1974-75 ESTIMATED AVERAGE TONS/WEEK</u>	<u>1974-75 ESTIMATED PEAK TONS/WEEK</u>
Residential	292,500	5,625	10,500
Non-Residential Municipal	17,900	344	500
Commercial	127,500	2,452	4,021
Industrial	99,000	1,904	2,000
Agricultural	3,000	58	100
County Totals*	539,900	10,380	17,100
*Totals - Rounded			

The overwhelming percentage of Ocean County's commercial and industrial solid waste and all of its residential solid wastes are hauled to landfills for disposal. There are 15 municipally operated landfills in the County. In addition, solid waste is also hauled to 2 private landfills in the County and 3 private landfills in Monmouth County. There are also 4 private industrial landfills located in the County that are not open to the general public. Figure 2 illustrates the patterns of solid waste disposal during 1974-1975.

Some of the County's landfills, notably Brick and Dover Townships, have very limited landfilling capacity remaining. Every existing landfill in the County will come under very close scrutiny by the New Jersey Department of Environmental Protection. Many of these smaller landfills are very poorly run and will be forced to close when confronted with the required capital expenditures to upgrade their operations. As landfills begin to close, the wastes will

OCEAN COUNTY SOLID WASTE DISPOSAL MANAGEMENT STUDY

SOLID WASTE DISPOSAL SITES UTILIZED BY OCEAN COUNTY MUNICIPALITIES

1975

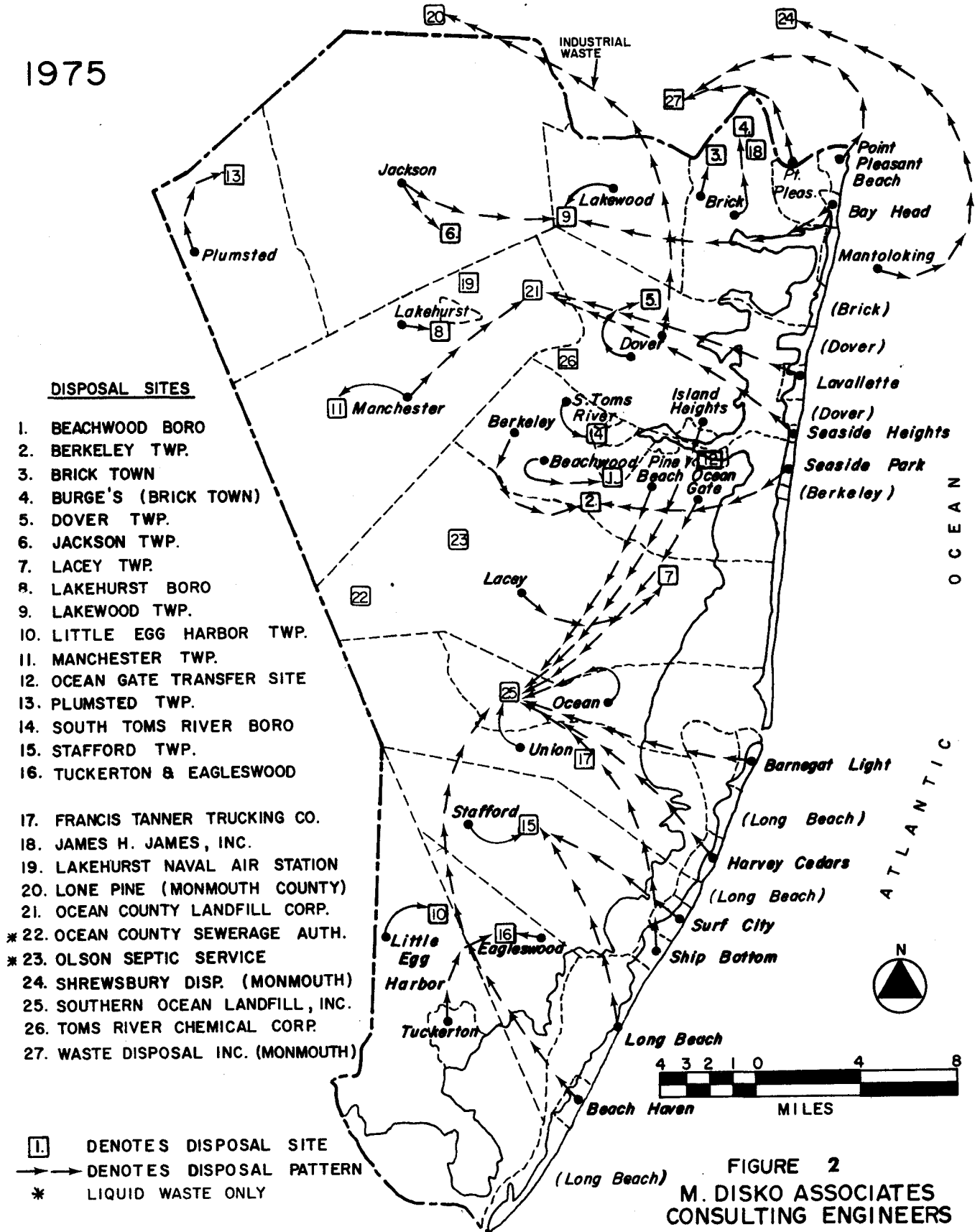


FIGURE 2
M. DISKO ASSOCIATES
CONSULTING ENGINEERS

have to be transported to other landfills in the County. This new influx of wastes to existing fills will have the effect of reducing their life by increasing their daily tonnage. The net result will be a domino effect of one landfill after another closing until there will be a disposal crisis in the County.

Another very serious problem in Ocean County concerns disposal of solid wastes from the shore communities on Long Beach Island and Island Beach. Historically, these communities have had to haul their solid wastes long distances to inland landfills. These shore municipalities are faced with ever escalating haulage distances and costs.

EXISTING RESOURCE RECOVERY PROGRAMS IN OCEAN COUNTY

Ocean County has large components of potentially recyclable or re-usable materials in its solid waste, as the following table shows:

<u>TYPE OF SOLID WASTE</u>	<u>TYPICAL PERCENTAGE</u>		
	<u>PAPER</u>	<u>METAL</u>	<u>GLASS</u>
Residential	41%	11%	12%
Commercial	45%	3.9%	1.7%
Industrial	22.5%	7.9%	0.7%

In 1974-1975 eleven municipalities engaged in some form of recycling activities. These municipalities were: Beach Haven, Brick, Dover, Jackson, Lakewood, Lavallette, Pine Beach, Point Pleasant, Point Pleasant Beach, Seaside Heights, and South Toms River. The Ocean

County Girl Scout Council also was involved in recycling activities. The recycling activities in Ocean County could be expanded to other municipalities if a county-wide disposal system was instituted.

III. CRITERIA FOR SOLID WASTE DISPOSAL MANAGEMENT PLANNING IN OCEAN COUNTY

GENERAL CRITERIA

Development of a viable plan for an environmentally acceptable and cost efficient solid waste disposal plan for Ocean County requires consideration of a number of planning constraints. Briefly, some of these constraints include: 1) public attitudes towards solid waste management, 2) increasing solid waste quantities, 3) existing solid waste disposal systems in the County, 4) the legal and administrative systems available, 5) the technology of solid waste disposal, and 6) environmental constraints. The importance of understanding the planning constraints which impact Ocean County cannot be overstated, for it is only by working within these constraints that an effective solid waste disposal management plan can be implemented.

In Volume I, those factors impacting solid waste management in Ocean County, including an analysis of existing solid waste collection and disposal systems, markets for recyclable materials, existing recycling activities, legal and administrative structures available for solid waste management, etc., have been identified and developed. In this Volume II report, those factors will be brought together in an effort to establish the parameters in which a comprehensive solid waste disposal system can be implemented in Ocean County.

The following key points summarize general policy considerations required for a successful solid waste disposal plan in Ocean County.