CDM Camp Dresser & McKee

Report

Town of Southampton, New York

Modification to the Town of Southampton Solid Waste Management Plan

FINAL Generic Environmental Impact Statement

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Prepared for:

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FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT

MODIFICATION TO THE
TOWN OF SOUTHAMPTON SOLID WASTE MANAGEMENT PLAN

Project Location:	Southampton, New York
Lead Agency:	Southampton Town Board
Project Sponsor:	Southampton Town Board Town Hall 116 Hampton Road Southampton, New York 11968
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Acceptance by Lead Agency:	
Deadline for Receipt of Comments:	

(nc\5shmptn)

Section 1
Executive Summary

The Town of Southampton has prepared this Modified Solid Waste Management Plan (Modified SWMP)/Draft Generic Environmental Impact Statement (GEIS) to reflect changes in the way the Town intends to manage its solid waste from the methods described in the Solid Waste Management Plan, as revised and later updated in February 1993 (the Revised SWMP/GEIS). Since the filing of the Findings Statement for the Revised SWMP/GEIS, a number of events have caused the Town to reevaluate the methods previously identified for managing its waste stream.

Unlike the Revised SWMP/GEIS, which contained an original and revised version of each section of the document, this modified SWMP contains a single consolidated version of each section. Repetitive material and material that is no longer pertinent to solid waste management in the Town has been deleted. That text reproduced from the Revised SWMP/GEIS is presented in non-bold print. The text modified to represent the Town's new SWMP is in BOLD print.

The approach presented in this Modified SWMP/DGEIS is a further refinement of the Town's previously adopted plans. Principally, the Town's modified approach consists of: waste reduction, mandatory source separation of recyclables for both residences and commercial establishments, with continued marketing directly by the Town of recyclable material delivered to Town transfer stations; operation of four transfer stations throughout the Town; composting of leaf and yard waste at two composting facilities to be constructed in separate parts of the Town; and delivery of municipal solid waste from Town transfer stations to a facility outside the Town for processing and disposal, preferably a facility to be constructed on the eastern end of Long Island.

In 1990, the Town originally proposed in-Town municipal solid waste (MSW) composting of Southampton's entire waste stream after maximum feasible waste reduction and recycling. The experiences of other municipalities and the Town's efforts to procure such a MSW compost facility led to the conclusion that full-scale MSW composting was not a feasible option for the Town of Southampton. In 1992, the Town reevaluated a number of available alternatives. As a result of its review, the Town Board concluded that the preferred option, as reflected in the Revised SWMP/GEIS, was intensive source-separation of recyclable materials in-Town, composting of selected source-separated organic wastes, composting of leaf and yard waste, and landfilling all residual material at the North Sea Landfill, in full compliance with the Long Island Landfill Law. Only if

capacity were available, would composting of a portion of the MSW stream be pursued.

However, even prior to adoption of the Revised SWMP/FGEIS, opposition developed to the continued use of the North Sea Landfill site, whether in the form of a recycling and composting facility or additional landfill capacity. As plans to implement the proposed source-separated organic waste composting facility proceeded, objections to further developing operations at North Sea Landfill grew considerably. Because of this opposition, the Town Board began to reconsider its numerous solid waste management alternatives. Given the history of litigation, and the potential costs and further delays associated with efforts to implement the Revised SWMP/FGEIS, the Town Board decided to develop a plan that would manage the waste stream responsibly but would not generate such public opposition. Out of this process, the Board concluded that of the available alternatives, implementation of a regional approach would best serve the citizens of Southampton.

The Board, by consensus, developed the framework of a new plan which in part utilizes the existing solid waste infrastructure while eliminating those components of the previous plan that created the most opposition. As a result, Southampton remains sensitive to the requirements of the Long Island Landfill Law, and the plan identified herein satisfies its requirements in full. Further, the proposed plan affords a balanced environmental approach for managing Southampton's solid waste.

Source Separated Recycling

Source-separated recycling has already proven to be a successful means of reducing the waste stream in the Town of Southampton. Local laws require mandatory source separation of newspaper, corrugated cardboard, aluminum, tin cans, glass, PET and HDPE plastics and mixed paper, and most recently junk mail and low grade paper were added. Waste reduction and source separation efforts will continue to be expanded and enforcement of mandatory programs increased.

A permanent household hazardous waste facility otherwise known as a Stop Throwing Out Pollutants (STOP) facility, has been operating at the North Sea Landfill since June 1991. While not a recycling facility, the facility receives hazardous materials, source separated out of the waste stream, and transfers these materials, via a licensed hauler, to a proper disposal facility. As a result, household hazardous waste is removed from the waste stream prior to landfilling.

The Town's plan calls for the continued use of the residential drop-off facilities by self-haulers for the collection of source-separated recyclables. The Town will transport these materials to market. Private carters will

transport recyclables they collect directly to market. The STOP facility at the North Sea Landfill site will continue to be operated by the Town.

Municipal Solid Waste Collection and Disposal

Currently, the principal method employed by the Town for solid waste disposal is landfilling at the North Sea Landfill (Landfill). There are three transfer stations (resident drop-off only) in the Town to facilitate waste collection by resident self-haulers. The transfer stations are local garbage and recycling drop-off areas for residents who are distant from the Landfill. All garbage and recyclables brought to the transfer stations are transported to the Landfill where it is landfilled or, in the case of recyclables, loaded into larger transfer vehicles for transport to a recycling market. These transfer stations are located in Westhampton, Hampton Bays, and the North Sea Landfill. A new residential transfer station is under construction in Sag Harbor at a site just north of the former transfer station site. The new Sag Harbor facility will be open in early 1995. Only self-haul vehicles (no commercial haulers) are permitted to use the transfer stations.

The Town currently is not, and the plan as set forth herein, will not be responsible for the collection of solid waste within the Town. Private collection services are contracted to collect approximately one-half the residential waste and nearly all of the commercial, institutional, non-hazardous industrial, and farm wastes. The remaining residential wastes are brought to the Town transfer facilities by the residents (self-haulers). Although there is no municipal collection of residential or commercial wastes, certain Town departments have collected leaves and roadside brush. Under the Town's plan there will be no change in the collection services provided to Town residents.

The Town's proposed solid waste management plan was developed in the spirit of the State's solid waste management hierarchy. As outlined in Section 6, the Town is implementing an aggressive waste reduction and recycling plan. Under the Town's plan, the MSW remaining after waste reduction and recycling will be processed and disposed of at a facility outside the Town, preferably a facility to be constructed on the eastern end of Long Island. The plan also includes the construction of two leaf and yard waste processing facilities within the Town. One facility will be constructed east of the Shinnecock Canal and one west of the Canal.

Site Selection

A siting study, Section 9.0, was conducted for the in-Town facilities and recommended the North Sea Landfill site and the Hampton Bays residential drop-off site for the leaf and yard waste composting facilities. The Town's residential drop-off facilities will continue to operate as they do now. A

fourth residential drop-off facility will be on line in early 1995. The Town's MSW will be processed and disposed outside the Town.

Plan Impacts

Potential environmental impacts associated with the Town's modified plan are discussed in this document. The evaluation of impacts associated with the construction and operation of the two in-Town leaf and yard waste processing facilities is presented in Section 6.0. No significant negative impacts are anticipated to be associated with these facilities. The Town will be generating a quality compost material from its leaf and yard waste that can be beneficially reused.

The Town plans to continue to operate the residential drop-off facilities as it has in the past. Therefore, there is no anticipated environmental impact. In this way the Town will also minimize its capital expenditures for solid waste projects.

Under the proposed plan, the Town will no longer have control of the disposal of its MSW as the waste will be processed and disposed of out of the Town. Associated with the discontinued use of the North Sea Landfill is the potential for increased costs for waste disposal to residents who use private carters. The carters may now need to use a remote location thereby increasing their costs, which will be passed on to the residents. The Town intends that the waste collected by private carters will be accepted at the designated processing and disposal facility. The carters may elect to negotiate their own capacity at a Long Island resource recovery facility or to long-haul off Long Island. Traffic impacts in the Town would be negligible under either option.

Administratively, the Town will no longer be able to account for recycables collected by private carters, as these materials will be transported directly to market by the carters. However, the Town believes it has developed a plan that will manage the residential portion of the Town's waste stream responsibly and not generate public opposition.

Benefits of Plan

An increase in recycling is projected, thereby reducing the volume of material requiring disposal. Under the proposed plan, the Town's MSW will preferably be processed and disposed of via in-vessel composting at an out-of-Town facility. The material generated from the MSW is expected to be a highly marketable material. As a contingency, the Town is exploring the use of an on-Island resource and recovery facility, which will also reduce the volume of material requiring disposal. At this time, the Town has not ruled out off-Island disposal options.

Additional benefits of the modified plan include an orderly phase out of landfilling activities at the North Sea Landfill in accordance with the Long Island Landfill Law. This will also significantly reduce truck traffic on Majors Path Road as the private carters will no longer be accessing the site. The Town will be making a commitment to a facility that will be providing a regional solution to solid waste management.

Plan Implementation

Section 10 outlines the Town's schedule for implementation of its solid waste management program. Table 10-2 details the progressively increasing percentage of the total waste stream that will be removed via waste reduction and recycling efforts. The Town's goal exceeds the statewide goal of recycling at least 40 percent of the waste stream by 1997. By the year 2010, the Town's recycling goals are to be recycling about 58 percent of its waste stream, with an additional 10 percent reduction achieved from waste reduction measures.

The Town will initiate contract development with East End Recycling & Composting for use of their Calverton facility for its residential MSW after the modified SWMP/DGEIS process has been concluded. The East End facility is anticipated to be online by fall 1996. Application for the two in-Town leaf and yard waste processing facilities will be made by the Town two weeks after NYSDEC approves this modified SWMP/GEIS. Assuming NYSDEC issues a permit in a reasonable amount of time, it is expected to be eight to ten months before the facilities are operational.

Contents

Contents

Cover Sheet

Section 1 Introduction 1-1

Section 2 Response to Comments 2-1

Waste Stream Data 2-2

Recycling 2-4

North Sea Landfill 2-6

Solid Waste Management Plan 2-8

Transfer Stations 2-11

Leaf and Yard Waste Processing 2-13

Siting 2-19

Section 3 Replacement Pages 3-1

Appendix A Written Comments

(nc5/cont)

Contents

Cover Sheet

List of Figures

List of Tables

Section 1 Executive Summary 1-1

Section 2 Introduction 2-1

Section 3 Waste Stream Quantification and Characterization 3-1

3.1 Introduction 3-1
3.2 Existing Solid Waste Management Program 3-1
3.2.1 North Sea Landfill and Transfer Stations . 3-2
3.2.2 Collection 3-3
3.2.3 Existing Town Recycling Program 3-5
3.2.4 Commercial and Industrial Wastes Recycling 3-11
3.2.5 Status of Activities at the North Sea Landfill 3-13

3.3. Solid Waste Quantification and Characterization . 3-14
3.3.1 Present and Projected Solid Waste Quantities 3-15
3.3.2 Waste Stream Characterization 3-20
3.3.3 Recyclable Materials 3-33
3.3.4 Local Ordinances 3-38
3.3.5 Septage 3-39
3.3.6 Household Hazardous Waste 3-39

Section 4 Environmental Setting 4-1

4.1 Topography, Soils, and Geologic Features 4-1
4.1.1 Topography and Soils 4-1
4.1.2 Geology 4-2

4.2 Hydrogeology 4-3
4.3 Surface Water 4-6
4.4 Air Quality 4-6
4.5 Climate and Meteorology 4-8
4.6 Socio-Economic Conditions 4-8
4.6.1 Population 4-8
4.6.2 Housing 4-9
4.6.3 Economics 4-9
4.6.4 Transportation 4-9

4.6.5 Social Services 4-10

4.7 Biological Resources 4-11
4.7.1 Wildlife 4-11
4.7.2 Vegetation 4-12
4.7.3 Threatened and Endangered Species and Species of Special Concern 4-15
4.7.4 Wetlands 4-16
4.7.5 Significant Habitats 4-16

4.8 Cultural Resources 4-17
4.8.1 Historic and Archaeologic Sites 4-17
4.8.2 Parks and Recreational Areas 4-17

Section 5 Integrated Waste Management Concepts 5-1

5.1 Overview 5-1
5.2 Proposed Plan 5-1
5.2.1 Waste Reduction 5-2
5.2.2 Source Separation and Materials Recycling 5-3
5.2.3 Solid Waste Collection Practices 5-4
5.2.4 MSW Processing and Disposal 5-4
5.2.5 Construction and Demolition Debris 5-5
5.2.6 Household Hazardous Waste 5-6

5.3 Policy Compliance 5-6
5.3.1 Reuse and Recycling Targets 5-6
5.3.2 Implementation of Source Separation Initiatives 5-6
5.3.3 Volume Reduction 5-7

5.4 Implementation Schedule 5-7

Section 6 Waste Reduction and Recycling Program 6-1

6.1 Waste Reduction 6-1
6.1.1 Public Education 6-4
6.1.2 Financial Incentives and Disincentives . . . 6-4
6.1.3 Regulations 6-5

6.2 Source Separated Recyclables 6-5
6.2.1 Collection 6-5
6.2.2 Processing and Storage 6-6

6.3 Source-Separated Leaf and Yard Waste 6-7
6.3.1 Collection 6-7
6.3.2 Processing and Storage 6-7

6.4 Commercial Sector Recycling 6-8

6.4.1 Collection 6-8
6.4.2 Audit and Management System 6-8

6.5 Materials Recovery 6-9
6.6 Materials Marketing 6-22
6.6.1 Market Survey 6-22
6.6.2 Market Survey Results 6-23
6.6.3 Market Development and Additional Sources of Information 6-31

6.7 Public Education and Promotion 6-32
6.7.1 Education 6-33
6.7.2 Promotion 6-33

6.8 Staffing Requirements 6-34
6.9 Procurement Practices 6-35
6.10 Funding Sources 6-35
6.11 Environmental Impacts 6-36
6.11.1 Potential Environmental Impacts 6-36
6.11.2 Unavoidable Environmental Impacts . . . 6-38
6.11.3 Irreversible and Irretrievable Commitment of Resources 6-38
6.11.4 Mitigating Measures 6-39
6.11.5 Growth Inducing Aspects 6-40
6.11.6 Use and Conservation of Energy 6-41

Section 7 Municipal Solid Waste Processing Systems 7-1

7.1 Technology Evaluation 7-1
7.2 Waste Reduction 7-2
7.3 Recycling and Reuse 7-4
7.3.1 Processing 7-4
7.3.2 Processing Facilities 7-5

7.4 Composting 7-14
7.4.1 MSW Composting 7-14
7.4.2 Leaf and Yard Waste Composting 7-25
7.4.3 Co-Composting 7-26

7.5 Waste Distillation 7-29
7.6 Waste-to-Energy 7-31
7.6.1 Mass Burning Systems 7-32
7.6.2 RDF Firing Systems 7-34

7.7 Transfer Station Facility 7-37
7.7.1 Alternative Transfer Station Types 7-37
7.7.2 Alternative Trailer Types 7-39
7.7.3 Evaluation of Alternatives 7-40

7.8 Landfilling 7-42
7.9 Environmental Impacts 7-42
7.9.1 Potential Environmental Impacts 7-44
7.9.2 Mitigating Measures 7-59
7.9.3 Unavoidable Environmental Impacts . . . 7-60
7.9.4 Irreversible and Irretrievable Commitment of Resources 7-61
7.9.5 Growth Inducing Aspects 7-61
7.9.6 Use and Conservation of Energy 7-61

7.10 Implementation Issues 7-61
7.10.1 Materials and Energy Markets 7-62
7.10.2 Solid Waste Flow Control 7-69
7.10.3 Procurement Methods 7-70
7.10.4 Financing and Funding Assistance 7-74
7.10.5 Risk Posture 7-79
7.10.6 Reliability and Feasibility 7-86
7.10.7 Town Solid Waste Organization 7-88
7.10.8 Intertown Agreement 7-89
7.10.9 Collection System and Transfer Issues . 7-90
7.10.10 Drop-off (Transfer Station) Utilization . . . 7-91

Section 8 Candidate Options Analysis and Recommendations 8-1
8.1 Introduction 8-1
8.2 Summary of Recommended System 8-1
8.3 Program Activities 8-2
8.4 Facility and Disposal Activities 8-4
8.4.1 Leaf and Yard Waste Processing Facilities 8-4
8.4.2 Residential Drop-off/Recycling Facilities 8-5
8.4.3 MSW Disposal 8-5
8.5 Plan Advantages and Disadvantages 8-6

Section 9 Site Selection 9-1
9.1 Introduction and Overview 9-1
9.2 Exclusionary Criteria 9-2
9.3 Identification of Candidate Site Areas 9-4
9.4 Qualitative Site Evaluation 9-10
9.5 Results and Recommendations 9-15
9.6 Summary 9-18

Section 10 Implementation 10-1

Section 11 References 11-1

Appendix A Order on Consent File No. 1-2194

Appendix B Southampton Solid Waste Composition Analysis

Appendix C	Endangered and Threatened Species and Species of Special Concern of New York State
Appendix D	1989 Recycling Plan
Appendix E	Chapter 37 of the Town Code "Garbage and Waste Disposal Facilities"
Appendix F	1993 and 1992 Landfill Annual Report
Appendix G	Supervisor's July 14, 1994 Plan Outline
Appendix H	Conceptual Yard Waste Processing Facility Plan
Appendix I	Correspondence between East End Recycling & Composting, L.P. and the Town of Southampton
Appendix J	*Town Code*
Appendix K	*Materials Market Survey*
Appendix L	*Potential Market Listing from the NYSDED*
Appendix M	*20-Year Lifecycle Analysis*

(sh1/tbctosh)

List of Figures

Figure

4-1	Location Map	4-2
4-2	Geologic Cross Section	4-4
9-1	Hampton Bays Transfer Station Aerial View	9-6
9-2	Westhampton Transfer Station Aerial View	9-7
9-3	North Sea Landfill Aerial View	9-8
9-4	East End Recyclers Association Aerial View	9-9
9-5	Eastport-Route 111 Aerial View	9-11

(sh1/figs)

List of Tables

Table

3-1 Town of Southampton Residential Drop-Off (Transfer) Stations 3-4

3-2 Town of Southampton Permitted Commercial Hauling Companies 3-6

3-3 Recycling Equipment List 3-8

3-4 1994 Markets for Town Recyclables 3-10

3-5 Commercial Recycling By Private Carters 3-12

3-6 Town of Southampton Population Projections 3-16

3-7 Town of Southampton Historical Solid Waste Quantities 3-17

3-8 Town of Southampton Scalehouse Waste Categories 3-18

3-9 Town of Southampton Seasonal Variations of Scalehouse Tonnage Records 3-19

3-10 Town of Southampton Solid Waste Quantity Projections 3-21

3-11 Town of Southampton Existing Waste Stream Composition Data 3-31

3-12 Town of Southampton Total Adjusted Waste Stream Composition 3-34

3-13 Town of Southampton 1988 Estimated Septage Quantities 3-40

4-1 Federal Ambient Air Quality Standards 4-8

4-2 Significant Habitats 4-17

4-3 Historic Sites 4-19

6-1 Town of Southampton Projected Waste Generation After Waste Reduction 6-2

6-2 Town of Southampton Material Recovery Projections 6-10

6-3 Summary of Material Quality Requirements 6-25

7-1 Town of Southampton RFEI Vendor Responses 7-3

9-1 Preliminary Candidate Site Evaluation 9-12

10-1 Town of Southampton Solid Waste Management Program Implementation Schedule 10-3

10-2 Proposed Solid Waste Management Program Goals Schedule 10-6

(sh1/table)

1

Section One

Section 1
Introduction

The Town of Southampton has prepared this Modified Solid Waste Management Plan (Modified SWMP)/Final Generic Environmental Impact Statement (FGEIS) in response to substantive public and agency comments on the Modified SWMP/Draft Generic Environmental Impact Statement. All written comments received by the Town of Southampton are reproduced in their entirety in Appendix A. The Modified SWMP/DGEIS was made available for public review on December 13, 1994 by the lead agency (Town of Southampton Town Board). The comment period closed on January 19, 1995. Written public comments were accepted during the comment period.

All substantive comments have been summarized and reproduced in the text that follows. Each comment is identified by a two part number (example: 2-10). The first number (2 in the example) refers to the person making the comment (or the second commentor) and in the second part identifies successive comments by the same person (or the tenth comment by that same commentor). The name of each commentor with their assigned number is shown on Table 1-1.

The comment summaries were further categorized into subject matter groupings that correspond for the most part to the sections of the Modified SWMP/DGEIS. The response categories are listed in Table 1-2 and are self explanatory.

In order to eliminate the potential for confusion, each comment has been restated, the comment identification number has been given and the appropriate response follows the comment. In those cases where the same concern was expressed by several commentors the comments are listed individually and a single response is given following those comments summarized. This was done to avoid redundancy.

TABLE 1-1

WRITTEN COMMENTS
MODIFIED SWMP/DGEIS

Number	Commentor	Location
1	Henry W. Moeller	Hampton Bays
2	Barbara Sacher - North Sea Community Association	Southampton
3	Alice G. Martin	Southampton
4	Lincoln & Helen Thompson	Southampton
5	Joan G. Brennan	Southampton
6	League of Women Voters of the Hamptons	Sag Harbor
7	Maureen Steigerwald	Hampton Bays
8	Charles & Virginia Styler	Southampton
9	Anthony J. Cava, P.E.	NYSDEC

TABLE 1-2

RESPONSE CATEGORIES

Waste Stream Data	DATA
Recycling	RECY
North Sea Landfill	NSLF
Solid Waste Management Plan	PLAN
Transfer Stations	TRANS
Leaf and Yard Waste Processing	LYW
Siting	SITE

2

Section Two

SECTION 2
RESPONSES TO COMMENTS

The following text summarizes the comments and appropriate responses from the modified SWMP/Draft GEIS.

WASTE STREAM DATA (DATA)

6-9 Table 3-17 is referenced in Table 3-12 but not in our copy.

Footnote referenced in Table 3-12 should read "in Column D of Table 3-11".

6-10 Table 3-9 (Seasonal Variations of Scalehouse Tonnage) details 1987 and 1988 data. More recent data is necessary to intelligently critique the document.

Table 3-9 summarizes the seasonal variation of the Town's solid waste stream. The data demonstrates that December through March are the least active months for waste generation while April through September are the peak months for waste generation. This trend in solid waste generation has existed for some time, based on historical records. The data from 1987 and 1988 was offered as an example of this historical trend. The Town now records waste volumes on a quarterly, rather than monthly, basis (as required by NYSDEC). These quarterly results are consistent with the monthly data depicted for 1987 and 1988.

6-11 Table 3-1 (Residential Drop-Off Stations): Is the quantity data on self haulers only? If yes, why is it not used in Table 3-7?

6-12 Table 3-7 (Historical Solid Waste Quantities): Why is 1992 and 1993 self hauler data so low when compared with prior years?

Table 3-1, Residential Drop-off Stations includes quantities of waste deposited at the Town's facilities by self-haulers in 1993. Table 3-7, Historical Solid Waste Quantities, combines the self-haulers waste plus the carter waste under the title "Waste Landfilled (Weighed)".

8-1 Solid waste received at the Southampton Town owned landfill has had an actual, unforeseen decrease of 42% in five years, specifically 68,000 tons in 1988 down to 39,310 tons in 1993 (section 3, 3-1, paragraph 1), yet all schedules and figures in the SWMP project an increase in solid waste.

The schedules and figures in the text are based on the following language from page 3-20 of the Modified SWMP/GEIS.

To project future solid waste quantities, historical unit waste generation rates and population projections were used. These were cross-checked using typical national and regional waste generation rates.... The weighted population for

the Town is expected to increase by approximately 600 people per year through 2015. Records from 1987 and 1988 indicate a total waste generation rate of 4.9 lb/capita/day based on an average total tonnage of 188 tpd and a weighted population of 76,350. Comparing this approximated waste generation rate to other Long Island towns, this figure is slightly low, even taking into account the removal of C&D waste. It is reasonable to use a figure of 5.2 lbs/capita/day, which may increase in the future because of projected increases in packaging materials (The NYS Solid Waste Management Plan, DEC 3/31/87). Other Long Island towns have a waste generation rate that exceeds 6.0 lb/capita/day.The tonnages referred to by the commentor are for quantities of waste requiring landfilling. The decrease, in part, is due to the Town's aggressive recycling program, state programs to reduce waste, prohibiting grass clippings in the waste stream and individual's effort at composting.

RECYCLING (RECY)

6-1 Recent initiatives (recommendations section): The League congratulates the Town Board for hiring a recycling coordinator and establishing a pay-per-bag system. The League supports expanding the pay-per-bag system to include all residents. We support the Town's distribution of recycling bins and home composting kits as soon as possible.

The Town has endorsed a pay-per-bag program for municipal solid waste which is anticipated to take effect in early 1995. The proposed plan also entails distributing recycling containers and home composting kits to each of its residents in 1996.

6-4 Town's MSW direct responsibility: The SWMP significantly reduces the Town's MSW responsibility. The Town will handle only Leaf & Yard Waste (L&YW) and self-haulers' MSW. Based on Table 3-7, this represents anywhere from .1% (1994) to 21% (1990) of the total Town waste, depending on how you interpret the data. The scenario leaves the Town dependent on private, independent companies; who must supply the Town with recycling information in order to comply with DEC mandates. There are no incentives in the plan for these carting companies to reduce waste or increase recycling rates. How can the town control and expand recycling rates with this system?

Table 3-7 specifies historical solid waste quantities from the Town. The category Waste Landfilled (Weighed) represents waste from the private carters and waste from residents which has been deposited in trailers which are weighed at the scale house before being deposited in the landfill. The Waste Landfilled (Unweighed) is the estimated self-hauled waste that is not weighed, such as discarded furniture, mattresses or other household items that are also landfilled. To determine the amount of waste discarded by self-haulers, refer to Table 3-1 which specifies the quantity of waste received at each residential drop-off station. It is true that under the plan outlined in the Modified SWMP/GEIS, some Town residents would be relying on private carters to handle their recyclables. Under the SWMP, the Town will receive information from the private carters to determine recycling rates. The Town will continue to aggressively implement its recycling plan and enforce the provisions in the Town code.

6-6 Bale machine: Purchase of this capital equipment will allow the town to better prepare recyclables for market. Buyers of recycled goods pay significantly higher prices for baled products. It would be a good investment of the Town's money for our future.

6-13 Table 6-3 (Recyclable Material Quality Requirements): This table specifies revenue ranges for recycled materials. The ranges do not reflect our

neighboring (East Hampton) town's rates of up to $120 for corrugated cardboard and $105 for newspaper. Baled.

The Town has looked into the costs associated with purchasing and maintaining a baler. Because of the volatile nature of the markets, the Town has determined this not to be a viable option at this time.

8-3 Because the carters will have to fend for themselves when Southampton Town contracts with E.E.R.C. (or whatever alternative the Town so chooses), the carters should be allowed to retain any recyclables they collect, if they so choose, to enable them to collect any revenues to which they may be entitled. This would lower even further the projected recyclable figures.

Under the modified SWMP/GEIS, the private carters will continue to collect recyclables as they are now doing. The private carters will transport these collected recyclables to market. This will not lower the projected recyclables figure, but will make it difficult for the Town to document these volumes.

NORTH SEA LANDFILL (NSLF)

1-7 The GEIS statement makes note of the North Sea site as a depository for household hazardous wastes. There should be two sites for household hazardous wastes. One to serve the eastern end of the town and one for the western end of the Town.... These toxic household chemicals need priority over other issues in solid waste management. The GEIS statement does not give them a high priority. The GEIS report does not adequately address the serious environmental hazards of household hazardous wastes. What about agricultural hazardous waste materials that enter our waste stream? Identify them for us!

The Town's Stop Throwing Out Pollutants (STOP) Program was formed in 1984. A Household Pollutant Clean-Up Day was developed to collect household hazardous waste at a central location. Today, the STOP program consists of a household hazardous waste drop-off facility at the North Sea Landfill. This facility operates within New York State Department of Environmental Conservation (NYSDEC) regulations. These regulations protect human health and the environment. As discussed in Section 5.2.6 on page 5-6 of the SWMP, the STOP program provides a safe and convenient location for residents to discard their household hazardous waste. The waste is temporarily stored and periodically removed and disposed of by a NYSDEC approved hazardous waste hauler. No on-site disposal of any collected household hazardous material takes place now or will take place in the future. From June 1991 through June 1994, the STOP facility collected 231 drums of household hazardous waste.

TOWN'S AUTHORITY TO LANDFILL MUNICIPAL WASTE

2-1 The North Sea Community Association wishes to go on record opposing any request by the Town of Southampton for an extension to the continuation of landfilling at the Southampton Town Landfill on Major's Path in the hamlet of North Sea beyond the latest extension date of May 1995...

4-1 We do not want any further extensions to permit landfilling at the North Sea site, as of the end of the current permit on May 31, 1995.

5-1 No extension should be applied for nor granted for the continued landfilling at North Sea beyond the scheduled closing date of May 31, 1995. It is time to close this operation and move ahead with correcting the damage that has been done to the surrounding area with regard to odor, traffic, litter, gas migration, leachate, etc. This should be done with a great degree of urgency and with no cost-cutting in the remediation plan.

4-2 We do not want any more mixed solid waste to be brought to the North Sea site to be landfilled.

The existing permit for the North Sea Landfill expires on December 18, 1995. A condition in the permit provides for an end to landfilling of mixed waste after May 31, 1995. The Town intends to file for an extension of this permit and condition until March 1996, when it is expected the landfill will reach capacity.

6-8 Cell 3 Management - The League urges the Town to continue and/or increase measures to mitigate landfill odors, clean-up litter surrounding the North Sea facility, and strictly enforce speed limits on Majors Path.

There are a few measures currently being taken by the Town to mitigate landfill odors. The existing gas treatment system collects landfill gas and flares the gas in a combustion stack located west of Cell 3. The gas is supplied by a series of gas vents on Cell 1 and Cell 2 as well as horizontal gas collection piping through Cell 3. An engineering design is being completed to upgrade the existing gas treatment system. The engineering design will include eleven new deep extraction wells drilled through the landfill waste material of the three cells. The engineering design also includes an upgrade to the existing flare stack and blower. Construction of these improvements is expected to begin in the Spring of 1995. Landfill personnel routinely collect litter from around the North Sea facility and the completion of the Cell 3 cap will mitigate the amount of litter at the site in the future. Since Majors Path is a Town owned road, the Town is responsible for enforcing the speed limit.

3-1 I am unhappy to see the focus of disposal of yard and leaf waste as well as bulk items and the STOP facility is planed for the North Sea Landfill. With these arrangements traffic will continue through residential areas on roads unable to accommodate large trucks.

The Modified SWMP/GEIS as proposed will result in a reduction of truck traffic in the North Sea area. Carter vehicles will no longer be permitted to dispose of their waste and drop-off their recyclables. The addition of a small leaf and yard waste processing facility will generate a limited number of seasonal vehicle trips.

SOLID WASTE MANAGEMENT PLAN (PLAN)

INTERIM DISPOSAL OPTIONS EVALUATION

2-2 ....We see no reason not to utilize an alternative method to the present way of handling our garbage problem namely transferring the solid waste.

5-2 The Town can enter into a short-term agreement for the handling of MSW until such time as East End Recycling (Omni) is on line or until another inter-municipal agreement has been entered into... Short-term interim agreements will not have a severe financial impact on the Town, as we see from other Town's contracts.

8-6 ...there is no contingency plan presently available to the Town of Southampton in the event that E.E.R.C. (the regional option) is not up and running by May 31, 1995...

As stated in the Modified SWMP/Draft GEIS, the Town of Southampton's preferred long-term solid waste management disposal option for its self-hauled residential waste stream is processing and disposal at the proposed EERC facility to be constructed in Riverhead. The EERC facility is projected to be on-line in the fall of 1996. The Town of Southampton has sufficient capacity in Cell 3 of its North Sea Landfill until March 1996. An interim disposal method is needed to accommodate the residents of Southampton until the EERC facility is operational.

The Town has identified two viable options for the short-term disposal of their self-hauled residential waste; disposal at an existing Long Island resource recovery facility or long hauling the waste off-Long Island and probably out of state. There are five permitted resource recovery facilities on Long Island. They are located in the Towns of Hempstead, Babylon, Huntington and Islip and the City of Long Beach. The facilities located in Hempstead and Babylon are the most likely to have capacity. The remaining three facilities have smaller capacities and are sized to handle their local waste loads.

Communities in the State of New York and New Jersey have been able to find short-term waste disposal capacity in Pennsylvania and Virginia. The Town would need to contact landfills in these areas for possible short-term contracts.

In either case the Town would need to transport its waste outside its borders. The Town currently hauls via self compacting trailers, residential self-hauled waste from its three residential drop-off facilities to the North Sea Landfill. Under an interim disposal plan, these waste trailers would be traveling west to an as of yet unidentified disposal location. Minor modifications would be needed at the North Sea residential drop-off facility to accommodate self-compacting trailers.

As with the long-term disposal plan, the interim plan provides only for the waste self-hauled to either of the Town's four drop-off facilities. The private carters would be left on their own to contract for disposal services.

Also, as under the long-term plan the overall truck traffic to the North Sea site will decrease. The private carters as well as the transfer vehicles from the Town's other three drop-off facilities will not be accessing the North Sea site. Only residential vehicles, leaf and yard waste vehicles, and Town employee vehicles will be accessing the North Sea site. The same number of trucks carrying recyclables will be exiting the site as do now. In short, the area will see a much welcomed decrease in overall truck traffic.

6-3 Incineration: The League is opposed to incineration of our MSW. Incineration pollutes our air, concentrates toxic elements in ash residue, and generates a sizable residue (25%) which must still be landfilled. Incineration contracts require annual minimum tonnage rates which will be costly to the Town and discourage recycling. Incineration should not be considered as a contingency in the Town's SWMP.

The following text appears from page 7-88 of the SWMP:

Incineration of MSW has a long history which has resulted in a variety of incineration technologies that are proven, reliable, and feasible. When an energy market is available, it is possible to negotiate long-term (e.g. 20-25 years) contracts for the sale of energy to a utility or industry.

However, the perception of environmental risk coupled with a sense that conservation of material resources should command a high priority, has resulted in a climate where incineration options are not now receiving the same public acceptance as materials recovery systems with many segments of the public or regulatory agencies. Though many health risk assessments have been performed to allay the fears of health effects resulting from air emissions or residue generated from incineration of MSW, these effects remain controversial. Therefore, among the risks that must be considered is the overall consensus and direction that the Town wishes to pursue.

6-5 Municipal pick-up feasibility study - The League supports this program activity.

This is a positive comment. No response needed.

9-1 On page 10-2 Section 10 'Implementation', there is a statement regarding the May 31, 1995, deadline which reads: "...the current May 31, 1995 deadline should not apply since additional time is required for the Town to fully implement it's resource recovery system in accordance with the Long Island Landfill Law." The Department believes that this statement is incorrect and recommends that it be deleted as this deadline does not reflect SWMP constraints, but is part of a permit condition.

This language will be removed from the final version of the Modified SWMP/GEIS.

9-2 Also on pages 10-2, it is indicated that the Town would seek judicial intervention if the Department would not allow the Town to continue landfilling. While the Department recognizes the Town's right to take such legal action...the Department strongly recommends that it be deleted. As such, the Department recommends that the statement should read as follows: "The Town expects NYSDEC to grant its request, but if the Town's petition were to be denied, the Town would be forced to procure a short-term arrangement for the disposal of the mixed waste portion of its waste stream."

The substitute text will be added to the final version of the Modified SWMP/GEIS.

9-3 ...In the case of the Town of Southampton's SWMP modification, the Town now identifies a possible and preferred course of action and then a number of other general alternatives if the preferred course of action does not materialize. In almost all instances, we would not request that the modification be submitted until the Town finalized it's decision and a tentative contract or memorandum of understanding on the proposed project was agreed upon. However, the Department is prepared to approve this modification with the understanding that it is an interim document that will require further modification at the point which the Town finalizes it's decision on long term solid waste management.

The modified SWAMP/FGEIS evaluates the impacts of the preferred alternative of utilizing the East End facility for processing and disposal of the Town's mixed solid waste. If as anticipated, the Town enters into an arrangement for such disposal, there is no need to modify this document. However, to the extent an alternative not contemplated or evaluated in the Modified SWAMP/FGEIS is pursued, the Town agrees that further modifications may be warranted.

TRANSFER STATIONS (TRANS)

1-4 The Hampton Bays transfer station receives quantities of bay scallop, shells, etc... The Southampton Town Trustees should be consulted about their eventual disposition. Placing them in the waste stream is a problem they should address...This problem needs to be addressed from a public health perspective...The fee for handling these wastes should be incorporated in the commercial baymen licensure fee. It is merely a cost of doing business.

The Town is looking into the feasibility of grinding the bay scallop and shells then adding them to the compost pile.

5-5 Bulk items should be accepted at all transfer stations and not at just one or two.

5-6 Large quantities of construction and demolition debris should not be accepted at any of the transfer facilities from any contractors, etc. Small amounts from the "do-it-yourself" (self-hauler) homeowner should be accepted at all transfer stations.

If bulk items or construction and demolition debris were accepted at all transfer stations, then appropriate equipment would be needed to transport the bulk items or construction and demolition debris to the North Sea site. Due to limited resources of equipment, the Town has decided to collect bulk items and construction and demolition debris at the North Sea landfill.

6-2 Transfer station improvements: The League has lobbied Town Board for years to improve the user friendliness of the North Sea site. The SWMP suggested improvements appear to consider ease of transporting waste out by the town, and NOT ease of dropping off the waste by residents. Improved conditions should be part of the SWMP.

The Town is currently evaluating ways to improve the user friendliness of the North Sea site.

8-2 "Only self-hauled vehicles (no commercial haulers) are permitted to use the transfer stations" (section 3, 3-2, paragraph 2). When E.E.R.C., or whatever alternative Southampton Town so chooses, comes about, the commercial carters (they handle fifty percent [50%] of the solid waste in Southampton Town according to a March 1989 survey, section 3, page 3-5, paragraph 1) will have to make their own deals and will not be allowed to utilize the Town's facilities. This too will add to a decline in the amount of solid waste being processed at the transfer stations. It appears at present that the figures projected in Appendix M may be drastically in error.

Only self-haulers may access and dispose of MSW and recyclables at the Town's transfer (drop-off) stations. This will continue under the Town's proposed plan. Private carters will no longer be able to use Town facilities. The amount of waste processed by the Town's transfer (residential drop-off) stations will not be impacted by the implementation of the Modified SWMP/GEIS.

LEAF AND YARD WASTE PROCESSING (LYW)

GENERAL COMMENTS

1-1 The GEIS makes no provision for emergency situations (i.e. hurricanes, etc...) for the handling of compost. The Highway department and other agencies familiar with these types of situations should be consulted in the preparation of a final environmental impact statement.

If an emergency situation arises, such as a hurricane, a few options are available to the Town. Sufficient land is available at the North Sea site to temporarily store hurricane debris until it can be processed for composting. The Town can use the tub grinder located at the North Sea landfill to grind large tree trunks and oversized brush. If necessary, the Town can look into renting additional front-end loaders or windrow turners or other equipment on a short-term basis.

1-2 The GEIS does not mention that there are 20 to 25 feet of rubbish buried in a landfill at the proposed location for a composting facility at Hampton Bays site.

The proposed location of the composting facility is not the area where waste was previously disposed. Waste was previously disposed in the central western part of the Hampton Bays site. The old landfill is located west of the existing transfer station. The proposed location of the composting facility is in the undeveloped northeast part of the Hampton Bays site, just east of the fireman's training area and north of the transfer station.

1-3 The GEIS does not mention Christmas trees that are taken to a composting facility.

Christmas trees would be an acceptable material for the composting facility and would be handled as brush. Refer to Section 2.4.2 of Appendix H - Conceptual Yard Waste Processing Facility Plans for more details.

1-5 The GEIS statement continually refers to leaf and yard wastes. The report should distinguish between the quantity (tonnage) of leaf and yard wastes.

The Town does not keep records that distinguish leaf or yard wastes. Available data from Town records has been included in the Modified SWMP/GEIS. Other data, taken from adjoining communities, has been used for comparison purposes.

1-9 The GEIS statement does not adequately deal with the percentage of nitrogen in the leaf wastes. Leaf wastes have a low nitrogen content and to facilitate decomposition the nitrogen content is usually raised by mixing it with other organics. What other source of organics do you

have in mind to accomplish this objective? Is the objective decomposition or to stabilize? The GEIS statement did not make this clear but did state that some of the compost would eventually be landfilled. How much will be landfilled?

The Modified SWMP/GEIS assumes a natural rate of decomposition for the leaf wastes. No additives or other organics will be added to the leaf wastes to facilitate decomposition. Refer to Section 2.4.1 of Appendix H - Conceptual Yard Waste Processing Facility Plans for more details.

1-10 The GEIS statement does not adequately address the Aspergillus fumigatus issue or the potential pathogenic bacteria in the composting facility. There has been a lawsuit on L.I. about this issue.

The following text from pages 7-45 and 7-46 of the SWMP addresses the Aspergillus fumigatus issue:

Studies have demonstrated that Aspergillus fumigatus, a causative agent of respiratory infections, has been found at elevated levels in solid waste and yard waste composting facilities including composting facilities in which cellulose containing material is used as a bulking agent.

However, a study conducted by the New York State Department of Health (March 1994) evaluated A. fumigatus levels at the Islip composting facility and associated health impacts. The study concluded that although elevated levels of A. fumigatus were observed in the nearby neighborhood, these levels were not linked to increased allergy and asthma symptoms reported in the area. The NYSDOH did recommend that composting facilities "not be sited close to hospitals or other health care facilities where extreme precautions are being taken to prevent infection of severely immuno-compromised patients, unless bioaerosol emissions can be controlled" (NYSDOH, 1994).

The leaf and yard waste facilities have not been sited near hospitals or other health care facilities.

3-3 Grass clippings are mentioned although they have been banned from the landfill, why are they listed in the draft? It is a proven scientific fact, grass clippings produce odors and are unhealthy.

Grass clippings will not be taken for composting at the Town's proposed leaf and yard waste processing facilities.

5-4 If...the decision is that leaf and yard waste composting should be conducted at Town facilities, then it should be done at several Town-owned properties (and/or transfer stations) throughout the Town. One or two hamlets should not be impacted more than any other in Town. In addition, the clearing of twenty additional acres at North Sea (the Town's

self-designated critical aquifer overlay district) to handle this operation is totally unacceptable.

Section 9 details the siting study that was performed to identify candidate sites for the leaf and yard waste composting facility.

As mentioned in the "Trash for Twigs" written comments section, the Town will downsize their total proposed leaf and yard waste composting facilities from 30,000 tons per year to 10,000 tons per year. As a result, approximately ten acres will be needed for the composting facility, not the originally mention 18 acres. The Town will make every effort to locate the facility in an area of the North Sea site that has previously been cleared of trees to limit the amount of deforestation required.

7-1 I am concerned with regard to the possible damage to our water supply and with the likelihood that there will be problems with odors in the area. The citizens of Hampton Bays seem to have no difficulty with the idea of having their own compost deposited in our hamlet, but we do object to being the site for all the other hamlets and villages of the Town of Southampton.

The windrows for the leaf and yard waste processing facility would be formed parallel to the direction of on site drainage, so as not to obstruct stormwater drainage. To mitigate potential odor problems, no grass clippings will be accepted and smaller sized windrows will be used. Use of larger windrows increases the potential for odor problems. The potential for odor increases geometrically as windrow height increases, because (1) the distance air must travel to reach the center of the pile increases, (2) compaction caused by the increased weight of the pile reduces the number and size of the air passages, and (3) the ratio of the quantity of air in the pile to the quantity of organic matter decreases as the pile compresses under its own weight.

The siting study performed for the Modified SWMP/GEIS is described in Section 9. In this section, potential sites throughout the entire Town were evaluated by social, economic and environmental criteria. The siting study was objective and impartial. Refer to Section 9 for more details about the siting process.

<u>TRASH FOR TWIGS</u>

1-8 The GEIS statement refers to exchanges with one or two other municipalities in a garbage for twigs program. Southampton would transport our solid wastes to a site in another town and bring home compost wastes. These compost or organic wastes which are defined as "twigs" in the report suggests that additional demand would be placed on our composting facilities. I would rigorously oppose this concept.

1-11 It is my view that the citizens of Hampton Bays are willing and prepared to share in handling the wastes we generate in our community but we do not want to become a major repository for the entire town or worse yet to import compost from another community under the guise that this is the only economically viable route for handling solid wastes.

3-2 Why are two yard and leaf waste facilities being built for a capacity of 30,000 tons each? Currently the town produces 10,000 tons yearly. Is the town going to operate a compost facility for profit?

6-7 LEAF & YARD WASTE CAPACITY - The SWMP calls for a 15 fold increase in L&YW capacity (Table 3-7, 1993 data), concentrated at two sites. Care of a 15,000 ton per year facility is more exacting than currently required. The League is concerned about Southampton Town's ability to manage these sizable facilities. Additionally, if the Town accepts other Town's L&YW, then minimum quality standards should be specified to insure the Town is not left with tainted loads. We are concerned this increased capacity represents an implied "Trash for Twigs" swap which is not spelt out in the SWMP.

8-4 ...the SWMP proposes a "Trash for Twigs" program (section 5, 5-1, paragraph 3) which will bring in additional leaf and yard waste. This additional leaf and yard waste is projected to swell our total leaf and yard waste to approximately 30,000 tons per year.

Based on the comments and concerns voiced by the residents on this element of the draft SWMP, the Town has eliminated the option of "Trash for Twigs". The two composting facilities will be sized to handle only leaf and yard waste (excluding grass clippings) generated within the Town of Southampton. Based on the material recovery projection in the draft SWMP (Table 6-2), between 6667 and 8901 tons per year of leaf and yard waste will be recovered for processing in the Town during the period from 1995 to 2010. Therefore two facilities, each designed to handle fifty percent of the waste stream, should be sized to process up to 4450 tons per year of leaf and yard waste. For planning purposes, a facility capacity of 5000 tons per year will be used.

In downsizing each yard waste composting facility from 15,000 tpy to 4,500 tpy, the following changes to the facility plan occur:

- Reduction of overall site size from approximately 18 acres to approximately 10 acres. The principal reason for the reduction in site size is a reduction in the windrow area from 11 acres to 4 acres.
- Elimination of one front-end loader or the windrow turner.
- Reduction in the rated capacity of the shredding/screening system.

- Reduction in the size of the equipment storage building, especially if the windrow turner is eliminated.

PRIVATIZATION

1-6 In the Hampton Chronicle on August 18, 1994, I argued for more privatization of the composting function...in conversations with scientists on Long Island familiar with the composting issue, there is almost unanimous agreement that other communities on Long Island are moving towards privatization and the GEIS makes no mention of this government trend.

4-3 We do not want leaf and yard waste to be composted at the North Sea site. We believe that there are private companies who would be glad to take this type of waste off your hands.

5-3 Regarding leaf and yard waste composting, I question why privatization was not addressed in the modified Solid Waste Management Plan. There are private concerns who will eagerly handle this part of the Town's waste stream.

8-5 Perhaps the Town would prefer to look into privatization of this part of the waste stream.

Private vendor leaf and yard waste processing facilities could potentially provide the following benefits over public (Town) ownership:

- Accelerated project completion time frames, accomplished through the use of design/build contracting, privatizer expertise and cost savings incentives.
- Enhanced project cost control resulting from the private firm being financially responsible for cost overruns.
- Transfer of project management and regulatory compliance responsibilities to the private firm.
- Capital financing for the facilities could be more expeditiously arranged through the avoidance of bond issuance costs and delays.

Town ownership and operation of the leaf and yard waste facilities would have several advantages:

- Greater control over an important component of the Town's recycling program.
- Assured availability of a public service, isolated from the profit-driven decision making of the marketplace.

- Town facilities would be exempt from taxes and not expected to generate a profit.
- Utilization of tax-exempt financing could, in theory, allow lower tipping fees than those charged by a comparable privately owned facility.

A third institutional alternative available to the Town would be a joint venture with one or more private firms. A variety of arrangements are possible under this approach. The Town could own the land on which a private firm would build and operate the facilities. Or the Town could build the facilities which could then be operated by private vendors. Joint Town and private ventures offer several advantages. First, the Town could be relieved of the responsibilities for the daily operation and maintenance of the facilities. Second, the expertise and experience of private sector firms could be used by the Town. Finally, the Town could secure a long-term service commitment from the private firm assuring the Town of a valuable public service.

Based on the above discussion, there are no anticipated significant impacts associated with the privatization of the leaf and yard waste processing facilities.

SITING (SITE)

3-4 There should have been alternate sites examined for the disposal of leaf and yard waste.

Section 9 of the Modified SWMP/GEIS details the site selection process completed for the SWMP. The siting study was divided into a two stage evaluation. First, exclusionary criteria were applied to the entire Town. The exclusionary criteria included existing zoning, land ownership, and eliminating areas where siting of a solid waste facility is prohibited by either 6 New York Code of Rules and Regulations (NYCRR), Part 360 or the Pine Barrens Laws. Consequently, five sites were identified as candidate sites and were analyzed under the second stage of the siting study, the qualitative evaluation. The qualitative evaluation is a more detailed evaluation than the exclusionary criteria evaluation. The parameters in the qualitative evaluation included deep flow recharge areas, inactive hazardous waste sites, and adjacent land use. For more details on the siting study, refer to Section 9.

6-14 Section 9: Our copy contains a gap in the text from the bottom of page 9-5 to the top of 9-13. Are the missing pages available?

Pages 9-5 to 9-13 consists of five figures, one table and one page of text. The page of text, was unfortunately not included in the draft SWMP. This was a photocopying error. The missing page is included in Section 3 in its entirety.

3

Section Three

Section 3
Waste Stream Quantification and Characterization

3.1 Introduction

In 1988, over 68,000 tons of solid waste were disposed of at the Town's disposal facilities. **By 1993, this number had decreased substantially to 39,310 tons, a 42 percent reduction.** Except for certain commercial waste quantities (e.g., construction and demolition debris, commercial recycling, etc.), the majority of wastes generated were either disposed of at the Town's North Sea Landfill or recycled. The Long Island Landfill Law required that Long Island landfills cease accepting raw refuse by December 18, 1990, and that all waste must be processed in compliance with the requirements of Chapter 6 of the New York Code of Rules and Regulations (NYCRR) Part 360. Landfilling is limited to residual wastes and up to 10 percent bypass waste from a processing system. In addition, the Town was required under consent order with the NYSDEC to implement mandatory recycling of selected materials by December 31, 1989 (see Section 3.2.5, Consent Order Requirements).

The proposed action discussed in this document is the development of a long term solid waste management program that eventually eliminates the landfilling of raw refuse in compliance with the Long Island Landfill Law. The Solid Waste Management Plan (SWMP) analyzes many issues including the mandatory recycling plan, the evaluation and selection of waste disposal technologies, identification of sites suitable for waste processing, and an implementation schedule.

In addition to actions required under the Long Island Landfill Law, the Town must address its long-term recycling and disposal needs. **The Town's authority to landfill municipal waste currently expires on May 31, 1995, according to North Sea Landfill permit condition number 14. It is incumbent on the Town to increase recycling efforts and develop a plan for solid waste disposal before the May 31, 1995 deadline.**

3.2 Existing Solid Waste Management Program

The Town's existing program for handling solid waste can be categorized into waste collection, recycling and disposal methods. Solid waste collection and disposal within the Town are governed by Chapter 205 of the Town Code entitled "**Landfills, Transfer Stations, and Scavenger Waste**" (see Appendix E) and by all other applicable federal, state and local laws. The Town Code defines the Town's authority, allowable hours of operation, vehicle licensing,

disposal permit requirements, recycling/source separation requirements, and fees. The Town Department of Sanitation which is headed by the Director of Sanitation consists of approximately 20 employees who work at the North Sea Landfill and transfer stations. The Department of Sanitation is responsible for the operation and maintenance of the Town's disposal facilities. The following sections summarize the existing solid waste collection and disposal program and describe current recycling activities within the Town.

3.2.1 North Sea Landfill and Transfer Stations

The principal method employed by the Town for solid waste disposal is landfilling at the North Sea Landfill (Landfill). There are **three** transfer stations (resident drop-off only) used to facilitate waste collection by resident self-haulers in locations within the Town. Self-haulers are defined as Town residents who bring their own garbage to a Town-operated transfer station and pay either a per visit or annual disposal fee. These transfer stations are located in **Westhampton, Hampton Bays, and the North Sea Landfill.** The Sag Harbor transfer station was closed on June 30, 1989. **A new residential transfer station is under construction just north of the former transfer station site. This new facility is scheduled to be opened by early 1995.** Only self-haul vehicles (no commercial haulers) are permitted to use the transfer stations. All the waste and recyclables collected at the transfer stations are delivered to the Landfill by the Town **in** covered transfer trailers.

The Landfill receives waste from transfer trailers, commercial vehicles, and self-haul vehicles. All commercial vehicles and transfer trailers (except the self-haul vehicles) are weighed at the scalehouse before entering the disposal area of the Landfill. For 1989, all commercial haulers **were** required to pay a vehicle permit fee of $250 for the first vehicle and $100 for each additional vehicle. The 1989 permit fees for roll-off containers **were** as follows:

- $50 for a container less than 20 cubic yards;
- $100 for a container 20 to 40 cubic yards;
- $250 for a container greater than 40 cubic yards.

In addition to these permit fees, the commercial haulers **were** required to pay a tipping fee of $20 per ton of waste in 1989 **($60 per ton since 1992).** All self-haulers (including summer residents) using any of the Town disposal sites or the Landfill **were** required to pay $1 per visit or $20 per calendar year in 1989.

While commercial vehicles are weighed at the scalehouse, the waste is visually characterized by the scalehouse attendant and is **then deposited** in the Landfill. Since the tare weights of most commercial vehicles have been previously entered and saved in the scalehouse computer system, these vehicles **do not need to be weighed** after disposal.

The transfer stations are local garbage and recycling drop-off areas for residents who are distant from the Landfill. All garbage and recyclables brought to the transfer stations are transported to the Landfill where it is landfilled or, in the case of recyclables, loaded into larger transfer vehicles for transport to a recycling market. Table 3-1 provides details on each transfer station size, quantity of municipal waste dropped off in 1993 and types of recyclables accepted. The amount of garbage and recyclables received by the transfer stations ranged from 3,350 tons to over 7,000 tons in 1993. Recyclables collected include newspaper, cardboard, clean mixed paper, glass, tin cans, waste oil, leaves, chipped brush, plastics and batteries.

The North Sea Landfill transfer station is located west of Cell 2, near the scalehouse and Maintenance Building. The residents first encounter recycling drop-off areas for white goods and tires, followed by transfer trailers for plastic, metals, and glass. The residents proceed up a slight ramp to the bilevel disposal center where municipal solid waste is discarded into transfer trailers. Near the leachate storage tank are piles of compost and recyclable cardboard.

The Westhampton and Hampton Bays transfer stations consist of a U shaped drive where residents proceed in one direction to reach various drop-off points. Residents first encounter the recycling center where they may drop off recyclables without paying the disposal fee. The recycling centers are followed by management stations where permits are checked or fees are collected. Residents then proceed up a ramp that brings them level with the tops of covered 60 cubic-yard transfer trailers where the garbage is deposited. Stockpiles of leaves and chipped brush are located after the unloading ramp where the Town Highway Department and self-hauling residents can deposit leaf and yard waste.

The Sag Harbor transfer station was smaller and handled less waste than the other transfer stations. Due to the small volumes and relatively high costs for upgrading to meet State standards, the Sag Harbor transfer station was closed on June 30, 1989. A new residential transfer station is being constructed just north of the former transfer station site. Expected to be open in early 1995, the station will accept municipal waste and designated recyclables but will not accept yard waste.

3.2.2 Collection

The Town is not responsible for the collection of solid waste within the Town. Private collection services are contracted to collect approximately one-half the residential waste and nearly all of the commercial, institutional, non-hazardous industrial, and farm wastes. The remaining residential wastes are brought to the disposal facilities by the residents (self-haulers). Although there is no municipal collection of residential or commercial wastes, certain Town departments have collected leaves and roadside brush.

TABLE 3-1

TOWN OF SOUTHAMPTON
RESIDENTIAL DROP-OFF (TRANSFER) STATIONS

Locations	Site Size (Acres)	1993 Annual Waste Quantity Received (1) (Tons)	Recyclables (2) Accepted as of October 1994
Westhampton	28	3,350	N, OCC, G, T, WO, L, B, MP, P, Bat
Hampton Bays	25	6,290	N, OCC, G, T, WO, L, B, MP, P, Bat
North Sea	131	7,170	N, OCC, G, T, WO, L, B, MP, P, Bat
Sag Harbor (3)	7	0	N, OCC, MP, G, T, WO, P, Bat

Notes:

(1) Annual waste quantity includes **residential waste only.**

(2)

Symbol	Material
N	newspaper
OCC	cardboard
MP	clean mixed paper
G	glass
T	tin cans
WO	waste oil
L	leaves
B	chipped brush
Bat	batteries
P	plastics

(3) Sag Harbor transfer station was closed on June 30, 1989. **A new facility in Sag Harbor is currently under construction and is anticipated to be open in early 1995.**

(nr2/tables)

There are thirteen commercial hauling companies holding disposal permits as of November 1994. Table 3-2 provides a list of the commercial haulers and indicates which type of waste generator (residential or commercial/industrial) each serves. Commercial haulers servicing residents contract directly with the homeowners. Approximately 10,200 homes (approximately 50 percent of all Town households) were served by these commercial haulers according to a March 1989 survey of permitted private collection firms. About 80 percent of those households received backyard collection service, and 20 percent had curbside collection. The low percentage of curbside collection is due to village ordinances prohibiting curbside collection for aesthetic reasons. Commercial haulers have provided separate voluntary newspaper collection to their customers since 1988. Some of these newspapers went to the Town's recycling center at the Landfill while other newspapers were privately marketed by the commercial haulers. However, beginning June 15, 1989, separation of newspapers became mandatory for all Town residents. The Town provides a drop-off area at the Landfill for newspapers collected by the commercial haulers or delivered by self haulers.

Households not serviced by a private collection service self-haul their garbage to the transfer stations or the Landfill. The Town also provides recyclable drop-off containers at these sites. These drop-off centers are open to all residents and do not require a permit for access. The drop-off centers at each disposal facility are described in greater detail in Section 3.2.1, North Sea Landfill and Transfer Stations.

Nearly all of the commercial, institutional, non-hazardous industrial, and farm wastes (potato wastes and manures) are collected by the commercial haulers. These four types of waste are delivered to the Landfill. Several commercial haulers collect potato wastes and manures exclusively. Farm wastes and a small portion of the corrugated cardboard are collected separately and recycled through the recycling center at the Landfill or by the commercial hauler. Construction and demolition wastes are prohibited at the Landfill, and these materials are either recycled privately or disposed of in private landfills.

The Town Highway Department collects leaves and brush from residents in the spring and fall. The Parks and Recreation Department services trash containers located at parks, beaches and public areas in the eastern half of the Town. The Town currently contracts with a commercial hauler to service park trash containers located in the western half of the Town.

3.2.3 Existing Town Recycling Program

For several years prior to 1989, the Town conducted a successful, voluntary, source separation recycling program. In 1988, about 2,200 tons of newspaper, cardboard, glass and cans were marketed through the Town's program. In addition, an estimated 300 tons of wood chips that were made available as mulch were taken away by residents and businesses. Finally, about 5,500 tons

TABLE 3-2

TOWN OF SOUTHAMPTON
PERMITTED COMMERCIAL HAULING COMPANIES

Company	Type of Waste Generator Serviced	
	Residential	Commercial
Colassal Carting	Yes	Yes
Detail Carting Co.	No	Yes
George's Commercial Sanitation	No	Yes
George's Residential Sanitation	Yes	No
Jet Sanitation	Yes	Yes
Matituck Sanitation	Yes	Yes
Nickolich Sanitation	Yes	Yes
Emil Norsic & Son, Inc.	Yes	Yes
Riverhead Rubbish Removal	Yes	Yes
Riverhead Sanitation	Yes	Yes
S&P Sanitation	Yes	Yes
Suburban Sanitation	Yes	Yes
SSC	**Yes**	**Yes**

Note:
This list **was updated by the Town in November 1994.**

(nr2/tables)

of brush, leaves, potato wastes, landscaping wastes, sand and dirt (referred to as Separated Organics) were stockpiled where it could decompose. Brush and some wood chips have historically been burned on site. **The recycling program was expanded in 1989 to require mandatory participation and added curbside collection of recyclables for residents who receive curbside garbage collection. Since the 1989 expansion, the quantity of recyclables recovered and marketed has risen steadily to over 7,500 tons in 1993.**

3.2.3.1 Processing and Storage Procedures

The Town's source separation program provides residents with the opportunity to recycle tin cans, glass containers, newspaper, cardboard, clean mixed paper, **plastic, batteries,** white goods, motor oil, leaves, chipped brush and other organic wastes.

The Town receives sorted recyclables from two sources; self-haulers and private haulers. Self-haulers can drop-off their recyclables (except separated organics and scrap metals) at designated drop-off centers at the transfer stations or Landfill. Scrap metals and separated organics can be brought to the Landfill. The drop-off centers consist of a number of 20 and 30 cubic-yard roll-off containers for storing recyclables (excluding white goods and separated organics which are stored on the ground) and a collection tank for waste oil.

Separated newspapers and, to a limited extent, yard wastes, white goods, and cardboard, are collected by the private carters. **These materials** are taken to the Landfill recycling center or marketed privately. **Since** June 15, 1989, the carters have provided separate newspaper collection **on alternating** Thursdays in coordination with the Town's mandatory recycling program.

Materials collected at the transfer stations are transported to the Landfill recycling center where **visible** contaminants are removed. Clean recyclables are loaded into larger transfer vehicles for transport to market. Scrap metals (i.e., white goods, metal doors, pipes, etc.) are collected only at the Landfill. Periodically, the scrap metals are sold to a private recycling firm on a spot-market basis. Grass, leaves, manures, and potato wastes are also stockpiled at the Landfill where they partially decompose. Wood chips are generated by the Highway Department during the spring and fall road side clean up. These chips are made available to Town residents and businesses for use as mulch.

Materials **to be** marketed are stored on site until **sufficient** material has accumulated. This storage period ranges from approximately one week for newspaper to one month for tires and scrap metals. All materials except scrap metals and separated organics are stored in the drop-off center containers (see Table 3-3, recycling equipment List). Scrap metals and separated organics are stored on the ground in designated areas at the Landfill.

TABLE 3-3

RECYCLING EQUIPMENT LIST
(As Of 1994)

Equipment	Capacity	Number	Materials Used For	Location
Roll-Off Containers				
. **40 Cubic Yard**	**40 cy**	**4**	**Newspaper, Tin Cans**	
. 30 Cubic Yard	30 cy	8	Newspaper, Tin Cans	Landfill and Transfer
. 20 Cubic Yard	20 cy	8	Corrugated Glass	Stations
. **15 Cubic Yard**	**15 cy**	**4**	**Mixed Paper**	
Transfer Trailers (1)	65 cy (approx)	9	Newspaper, Tin Cans Corrugated	Landfill **and Transfer Stations**
	75 cy	**5**		
Mack Tractors (1)	NA	3	**All Recyclables**	Varies
Pay Loaders (1)	NA	3	Newspaper, Separated Organics	Landfill
Hoist Truck	NA	3	Newspaper, Corrugated Tin Cans, Glass	Varies
Oil Containers		4	Motor Oil	Landfill and Transfer Stations
Boxed Trailers	**70 cy**	**4**	**Newspaper**	**Landfill and Transfer Stations**
Tub Grinder	**NA**	**1**	**Brush and Leaf Processing**	**Landfill**
S.T.O.P. Facility	**NA**	**1**	**Residential Household Hazardous Waste**	**Landfill**

Notes:

(1) Equipment also used for handling waste.

Updated by Town in November 1994.

(nr2/tables)

3.2.3.2 Program Administration and Staffing

Operations and administration of the Town's program is performed by Town employees. Overall program management is handled by the Town Sanitation Department and a designated member of the Town Board.

Daily management of operations is performed by the Sanitation Department staff. Their activities include monitoring drop-off centers, hauling materials from the transfer stations to the Landfill, loading the materials into larger transfer vehicles, and transporting the recyclables to the market. The Sanitation Department also handles marketing of the recyclables. See Section 3.2.3.1, Processing and Storage Procedures, for more details on daily operations.

Staffing needs and duties for further expansion of the program are discussed in the 1989 Recycling Plan, Section 5.0 (Appendix D of this report).

3.2.3.3 Equipment and Storage

The Town uses an assortment of roll-off containers and trailers to serve as drop-off containers and for temporary storage of recyclables. The payloaders used in Landfill operations are used as needed to load recyclables brought from the transfer stations into larger transfer trailers for delivery to market. Table 3-3 provides a list of equipment the Town owns and uses in its recycling program, the materials stored in each container and storage capacity.

3.2.3.4 Marketing

Materials are marketed by the Town Sanitation Department to buyers on Long Island. Table 3-4 provides a partial list of brokers through which the Town sold materials in 1994. Note that materials are sold on a "spot market basis." No marketing contracts are used. Buyers of the Town's materials can change at any time, but the Town will typically develop an informal understanding with individual buyers to work with them on a continuing basis. This arrangement adds a degree of stability to the Town's marketing efforts.

3.2.3.5 Services Provided by Private Firms

Private enterprise plays an important role in the collection and marketing of materials. The Town held several meetings with private haulers which were instrumental in developing the Town's 1989 Recycling Plan. (See Appendix D.) Together, the Town and haulers developed collection schedules and, sorting instructions and coordinated numerous miscellaneous activities. The result was an efficient curbside collection program operated by the private haulers that required no additional expenditure by the Town and no increase in collection fees to residents.

The haulers have also helped publicize the recycling program by mailing Town promotional materials to their customers with their regular invoices. The haulers have also provided recycling services to their commercial

TABLE 3-4

1994 MARKETS FOR
TOWN RECYCLABLES

Material	Market
Newspaper	Pinnacle Industries Jet Sanitation Island Recycling Marcal Paper
Corrugated Cardboard	Jet Sanitation Gershow Recycling
Tin Cans	Jet Sanitation Gershow Recycling
Glass	EWG Glass Recovery Jet Sanitation
Scrap Metal	Gershow Recycling
Tires	Connecticut Tire Recycling
Wood Chips	Town Residents
Plastic	Jet Sanitation
HHW	Chemical Pollution Control
White Goods	Jet Sanitation Gershow Recycling
Co-Mingled	Jet Sanitation
Mixed Paper	Jet Sanitation
Waste Oil	Strebles
Aluminum	M&M Scrap Recyclables Gershow Recycling
Cast Iron	M&M Scrap Recyclables Gershow Recycling
Batteries	M&M Scrap Recyclables Gershow Recycling

Note: Updated by Town in November 1994

(nr2/tables)

customers as well. Section 3.2.4, Commercial and Industrial Wastes Recycling, provides an overview of these activities.

Haulers either bring collected recyclables to the drop-off center at the Landfill or, depending on market conditions, **sell the material** directly to market. Numerous scrap brokers and processors on Long Island have served as markets for the source separated materials collected in the Town's program. See **Section 6.6.2, Market Survey Results,** for more details.

3.2.3.6 Funding Sources

Funding for the existing recycling program is derived from several sources. Daily operating costs are included as part of the Sanitation Department budget. Program planning, promotion and education costs have been funded through the Town's general operating budget. **The Town has also been approved to receive a state grant for a public education program to promote source reduction.**

3.2.4 Commercial and Industrial Wastes Recycling

Commercial and "Industrial" wastes are generated in Southampton by construction, farming, retail businesses and offices. Farm wastes are handled as Separated Organics by the Town and are stockpiled as described in Section 3.2.3.1, Existing Town Recycling Program. Commercial wastes in Southampton are generated by offices, department stores, restaurants, supermarkets and other retail establishments. Recyclable materials are generated in relatively homogeneous streams at each commercial establishment.

As noted, the private haulers operating in Southampton were surveyed in March 1989 and asked if they collected any commercially generated materials for private recycling . At that time, three haulers collected separated recyclables from commercial establishments. All three collected separated corrugated cardboard, and one hauler, Jet Sanitation, also recycled "mixed commercial wastes." The haulers indicated that commercial materials are recycled intermittently depending on market conditions **and** the requests of the commercial clients. Quantities are not estimated due to the inconsistent nature of these recycling activities. The corrugated cardboard is marketed on a spot market basis to various unidentified buyers. **As of November 1994, two of the three haulers continue to collect separated recyclables from commercial establishments (see Table 3-5).**

Waste paper brokers surveyed in 1989 as part of the Market Survey (see Section 6.6) were asked if they pick-up any high-grade paper directly in Southampton. None indicated that they did.

Landfill disposal of construction and demolition waste (C&D) at the North Sea Landfill has been banned since 1986. **Following this ban,** George's Sanitation operated a permitted C&D processing facility in Quoque; **however, a**

TABLE 3-5

COMMERCIAL RECYCLING
BY PRIVATE CARTERS

Hauler	Materials	Where Processed or Accumulated
Jet Sanitation	Corrugated Cardboard and Mixed Commercial	Central Islip
Riverhead Sanitation	Baled Corrugated Cardboard	Riverhead

Note: Corrugated and newsprint privately marketed by carters. Updated by Town in November 1994.

temporary restraining order closed the C & D processing facility in late spring, 1994. It is not known if the facility will be reopened or if a permanent restraining order will be issued. This facility reportedly accepted between 200 and 600 cubic yards per day (varies seasonally) of C&D debris from private haulers and construction contractors. The materials were sorted in a 13,000 square foot building. Mixed plastics and cardboard were baled; lumber, brush and stumps were chipped; concrete and asphalt rubble are crushed to produce aggregate; and metals were separated. Recyclable materials are marketed on a spot-market basis. George's Sanitation has paid to have some materials, such as wood chips and mixed plastics, taken to recycling markets. Typically, about 50 to 60 cubic yards a day of non-recyclables remained after processing and were disposed of in a permitted C&D landfill. George's Sanitation has disposed of unmarketable processed C & D and screenings at the Blydenburgh Landfill in Islip, New York and at 110 Sand Co. in Melville, New York.

3.2.5 Status of Activities at the North Sea Landfill

Cell No. 1: Southampton entered into a Consent Decree with the USEPA in February 1991, pursuant to which the Town has implemented capping activities in accordance with 6 NYCRR Part 360. Additionally, sampling was conducted in the area of former scavenger lagoons which revealed that the same had been fully decommissioned back in 1986. Implementation of the Cell No. 1 cap is virtually complete. The Town will recover up to 75% of the costs associated with the Cell No. 1 remedial program from New York State under the 1986 Environmental Quality Bond Act (EQBA).

Additionally, investigation was also conducted downgradient of Cell No. 1 and the former scavenger lagoon area to determine if there are any impacts. A Record of Decision was issued by EPA in November 1992, with concurrence from DEC, that "no further action" is warranted.

Cell No. 2: Pursuant to a Consent Order with DEC dated February 8, 1989, the Town has fully completed closure of Cell No. 2 in accordance with plans approved by NYSDEC and 6 NYCRR Part 360. The Town received funding pursuant to N.Y. Environmental Conservation Law (ECL) Article 52 Title 5.

Cell No. 3: Cell No. 3 is currently the only municipal solid waste (MSW) landfill operating under permit in compliance with the Long Island Landfill Law. The existing permit for Cell No. 3 expires on December 18, 1995. However, as of May 31, 1995, the permit limits the disposal of raw garbage directly into the landfill. As proposed in this document, the Town will pursue processing and disposal capacity at a facility on the eastern end of Long Island, preferably the MSW composting facility to be constructed by East End Recycling and Composting,L.P. (East End) in Calverton, New York. As this facility is not expected to be constructed prior to the fall of 1996, the Town will seek authority from DEC to continue to use Cell No. 3 for raw garbage disposal until the East End facility is fully operational.

Landfill Gas Collection System: The Town installed a temporary candlestick flare system for Cell No. 1 in the summer of 1993. The temporary system includes the two candlestick flares which are located on the horizontal plateau at Cell 1 and are supplied landfill gases from 12 passive vents. These passive vents extend approximately 20 feet into the waste mass.

A permanent gas flare and blower system collects landfill gases from gas vents on the horizontal plateau of Cell 2 and horizontal gas collection pipes through the existing waste mass of Cell 3. This permanent gas flare and blower system was installed in the spring of 1993. The nine vents on the horizontal plateau of Cell 2 consist of a vertical riser pipe that extends approximately 20 feet into the waste mass and a lateral collector just beneath the HDPE liner. The internal collector extends 10 feet in two directions from the vent center line. Seven flexible 6-inch diameter horizontal gas collection pipes are buried in the waste mass of Cell 3 and convey the landfill gas to the permanent gas flare. These horizontal pipes are spaced approximately 50 feet apart and run in an east-west direction through the waste mass of Cell 3.

In an effort to upgrade the existing gas collection system, the Town, in the fall of 1994, drilled four test wells (2 in Cell 1 and 2 in Cell 2) to the base of the waste mass. These wells will help determine the volume of landfill gas and approximate zones of influence for the gas extraction wells. This information will be used to design a full-scale gas collection/flare system. The Cell 1 and 2 gas vents and the Cell 3 horizontal gas collection pipes will also be connected to the full-scale gas collection/flare system.

3.3 Solid Waste Quantification and Characterization

Estimates of solid waste quantities are important in planning for proper solid waste management. Solid waste quantities and characteristics influence what disposal technologies are feasible and the extent of processing required. Variables ranging from commercial development and population changes to recycling and seasonal activity can contribute to fluctuations in the waste stream both annually and on a long term basis.

The estimates prepared in the following sections were based primarily on previous reports, studies and data compiled from the North Sea Landfill scalehouse tonnage records. The estimates were adjusted in certain instances and broken down further by estimating the likely presence of recyclable materials. This waste quantity data will be used to perform technology evaluations.

3.3.1 Present and Projected Solid Waste Quantities

3.3.1.1 · Population Projections

The Town population consists of year-round residents, summer residents and weekend and holiday visitors, which cause the yearly population to fluctuate dramatically. Because of this dynamic fluctuation, seasonal and seasonal-peak data need to be examined along with the year-round population data. Population projections were reviewed for the planning period through the year 2015. Sources of information include Long Island Lighting Company data (LILCO, 1987) and the Town Master Plan Update (Southampton, 1983). This data is presented in Table 3-6 and include year-round population, seasonal residents, and seasonal peak visitors (i.e., those people who visit the Town on weekends and holidays). To calculate future waste projections due to the extreme seasonal waste stream fluctuations, a weighted population was estimated. As noted in Table 3-6, the weighted population was calculated by assuming that one month consists of the seasonal peak population, five months consist of the seasonal population, and the remaining six months of the year consist of the year-round population.

It is projected that the Town's year-round and summer peak populations will continue to increase through the year 2015. The summer peaks include the July 4 and Labor Day holidays. From 1988 to 2015, the year-round and summer peak populations are projected to increase from 50,015 to 63,750 and 126,015 to 153,550, respectively. The weighted population is estimated to be approximately 93,200 by the year 2015. The Town population approximately doubles every year during the warm weather months and experiences almost another 25 percent increase during the summer peak weeks.

3.3.1.2 Historical Solid Waste Quantities

As previously discussed, the Town weighs all solid waste disposed at the North Sea Landfill with the exception of self-hauled waste (i.e., delivered by residents). Although the waste being disposed of at the transfer stations is not weighed, the transfer trailers and containers from each transfer station are weighed at the Landfill scalehouse before disposing of the transfer station waste at the Landfill site. Therefore, the waste disposed at each transfer station is indirectly weighed and recorded at the scalehouse.

Table 3-7 summarizes the quantities of solid waste that were landfilled, recovered, or processed during the years 1987 through 1991. In 1993, there were 35 waste categories used by the Town for classifying incoming solid waste and marketed recyclables. Table 3-8 is a list of these categories. Table 3-9 summarizes the seasonal variation of the Town's solid waste stream using 1987 and 1988 as examples. The months of December through March are the least active months while April through September are the peak months.

TABLE 3-6

TOWN OF SOUTHAMPTON
POPULATION PROJECTIONS

Description	1988	1990	1995	2000	2005	2010	2015[7]
Year-Round Population [1]	50,015	52,000	53,250	54,750	57,750	60,750	63,750
Seasonal Residents [2]	48,000	48,000	50,400	51,840	52,800	52,800	52,800
Seasonal Population [3]	98,015	100,000	103,650	106,590	110,550	113,550	116,550
Seasonal Peak Visitors [4]	28,000	28,500	30,000	31,700	33,000	35,000	37,000
Summer Peak Population [5]	126,015	128,500	133,650	138,290	143,550	148,550	153,550
Weighted Population [6]	76,350	78,410	80,960	83,310	86,900	90,070	93,200

Note: [1] Year-round population includes those people who live in the Town 12 months of the year. Source: LILCO, Revised May 1987.

[2] Seasonal residents include those people who live in the Town during the six warm months of the year (April through September). Source for calculation method is Town of Southampton Master Plan Update Report #2. October 1983.

[3] Seasonal population includes year-round population and seasonal residents.

[4] The seasonal peak visitors include those people who visit the Town on weekends and holidays including Fourth of July and Labor Day weekend.

[5] The summer peak population is the cumulative population of the year-round population, seasonal residents, and seasonal peak visitors.

[6] The weighted population is based on a year-round population, a five-month warm weather season, and a one-month summer peak season. Therefore, the weighted population equals 6/12 (year-round population) + 5/12 (seasonal population) + 1/12 (summer peak population).

[7] Projections for year 2015 are based on extrapolating the projected population from 2005 to 2010.

(nr2/tables)

TABLE 3-7

TOWN OF SOUTHAMPTON
HISTORICAL SOLID WASTE QUANTITIES

MATERIAL TYPE	YEAR 1987 (Tons)	1988 (Tons)	1989 (Tons)	1990 (Tons)	1991 (Tons)	1992 (Tons)	1993 (Tons)
Waste Landfilled (Weighed) (1)	61,160	59,390	62,400	50,300	43,000	46,730	39,260
Waste Landfilled (Unweighed) (2)	7,330	8,620	6,000	6,000	2,500	50	50
Total Waste Landfilled	68,490	68,010	68,400	56,300	45,500	46,780	39,310
Recyclables Recovered (3)	1,170	2,300	4,240	4,450	5,070	7,380	7,520
Leaf/Yard Waste Recovered (4)	300	500	2,000	3,500	8,440	2,240	2,280
Total Materials Recovered	1,470	2,800	6,240	7,950	13,510	9,620	9,800
C&D Waste Processed (5)	No Data	20,000	20,000	20,000	20,000	No Data	No Data
Septage Waste Processed (6)	No Data	200	200	200	200	No Data	No Data
Total Waste Processed	No Data	20,200	20,200	20,200	20,200	No Data	No Data
Total Waste Generated (7)	69,960	91,010	94,840	84,450	79,210	56,400	49,110

Notes: (1) Based on North Sea Landfill scalehouse records. Includes all waste received and weighed at the North Sea Landfill.

(2) Based on estimates by North Sea Landfill personnel. Includes all estimated self-hauled waste delivered to the North Sea Landfill but not weighed.

(3) Based on North Sea Landfill scalehouse records. Includes all recyclables recovered and marketed.

(4) Based on North Sea Landfill scalehouse records and estimates of incoming source separated leaf and yard waste quantities that were reused by Town residents and/or composted at the landfill. Leaf and yard waste composting did not begin until 1989. Additional yard waste beyond typical quantities generated were recovered in 1991 due to Hurricane Bob. These additional quantities are not included in the 1991 leaf and yard waste figure. **Tip fee increased to $60 per ton for leaf and yard waste in 1992. In 1993, grass clippings were banned from disposal at Town facilities.**

(5) Based on estimates of C&D waste processed at private processing and recycling facilities.

(nr2/tables)

TABLE 3-7

TOWN OF SOUTHAMPTON
HISTORICAL SOLID WASTE QUANTITIES

(CONTINUED)

(6) Based on estimates and records of "dry" septage processed at the Riverhead Scavenger Waste Treatment Plant.

(7) Sum of Total Waste Landfilled, Total Materials Recovered, and Total Waste Processed.

TABLE 3-8 [1]

TOWN OF SOUTHAMPTON
SCALEHOUSE WASTE CATEGORIES

ALO	Aluminum Out	PI	Plastic In
B	Brush	PJ	Plastic To Jet
BO	Batteries Out	R	Mixed Recyclable Material
CAST	Cast Iron Out	S	Sand/Sweepings
CB	Cardboard	T	Tires
CBOG	Cardboard to Gershow	TCO	Tin Cans Out
CBOJ	Cardboard Out Jet	Tires Out	Tires Out
CJ	Commingled To Jet	WC	Wood Chips
CO	Commingled to Omni	WGI	White Goods In
G	Garbage	WGO	White Goods Out
GACU	Great American Clean Up	WGOJ	White Goods Out To Jet
Glassout	Glass Out To EWG		
GTC	Glass Tin Cans		
LA	Landscaping		
LE	Leaves		
M	Miscellaneous		
Mixed	Commingled In		
MP	Mixed Paper		
MPI	Mixed Paper In		
MPJ	Mixed Paper To Jet		
N	Newspaper For Recycling		
NPJ	Newspaper To Jet		
NPP	Newspaper To Pinnacle		
P	Potatoes		

Notes: As classified by the Town for incoming solid waste and marketed recyclables in 1993.

TABLE 3-9

TOWN OF SOUTHAMPTON
SEASONAL VARIATIONS OF SCALEHOUSE TONNAGE RECORDS

	1987		1988	
Month	TPD [1]	Percent of Average TPD	TPD [1]	Percent of Average TPD
January	125	66	118	63
February	123	65	129	69
March	155	82	150	80
April	186	99	176	94
May	222	118	204	109
June	230	122	235	125
July	260	138	255	136
August	244	130	247	131
September	221	118	224	119
October	178	95	170	90
November	168	89	175	93
December	145	77	168	89
Average TPD	188		188	

Notes:

(1) Based on Town Landfill scalehouse records and estimated self-haul waste delivered to the Landfill.

(nr2/tables)

3.3.1.3 Projected Solid Waste Quantities

To project future solid waste quantities, historical unit waste generation rates and population projections were used. These were cross-checked using typical national and regional waste generation rates. As previously mentioned, by 2015 the Town population (both year-round and summer peak) is expected to increase to about 64,000 and 152,800, respectively. The weighted population is expected to increase by approximately 600 people per year through 2015. Records from 1987 and 1988 indicate a total waste generation rate of 4.9 lb/capita/day based on an average total tonnage of 188 tpd and a weighted population of 76,350. Comparing this approximated waste generation rate to other Long Island towns, this figure is slightly low, even taking into account the removal of C&D waste. It is reasonable to use a figure of 5.2 lbs/capita/day, which may increase in the future because of projected increases in packaging materials (The NYS Solid Waste Management Plan, DEC 3/31/87). Other Long Island towns have a waste generation rate that exceeds 6.0 lb/capita/day.

Based on the estimates of the Town's waste stream and the total adjusted waste stream composition data discussed above, material quantities for the total waste stream were projected. Table 3-10 summarizes **projected** solid waste quantities from 1991 through 2010. **The** quantities in Table **3-10** are waste stream **quantity** projections **showing waste generated, recycled and disposed of. They do not reflect actual quantities in 1991 through 1993.**

3.3.2 Waste Stream Characterization

The solid waste weighed at the scalehouse in 1987 and 1988 represents the best available data on refuse categories within the Town of Southampton. Additionally, in 1986 the Town commissioned a waste sampling program by Holzmacher, McLendon and Murrell, Inc (H2M) that provided compositions of specific materials. Four separate (weekly) sampling studies were undertaken in June, July, October and December 1986. Because this data is not sufficiently detailed with respect to breakdown of many potentially recyclable items, the available data on Southampton's waste stream was complemented with selected national data to provide further detailed analysis for specific recyclable subcategories (composition study).

Table 3-11 presents the Town's waste composition based on Landfill records (Column A), the H2M waste composition study as complimented with national data (Column B), and a combination of these two data bases (Column C). The Landfill data column represents visually characterized loads of the materials delivered to the Landfill during 1987 and 1988. The waste composition study data column is an average of the four Town studies based on the sampling of the mixed waste fraction which comprised 86.7 percent of the total waste stream. The combined data was developed from the combination of the Landfill records and composition study.

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	1991 Quantity generated (tons)	1991 Recovery rate	1991 Quantity recovered (tons)	1992 Quantity generated (tons)	1992 Recovery rate	1992 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,476	38.5%	1,725	4,285	46.3%	1,982
Corrugated cardboard	11,381	7.8%	890	10,896	15.6%	1,704
Clear glass	2,883	16.0%	460	2,760	32.0%	883
Brown glass	607	14.8%	90	581	29.6%	172
Green glass	1,821	15.9%	290	1,743	31.8%	554
Steel cans	2,428	6.8%	165	2,325	17.0%	395
Bimetal cans	531	7.5%	40	508	18.7%	95
Aluminum cans	683	6.6%	45	654	16.5%	108
Office paper	3,869	0.3%	10	3,704	12.9%	479
HDPE bottles	531	33.9%	180	508	37.4%	190
PET bottles	76	33.0%	25	73	33.0%	26
Subtotal	29,286	13.4%	3,920	28,039	23.5%	6,588
Leaf/yard waste processing						
Leaf/yard waste	11,305	31.8%	3,600	10,824	41.4%	4,481
Other organic waste						
Contaminated paper	6,373	0.0%	0	6,102	0.0%	0
Food	6,221	0.0%	0	5,956	0.0%	0
Other organics	3,262	0.0%	0	3,123	0.0%	0
Subtotal	15,856	0.0%	0	15,181	0.0%	0
Direct Town marketing						
White goods	1,366	64.1%	875	1,308	70.5%	922
Tires	152	92.1%	140	146	92.8%	135
Subtotal	1,518	66.9%	1,015	1,453	72.7%	1,057
Other waste recycling						
Textiles	1,745	0.0%	0	1,671	5.0%	84
Wood waste	2,883	0.0%	0	2,760	10.0%	276
Soil	1,214	0.0%	0	1,162	5.0%	58
Other paper	5,766	0.0%	0	5,520	15.0%	828
Other plastics	4,097	0.0%	0	3,923	10.0%	392
Other glass	1,214	0.0%	0	1,162	10.0%	116
Other metals	759	1.3%	10	727	20.0%	145
Other inorganics	228	50.5%	115	218	55.6%	121
Subtotal	17,906	0.7%	125	17,143	11.8%	2,021
Waste for private processing						
C&D waste	20,000	75.0%	15,000	19,148	75.0%	14,361
Septage	200	0.0%	0	202	0.0%	0
Subtotal	20,200	74.3%	15,000	19,350	74.2%	14,361
Total or overall	96,070	24.6%	23,660	91,989	31.0%	28,508
Waste stream summary						
Disposal by Town (tons)		67,210			58,492	
Overall recycling rate		24.6%			31.0%	
Waste reduction rate		NA			5%	
Total reduction/recycling rate		24.6%			36.0%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	1993 Quantity generated (tons)	1993 Recovery rate	1993 Quantity recovered (tons)	1994 Quantity generated (tons)	1994 Recovery rate	1994 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,273	60.1%	2,569	4,261	72.1%	3,074
Corrugated cardboard	10,866	31.3%	3,399	10,835	46.9%	5,084
Clear glass	2,753	48.0%	1,321	2,745	52.8%	1,449
Brown glass	580	44.3%	257	578	48.8%	282
Green glass	1,739	47.7%	829	1,734	52.5%	910
Steel cans	2,318	34.0%	788	2,312	37.4%	864
Bimetal cans	507	37.5%	190	506	41.3%	209
Aluminum cans	652	33.0%	215	650	36.3%	236
Office paper	3,694	32.3%	1,193	3,683	48.5%	1,785
HDPE bottles	507	41.0%	208	506	43.1%	218
PET bottles	73	33.0%	29	72	33.0%	30
Subtotal	27,961	39.3%	10,998	27,881	50.7%	14,141
Leaf/yard waste processing						
Leaf/yard waste	10,793	53.8%	5,809	10,763	59.2%	6,371
Other organic waste						
Contaminated paper	6,085	0.0%	0	6,067	0.0%	0
Food	5,939	0.0%	0	5,923	0.0%	0
Other organics	3,114	0.0%	0	3,105	0.0%	0
Subtotal	15,138	0.0%	0	15,095	0.0%	0
Direct Town marketing						
White goods	1,304	77.5%	1,011	1,300	81.4%	1,058
Tires	145	93.0%	135	145	93.3%	135
Subtotal	1,449	79.1%	1,146	1,445	82.6%	1,193
Other waste recycling						
Textiles	1,666	15.0%	250	1,661	30.0%	498
Wood waste	2,753	20.0%	551	2,745	30.0%	823
Soil	1,159	12.5%	145	1,156	25.0%	289
Other paper	5,505	36.0%	1,982	5,489	54.0%	2,964
Other plastics	3,912	25.0%	978	3,900	40.0%	1,560
Other glass	1,159	25.0%	290	1,156	37.5%	433
Other metals	725	44.6%	323	723	66.9%	483
Other inorganics	218	61.1%	133	217	67.2%	146
Subtotal	17,096	27.2%	4,651	17,047	42.2%	7,198
Waste for private processing						
C&D waste	19,095	75.0%	14,321	19,040	75.0%	14,280
Septage	203	0.0%	0	205	0.0%	0
Subtotal	19,298	74.2%	14,321	19,245	74.2%	14,280
Total or overall	91,735	40.3%	36,925	91,475	47.2%	43,183
Waste stream summary						
Disposal by Town (tons)		49,833			43,327	
Overall recycling rate		40.3%			47.2%	
Waste reduction rate		6%			7%	
Total reduction/recycling rate		46.3%			54.2%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	1995 Quantity generated (tons)	1995 Recovery rate	1995 Quantity recovered (tons)	1996 Quantity generated (tons)	1996 Recovery rate	1996 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,247	75.7%	3,217	4,241	76.5%	3,244
Corrugated cardboard	10,799	51.6%	5,574	10,782	54.2%	5,843
Clear glass	2,736	55.5%	1,517	2,731	58.2%	1,590
Brown glass	576	51.2%	295	575	53.9%	310
Green glass	1,728	55.1%	952	1,725	57.8%	998
Steel cans	2,304	41.1%	948	2,300	43.2%	994
Bimetal cans	504	45.5%	229	503	47.7%	240
Aluminum cans	648	40.0%	259	647	41.9%	271
Office paper	3,671	58.2%	2,135	3,666	61.1%	2,238
HDPE bottles	504	45.3%	228	503	45.7%	230
PET bottles	72	33.0%	32	72	33.0%	32
Subtotal	27,788	55.4%	15,386	27,746	57.6%	15,990
Leaf/yard waste processing						
Leaf/yard waste	10,727	62.2%	6,667	10,710	62.8%	6,724
Other organic waste						
Contaminated paper	6,047	0.0%	0	6,038	0.0%	0
Food	5,903	0.0%	0	5,894	0.0%	0
Other organics	3,095	0.0%	0	3,090	0.0%	0
Subtotal	15,045	0.0%	0	15,022	0.0%	0
Direct Town marketing						
White goods	1,296	82.2%	1,065	1,294	83.0%	1,074
Tires	144	93.6%	135	144	93.7%	135
Subtotal	1,440	83.3%	1,200	1,438	84.1%	1,209
Other waste recycling						
Textiles	1,656	45.0%	745	1,653	49.5%	818
Wood waste	2,736	48.0%	1,313	2,731	52.8%	1,442
Soil	1,152	40.0%	461	1,150	44.0%	506
Other paper	5,471	64.8%	3,545	5,463	71.3%	3,895
Other plastics	3,887	44.8%	1,742	3,882	47.0%	1,824
Other glass	1,152	41.3%	476	1,150	43.3%	498
Other metals	720	70.2%	506	719	70.9%	510
Other inorganics	216	70.6%	153	216	71.3%	154
Subtotal	16,990	52.6%	8,940	16,964	56.9%	9,648
Waste for private processing						
C&D waste	18,977	75.0%	14,233	18,948	75.0%	14,211
Septage	206	0.0%	0	208	0.0%	0
Subtotal	19,183	74.2%	14,233	19,156	74.2%	14,211
Total or overall	91,172	50.9%	46,426	91,036	52.5%	47,782
Waste stream summary						
Disposal by Town (tons)		39,796			38,309	
Overall recycling rate		50.9%			52.5%	
Waste reduction rate		8%			9%	
Total reduction/recycling rate		58.9%			61.5%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	1997 Quantity generated (tons)	1997 Recovery rate	1997 Quantity recovered (tons)	1998 Quantity generated (tons)	1998 Recovery rate	1998 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,234	77.3%	3,272	4,274	78.1%	3,336
Corrugated cardboard	10,765	56.9%	6,126	10,867	57.5%	6,246
Clear glass	2,727	61.1%	1,667	2,753	64.2%	1,767
Brown glass	574	56.6%	325	580	59.4%	344
Green glass	1,722	60.7%	1,046	1,739	63.8%	1,109
Steel cans	2,297	45.4%	1,042	2,318	45.8%	1,062
Bimetal cans	502	48.2%	242	507	48.5%	246
Aluminum cans	646	44.0%	284	652	44.5%	290
Office paper	3,660	64.1%	2,346	3,694	64.7%	2,392
HDPE bottles	502	46.2%	232	507	46.5%	236
PET bottles	72	33.0%	32	73	33.0%	33
Subtotal	27,701	60.0%	16,614	27,964	61.0%	17,061
Leaf/yard waste processing						
Leaf/yard waste	10,693	63.4%	6,780	10,795	64.0%	6,913
Other organic waste						
Contaminated paper	6,028	0.0%	0	6,085	0.0%	0
Food	5,884	0.0%	0	5,940	0.0%	0
Other organics	3,085	0.0%	0	3,115	0.0%	0
Subtotal	14,998	0.0%	0	15,140	0.0%	0
Direct Town marketing						
White goods	1,292	83.8%	1,083	1,304	84.7%	1,105
Tires	144	93.9%	135	145	93.7%	136
Subtotal	1,436	84.8%	1,218	1,449	85.6%	1,241
Other waste recycling						
Textiles	1,651	52.0%	858	1,666	54.6%	910
Wood waste	2,727	55.4%	1,511	2,753	55.7%	1,533
Soil	1,148	46.2%	531	1,159	46.7%	541
Other paper	5,454	74.8%	4,080	5,506	75.6%	4,162
Other plastics	3,875	47.5%	1,841	3,912	48.0%	1,878
Other glass	1,148	43.7%	502	1,159	44.2%	512
Other metals	718	71.3%	512	725	71.7%	520
Other inorganics	216	72.0%	155	218	72.4%	158
Subtotal	16,937	59.0%	9,989	17,098	59.7%	10,214
Waste for private processing						
C&D waste	18,917	75.0%	14,188	19,097	75.0%	14,323
Septage	210	0.0%	0	212	0.0%	0
Subtotal	19,128	74.2%	14,188	19,310	74.2%	14,323
Total or overall	90,891	53.7%	48,789	91,755	54.2%	49,752
Waste stream summary						
Disposal by Town (tons)		37,163			37,016	
Overall recycling rate		53.7%			54.2%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		63.7%			64.2%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	1999 Quantity generated (tons)	1999 Recovery rate	1999 Quantity recovered (tons)	2000 Quantity generated (tons)	2000 Recovery rate	2000 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,315	78.8%	3,400	4,356	79.6%	3,467
Corrugated cardboard	10,971	58.0%	6,363	11,075	58.6%	6,490
Clear glass	2,779	64.8%	1,801	2,806	65.5%	1,838
Brown glass	585	62.3%	365	591	63.0%	372
Green glass	1,755	64.4%	1,130	1,772	65.1%	1,154
Steel cans	2,340	46.3%	1,084	2,363	46.7%	1,103
Bimetal cans	512	49.1%	251	517	49.6%	256
Aluminum cans	658	44.9%	296	665	45.4%	302
Office paper	3,730	65.4%	2,439	3,765	66.1%	2,489
HDPE bottles	512	47.1%	241	517	47.3%	244
PET bottles	73	45.8%	34	74	46.0%	34
Subtotal	28,230	61.6%	17,403	28,499	62.3%	17,749
Leaf/yard waste processing						
Leaf/yard waste	10,897	64.7%	7,053	11,001	65.4%	7,190
Other organic waste						
Contaminated paper	6,143	0.0%	0	6,202	0.0%	0
Food	5,997	0.0%	0	6,054	0.0%	0
Other organics	3,144	0.0%	0	3,174	0.0%	0
Subtotal	15,284	0.0%	0	15,430	0.0%	0
Direct Town marketing						
White goods	1,317	85.6%	1,127	1,329	86.4%	1,149
Tires	147	94.1%	138	148	94.2%	139
Subtotal	1,463	86.5%	1,265	1,477	87.2%	1,288
Other waste recycling						
Textiles	1,682	55.1%	927	1,698	55.7%	946
Wood waste	2,779	56.0%	1,556	2,806	56.3%	1,580
Soil	1,170	47.1%	551	1,181	47.4%	560
Other paper	5,558	76.3%	4,241	5,611	77.1%	4,326
Other plastics	3,949	48.2%	1,904	3,987	48.5%	1,934
Other glass	1,170	44.4%	520	1,181	44.6%	527
Other metals	732	72.0%	527	739	72.4%	535
Other inorganics	220	72.8%	160	222	73.1%	162
Subtotal	17,260	60.2%	10,385	17,425	60.7%	10,569
Waste for private processing						
C&D waste	19,279	75.0%	14,459	19,463	75.0%	14,597
Septage	214	0.0%	0	216	0.0%	0
Subtotal	19,493	74.2%	14,459	19,679	74.2%	14,597
Total or overall	92,628	54.6%	50,565	93,510	55.0%	51,393
Waste stream summary						
Disposal by Town (tons)		37,029			37,035	
Overall recycling rate		54.6%			55.0%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		64.6%			65.0%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	2001 Quantity generated (tons)	2001 Recovery rate	2001 Quantity recovered (tons)	2002 Quantity generated (tons)	2002 Recovery rate	2002 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,409	80.4%	3,544	4,462	81.2%	3,623
Corrugated cardboard	11,209	59.2%	6,636	11,345	59.8%	6,784
Clear glass	2,840	66.1%	1,877	2,874	66.8%	1,920
Brown glass	598	63.6%	380	605	64.2%	388
Green glass	1,794	65.7%	1,178	1,815	66.4%	1,205
Steel cans	2,391	47.2%	1,129	2,420	47.7%	1,154
Bimetal cans	523	50.1%	262	529	50.6%	268
Aluminum cans	673	45.8%	308	681	46.3%	315
Office paper	3,811	66.7%	2,542	3,857	67.4%	2,599
HDPE bottles	523	47.5%	248	529	47.8%	253
PET bottles	75	46.3%	35	76	46.5%	35
Subtotal	28,845	62.9%	18,140	29,193	63.5%	18,546
Leaf/yard waste processing						
Leaf/yard waste	11,135	66.0%	7,349	11,269	66.6%	7,510
Other organic waste						
Contaminated paper	6,277	0.0%	0	6,353	0.0%	0
Food	6,127	0.0%	0	6,201	0.0%	0
Other organics	3,213	0.0%	0	3,252	0.0%	0
Subtotal	15,617	0.0%	0	15,806	0.0%	0
Direct Town marketing						
White goods	1,345	87.3%	1,175	1,362	88.1%	1,200
Tires	150	94.3%	141	152	94.4%	143
Subtotal	1,495	88.0%	1,316	1,513	88.7%	1,343
Other waste recycling						
Textiles	1,719	56.2%	966	1,739	56.8%	988
Wood waste	2,840	56.6%	1,607	2,874	56.8%	1,632
Soil	1,196	47.6%	569	1,210	47.8%	578
Other paper	5,679	77.9%	4,424	5,748	78.7%	4,523
Other plastics	4,035	48.7%	1,965	4,084	49.0%	2,001
Other glass	1,196	44.8%	536	1,210	45.1%	546
Other metals	748	72.7%	543	757	73.1%	553
Other inorganics	225	73.5%	165	227	73.8%	168
Subtotal	17,636	61.1%	10,776	17,849	61.6%	10,990
Waste for private processing						
C&D waste	19,699	75.0%	14,774	19,936	75.0%	14,952
Septage	219	0.0%	0	222	0.0%	0
Subtotal	19,917	74.2%	14,774	20,158	74.2%	14,952
Total or overall	94,644	55.3%	52,354	95,787	55.7%	53,341
Waste stream summary						
Disposal by Town (tons)		37,147			37,241	
Overall recycling rate		55.3%			55.7%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		65.3%			65.7%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	2003 Quantity generated (tons)	2003 Recovery rate	2003 Quantity recovered (tons)	2004 Quantity generated (tons)	2004 Recovery rate	2004 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,516	82.0%	3,703	4,570	82.8%	3,784
Corrugated cardboard	11,482	60.4%	6,935	11,621	61.0%	7,089
Clear glass	2,909	67.5%	1,963	2,944	67.8%	1,996
Brown glass	612	64.9%	397	620	65.5%	406
Green glass	1,837	67.0%	1,231	1,859	67.7%	1,259
Steel cans	2,450	48.1%	1,178	2,479	48.6%	1,205
Bimetal cans	536	51.1%	274	542	51.6%	280
Aluminum cans	689	46.7%	322	697	47.2%	329
Office paper	3,903	68.1%	2,658	3,951	68.7%	2,714
HDPE bottles	536	48.0%	257	542	48.2%	261
PET bottles	77	46.7%	36	78	47.0%	36
Subtotal	29,547	64.2%	18,955	29,903	64.7%	19,359
Leaf/yard waste processing						
Leaf/yard waste	11,406	67.3%	7,674	11,543	68.0%	7,849
Other organic waste						
Contaminated paper	6,430	0.0%	0	6,507	0.0%	0
Food	6,276	0.0%	0	6,352	0.0%	0
Other organics	3,291	0.0%	0	3,331	0.0%	0
Subtotal	15,997	0.0%	0	16,190	0.0%	0
Direct Town marketing						
White goods	1,378	89.0%	1,227	1,395	89.9%	1,254
Tires	153	94.5%	145	155	94.6%	147
Subtotal	1,532	89.6%	1,371	1,550	90.4%	1,401
Other waste recycling						
Textiles	1,761	57.4%	1,011	1,782	57.9%	1,032
Wood waste	2,909	57.1%	1,661	2,944	57.4%	1,690
Soil	1,225	48.1%	589	1,240	48.3%	599
Other paper	5,817	79.7%	4,636	5,888	80.2%	4,722
Other plastics	4,133	49.2%	2,034	4,183	49.4%	2,067
Other glass	1,225	45.3%	555	1,240	45.5%	564
Other metals	766	73.5%	563	775	73.8%	572
Other inorganics	230	74.2%	171	233	74.6%	174
Subtotal	18,065	62.1%	11,219	18,283	62.5%	11,418
Waste for private processing						
C&D waste	20,178	75.0%	15,134	20,422	75.0%	15,316
Septage	224	0.0%	0	227	0.0%	0
Subtotal	20,402	74.2%	15,134	20,649	74.2%	15,316
Total or overall	96,948	56.1%	54,353	98,118	56.4%	55,344
Waste stream summary						
Disposal by Town (tons)		37,326			37,442	
Overall recycling rate		56.1%			56.4%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		66.1%			66.4%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	2005 Quantity generated (tons)	2005 Recovery rate	2005 Quantity recovered (tons)	2006 Quantity generated (tons)	2006 Recovery rate	2006 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,624	83.7%	3,870	4,675	84.5%	3,950
Corrugated cardboard	11,757	61.6%	7,243	11,886	62.2%	7,393
Clear glass	2,978	68.1%	2,028	3,011	68.5%	2,063
Brown glass	627	66.2%	415	634	66.8%	423
Green glass	1,881	68.4%	1,287	1,902	69.1%	1,314
Steel cans	2,508	49.1%	1,232	2,536	49.6%	1,258
Bimetal cans	549	52.1%	286	555	52.6%	292
Aluminum cans	706	47.7%	337	713	48.1%	343
Office paper	3,997	69.4%	2,774	4,041	70.1%	2,833
HDPE bottles	549	48.5%	266	555	48.7%	270
PET bottles	79	47.2%	37	79	47.4%	38
Subtotal	30,254	65.4%	19,774	30,586	66.0%	20,177
Leaf/yard waste processing						
Leaf/yard waste	11,679	68.6%	8,016	11,807	69.4%	8,189
Other organic waste						
Contaminated paper	6,584	0.0%	0	6,656	0.0%	0
Food	6,427	0.0%	0	6,497	0.0%	0
Other organics	3,370	0.0%	0	3,407	0.0%	0
Subtotal	16,380	0.0%	0	16,560	0.0%	0
Direct Town marketing						
White goods	1,411	90.8%	1,281	1,427	91.7%	1,308
Tires	157	94.7%	149	159	94.8%	150
Subtotal	1,568	91.2%	1,430	1,585	92.0%	1,459
Other waste recycling						
Textiles	1,803	58.2%	1,049	1,822	58.5%	1,066
Wood waste	2,978	57.7%	1,719	3,011	58.0%	1,746
Soil	1,254	48.6%	610	1,268	48.8%	619
Other paper	5,957	80.6%	4,801	6,022	81.0%	4,878
Other plastics	4,232	49.7%	2,104	4,279	49.9%	2,135
Other glass	1,254	45.8%	574	1,268	46.0%	583
Other metals	784	74.2%	582	793	74.6%	591
Other inorganics	236	75.0%	177	238	75.3%	179
Subtotal	18,498	62.8%	11,615	18,701	63.1%	11,798
Waste for private processing						
C&D waste	20,661	75.0%	15,496	20,888	75.0%	15,666
Septage	230	0.0%	0	232	0.0%	0
Subtotal	20,891	74.2%	15,496	21,120	74.2%	15,666
Total or overall	99,270	56.7%	56,331	100,359	57.1%	57,289
Waste stream summary						
Disposal by Town (tons)		37,544			37,616	
Overall recycling rate		56.7%			57.1%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		66.7%			67.1%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	2007 Quantity generated (tons)	2007 Recovery rate	2007 Quantity recovered (tons)	2008 Quantity generated (tons)	2008 Recovery rate	2008 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,726	85.4%	4,036	4,778	86.2%	4,119
Corrugated cardboard	12,017	62.9%	7,559	12,150	63.5%	7,715
Clear glass	3,044	68.8%	2,094	3,078	69.2%	2,130
Brown glass	641	67.5%	433	648	68.2%	442
Green glass	1,923	69.4%	1,334	1,944	69.8%	1,357
Steel cans	2,564	50.1%	1,284	2,592	50.6%	1,312
Bimetal cans	561	53.2%	298	567	53.7%	304
Aluminum cans	721	48.6%	351	729	49.1%	358
Office paper	4,085	70.8%	2,892	4,130	71.5%	2,953
HDPE bottles	561	49.0%	275	567	49.2%	279
PET bottles	80	47.7%	38	81	47.9%	39
Subtotal	30,924	66.6%	20,595	31,264	67.2%	21,007
Leaf/yard waste processing						
Leaf/yard waste	11,937	70.1%	8,366	12,068	70.7%	8,535
Other organic waste						
Contaminated paper	6,729	0.0%	0	6,803	0.0%	0
Food	6,569	0.0%	0	6,641	0.0%	0
Other organics	3,444	0.0%	0	3,482	0.0%	0
Subtotal	16,743	0.0%	0	16,927	0.0%	0
Direct Town Marketing						
White goods	1,442	92.6%	1,336	1,458	93.6%	1,365
Tires	161	94.9%	152	162	95.0%	154
Subtotal	1,603	92.8%	1,488	1,621	93.7%	1,519
Other waste recycling						
Textiles	1,843	58.8%	1,083	1,863	59.1%	1,101
Wood waste	3,044	58.3%	1,775	3,078	58.6%	1,804
Soil	1,282	49.0%	628	1,296	49.3%	639
Other paper	6,088	81.5%	4,962	6,155	81.9%	5,041
Other plastics	4,326	50.2%	2,172	4,374	50.4%	2,204
Other glass	1,282	46.2%	592	1,296	46.4%	601
Other metals	801	74.9%	600	810	75.3%	610
Other inorganics	241	75.7%	182	243	76.1%	185
Subtotal	18,907	63.4%	11,995	19,115	63.7%	12,186
Waste for private processing						
C&D waste	21,118	75.0%	15,839	21,351	75.0%	16,013
Septage	235	0.0%	0	237	0.0%	0
Subtotal	21,353	74.2%	15,839	21,588	74.2%	16,013
Total or overall	101,466	57.4%	58,283	102,582	57.8%	59,260
Waste stream summary						
Disposal by Town (tons)		37,669			37,747	
Overall recycling rate		57.4%			57.8%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		67.4%			67.8%	

Table 3–10
Town of Southampton
Solid Waste Quantity Projections

Waste stream components and materials	2009 Quantity generated (tons)	2009 Recovery rate	2009 Quantity recovered (tons)	2010 Quantity generated (tons)	2010 Recovery rate	2010 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,831	87.1%	4,208	4,884	87.9%	4,293
Corrugated cardboard	12,283	64.1%	7,873	12,418	64.8%	8,047
Clear glass	3,111	69.5%	2,162	3,146	69.8%	2,196
Brown glass	655	68.9%	451	662	69.5%	460
Green glass	1,965	70.1%	1,378	1,987	70.5%	1,401
Steel cans	2,620	51.1%	1,339	2,649	51.6%	1,367
Bimetal cans	573	54.2%	311	579	54.8%	318
Aluminum cans	737	49.6%	366	745	50.1%	373
Office paper	4,176	72.2%	3,015	4,222	73.0%	3,082
HDPE bottles	573	49.5%	284	579	49.7%	288
PET bottles	82	48.2%	40	83	48.4%	40
Subtotal	31,607	67.8%	21,426	31,955	68.4%	21,865
Leaf/yard waste processing						
Leaf/yard waste	12,201	71.4%	8,716	12,335	72.2%	8,901
Other organic waste						
Contaminated paper	6,878	0.0%	0	6,954	0.0%	0
Food	6,714	0.0%	0	6,788	0.0%	0
Other organics	3,520	0.0%	0	3,559	0.0%	0
Subtotal	17,112	0.0%	0	17,301	0.0%	0
Direct Town marketing						
White goods	1,474	94.5%	1,393	1,490	95.5%	1,423
Tires	164	95.1%	156	166	95.2%	158
Subtotal	1,638	94.6%	1,549	1,656	95.5%	1,581
Other waste recycling						
Textiles	1,883	59.4%	1,119	1,904	59.7%	1,137
Wood waste	3,111	58.9%	1,833	3,146	59.2%	1,862
Soil	1,310	49.5%	649	1,325	49.8%	660
Other paper	6,223	82.3%	5,121	6,292	82.7%	5,203
Other plastics	4,422	50.7%	2,242	4,470	50.9%	2,275
Other glass	1,310	46.7%	612	1,325	46.9%	621
Other metals	819	75.7%	620	828	76.1%	630
Other inorganics	246	76.5%	188	249	76.9%	191
Subtotal	19,325	64.1%	12,383	19,538	64.4%	12,580
Waste for private processing						
C&D waste	21,585	75.0%	16,189	21,823	75.0%	16,367
Septage	240	0.0%	0	243	0.0%	0
Subtotal	21,825	74.2%	16,189	22,065	74.2%	16,367
Total or overall	103,707	58.1%	60,263	104,850	58.5%	61,294
Waste stream summary						
Disposal by Town (tons)		37,808			37,858	
Overall recycling rate		58.1%			58.5%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		68.1%			68.5%	

TABLE 3-11

TOWN OF SOUTHAMPTON
EXISTING WASTE STREAM COMPOSITION DATA

COMPONENTS	COLUMN A (1) LANDFILL DATA (Percent)	COLUMN B (2) COMPOSITION STUDY DATA (Percent)	COLUMN C(3) COMBINED DATA (Percent)	COLUMN D (4) ADJUSTED DATA (Percent)
PAPER	1.2	38.2	34.3	42.0
OCC/Kraft	0.5	11.6	10.5	15.4
Newspaper	0.7			5.9
Office Paper (5)				5.1
Magazines				3.0
Mixed Paper (6)				4.2
Other Paper (7)				8.4
PLASTIC		8.6	7.5	6.2
Film				2.0
HDPE				0.7
PET				0.1
Polystyrene				0.1
Other Plastic (8)				3.3
YARD WASTE	7.7	11.8	17.9	14.9
WOOD	1.1	4.0	4.6	3.8
FOOD	0.3	10.9	9.8	8.2
TEXTILES		3.2	2.8	2.3
OTHER ORGANICS				4.3
METALS		9.1	7.9	6.5
Steel Cans				3.2
Bimetal Cans				0.7
Aluminum Cans				0.9
Other Aluminums				0.4
Other Metals				1.3
GLASS	0.1	14.0	12.1	8.6
Clear				3.8
Brown				0.8
Green				2.4
Other				1.6
SOIL	1.6		1.6	1.6
OTHER INORGANICS (9)		0.2	0.2	0.3
BULKY ITEMS	1.1		1.1	1.1
TIRES	0.2		0.2	0.2
MIXED WASTE	86.7			
TOTAL	100.0	100.0	100.0	100.0

TABLE 3-11

TOWN OF SOUTHAMPTON
EXISTING WASTE STREAM COMPOSITION DATA

(CONTINUED)

NOTES:

(1) Column A is based on visually characterized incoming solid waste and recyclables. Source is Town Landfill scalehouse data.
(2) Column B is based on H2M waste composition study in 1986.
(3) Column C was calculated by multiplying each component composition in Column B by 87.6 percent and adding the resulting product to the respective component composition in Column A.
(4) Column D is an adjustment of Column C based on other waste composition studies and other municipal waste stream data (See Appendix B of the Original SWAMP).
(5) Office paper includes high grade recyclable paper such as office type stationery.
(6) Mixed paper includes low grade recyclable paper such as household papers, envelopes, and junk mail.
(7) Other paper includes low grade contaminated paper such as used tissues, paper towels and napkins.
(8) Other plastic includes LDPE, PVC, and other mixed plastic.
(9) Other inorganics include used oil, batteries, paints, and other household hazardous waste.

(nc4/tosh)

In order to provide further analysis, information from waste composition studies in Long Island and other locations were also evaluated. Due to the abnormal values of several components such as glass and paper in the Town's data as compared to data from these other local and national composition studies, an adjusted waste composition for the Town was estimated, as reflected in Column D of Table 3-11. To complete the missing subcategories in Column C, values from other waste composition field studies for similar waste streams were utilized. Values for paper and glass in the adjusted waste composition were determined by averaging values from the other composition studies with those of the Town. Values for the remaining categories were proportionally adjusted to reflect these changes.

Although the waste stream composition has remained the same, it has been revised to incorporate C&D and septage wastes as part of the Town's total waste stream. Table 3-12 illustrates the Town's total adjusted waste stream composition which includes C&D waste and septage waste. The total adjusted waste stream composition is based on actual and estimated waste quantities generated in the Town during 1991. The materials listed in Table 3-12 have been rearranged to correspond to the particular handling each type of material will encounter upon implementation of the Town's proposed solid waste management program.

3.3.3 Recyclable Materials

A variety of materials can be salvaged from the wastes currently being discarded in the Town. Secondary materials markets throughout the Suffolk County have existed for decades for paperstock, various metals, glass, and other materials. Relatively new markets have been established for other secondary materials, such as several plastic polymer types. These markets capture much of the scrap material generated by industrial and commercial operations. Many of the items present in the municipal solid waste (MSW) stream are similar in character to those being diverted into secondary materials markets, but are not diverted for reasons of economics.

To sell materials in existing secondary materials markets, materials must be processed to meet buyers' specifications. The purpose of this section is to identify the materials present in the Town's waste stream that could potentially be collected and prepared for existing secondary materials markets.

3.3.3.1 Paper

Paper is the largest component (approximately 40 percent by weight) of the Town's municipal waste. Paper is produced for printing and writing purposes, packaging, construction products, and for inclusion in durable goods, such as shoes, autos, and appliances.

Recovery of waste or scrap paper has been a major source of raw material for the paper and paperboard industry in the U.S. for many decades. The paper

TABLE 3-12

TOWN OF SOUTHAMPTON
TOTAL ADJUSTED WASTE STREAM COMPOSITION

MATERIALS	EXISTING WASTE STREAM COMPOSITION (1)	TOTAL ADJUSTED WASTE STREAM COMPOSITION (3)
SOURCE - SEPARATED RECYCLABLES		
Newspaper	5.9%	4.7%
Cardboard	15.0%	11.8%
Clear Glass	3.8%	3.0%
Brown Glass	0.8%	0.6%
Green Glass	2.4%	1.9%
Steel Cans	3.2%	2.5%
Bimetal Cans	0.7%	0.6%
Aluminum Cans	0.9%	0.7%
Office Paper	5.1%	4.0%
HDPE Plastic	0.7%	0.6%
PET Plastic	0.1%	0.1%
Subtotal	38.6%	30.5%
LEAF/YARD WASTE COMPOSTING		
Leaf/Yard Waste	14.9%	11.8%
INDOOR ORGANIC COMPOSTING		
Contaminated Paper (4)	8.4%	6.6%
Food	8.2%	6.5%
Other Organics	4.3%	3.4%
Subtotal	20.9%	16.5%
DIRECT TOWN MARKETING		
White Goods (5)	1.8%	1.4%
Tires	0.2%	0.2%
Subtotal	2.0%	1.6%
OTHER WASTE RECYCLING		
Textiles	2.3%	1.8%
Wood Waste	3.8%	3.0%
Soil	1.6%	1.3%
Other Paper (6)	7.6%	6.0%
Other Plastics	5.4%	4.3%
Other Glass	1.6%	1.3%
Other Metals	1.0%	0.8%
Other Inorganics	0.3%	0.2%
Subtotal	23.6%	18.6%

(nc4/tosh)

TABLE 3-12

TOWN OF SOUTHAMPTON
TOTAL ADJUSTED WASTE STREAM COMPOSITION

(CONTINUED)

WASTE FOR PRIVATE PROCESSING		
C&D Waste	(2)	20.8%
Septage Waste	(2)	0.2%
Subtotal	0.0%	21.0%
TOTALS	100.0%	100.0%

NOTES:
(1) Based on composition data in Column D of Table 3-17
(2) Composition data in Column D of Table did not include this material.
(3) Composition from Original SWAMP is adjusted to account for C&D and septage waste.
(4) Includes similar material to "other paper" as listed on Table 3-17.
(5) White goods composition derived from portion of "bulky items" and "other metals" listed in Table 3-17.
(6) Includes similar material to "mixed paper" and "magazines" as listed on Table 3-17.

(nc4/tosh)

categories most commonly source separated or recovered from the municipal MSW stream are:

- newspaper;
- corrugated paper;
- high-grade paper; (primarily ledger and computer paper)
- mixed-grade paper. (low grade recyclable paper)

Based on the adjusted waste stream data in Table 3-11, corrugated paper accounts for approximately 15 percent of the entire waste stream and other recyclable paper types comprise about 18 percent, of which the newspaper fraction is expected to be approximately 6 percent.

3.3.3.2 Plastic

Total plastics account for approximately 6 percent of the Town's waste stream according to the adjusted composition data in Table 3-11. Plastics of many types are used as materials for packaging, construction products, and durable and non-durable goods. Recovery and recycling is a common occurrence within plastic product manufacturing plants. However, this is commonly done with clean, uncontaminated scrap of known composition. Recovery and recycling of plastics from the MSW stream is problematic because of the heterogeneous nature of polymer types present in MSW. Moreover, a growing number of plastic products are made of several types of plastic laminated together or rigidly affixed.

Secondary materials markets have recently been developed for several specific plastic polymer types that are commonly used in packaging and subsequently discarded in the solid waste stream. These polymers include high-density polyethylene (HDPE) and polyethylene terephthalate (PET). Specifically, secondary markets exist for post-consumer PET bottles (primarily used as packaging for soft drinks) and HDPE bottles (primarily used for packaging milk, motor oil, bleach, and other liquids). The proportion of HDPE and PET plastics in the Town's waste stream that would satisfy the specifications of existing secondary materials markets is estimated to be approximately 0.6 and 0.1 percent, respectively.

The recycling of other plastic polymers and even mixed plastic polymers from the waste stream has developed recently in various locations in the U.S., including some emerging markets on Long Island. Depending upon the success of market development efforts for other plastic items, secondary markets may develop for a larger portion of the plastic waste stream.

3.3.3.3 Ferrous Metals

Ferrous metals (i.e., steel cans and other metals) accounted for approximately 5 percent of the Town's waste stream according to the adjusted composition data. Iron and steel scrap from commercial and industrial sources are

responsible for a significant portion of the total amount of ferrous used by the U.S. iron and steel industry.

Steel food cans can be recycled through the detinning industry, provided that the material is prepared to meet certain specifications. Markets also exist for other ferrous metals if the material is prepared sufficiently to meet a buyer's specifications and is available in sufficient quantities.

3.3.3.4 Aluminum

Aluminum cans are typically recovered and recycled at a greater rate than any other element of the municipal waste stream because of their high market value. Other non-ferrous metals can also be recovered, provided that the materials are prepared to meet buyers' specifications. The total amount of non-ferrous metals (including aluminum) in the Town's waste stream was estimated to be approximately 1 percent based on the adjusted composition data in Table 3-11.

3.3.3.5 Glass

Glass recycling has always been a routine part of glass plant operations. Markets exist for clean, color-sorted cullet (crushed glass) and limited markets exist for mixed-color glass. Based on the adjusted composition data in Table 3-11, all glass amounted to about 9 percent of the Town's waste stream.

Some glass products are not generally considered recyclable because they incorporate other material into their structure that are commonly considered contaminants by the secondary glass materials industry. Light bulbs are an example which contain metal components that interfere with the recycling process. In addition, some glass is produced with chemical compositions that differ significantly from common beverage glass formulations, for example certain window glass and cookware glass. These items are also frequently considered to be contaminants in glass cullet.

The portion of glass in the Town's waste stream that would be considered to be recyclable as color-sorted glass cullet is estimated to be approximately 7 percent based on the adjusted composition data in Table 3-11.

3.3.3.6 Other Materials and Products

Certain other materials and products can be used or recycled if diverted from the waste stream. For example, white goods (stoves, refrigerators, water heaters, etc.) can generally be salvaged for scrap metal. Some markets exist for used auto and truck tires. Sand and dirt that arrive in separate loads can be used as cover material at the Landfill, or used as structural or non-structural fill material, depending on soil types and contamination levels.

More importantly, certain biodegradable organic materials can be composted to produce a soil conditioner. Depending upon the quantities of organic

wastes, particularly wood waste and yard waste, composting can divert a significant fraction of the material from the Landfill. Of course, there must be uses or markets to absorb the composted product. Compost has a number of potential uses. Depending on the quality of the compost, it may be a soil amendment useful for landscapers, nurseries, golf courses, sod farms, parks, and home gardens. Alternatively, compost may be used as final cover, daily cover or slope material at a landfill.

3.3.3.7 Construction and Demolition Debris

As previously discussed in Section 3.2.3, Recycling Programs, most C&D debris generated in the Town has been processed at a permitted processing center operated by George's Sanitation. **As noted in Section 3.2.4, Commercial and Industrial Wastes Recycling, a temporary restraining order closed this C&D processing facility in late Spring 1994. It is not known if the C&D processing facility will be reopened or if a permanent restraining order will be issued.** Any C&D debris that is not recycled (see Section 3.2.2, Collection) is disposed of at a permitted C&D landfill.

While George's Sanitation did not weigh materials, but it reportedly received between 200 to 300 cubic yards per day (5 days per week) during the winter when new construction is slow, and 600 or more cubic yards per day during the summer. George's Sanitation estimated that more than 90 percent of the C&D waste comes directly from the Town. As indicated, C&D debris per capita generation for the Town is significantly higher. The higher rate can be expected given the extent of new construction within the Town.

3.3.4 Local Ordinances

The Town has jurisdiction over solid waste management operations within its boundaries. Chapter 205, Articles 1 and 2 of the Southampton Town Code delineates specific guidelines for controlling the material accepted at the Town's disposal facilities. These guidelines include the following:

- designated waste acceptance hours;
- licensing requirements;
- load characteristic restrictions (i.e., no hazardous waste or construction and demolition debris);
- usage fees (usage fees are waived for loads of recyclable materials such as clean white paper, newspaper or cardboard);
- penalties for any offenses;
- scavenger waste (septage) regulations;
- recycling requirements.

In addition, the Town Board may adopt subsequent rules and regulations to control the conduct of licensees and to carry out the Sanitation Ordinance.

In addition to the Town's solid waste management program described in Section 3.2, the Town has expanded its waste reduction and recycling initiatives. During 1989, the Town enacted Local Laws 10 and 24 which mandated source separation of newspaper, corrugated cardboard, mixed paper, HDPE and PET plastics, tin cans, aluminum, vegetative yard waste and glass. The inclusion of mixed paper to the list of mandatory recyclables required the Town to add roll-off containers at each of its transfer stations. During the summer of 1992, the Town added junk mail and mixed paper to the mandatory recycling list. Appendix J includes Town Code Chapter 205 (**Landfills, Transfer Stations, and Scavenger Waste**) that addresses mandatory recycling and source separation. During the summer of 1992, the Town began accepting junk mail and mixed grade paper at each of its facilities, and due to its success, the Town has to added junk mail and other mixed paper to its mandatory source separation law.

3.3.5 Septage

There is no sewerage or wastewater treatment system in the Town and all wastewater sludge is removed by private septage haulers. Domestic septic tank waste (i.e., septage or scavenger waste) is a partially digested mixture of liquid and solid material that originates as waterborne domestic wastes and accumulates in a septic tank or a cesspool over a period of years. Normally, septage may include pumpings from the septic tanks of homes, schools, restaurants, motels, and other types of businesses and industries.

Septage generated in the Town is being disposed of at the Riverhead Scavenger Waste Treatment Plant by private septage haulers. The haulers were charged 3.5 cents ($0.035) per gallon of septage in 1988, based on the capacity of the hauler's tank and not on the actual gallons of septage in that tank. Table 3-13 summarizes the 1988 quantities of Southampton septage.

Based on the total gallons per year (10,530,000 gallons), the total annual fee charged to the private haulers was approximately $370,000 for 1988. The dry tons of septage is very small compared to the large annual volume of septage delivered to the treatment plant. This is due to the small amount of suspended solids (approximately 0.33 percent) present in the domestic septage compared to normal domestic septage that contains 1.7 to 2.3 percent suspended solids as estimated by the United States Environmental Protection Agency (USEPA).

3.3.6 Household Hazardous Waste

Household hazardous waste (HHW) including pesticides that otherwise would be considered hazardous under Part 371 is not considered a hazardous waste because it is generated by residential sources and public or private recreational areas. Many consumer products used within the home contain potentially harmful chemicals. Few homeowners are aware of these hazardous components and most do not consider themselves generators of hazardous waste. According to NYSDEC and the Nassau/Suffolk Regional Stop Throwing Out

TABLE 3-13

TOWN OF SOUTHAMPTON
1988 ESTIMATED SEPTAGE QUANTITIES

Southampton Septage	1988 Quantity
Total Gallons [1]	10,530,000 gals/year
Wet Tons [2]	46,100 - 48,300 tons/year
Dry Tons [3]	165 - 220 tons/year

Notes: [1] Based on recorded amounts of septage delivered to the Riverhead Scavenger Waste Treatment Plant in 1988.

[2] Based on the recorded range of total suspended solids (3,000 - 4,000 mg/l) and the recorded gallons of septage delivered to the Riverhead Scavenger Waste Treatment Plant.

[3] Based on an assumed specific gravity of 1.05 to 1.10 for domestic septage at 0.30 percent solids.

Pollutants (STOP) Program, the following are some general household hazardous wastes that need proper disposal separate from typical municipal solid waste:

- household cleaners;
- paint products;
- detergents;
- batteries;
- plant and insect sprays;
- waste oil.

Although many of these household hazardous wastes are present on a daily basis, there are few convenient and environmentally sound disposal methods available. Regrettably, many improper disposal methods are used by homeowners which include sending household hazardous waste to landfills, pouring waste chemicals down the drain, and dumping hazardous chemicals onto the ground or streets.

In response to these actions, the STOP Program was formed in 1984 under the direction of NYSDEC. The primary objectives for STOP are:

- encourage and assist with household hazardous waste management at the municipal level;
- increase public awareness through educational programs;
- research feasibility of long-term options for household hazardous waste management.

Through the STOP Program, the Household Pollutant Clean-up Day was developed to allow the public to take leftover quantities of household hazardous waste to a central location at a scheduled date and time. The waste is collected, segregated and packaged by a professional hazardous waste handler who then transports the waste for final processing or disposal.

After receiving the necessary approvals from the NYSDEC, the Town constructed and has operated a permanent STOP facility at the North Sea Landfill. Residents can dispose of their household hazardous waste at the STOP facility three days a week throughout the year. While the STOP program is not mandatory, residents have responded favorably to it. From June 1991 through June 1994, the STOP facility collected 231 drums of household hazardous waste. The household hazardous wastes delivered to the STOP facility are stored temporarily and then transported out of town to licensed hazardous waste processing and disposal facilities. The Town has not attempted to recover any of the individual HHW materials because it is not technically or financially feasible at this time.

(dt14/shsec3)

4

Section Four

Section 4
Environmental Setting

The Town is a suburban community located in Suffolk County, New York. Suffolk County is located at the eastern end of Long Island and is approximately 70 miles from New York City. The Town is bordered by the Towns of Brookhaven, Riverhead and East Hampton as well as the Atlantic Ocean and the related bays, and inlets. Figure 4-1 is a map of the Town itself.

4.1 Topography, Soils and Geologic Features

4.1.1 Topography and Soils

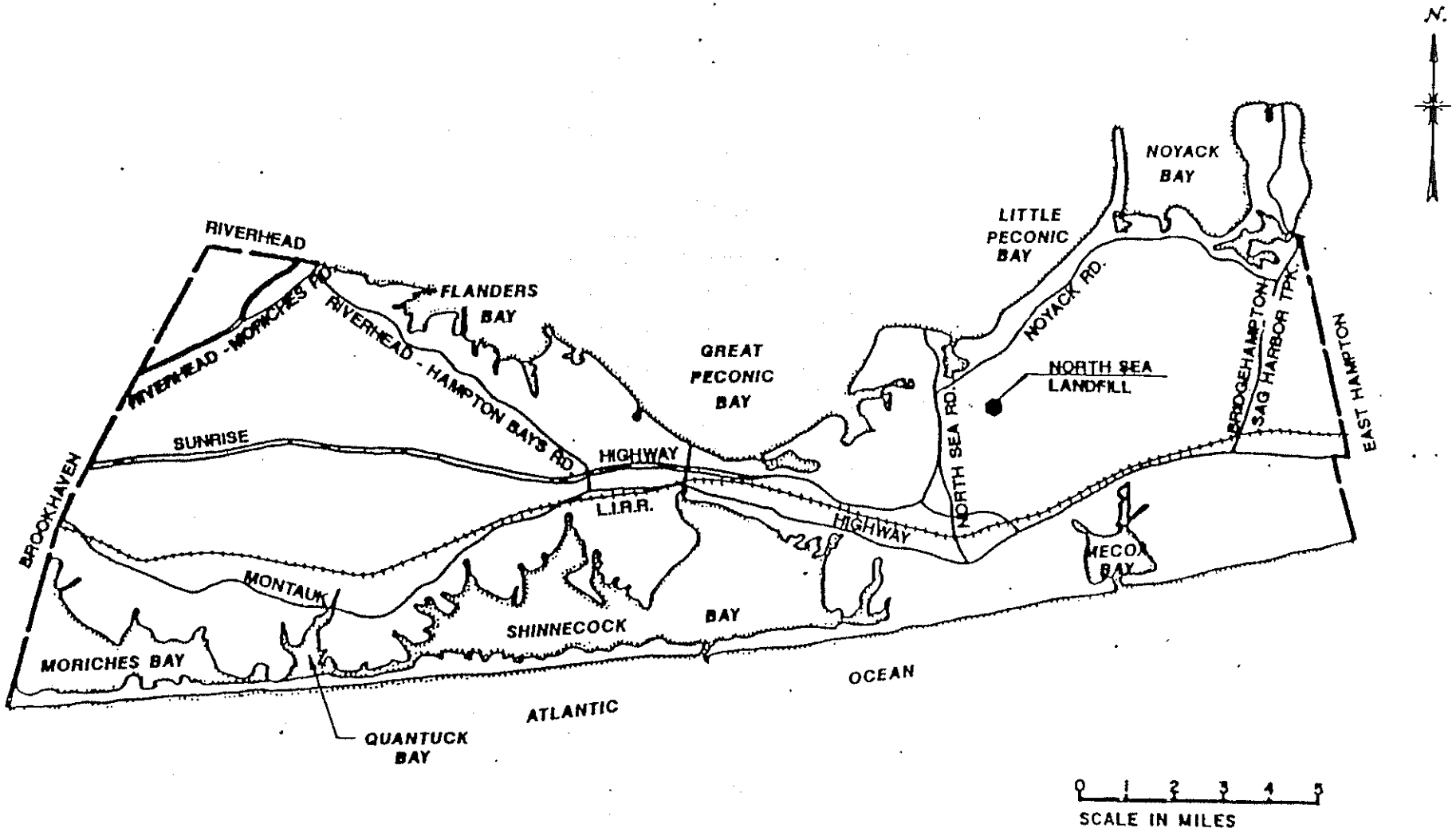
Southampton is relatively flat, with elevations ranging from sea level (0 feet mean sea level [msl]) along both the northern and southern coastal areas to over 200 feet msl in the central inland portions of the Town. The highest elevation is located along the Southampton Brookhaven border at Bald Hill, Elevation 295 feet msl.

The soils in Suffolk County have been mapped and described by the Soil Conservation Service in cooperation with Cornell University as described below.

The South Fork of Long Island eastward from Southampton to Amagansett is mantled by the Bridgehampton-Haven Soil Association. The Association occurs on the outwash plain and is characteristically level or gently sloping, with short slopes which are slightly steeper along intermittent drainage ways. Slopes range from about 1 to 6 percent in most places, increasing to about 15 percent along the drainage ways. Bridgehampton soils constitute about 35 percent of the Association and Haven Soils about 25 percent; minor soils comprise the remaining 40 percent.

The Soil Conservation Service (1975) describes the Bridgehampton soils as deep and well drained to moderately well drained. The soils are generally a silt-loam, but the surface layer and subsoil ranges from silt-loam to a very fine sandy loam. The soils are 36 to 56 inches thick, resting on glacial outwash. The Bridgehampton soils occur mainly in the southern part of the Association.

The Haven soils are described as deep and well drained with a loam surface layer and a loam or silt loam subsoil. The soil layer ranges from about 18 to 36 inches thick. The moderately sloping Haven soils commonly occur on the sides of drainage ways and on many of the broad, nearly level, gently sloping areas in the northern part of the Association.



Town Of Southampton, New York
Solid Waste Management Plan

Location Map

Figure 4-1

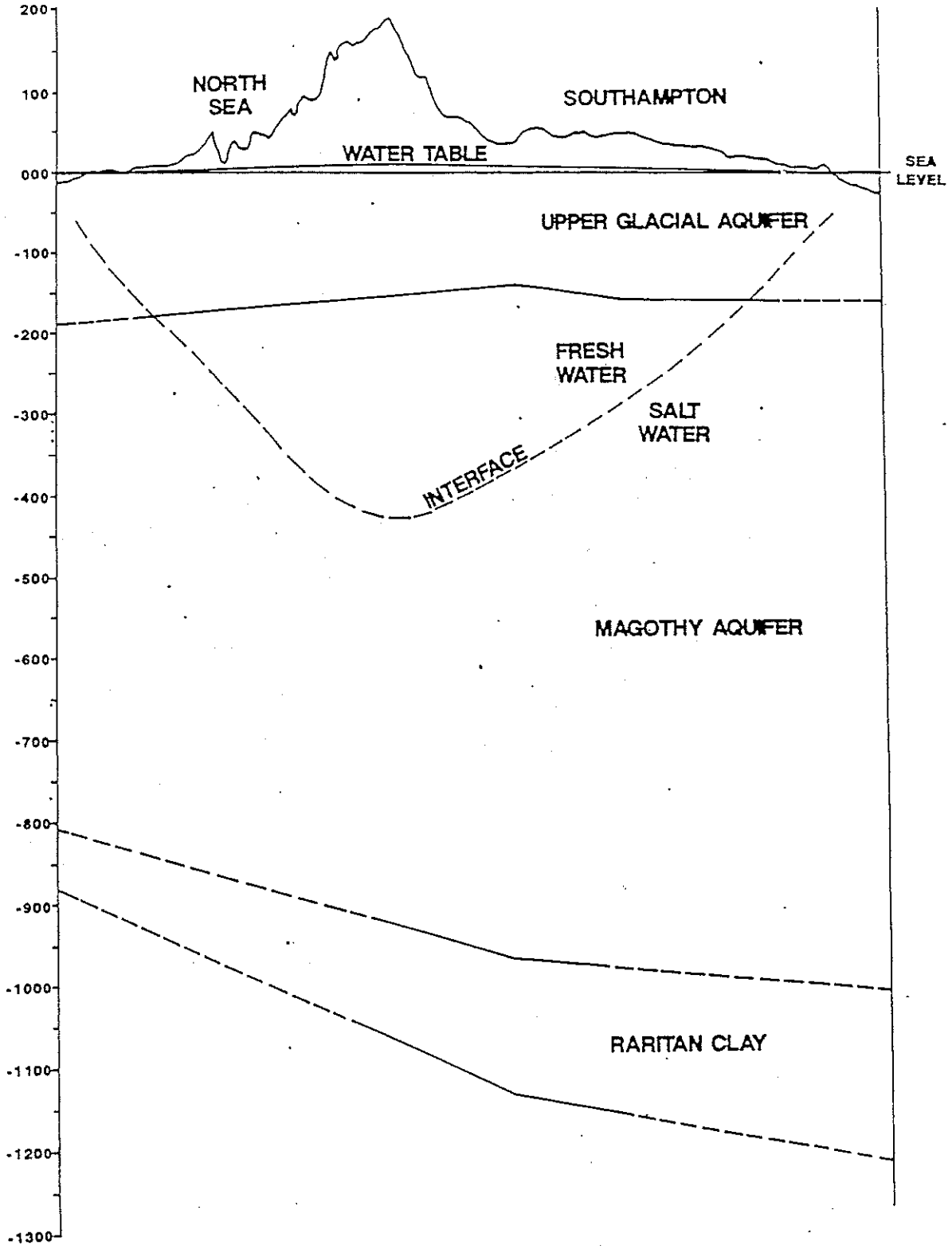
The minor soils of the Bridgehampton-Haven Association are mapped as Carver and Plymouth soils (deep and excessively drained), Riverhead soils (well drained), Berryland soils (poorly drained), and Raynham soils (poorly drained). The Carver, Plymouth and Riverhead soils are found on the sides of some drainage ways and the Berryland and Raynham soils occur around ponds and creeks and adjacent to tidal marshes. Wooded areas adjacent to Bridgehampton soils have a soil similar to the Plymouth soil, with a silty subsoil.

4.1.2 Geology

The Town is located on the glacial outwash plain which slopes southward from the Ronkonkoma Terminal Moraine to the shore (See Figure 4-2). The Town is underlain by approximately 1,500 feet of unconsolidated Pleistocene and Cretaceous bedrock. The age of the bedrock is generally considered to range from Pre-Cambrian to Upper Paleozoic. The Cretaceous deposits, which comprise the bulk of the sediments, include several formations: the Raritan Formation; the Magothy Formation-Matawan Group, undifferentiated; and the Monmouth Group. The Cretaceous deposits are overlain by Pleistocene and recent deposits.

The bedrock has never been reached by drilling on the south fork. Information extrapolated by the U.S. Geologic Survey (USGS) from the North Fork and an area west of Shinnecock Canal, however, indicates that the bedrock is composed chiefly of gneiss and schist. The bedrock surface in Southampton is estimated to occur from 1,400 to 1,600 feet below msl. The deepest Cretaceous deposit, the Raritan Formation, is divided into the Lloyd Sand Member and an unnamed clay member. The top of the Lloyd Sand Member occurs from about 1,100 to 1,200 feet below msl in Southampton and is about 200 to 300 feet thick. Based on the log of a well drilled into the top of the unit, in Southampton, the Lloyd Sand Member is characterized as a fine, light gray sand. The surface of the clay member occurs from about 900 to 1,000 feet below msl and is described as dark gray and brown clay with some medium light brown sand.

The thickest Cretaceous sequence is the Magothy Formation-Matawan Group, which rests on the Raritan Formation. This unit is up to 800 feet thick, and the irregular upper surface occurs from about 150 to 200 feet below msl. It is a complex unit, consisting of beds and lenses of sand interbedded with silt and clay. Some of the clay beds are as thick as 40 feet and frequently contain lignitized wood. Concretions of pyrite and iron oxide are common. Up to 250 feet of Pleistocene deposits overlie the Cretaceous deposits in Southampton. Based on logs of wells drilled in the Town, these deposits consist chiefly of stratified, fine to coarse, tan sand with fine to medium gravel. Clay and silt are virtually absent. The beaches and marshes along the south shore consist of recent (Holocene) deposits derived from erosion of the



Town Of Southampton, New York
Solid Waste Management Plan

Geologic Cross Section

Figure 4-2

outwash deposits. Marsh deposits, consisting of mud and peat, are found in bays, ponds, and some stream channels.

4.2 Hydrogeology

The unconsolidated sediments in the Town are saturated with water from the water table to bedrock. The upper portion of the ground water reservoir is fresh water which originates from local precipitation; the deeper ground water is salty. The water table extends from about sea level at the south shore to about 10 feet above sea level in Hampton Park. The water table slopes gently from Hampton Park toward Shinnecock Bay and the south shore. The thin fresh-salt water zone of diffusion is 20 to 60 feet thick and ranges in depth from about 50 feet at the southern shoreline to about 425 feet below msl under the Ronkonkoma terminal moraine north of Southampton.

Precipitation averages about 45 inches annually and about half of this (22 inches) is estimated to recharge the fresh ground water reservoir. The balance is accounted for by overland runoff (0.5 inches) and evapotranspiration (22.5 inches). The recharge of 22 inches is equivalent to an average rate of approximately one million gallons per day per square mile.

The geologic units on the south fork comprise several hydrogeologic units. The recent and Pleistocene deposits constitute what has been designated the Upper Glacial Aquifer. The Magothy Formation-Matawan Group, undifferentiated, constitutes the Magothy Aquifer, and the Lloyd Sand Member has been designated the Lloyd Aquifer. The clay member of the Raritan Formation is a confining layer separating the Lloyd Aquifer from the Magothy Aquifer. The fresh water body in Southampton occupies the Upper Glacial Aquifer and the upper part of the Magothy Aquifer, except near the south shore, where the fresh-salt water zone of diffusion rises steeply to the ocean bottom.

The hydraulic conductivity (horizontal) of the Upper Glacial Aquifer averages 350 ft/day and of the Magothy Aquifer is 70 ft/day. The transmissivity of the Upper Glacial ranges from about 600 ft^2/day to 22,700 ft^2/day.

The Upper Glacial Aquifer is the major source of water supply for the South Fork and is tapped by many wells. The water table, which is the upper glacial surface of the aquifer, fluctuates seasonally, generally rising from about the end of October to the end of April, which is the start of the growing season. The water table begins to decline in May and reaches its lowest elevation in October. Seasonal fluctuations are generally less than 4 feet, and are greater near the northern part of Southampton than at the south shore, where they are only about 1 foot (resulting from ocean tidal action). Droughts and excessively wet periods cause larger fluctuations and temporary variations in the times of the seasonal rise and fall. Data collected during the drought of

the early 1960s indicated that there is about a one-year lag between precipitation and response of the water table.

The position of the fresh-salt water zone of diffusion is controlled by many factors, including heads in the fresh water and salt water bodies and density differences between fresh water and salt water. Pumpage and changes in recharge can produce encroachment by salt water. The United States Geologic Service (USGS) has found that the fresh-salt water relationship on the South Fork is approximately described by the Ghyben-Herzberg Principle, which states that the depth of the fresh water body below sea level is proportional to the fresh water head (water table elevation) above sea level and is dependent on the water density. A reasonably accurate rule of thumb indicates that fresh water extends about 40 feet below sea level for each foot of fresh water head above sea level. In other words, if the water table is 10 feet above sea level, the fresh water lens will extend about 400 feet below sea level at that location. Although this relationship is not entirely accurate, it is generally used to estimate the thickness of the fresh water body on the South Fork. Because of stratification of the unconsolidated sediments, the hydraulic conductivity (permeability) of the sediments is greater horizontally than it is vertically, which results in a flattening or thinning of the fresh water body. As the fresh water-salt water relationship is in delicate balance, pumping of a well can result in a movement of salt water toward the well. Consequently, the location and pumpage of wells on the south fork is carefully regulated.

The surface fresh water in the Town flows generally south to southwest toward the ocean and Shinnecock Bay. The vertical component of movement would generally be upward, as the shoreline areas are discharge areas for the fresh water body. Generally, the chemical quality of the water in the fresh water body is good and suitable for most uses. However, iron chloride and nitrate occasionally occur in objectionable concentrations. Based on chemical analyses from 47 wells tapping the Upper Glacial Aquifer, Nemickas (1982) reported that the median concentration of iron is 0.47 mg/l, chloride is 19.0 mg/l, and nitrate is 0.62 mg/l. The maximum recorded values were 23.0 mg/l, 82.0 mg/l, and 11.0 mg/l, respectively. In the same report, the water quality in the Magothy Aquifer on the South Fork is characterized by analyses of samples from six wells. The mean value reported for iron is 0.49 mg/l, 13.0 mg/l for chloride and 0.47 mg/l for nitrate. The maximum values were 2.2 mg/l, 19.0 mg/l and 2.0 mg/l, respectively. The current drinking water standards in New York State are 0.3 mg/l for iron, 250 mg/l for chloride, and 10 mg/l for nitrate.

4.3 Surface Water

The Town is bordered by water to the north and south. The Great Peconic Bay, Little Peconic Bay, Flanders Bay and Noyac Bay as well as smaller harbors and inlets are to the north of the Town, and Shinnecock Bay, Mecox Bay, Quantuck Bay and Moriches Bay and the Atlantic Ocean are located to

the South (see Figure 4-2). In addition to these water bodies, numerous estuaries, creeks, marshes, ponds, and small rivers, including the Peconic River, Long Pond and Trout Pond exist in the Town. These water bodies are highly productive systems with differences in chemical properties, temperature, sunlight penetration, water movement, and coverage. Fresh water flow, resulting from stormwater runoff and ground water discharges, dilutes the salt content of the waters in the bays. Variations of salinity in surface waters extend from 0 at the fresh water/tidal water interface to 30 parts per thousand in the adjacent ocean. The average salinity of the bays is dependent upon the amount of tidal action and fresh water inflow.

The Town benefits from its proximity to these water bodies. They are an important part of the local economy. Various shellfish and finfish are harvested for both table and industrial use. Sport fishing, waterfowl hunting, swimming, and other water sports are popular recreational activities. In addition, the marine environment provides endless opportunities for passive recreation and enjoyment of the natural beauty of the area, representing a major portion of Southampton's appeal to tourists.

4.4 Air Quality

The Town is in the New York City Metropolitan Air Quality Control Region (AQCR), as designated by the U.S. Environmental Protection Agency (EPA). The AQCR program was established to assist states in attaining and maintaining acceptable ambient air quality levels. Primary national ambient air quality standards (NAAQS), based on a margin of safety to protect the public health, and secondary NAAQS, based on criteria to include protection of ecosystems, have been established for six criteria pollutants to quantify acceptable ambient levels as shown on Table 4-1. Sulfur dioxide ($S0_2$), carbon monoxide (CO), photochemical oxidants (principally ozone), nitrogen dioxide (NO_2), particulate matter with aerodynamic diameter less than or equal to a nominal ten (10) microns (PM-10), and lead (Pb) are considered criteria pollutants.

Effective July 31, 1987, the National Primary and Secondary Ambient Air Quality Standards for particulate matter (40 CFR 50.6) were revised from the ambient concentration of total suspended particulates (TSP) to that of the ambient concentration of particulate matter having an aerodynamic diameter less than or equal to a nominal 10 microns (µm) or PM-10. The fraction of suspended particulate matter larger than 10 µm is considered settleable, whereas PM-10 is considered respirable and therefore may have a potentially adverse impact on health.

Within a particular region, the air quality has been classified according to whether standards for each of the criteria pollutants have been met. Where possible, the area is categorized as being in either attainment or non-attainment of NAAQS for each pollutant. Where attainment/non-

TABLE 4-1

FEDERAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Primary ug/m3	Secondary ug/m3
PM-10	Annual Geometric Mean	50	50
	24-hour Maximum[1]	150	150
Sulfur Dioxide	Annual Arithmetic Mean	80	N/A
	24-hour Maximum[1]	365	N/A
	3-hour Maximum[1]	N/A	1300
Carbon Monoxide	8-hour Maximum[1]	10000	10000
	1-hour Maximum[1]	40000	40000
Nitrogen Dioxide	Annual Arithmetic Mean	100	100
Ozone	1-hour Maximum[2]	235	235
Lead	Quarterly Arithmetic Mean	1.5	1.5

Notes:

1. Maximum concentration not to be exceeded more than once per year.

2. Maximum concentration not to be exceeded more than an average of 1 calendar day per year.

N/A = Not Applicable.

Source: ENSR, 1988.

(pc1/shtables)

non-attainment status cannot be defined, the area is considered "unclassified" for that pollutant and treated as being in attainment until proven otherwise. The attainment status for PM-10 and lead has not yet been formally established by EPA.

The Town is designated as in attainment for all criteria pollutants. The nearest monitoring location is in the Town of Babylon, also in Suffolk County. The Babylon monitoring station includes a manual monitoring station for TSP as well as a continuous monitoring station for $S0_2$, ozone and TSP. Measurements of TSP and SO_2 are below State and Federal standards. Ozone measurements, however, exceeding the one-hour average of 0.12 ppm were recorded on nine occasions during 1987. The Long Island Lighting Company (LILCO) maintained a monitoring network on the eastern end of Long Island, but discontinued sampling at these locations due to the continued low concentrations of each contaminant sampled.

4.5 Climate and Meteorology

The daily weather and long-term climate of the Town are influenced by the water masses of the Atlantic Ocean and Long Island Sound, the associated bays and harbors that surround the Town, the adjacent land mass, and the west-to-east orientation of Long Island itself. Hence, the climate can be classified as coastal.

Temperature extremes are modified in the summer by the cooling ocean breezes which form off the south shore of Long Island and often extend all the way to the north shore. In winter, cold temperature extremes are also modified by the Long Island Sound and Atlantic Ocean. The average winter temperature is 32.5°F and the summer average is 71.9°F.

The Town occasionally experiences severe weather in the form of coastal and tropical storms. Hurricanes have caused extensive damage along the coastline on infrequent occasions. Local severe thunderstorms and tornadoes are almost non-existent because the conditions favorable for development of these storms are moderated by the adjacent water bodies.

The prevailing wind directions are northwest and south, reflecting the dominance of the cold arctic air masses in the winter and cooling ocean breezes in the summer. The annual average wind speed is a little over 9 mph.

The relative humidity, which is only a rough index of the moisture capacity of the air, varies from approximately 70 percent in the winter to 78 percent in the summer, again due to nearby sources of moisture. Precipitation is evenly distributed over the year. The average rainfall is approximately 45 inches per year and average snowfall is 20 inches per year.

4.6 Socio-Economic Conditions

4.6.1 Population

According to the 1980 Census data, approximately 1,284,000 people are distributed over 900 square miles in Suffolk County (LILCO, 1988). The Town had a 1980 population of 43,146 people (LILCO, 1988) encompassing 92,800 acres with a population density of 0.5 persons per acre. An increase in population of approximately 12 percent occurred between 1970 and 1980 in Suffolk County. The Town exceeded the County's trend with an approximate increase of 16 percent. Population estimates by the New York State Department of Commerce, LILCO and Long Island Regional Planning Board (LIRPB) predict that the populations of Suffolk County and the Town will steadily increase between the years 1990 and 2010.

The Town experiences a seasonal variation in population. Table 3-3 presents the projection of year-round population, seasonal population and summer peak. Southampton almost doubles in population during the warm weather months and experiences an additional peak of nearly 25 percent above the seasonal population on summer weekends.

4.6.2 Housing

There are approximately 432,000 housing units within Suffolk County at an average of 0.75 units per acre (LIRPB, 1982). Approximately 80 percent of these units are owner occupied.

The Town has approximately 28,500 housing units (both seasonal and permanent) with a housing density of 0.3 units per acre (LIRPB, 1982). In the Town of Southampton the housing vacancy rate is reported to be about 8.9 percent (LIRPB, 1982).

4.6.3 Economics

In 1988, the estimated median family income for Suffolk County was $40,599 (LIRPB, 1989). The Town's 1988 median family income was $32,565. The principal occupation categories of the Town's residents are professional, clerical, craftsman, and service occupations. The Economic Indicator Report for March 1989 reported Southampton's unemployment rate at 5.2 percent.

4.6.4 Transportation

Sunrise Highway (Route 27), a four-lane highway, and Montauk Highway (Route 27A), a two-lane roadway, are the two major roadways leading to the Town from the western portion of Long Island. Sunrise Highway intersects Montauk Highway just north of the Village of Southampton. Montauk Highway continues eastward from that point through the Town to Montauk as Route 27.

The Montauk branch of the Long Island Railroad (LIRR) originates in New York City and traverses the Town to its ending destination in Montauk. According to the LIRR public relations department, the train makes seven stops within the Town: Bridgehampton, Southampton (Village), Southampton College, Hampton Bays, Quogue, Westhampton Beach and Speonk.

Bus service in the Town is not extensive and covers relatively little area. One route runs from the Village of Southampton to Sag Harbor, making stops at points between. A second route runs between East Hampton and Bridgehampton.

Three airports are accessible to the Town's residents, although only one is located in the Town. The Suffolk County airport is located in Westhampton Beach, and the East Hampton and Spadaro Airports are located in the Town of East Hampton and Brookhaven, respectively.

4.6.5 Social Services

The Town does not have a municipal fire department. All fire protection within the Town is provided on a volunteer basis. A number of villages and hamlets are equipped with the proper equipment and facilities to handle fire events. Those communities that do not have their own fire fighting equipment are part of a fire Protection district. Based on geographic location, an equipped firehouse is responsible for fire protection within a surrounding area.

The Town has its own police department with other departments found in the individual villages. A State Police barrack also exists in the Town.

Southampton Hospital is the only hospital within the Town. If further care is necessary, Central Suffolk Hospital in Riverhead utilized.

4.7 Biological Resources

4.7.1 Wildlife

As described in the Town's Master Plan, 1970, the Town contains a wide variety of interdependent ecosystems that provide a habitat for a multiplicity of flora and fauna. The discussions that follow describe the ecosystems as associations related to either the marine or upland environment and are excerpted from the Town's Master Plan.

Marine Environment

The shallow waters of the bays and estuaries surrounding the Town provide food sources for crustaceans, juvenile finfish, and other sea life. Larger finfish such as the mackerel, menhaden and herring also feed in these shallow waters. Numerous egrets, herons and other wading birds and shore birds nest along the fringes of these coastal waters.

The marine environment is also important for another reason. Aerial counts by the U.S. Department of the Interior, New York State Department of Environmental Conservation (NYSDEC), and special annual Christmas counts by the latter agency and interested citizens indicate that large numbers of waterfowl frequent marine communities in Southampton during their migration. The Town lies in the path of the Atlantic Coastal waterfowl fly-way. As a result, many waterfowl spend their winters in the Long Island area and it is considered one of the most important waterfowl areas in the North Atlantic States. The mild winters often keep the waters clear of freeze-ups, thereby enabling the waterfowl to obtain food.

Upland Environment

The upland environment is also a highly productive and rich ecosystem. Many species of upland fauna are found within the Town of Southampton. The largest, the deer, ranges widely throughout the community but prefers those areas adjacent to agricultural areas. Deer do not tend to favor the undeveloped moraine found in the western portion of Town. The generally poor soils of this area produce little in the way of food. For this same reason other animals, such as the rabbit and fox, also prefer the dense, rich cover of the outwash plain to the east of the Shinnecock Canal. Raccoon and muskrat prefer an environment which includes marshlands. Accordingly, these animals are found in the coastal lowlands and inland swamps.

Bird species are also abundant in the Town. Pheasant and quail are found in coastal areas. Pheasant are particularly plentiful as several gun clubs release them annually. Waterfowl are abundant in both the coastal areas and inland ponds.

A listing of songbirds sighted in the community, prepared by the Quogue Wildlife refuge, includes nearly 100 different species that are known to occur within the Town.

4.7.2 Vegetation

As described in the Town of Southampton Master Plan (1970), the Conservation Advisory Council of the Town of Southampton, utilizing the services of several professionals associated with Southampton College, divided the vegetation of the Town into 17 associations. These associations, as listed in the Master Plan are as follows:

1. Old Field Succession

Pioneer Cedar-Red Cedar (Juniperus virginians), briars (Rubus spp.) old field open land succession to immature oak-pine forest.

2. Fresh Water Marsh

Cattail marsh community; bulrush (Scirpus spp. indicator plant for the community) also several reeds (Phraqmites spp.), duckweed (Lemna minor), leatherleaf (Chamaedaphne calyculate, rarely on Long Island), a few willows (Salix spp.), alder (Alnus), sedges (Carex spp.), shadbush (Amelanchier spp.), sweet pepper bush (Clethra alnifolia) and others; quite distinct ecologically from brackish or salt water marshes, and limited to areas of fresh surface water.

3. Salt Marsh

Cord grass (Spartina alterniflora), salt-meadow grass (Spartina patens - an especially good indicator of undisturbed marsh conditions where fill has not been deposited), also sea lavender (Limonium spp.), marsh eider (Iva frutescens), fireweed (Erechtites spp.), mallow (Hibiscus spp.), groundsel bush (Baccharis halimifolia).

4. Scrub Land - Brush and Trees

Includes numerous different associations, all of which share the common factor of immature development, having grown in recently after fire and various continuing man-caused disturbances, etc.

5. Dune Strand

Standard indicators of this community on eastern Long Island are beach grass (Ammophila breviligulata), beach pea (Lathyrus maritimus), beach plum (Prunus maritima), bayberry (Myrica pennsylvanica); also commonly includes bearberry (Arctostaphyls uva-ursi), several spurges (Euphorbia spp.), roses (Rosa spp.), and various stunted woody tree species, stunted severely due to the poor environmental conditions (little or no true soil, excessive drought, high winds, salt spray, instability of the surface, etc.).

6. Farm Land - Pasture

In any given year this land may lie fallow, or may be covered with potatoes, cauliflower, several vegetables, rye-grass, wheat, etc., or with pasture grasses of several types.

7. Incorporated Villages and Towns

Vegetative cover varies greatly from absent to fairly dense growth, and includes many of the other associations mentioned; most east-end villages do, however, have mature woody vegetation even in downtown business districts (except where Dutch Elm disease and other infections have encroached on this tree cover).

8. Golf Courses, Airfields, Sanitary Landfills, etc.

In the town, golf course cover runs the gamut from small barrens (sand traps, etc.) to excessively thick and luxuriant cover (esp. in low-lying marshy sections); most such acreage, of course, is covered by a very rich and absorbent grass sod; sanitary landfill areas generally are completely barren.

9. Shinnecock Hills Vegetation

Fire history, scrubby growth, heath-like vegetation and stunted trees dependent on fairly common burning for its continuation. Somewhat more open than pine barrens, with "bare" patches of heath and mosses, and some open sandy barrens, but individual trees sometimes greater in height but with less size uniformity than their pine barren counterparts; common species includes black oak (Quercus velutina), post oak (Quercus stellata), some sassafras (Sassafras albidum), wild black cherry (Prunus serotina), other oaks, hickories (Carya spp.), and the almost universally common pitch pine (Pinus riqida). Blueberry (Vaccinimum spp.) and cat briar (Smilax spp.)are the dominant shrubs. Pioneer situations include bearberry. From both a botanical and geological point of view, the Shinnecock Hills are considered by some experts to be without counterpart elsewhere.

10. Pine Lands

A rather uniform association in both physical appearance and species composition, with pitch pine (Pinus rigida) and scrub forms of bear oak (Quercus ilicifolia) being by far the dominant species; other common species would include largetoothed aspen (Populus qrandidentata), and red cedar (Juniperus virqiniana - most in old fields), originally some white pine (Pinus strobus, not quite rare here).

11. Established Housing

Characteristically has mature cover of numerous different tree, shrub, and herb ornaments, with American Elm (Ulmus americana, maples and several spruces (Picea spp.) being perhaps most common; this varies greatly with the changing characteristics of the local areas.

12. Swamp and Lowland Forest

A broad category, mostly involving fresh water conditions (or with ground water close to the surface), red maple (Acer rubrum) red oak (Quercus rubra), sour gum (Nyssa sylvatics), occasional white pine (Pinus strobus) and, decreasingly on Long Island, American holly (Illex opaca).

13. Scrub Pine and Pioneer Cedar

A somewhat older, more advanced stage of the pioneer cedar mentioned earlier (see item 1).

14. Mixed Hardwood - Forest

Perhaps the richest forest vegetation on Long Island, featuring American beech (Fagus grandifolia) and white oak (Quercus alba), and also mature America elm (Ulmus americana), black walnut (Juglans niqra) sweet birch (Betula lenta), dogwood (Cornus florida), red maple (Acer rubra), sweet gum (Liquidambar styrociflua), tupelo (Nyssa sylvatica), yellow poplar (Liiodendron tulipifera), white ash (Fraxinus americana), white pine (Pinus strobus), and many others, including several species of fern (Dryopteris spp. and others). It can be seen that these species constitute some of the most commercially valuable hardwoods in North America.

15. Oak-Pine

A fairly uniform environment demonstrating somewhat of a balance between these two dominant types, with few other woody species to be found.

16. White Cedar Swamp

Tendency to relatively "pure" stands in early stages dominated by Atlantic or northern white cedar (Chamaecyoaris thyoides) only in fresh water swampy habitat, early stage developing eventually into a more mixed community.

17. New Housing

Mostly raw land, recently graded with raw soil or immature sod and tree vegetation development. Large areas of paved and roofed land as well as newly constructed cesspools.

4.7.3 Threatened and Endangered Species and Species of Special Concern

The State of New York currently lists 34 species of endangered animals, and 18 species of threatened animals. The State, through the New York Natural Heritage Program, has recently designated 89 species of endangered plants and 79 species of threatened. plants. Endangered species are any native species in imminent danger of extinction within New York State. Threatened species are any native animal or plant species likely to become an endangered species within the foreseeable future throughout all or a significant portion of their habitat range. In addition, any species listed as endangered or threatened by the United State Department of Interior, as enumerated in 50 CFR 17.11, are included in the New York State listings.

The New York State Environmental Conservation Law, Section 11-0535 (Endangered and Threatened Species), provides legal protection for all listed endangered and threatened species. The taking, importation, possession or sale of any endangered or threatened species of fish, shellfish, crustacea,

wildlife or hides thereof, or the sale or possession with intent to sell any article made in whole or part from the skin, hide or other parts of any endangered or threatened species is prohibited, except under license or permit from NYSDEC. In addition to endangered and threatened listings, New York State has a listing entitled "Species of Special Concern". This category includes those native species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York State. It is possible that these species could become threatened or endangered in the near future. Thus, these species are more closely monitored than non-classified animals. Unlike the endangered and threatened categories, species of special concern receive no legal protection under the Environmental Conservation Law, Section 11-0535. A listing of endangered and threatened species and species of special concern are provided in Appendix C. A list of species that may occur within the Town includes, but is not limited to, the following species.

- Northern Harrier
- Tiger Salamander
- Roseate Tern
- Least Tern
- Common Tern

Other highly mobile species such as the bald eagle may also occasionally be sighted within the Town.

4.7.4 Wetlands

The Town supports numerous areas of both fresh water and tidal wetlands. Wetland areas are a valuable natural habitat and provide benefits such as open space, storm and flood water control, education and research areas, fisheries habitat, water supply purification, wildlife habitats and recreational opportunities. Depending upon their size and relative ecological value, wetland areas are designated and protected by State and federal agencies through permit requirements for dredge and fill activities.

4.7.5 Significant Habitats

The Town's rich diversity of flora and fauna contains 28 areas that have been designated by NYSDEC as significant habitats.

Significant habitats are defined by NYSDEC as a specific place, area, or location in New York State that has a value for fish or wildlife extending beyond its own border. Table 4-2 contains a listing of these significant habitat areas. Development in an area that is designated as a significant habitat is regulated by NYSDEC through permit requirements for the taking of endangered or threatened species.

TABLE 4-2

TOWN OF SOUTHAMPTON
SIGNIFICANT HABITATS

Name of Area	Type of Area
Great Peconic Bay	Waterfowl Wintering Area
Flanders Gun Club	Tern Nesting Area
Noyack Bay	Waterfowl Wintering Area
Mecox Bay	Waterfowl Wintering Area
Long Island Dwarf Pine Plains	Rare/Unusual Plant Habitat
Maple Swamp-Birch Creek	Wildlife Observation Area
North Sea Harbor (Conscience Point)	Tern Nesting Area
Alewife Creek/Big Fresh Pond	Fish Spawning Area
Mecox Inlet	Tern Nesting Area
Lanes Island	Black Skimmer Nesting Area
Moriches Bay	Protected Coastal Bay
Shinnecock Bay	Protected Coastal Bay
West Pond (Seatuck Creek)	Waterfowl Wintering Area
Quontuck Creek Quoque Refuge	Tidal Creek
Sebonac Neck	Tern Nesting Area
Agawam Lake	Waterfowl Wintering Area
Cow Neck	Tern Nesting Area
Alewife Creek/Big Fresh Pond	Warmwater Fisheries
Sagaponack Inlet	Tern Nesting Area
Fairfield Pond Beaches	Tern Nesting Area
Iron Point	Mud Turtle Habitat
Flanders Bay Wetlands	Tern Nesting Area
Cedar Point County Park	Tern Nesting Area
North Haven Woodlands	Hardwood Forest
Manorville-Riverhead Pine Barrens	Pine Barrens
Peconic River and Drainage	Freshwater River
RCA Bog Ponds	Tiger Salamander Pond
Camp's Pond	Tiger Salamander Pond

Source: NYSDEC, 1989.

(pc1/shtables)

4.8 Cultural Resources

4.8.1 Historic and Archaeologic Sites

There are several historic and archaeologic districts, sites, buildings and structures scattered throughout the Town. Sites listed on the National Registry of Historic Places are recorded on Table 4-3.

Detailed cultural resource surveys involving two stages of investigation are required if an archaeological or historic site is included within a proposed project area. The first stage entails a literature review detailing the history, prehistory and architecture of the proposed project area and a synopsis of the direct impacts surrounding facility construction and implementation. The objective of this stage is to identify specific cultural resources located in the project area and assess the possibility of unrecorded resources. Should a literature survey indicate that cultural resources exist in the project area, the investigation will progress into the second stage. This usually involves subsurface excavations to determine whether the recorded resource sites are intact or no longer remain. If the site is indeed intact, a survey must be undertaken to collect all relevant data for the EPA, with the guidance of the State Historic Preservation Officer (SHPO), to determine eligibility, using the National Register criteria. If the property is eligible for inclusion on the National Registry, the impacts of project construction and implementation must be evaluated by the EPA and SHPO. If unrecorded resources are found during construction, site activities will have to be halted until appropriate investigations are conducted.

4.8.2 Parks and Recreational Areas,

The Town has set aside numerous areas for both active and passive recreation. Beaches along both the northern and southern shores of the Town are maintained for residents and visitors enjoyment. Greenbelt areas such as Long Pond Greenbelt and areas set aside for conservation such as the Quogue Wildlife refuge are also available for enjoyment of the natural beauty of Southampton. Golf courses and parks with ball fields, par courses, and other amenities are located throughout the Town.

Libraries are located in the Villages of Bridgehampton, Hampton Bay, Quogue, Southampton, and Westhampton. A number of local newspapers are published on a weekly basis. A variety of cultural activities including theater, musical performances and arts and crafts fairs are presented throughout the Town.

(sh2/sec4)

TABLE 4-3

TOWN OF SOUTHAMPTON
HISTORIC SITES

Beebe Windmill
Ocean Road and Hildredth Avenue
12/27/78

James Benjamin Homestead
1182 Flanders Road
8/13/86

Custom House
Garden Street
(part of Sag Harbor Village Historic District)
7/20/73

Jaraid Wade House
Madison Street
(part of Sag Harbor Village Historic District)
7/20/73

John Jermain Library
Main Street
(part of Sag Harbor Village Historic District)
7/20/73

Methodist Church
(part of Sag Harbor Village Historic District)
Madison Street
7/20/73

Municipal Building
(part of Sag Harbor Village Historic District)
Madison Street
7/20/73

James I. Breese House
155 Hill Street and Halsey Lane
4/18/80

Sag Harbor Village Historic District
Main Street, Madison Street, Union Street, and Garden Street
7/20/73

Sag Harbor Whaling and Historical Museum
Main Street
(part of Sag Harbor Village Historic District)
7/20/73

Whaler's First Presbyterian Church
Union Street
(part of Sag Harbor Village Historic District)
7/20/73

Balcastle
Northwest corner of Herrick Road and Plains Road
(part of Southampton Village Multiple Resource Area)
10/2/86

Beach Road Historic Area
(part of Southampton Village Multiple Resource Area)
10/2/86

Dr. Wesley Bowers House
Beach Road
(part of Southampton Village Multiple Resource Area)
10/2/86

Mansard Inn
300 Hampton Road
(part of Southampton Village Multiple Resource Area)
10/2/86

TABLE 4-3

TOWN OF SOUTHAMPTON
HISTORIC SITES
(continued)

Mercator Cooper House
81 Windmill Lane
(part of Southampton Village Multiple Resource Area)
10/2/86

The Water Mill Museum
Old Mill Road
10/13/83

Jagger House
Old Montauk Highway
12/12/78

North Main Street Historic Area
(part of Southampton Village Multiple Resource Area
10/2/86

Windmill at Water Mill
Route 27 and Halsey Lane
12/27/78

Crowther House
97 Beach Lane
3/21/85

Source: Spinoza. 1988

Notes: (1) Date Listed on National Register

(pc1/shtables)

5

Section Five

Section 5
Integrated Waste Management Concepts

5.1 Overview

The purpose of this section is to identify how the selected technological options will be combined to form an attainable, cost effective, integrated waste management plan that clearly applies the ordered solid waste management hierarchy described by the NYSDEC in the following order of preference:

- Reduce the amount of solid waste generated.
- Reuse materials for their original purpose or recycle materials that cannot be reused.
- Recover, in an environmentally acceptable manner, energy from solid waste which cannot be economically and technically reused or recycled.
- Dispose of solid waste that is not being reused, recycled or from which energy is not recovered, by landfilling or other methods approved by the NYSDEC.

In preparing this modified SWMP/GEIS, the Town has reviewed and analyzed various alternatives and has determined that a regional approach will best serve the citizens of Southampton in managing its solid waste. Generally, the approach will include the Town's continuing its recycling program; composting leaf and yard waste; and the utilization of one or more on-Island facilities for the processing and disposal of the remaining municipal solid waste.

5.2 Proposed Plan

Under the modified SWMP/GEIS the Town has established an integrated approach to solid waste management that maximizes waste reduction and recycling thereby limiting waste requiring disposal. The outline of this plan is contained in Appendix G of this document.

The plan consists of a series of programmatic initiatives and structural additions to the Town's existing solid waste management infrastructure for handling the principal components of the waste stream, i.e., recyclables, leaf and yard waste, and municipal solid waste. The programmatic initiatives commit the Town to implement several significant steps to further strengthen its already impressive performance in the area of waste reduction and recycling. In 1993, approximately 9,360 tons of recyclables were collected compared to approximately 5,060 tons collected in 1991. As of June 30, 1994, approximately 4,453 tons of recyclables have been collected. Based

on the percentage of source-separated recyclables recovered by the Town in the second half of 1993, it is expected that about 10,860 tons of recyclables will be collected in 1994.

Foremost is the Town's endorsement of a fee-per-bag program for municipal solid waste that is anticipated to take effect in the first quarter of 1995. The program will be implemented using either a designated bag or sticker system and is expected to stimulate increased source separation, which in turn will significantly reduce the amount of municipal solid waste ultimately requiring disposal. Additionally, the Town has authorized the hiring of a full-time Recycling Coordinator. The proposed plan also entails the Town's providing recycling containers and home composting kits to each of its residents. These activities will have significant positive impacts on waste reduction within the Town.

In addition to the above nonstructural components, the modified SWMP/GEIS also includes the use of four residential drop off centers/transfer stations at strategic locations within the Town. These facilities will be designed to serve two distinct functions. Residents will drop off their municipal solid waste which will be compacted and transported for on-Island waste processing and disposal. Municipal solid waste collected from the three existing residential drop-off facilities and the fourth facility presently under construction will be direct-hauled in self-compacting trailers to a designated facility or facilities.

The Town has secured a letter of interest from East End Recycling & Composting, L.P. for the processing of a guaranteed minimum of 10,000 tpy of self-hauler MSW at their facility to be located in Calverton. (See Appendix I.) The Town intends to negotiate an agreement whereby waste collected by private carters will be accepted at the disposal facility(ies). MSW composting is higher on the State's hierarchy of solid waste management than the Town's current method of landfilling. If a municipally owned disposal facility is also identified for long-term waste disposal, the Town would offer to process and dispose of an identified quantity of leaf and yard waste from the municipality accepting its municipal wastes at the two leaf and yard waste processing facilities the Town will build.

Additionally, the drop-off centers will accept source separated and commingled recyclables from town residents. The materials will be direct hauled to market.

5.2.1 Waste Reduction

The Town's waste reduction program will focus on:

- support of state and federal waste reduction legislation;

- continued public education programs; and
- instituting a pay-per-bag fee for all municipal solid waste.

5.2.1.2 Education Program

Education programs on waste reduction will be included in the Town's recycling education program.

5.2.1.3 Volume-Based Rates

The fee structure will be revised to encourage recycling and offset costs by instituting a per-bag fee for all mixed solid waste, increasing the tip fee for carters to reflect the actual cost of disposing of solid waste, and no charge for source-separated recyclables.

Additional information pertaining to the Town's proposed waste reduction and recycling programs is provided in Section 6.0.

5.2.2 Source Separation And Materials Recycling

The Town will institute several new key components to its waste reduction and recycling program. These will include:

- Establish a residential pay-per-bag program to encourage both waste reduction and recycling;
- Provide recycling containers and composting kits to each Town resident;
- Construction of an additional drop-off facility to accommodate residents who do not live in close proximity to the three existing facilities, and do not have curb-side service;
- Construction of two in-Town leaf and yard waste compost facilities.

5.2.2.1 Volume Based Rates

The Town's plan outline (Appendix G) includes the implementation of a residential pay-per-bag system. This system will include "no-charge" for source separated recyclables. Additionally, recycling collection containers and home composting kits will be provided to each resident. It is anticipated that these changes to the fee structure should greatly encourage waste reduction and recycling.

5.2.2.2 Materials Marketing

The Town will continue its current practice of collecting source separated recyclables at drop off centers and transporting the material directly to market. The private carters will transport their collected recyclables to market as well.

5.2.2.3 Leaf And Yard Waste Composting

The Town proposes to construct two separate leaf and yard waste composting facilities with a combined maximum capacity of 30,000 tons per year. This total capacity would be capable of handling all of Southampton's leaf and yard waste, in addition to leaf and yard waste generated by the municipality accepting Southampton's municipal solid waste, if so negotiated. To receive and process leaf and yard waste from outside the Town, the Town Code would require modification. Currently, the Town Code states, "no material of any sort that is collected or transported from outside the limits of the Town of Southampton shall be deposited in said disposal areas" [Section 205-3(E) of Town Code].

5.2.2.4 Volume Reduction

Like waste reduction and recycling, volume reduction is one of the cornerstones of the SWMP. The objective of volume reduction is to minimize the amount of waste being landfilled, and to derive energy from the process if possible. Volume reduction facilities would be used by the Town on an as need basis.

5.2.3 Solid Waste Collection Practices

5.2.3.1 Collection

At the present time, solid waste is collected from residential units by private carters under contract to the resident directly, or hauled by the residents themselves to one of the Town's residential drop-off facilities. Commercial, institutional, and industrial wastes are generally handled by private carters. All waste is brought to the North Sea landfill site for disposal.

The current public-private system would remain as a part of the proposed integrated solid waste system. Municipal solid waste collected at the drop-off facilities will be direct-hauled to an on-Island disposal location, for processing and disposal, and the recyclables collected will be transported to the market. Waste collected by the private carters will be accepted at the on-Island disposal location(s) identified by the Town.

5.2.3.2 Residential Drop-Off Centers

Three residential drop-off centers are currently operating within the Town. They are located in Westhampton, Hampton Bays and the North Sea Landfill. The centers are available to residents for the disposal of their solid waste and source separated recyclables. A fourth center in Sag Harbor is under construction and will be operational by early 1995.

5.2.4 MSW Processing and Disposal

Under the Town's proposed plan, a minimum of 10,000 tpy of residential solid waste will be accepted for processing and disposal at the East End Recycling & Composting facility to be constructed in Calverton, Long Island. Waste brought to the Town's drop-off centers by self-haulers will be

transferred by the Town in self-compacting trailers to the MSW composting facility. The Town intends that the waste collected by private carters will be accepted at the designated processing and disposal facility. This waste would be transported directly by the carters.

East End Recycling & Composting Co., currently has a NYSDEC permit to construct a 500 ton per day (tpd) solid waste recycling/composting facility on 51 acres in Calverton, Long Island. A draft and final EIS has been completed. A special use permit from the Town of Riverhead has been issued for the facility. All waste processing will be conducted under cover. The tipping floor, preprocessing, paper baling, plastics processing, in-vessel composting, and wood processing will be within an enclosed structure. The compost will be stored on a paved surface within prefabricated steel buildings (Cameron Engineering, P.C., 1990). Odor control devices are included in the facility design. It is anticipated that the facility will operate seven days per week and receive waste on a six day per week basis. The facility will use the KOCH system to compost the organic fraction of the wastestream that will remain after materials recovery/preprocessing. From the anticipated 500 tpd of waste received, it is expected that 225 tpd will be compostable; generating 100 to 120 tpd of compost available for market (Cameron Engineering, P.C., 1990).

As of November 1994, East End Recycling & Composting is in contract negotiation with the Town of Brookhaven to process and dispose a minimum of 60,000 tpy of MSW. They also have a letter of interest for MSW from the Town of Southampton for a minimum of 10,000 tpy. The Town of Riverhead also has a contract with East End Recycling & Composting for the processing and disposal of their MSW. Construction is expected to begin in the spring of 1995 with full facility operation by fall 1996.

As a contingency, the Town will pursue disposal of its waste at a Long Island municipal waste-to-energy facility if the East End MSW composting facility should experience a delayed start up and no additional capacity exists at the North Sea Landfill. The Town intends that any agreement for waste processing and disposal at the East End MSW composting facility will include the identification of an alternative disposal facility should the Calverton facility experience operational difficulties. Depending on available capacity and/or other factors, the Town reserves the right to pursue off-Island disposal options.

5.2.5 Construction and Demolition Debris

The majority of C&D debris generated in the Town is processed at processing centers outside the Town. Any C&D debris that is not recycled is disposed of at a permitted C&D landfill in Farmingdale (approximately 50 miles from Southampton). The Town is considering establishing one or

more C&D drop-off locations within the Town for self-haulers. The material would then be disposed of at a permitted facility.

5.2.6 Household Hazardous Waste

Because of the importance of reducing the number of potentially hazardous materials within the waste stream prior to processing, the Town has addressed the collection of household hazardous waste (HHW).

A permanent HHW drop-off facility is located at the present site of the North Sea Landfill. This facility provides a safe and convenient location for the citizens of the Town to dispose of their household hazardous waste. The facility is open 3 days per week receiving HHW from residential self-haulers only. The waste is temporarily stored and periodically removed and disposed of by a NYSDEC approved hazardous waste hauler. No on-site disposal of any collected household hazardous material takes place now or will take place in the future.

5.3 Policy Compliance

This section discusses how the Town's Solid Waste Management Plan complies with State solid waste policy as set forth in Section 27-0106 of the State's Environmental Conservation Law. Specifically, it describes how the Town intends to achieve a forty-percent reduction in the residential and commercial waste stream by 1997, and integrate volume reduction into its program.

The Town's major solid waste initiatives respond to the State hierarchy by integrating the strategies of reuse and recycling, and volume reduction.

5.3.1 Reuse and Recycling Targets

Waste reduction is the first priority of the State's solid waste hierarchy. The Town's solid waste education program is supportive of the efforts of higher levels of government to promote waste reduction. A disposal fee structure based on volume will further encourage waste reduction efforts.

Reuse and recycling is the second step in the State hierarchy. As set forth in the Town's plan outline, the Town will provide recycling containers and home composting kits to all Town residents, establish no charge for source-separated recyclables, continue with the public education program and hire a recycling coordinator.

5.3.2 Implementation of Source Separation Initiatives

The Town's solid waste management plan, as outlined by the Supervisor on July 14, 1994 (see Appendix G) primarily encourages source separation through a revised fee structure. The Town's program will be based on a per-

bag fee for all municipal solid waste, and no charge for source-separated recyclables.

5.3.3 Volume Reduction

The Town of Southampton SWMP provides for the Town to achieve compliance with the New York State Solid Waste Management hierarchy.

Compliance for waste types that would be partially under the Town government's control would be through the following management technologies:

- Residential, Commercial, Institutional Waste - This waste stream will be targeted for reduction and recycling with all remaining waste to be processed and disposed, preferably through composting at an on-Island facility.
- Yard and Leaf Waste - This waste stream will be source-separated and processed (composted) at one of two facilities to be constructed in the Town.
- Construction and Demolition Debris - This waste stream will be processed for recycling with the non-processible portion targeted for landfilling.

5.4 Implementation Schedule

The following implementation program serves as a guide to achieving the Town's solid waste initiatives. It covers the topics of timetable, management responsibilities, procurement and construction activities.

ACTIVITY	TARGET DATES
1. Implementation of source separation, waste reduction, education, and enforcement activities	Ongoing
2. Solidify base for agreement(s) for out-of-Town processing and disposal capacity and in-Town leaf and yard waste management facilities	Ongoing
3. Submit Modified Solid Waste Management Plan ("Modified SWMP")/Draft GEIS to DEC and make available for public review pursuant to SEQRA	December 9, 1994
4. Close of SEQRA review and comment period on Modified SWMP/Draft GEIS	January 9, 1995

5.	Issue modified SWMP/Final GEIS to DEC and make available for public review pursuant to SEQRA	February 20, 1995
6.	Issue Findings Statement. SEQRA is now complete.	On or about March 2, 1995
7.	East End Recycling & Composting facility begins construction.	Spring 1995
8.	Execute Agreement for out-of-town disposal facility.	After SEQRA is complete
9.	Finalize acquisition, to extent necessary, for properties selected in Modified SWMP/ Final GEIS	After SEQRA is complete
10.	DEC Approval of SWMP/Final GEIS	DEC action
11.	Submit application for permit to construct the in-Town leaf and yard waste processing facilities	Two weeks after DEC approval of modified SWMP/Final GEIS
12.	Release of facility-specific designs and specifications for in-Town leaf and yard waste processing facilities	One week after DEC issues permit to construct the in-Town facilities
13.	Award and execution of contract(s) for construction of the in-Town leaf and yard waste processing	Two to three months after release of plans and specifications for the in-Town facilities
14.	East End Recycling & Composting facility begins operation	Fall 1996
15.	Construction of in-Town leaf and yard waste processing facilities	6-9 months

6

Section Six

Section 6
Waste Reduction and Recycling Program

The cornerstone of the Town's SWMP is the development and implementation of an intensive waste reduction, source-separation recycling and **yard waste processing** program for an increasing number of materials. This will require amendment of the Town's mandatory source-separation law, as well as aggressive educational and enforcement actions. **The Town will hire a Recycling Coordinator during 1994 to manage its expanding waste reduction and recycling program.**

The following sections discuss the Town's proposed programs for waste reduction and for source separating, collecting, processing and marketing recyclable materials.

6.1 Waste Reduction

The Town is committed to focusing on waste reduction as an important component of its long-term solid waste management plan. Waste reduction at the commercial level occurs through the design, manufacture, and packaging of products with minimum toxic content, minimum volume of material, and/or a longer useful life. Excessive packaging, disposable products, and single service items comprise that portion of the waste stream which is most typically the target of waste reduction efforts. Waste reduction at the residential level, and to some extent at the commercial level as well, occurs through selective buying patterns and reuse of products and materials. Septage waste is the only material not susceptible to waste reduction. Table 6-1 provides a summary of the estimated solid waste generated after waste reduction has occurred. **Note that these figures do not represent waste to be disposed of; they reflect projected waste generation before recycling.** Waste reduction rates shown in Table 6-1 are based on the State goals of 10 percent waste reduction by 1997. The waste reduction goals identified by the State were uniformly applied to the total waste generation projections to reasonably estimate the quantity of materials that would be reduced if the goals are achieved. This projection was used so that the reduction of any material would not be biased by increased or decreased waste reduction estimates. This 10 percent waste reduction goal is to be achieved primarily through State initiatives to reduce the per capita generation of packaging waste.

In addition to its current educational programs that encourage home composting and consumer purchasing of environmentally sensitive products, the Town will continue its waste reduction initiatives through additional educational programs and legislation. As described below, the Town will enact additional local ordinances, provide financial incentives and

Table 6-1
Town of Southampton
Projected Waste Generation after Waste Reduction

Waste stream components and materials	1991 (tons)	1992 (tons)	1993 (tons)	1994 (tons)	1995 (tons)	1996 (tons)	1997 (tons)	1998 (tons)	1999 (tons)	2000 (tons)
Theoretical waste generated	96,070	96,830	97,590	98,360	99,100	100,040	100,990	101,950	102,920	103,900
Planned waste reduction	NA	5%	6%	7%	8%	9%	10%	10%	10%	10%
Source-separated recyclables										
Newspaper	4,476	4,285	4,273	4,261	4,247	4,241	4,234	4,274	4,315	4,356
Corrugated cardboard	11,381	10,896	10,865	10,834	10,798	10,782	10,765	10,867	10,970	11,075
Clear glass	2,883	2,760	2,753	2,745	2,736	2,731	2,727	2,753	2,779	2,806
Brown glass	607	581	580	578	576	575	574	580	585	591
Green glass	1,821	1,743	1,739	1,734	1,728	1,725	1,722	1,739	1,755	1,772
Steel cans	2,428	2,325	2,318	2,312	2,304	2,300	2,297	2,318	2,340	2,363
Bimetal cans	531	508	507	506	504	503	502	507	512	517
Aluminum cans	683	654	652	650	648	647	646	652	658	665
Office paper	3,869	3,705	3,694	3,684	3,671	3,666	3,660	3,695	3,730	3,765
HDPE bottles	531	508	507	506	504	503	502	507	512	517
PET bottles	76	73	73	72	72	72	72	73	73	74
Subtotal	29,286	28,039	27,961	27,881	27,788	27,746	27,701	27,964	28,230	28,499
Leaf/yard waste processing										
Leaf/yard waste	11,305	10,823	10,793	10,762	10,726	10,710	10,693	10,794	10,897	11,001
Other organic waste										
Contaminated paper	6,373	6,102	6,085	6,067	6,047	6,038	6,028	6,085	6,143	6,202
Food	6,221	5,956	5,939	5,923	5,903	5,894	5,884	5,940	5,997	6,054
Other organics	3,262	3,123	3,114	3,105	3,095	3,090	3,085	3,115	3,144	3,174
Subtotal	15,856	15,181	15,138	15,095	15,045	15,022	14,998	15,140	15,284	15,430
Direct Town Marketing										
White goods	1,366	1,308	1,304	1,300	1,296	1,294	1,292	1,304	1,316	1,329
Tires	152	145	145	144	144	144	143	145	146	148
Subtotal	1,517	1,453	1,449	1,445	1,440	1,438	1,435	1,449	1,463	1,477
Other waste recycling										
Textiles	1,745	1,671	1,666	1,661	1,656	1,653	1,651	1,666	1,682	1,698
Wood waste	2,883	2,760	2,753	2,745	2,736	2,731	2,727	2,753	2,779	2,806
Soil	1,214	1,162	1,159	1,156	1,152	1,150	1,148	1,159	1,170	1,181
Other paper	5,766	5,521	5,505	5,490	5,471	5,463	5,454	5,506	5,558	5,611
Other plastics	4,097	3,923	3,912	3,900	3,887	3,882	3,875	3,912	3,949	3,987
Other glass	1,214	1,162	1,159	1,156	1,152	1,150	1,148	1,159	1,170	1,181
Other metals	759	727	725	723	720	719	718	725	732	739
Other inorganics	228	218	218	217	216	216	216	218	220	222
Subtotal	17,906	17,144	17,096	17,047	16,990	16,965	16,937	17,098	17,261	17,425
Waste for private processing										
C&D waste	20,000	19,148	19,095	19,040	18,977	18,948	18,917	19,097	19,279	19,463
Septage	200	202	203	205	206	208	210	212	214	216
Subtotal	20,200	19,350	19,298	19,245	19,183	19,156	19,128	19,310	19,493	19,679
Remaining waste	96,070	91,989	91,735	91,475	91,172	91,036	90,891	91,755	92,628	93,510
Net waste reduction	0	4,842	5,855	6,885	7,928	9,004	10,099	10,195	10,292	10,390

Table 6-1
Town of Southampton
Projected Waste Generation after Waste Reduction

Waste stream components and materials	2001 (tons)	2002 (tons)	2003 (tons)	2004 (tons)	2005 (tons)	2006 (tons)	2007 (tons)	2008 (tons)	2009 (tons)	2010 (tons)
Theoretical waste generated	105,160	106,430	107,720	109,020	110,300	111,510	112,740	113,980	115,230	116,500
Planned waste reduction	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Source-separated recyclables										
Newspaper	4,409	4,462	4,516	4,570	4,624	4,675	4,726	4,778	4,831	4,884
Corrugated cardboard	11,209	11,344	11,482	11,620	11,757	11,886	12,017	12,149	12,282	12,418
Clear glass	2,840	2,874	2,909	2,944	2,978	3,011	3,044	3,078	3,111	3,146
Brown glass	598	605	612	620	627	634	641	648	655	662
Green glass	1,794	1,815	1,837	1,859	1,881	1,902	1,923	1,944	1,965	1,987
Steel cans	2,391	2,420	2,450	2,479	2,508	2,536	2,564	2,592	2,620	2,649
Bimetal cans	523	529	536	542	549	555	561	567	573	579
Aluminum cans	673	681	689	697	706	713	721	729	737	745
Office paper	3,811	3,857	3,904	3,951	3,997	4,041	4,086	4,131	4,176	4,222
HDPE bottles	523	529	536	542	549	555	561	567	573	579
PET bottles	75	76	77	78	79	79	80	81	82	83
Subtotal	28,845	29,193	29,547	29,903	30,254	30,586	30,924	31,264	31,607	31,955
Leaf/yard waste processing										
Leaf/yard waste	11,134	11,269	11,405	11,543	11,678	11,806	11,937	12,068	12,200	12,335
Other organic waste										
Contaminated paper	6,277	6,353	6,430	6,507	6,584	6,656	6,729	6,803	6,878	6,954
Food	6,127	6,201	6,276	6,352	6,427	6,497	6,569	6,641	6,714	6,788
Other organics	3,213	3,252	3,291	3,331	3,370	3,407	3,444	3,482	3,520	3,559
Subtotal	15,617	15,806	15,997	16,190	16,380	16,560	16,743	16,927	17,112	17,301
Direct Town Marketing										
White goods	1,345	1,361	1,378	1,394	1,411	1,426	1,442	1,458	1,474	1,490
Tires	149	151	153	155	157	158	160	162	164	166
Subtotal	1,495	1,513	1,531	1,549	1,568	1,585	1,602	1,620	1,638	1,656
Other waste recycling										
Textiles	1,719	1,739	1,761	1,782	1,803	1,822	1,843	1,863	1,883	1,904
Wood waste	2,840	2,874	2,909	2,944	2,978	3,011	3,044	3,078	3,111	3,146
Soil	1,196	1,210	1,225	1,240	1,254	1,268	1,282	1,296	1,310	1,325
Other paper	5,679	5,748	5,818	5,888	5,957	6,022	6,089	6,156	6,223	6,292
Other plastics	4,035	4,084	4,133	4,183	4,232	4,279	4,326	4,374	4,422	4,470
Other glass	1,196	1,210	1,225	1,240	1,254	1,268	1,282	1,296	1,310	1,325
Other metals	748	757	766	775	784	793	801	810	819	828
Other inorganics	225	227	230	233	236	238	241	243	246	249
Subtotal	17,636	17,849	18,066	18,284	18,498	18,701	18,908	19,116	19,325	19,538
Waste for private processing										
C&D waste	19,699	19,936	20,178	20,422	20,661	20,888	21,118	21,351	21,585	21,823
Septage	219	222	224	227	230	232	235	237	240	243
Subtotal	19,917	20,158	20,402	20,649	20,891	21,120	21,353	21,588	21,825	22,065
Remaining waste	94,644	95,787	96,948	98,118	99,270	100,359	101,466	102,582	103,707	104,850
Net waste reduction	10,516	10,643	10,772	10,902	11,030	11,151	11,274	11,398	11,523	11,650

disincentives to ensure enhancement of its solid waste management program, and expand school curriculum in an effort to develop waste reduction initiatives. The Town's efforts will be aimed at both the residential and commercial sectors in order to maximize waste reduction activities. To further reduce the amount of waste brought to Cell No. 3, tip fees at the facility have been increased significantly, further promoting the removal of recyclable materials from the landfilled waste stream. In 1989, the tip fee at the Landfill was $25 per ton. Currently, it stands at $60 per ton. As discussed in Section 3.3, waste reduction activities are intended to result in a ten percent reduction of waste by 1997.

6.1.1 Public Education

A critical element of any waste reduction program is the ongoing effort to educate the public on the importance of waste reduction and on methods of reducing waste produced. These educational and promotional efforts will be conducted together with the programs outlined in Section 6.7. Among the program elements will be waste reduction seminars for high school students. Specifically, these seminars will discuss consumer choices and environmental shopping, or in other words "precycling." Students will be made aware of the role of consumers in product choice and of the ability of consumers to reduce their waste generation through developing environmentally aware shopping habits.

A media campaign for public outreach and education has already been developed. The current media campaign, which was initiated in 1991, specifically includes a recycling suggestion contest, a recycling survey, and various fliers and brochures sent to all residents. Additional programs will be instituted to promote waste reduction through development of posters for distribution to schools, storefronts, and interested civic groups.

6.1.2 Financial Incentives and Disincentives

The possibility of tax credits and/or exemptions to companies and institutions that follow specific waste reduction or source separation procedures for manufacturing or consuming are currently being evaluated. These activities may be implemented if recommended as a viable waste reduction strategy.

By 1995, the Town will institute a system of volume-based (per-bag) tipping fees for waste brought to Town disposal facilities by self-haulers. This will create an economic incentive for individuals to reduce the quantity of waste they generate. In addition, the Town will increase the tipping fee paid by carters to dispose of solid waste, while maintaining the existing $60-per-ton charge for commingled recyclables and continuing to accept presorted recyclables free of charge. The carters will pass the increase in disposal costs along to their customers, creating an additional incentive for the cus-

tomers to generate less waste and to contract with carters who charge by volume.

6.1.3 Regulations

The Town's government can have a positive impact on the waste stream by adopting procurement procedures and practices that encourage waste reduction. The Town will implement a program that includes the following procurement procedures and practices as part of its waste reduction strategy:

- procurement preferences for recycled products;
- buying in bulk **and** using longer-life products (i.e., durable, not disposable);
- refurbishing and maintaining equipment (e.g., autos, office equipment, etc.)
- using two-sided copies in all offices.

The Town has begun to implement these practices and will continue them throughout the 20-year planning period. In addition, the New York State Environmental Facilities Corporation (NYSEFC) currently offers a waste auditing service to businesses. This service typically consists of site visits, waste audits, waste reduction recommendations, and recycling markets information. Through public education, technical assistance programs, and possible tax incentives, the Town will promote the use of the services available through the NYSEFC for local businesses and institutions.

Certain government bodies (such as Suffolk County, NY) have recently adopted policies or ordinances requiring the use of locally generated compost for County or local projects. The Town of Southampton will adopt a similar policy, requiring the use of compost generated by the Town **at its planned yard waste composting facilities and** in local government projects as conducted by the Departments of Public Works, Transportation, Parks and Recreation, or other government agencies.

6.2 Source Separated Recyclables

This section describes the program the Town has selected for source separation of the recyclable materials generated within the Town that will be marketed to private companies for processing.

6.2.1 Collection

The basic framework for collection of the source separated recyclables has been in place since 1988. Private carters collect cans, glass containers, bundled newspaper and cardboard at the curbside. In addition to these recyclables, the

Town's source separation laws mandate the separation of HDPE and PET plastics, aluminum, mixed paper, and junk mail. Refer to Appendix J for a copy of Chapter 205, Landfills, Transfer Stations and Scavenger Waste, of the Southampton Code. The Town will pursue implementation and enforcement of mandatory source separation laws to increase the recovery of recyclables.

With respect to enforcement, the Town dedicated more than 1300 man hours throughout 1993 to enforcing its solid waste laws. As of August 19, 1993, enforcement efforts were increased to approximately 56 man hours per week (or more than 2,900 hours on an annualized basis). Approximately 156 citations were issued by the Southampton Fire Marshall's Office, of which 19% were served on the commercial carting community, while the remaining 81% were issued to self-haulers. The Town received approximately $13,000.00 in fines, in addition to 170 hours of community service. Similar enforcement efforts will continue throughout the planning period. In adopting these mandatory recycling laws, the Town developed an operations program with its private carters to facilitate curbside collection and develop promotional materials to enhance the effectiveness of the program.

Self-haulers will continue to use the recyclables drop-off facilities located at North Sea, Hampton Bays and Westhampton Beach to deposit their recyclables. **A fourth dropoff facility will be established at Sag Harbor.** The drop-off facilities include roll-off containers for newspaper, cardboard, tin cans, glass, mixed plastics, office paper, tires, white goods, scrap metal, and waste oil. In an effort to further enhance its recycling program, the Town constructed an easy access, bi-level drop-off facility at the North Sea Landfill for both residential self-haulers and private carters to deposit recyclables.

Similarly, the Town recently added roll-off containers at each of its drop-off facilities for "junk mail" and other **mixed** paper products in an effort to continue increasing the Town's recycling rate. Through the Town's encouragement, many private carters have also agreed to add **mixed paper** to their curbside pickups. The addition of facilities for source separation of other components of the Town's waste stream will be evaluated and implemented as markets for such components become available.

6.2.2 Processing and Storage

The Town **does** not process any of the source-separated recyclables prior to marketing. The Town **markets** these source-separated recyclables to several business entities as well as through other municipal transfer operations. These entities include, but are not limited to: Island Recycling Corp., Pinnacle Industries, Brookhaven MRF, Gershaw Recycling, M&M Processors, Brookhaven Recycling Co., Oxford Tire Supply, EWG Glass Recovery and Recycling, and Strebles. The Town **acts** as a recycling cooperative by

marketing the recyclables collected in all the villages and unincorporated areas within Southampton.

All source separated recyclables that are either collected at the curbside or deposited at the drop-off facilities will be brought directly to market. Private carters will bring source separated recyclables collected at the curbside directly to market or to the Town's drop-off facilities, while the Town will transfer all the recyclables collected at its various drop-off facilities.

6.3 Source-Separated Leaf and Yard Waste

This section describes the program the Town has selected for source separation of leaf and yard waste that will be processed at the two yard waste processing facilities proposed by the Town.

6.3.1 Collection

Source separation of leaf and yard waste will be the responsibility of homeowners, landscapers, and other entities generating this type of waste. Local mandatory source separation laws have been amended to include leaf and yard waste. Once the leaf and yard waste is source-separated, the waste generator will place the leaf and yard waste out for collection. Self-haulers will continue to use the drop-off facilities to deposit their source-separated leaf and yard waste. Private carters will collect their customers' bagged leaf and yard waste at the curbside.

6.3.2 Processing and Storage

The Town plans to develop two yard waste processing facilities. One of the yard waste processing facilities will be located west of the Shinnecock Canal, and the other will be east of the Canal. In addition to processing yard waste from Southampton, one or both of the facilities may receive yard waste from at least one other Long Island town in an exchange agreement for use of a Long Island resource recovery facility. Therefore, the specific capacity of the yard waste processing facilities will depend on the details of possible exchange agreements.

At the yard waste processing facilities, leaves will be formed into windrows and composted. Woody yard waste will be shredded and formed into windrows for curing and aging to produce one or more mulch products. Finished compost and mulch will be stored on site in piles prior to pickup by users or shipment to application sites. For a description of the proposed yard waste processing facilities, based on an assumed facility capacity of a maximum of 15,000 tons per year (tpy) each, see Appendix G. See also Sections 6.10, 7 and 9 for a discussion of potential impacts, technologies and site selection, respectively.

6.4 Commercial Sector Recycling

This section describes the Town's implementation approach for initiating a successful commercial sector recycling effort. The commercial sector includes commercial, institutional, and non-hazardous industrial waste generators. To date, there has been no formal means of tracking commercial recycling program progress, as each establishment generally markets source separated materials directly. However, it is known that large quantities of commercial sector corrugated cardboard, office paper, and C&D waste have been consistently recycled on an ongoing basis, without passing through Town controlled transfer operations.

6.4.1 Collection

Under the Town's integrated solid waste management program, individual commercial establishments will be responsible for segregating recyclables in accordance with the proposed mandatory source separation laws. However, the collection of the commercial sector recyclables will remain the responsibility of private carters throughout the 20-year planning period. Individual commercial establishments, along with their carters, will remain responsible for establishing the collection procedures for the recyclables. Recyclables will be consolidated and stored on-site until collected by the private carter. Private carters may choose to use any form of collection suited to their needs (i.e., compartmentalized collection vehicles, compactor trucks, etc.).

6.4.2 Audit and Management System

The Town is not planning to require all commercially generated recyclables to be collected and transferred to the Town's proposed facility. However, the Town does plan to manage the commercial sector wastes through various measures. As a first step, Town enforcement efforts will be intensified. Stiff fines will be imposed on those individuals and establishments that do not comply with the Town's mandatory source-separation laws. An audit system will be instituted to track commercial sector recycling efforts. All commercial establishments and private carters must provide the Town with weight receipts for all materials that are segregated and marketed directly. This will provide the Town with information on the quantity of materials being recycled in commercial and industrial establishments.

To encourage commercial sector recycling, technical assistance, program promotion, and recognition awards will be offered to individual establishments. Recycling seminars will be held for local businesses. These seminars will provide commercial establishments with technical assistance in program development, implementation, vendor/market services, and employee education/program promotion. Awards will be offered to individuals and/or businesses whose recycling efforts have been shown to be

exemplary. This will provide recognition and positive reinforcement to those establishments which are conducting successful recycling activities. The program will also serve to promote recycling activities and successes.

6.5 Materials Recovery

The **quantities of recyclable materials and yard waste** that can be recovered from the waste stream after waste reduction have been estimated through a recovery rate analysis. This analysis encompasses estimating the quantity of materials that are likely to be recovered from the Town's waste stream as a result of the Town's proposed integrated solid waste management program. Historical tonnage information for all materials recycled, composted, and processed from 1987 through 1991 was used to determine initial recovery rates and the rate of increase throughout the twenty-year planning period. Because substantial and complete data for comparable aggressive materials recovery programs do not exist at this time, various assumptions have been made in order to generate the Town's future recovery rates. These assumptions include:

- Implementation of all activities according to the schedule provided in Section 10.
- Private sector recycling will increase steadily due to expanded promotional efforts and continued strong markets for recyclable materials, particularly for office paper and cardboard.
- The commercial and industrial establishments will be attracted to recycling as a result of competitive market forces in conjunction with competitively priced municipal disposal and recycling services, public education, and technical assistance programs.
- Effective enforcement of mandatory source-separation laws will occur.
- Market demand will economically justify the recovery of all targeted materials.

Although the New York State Legislature set planning objectives for municipalities in terms of percent reduction and recycling, satisfaction of such goals should not result in municipal complacency. Therefore, refinements to the Town's SWMP **have** resulted in significantly greater reduction and recycling percentages. The recovery rate projections presented in Table 6-2 provide an "educated guess", based on the best current data available, for the types of solid waste contained in Southampton's overall waste stream that can be reused, recovered, or composted (whether or not feasible at this time) during the projected planning period. Given the use of assumptions and accompanying uncertainty, these projections should be viewed as nothing

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	1991 Quantity generated (tons)	1991 Recovery rate	1991 Quantity recovered (tons)	1992 Quantity generated (tons)	1992 Recovery rate	1992 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,476	38.5%	1,725	4,285	46.3%	1,982
Corrugated cardboard	11,381	7.8%	890	10,896	15.6%	1,704
Clear glass	2,883	16.0%	460	2,760	32.0%	883
Brown glass	607	14.8%	90	581	29.6%	172
Green glass	1,821	15.9%	290	1,743	31.8%	554
Steel cans	2,428	6.8%	165	2,325	17.0%	395
Bimetal cans	531	7.5%	40	508	18.7%	95
Aluminum cans	683	6.6%	45	654	16.5%	108
Office paper	3,869	0.3%	10	3,704	12.9%	479
HDPE bottles	531	33.9%	180	508	37.4%	190
PET bottles	76	33.0%	25	73	33.0%	26
Subtotal	29,286	13.4%	3,920	28,039	23.5%	6,588
Leaf/yard waste processing						
Leaf/yard waste	11,305	31.8%	3,600	10,824	41.4%	4,481
Other organic waste						
Contaminated paper	6,373	0.0%	0	6,102	0.0%	0
Food	6,221	0.0%	0	5,956	0.0%	0
Other organics	3,262	0.0%	0	3,123	0.0%	0
Subtotal	15,856	0.0%	0	15,181	0.0%	0
Direct Town marketing						
White goods	1,366	64.1%	875	1,308	70.5%	922
Tires	152	92.1%	140	146	92.8%	135
Subtotal	1,518	66.9%	1,015	1,453	72.7%	1,057
Other waste recycling						
Textiles	1,745	0.0%	0	1,671	5.0%	84
Wood waste	2,883	0.0%	0	2,760	10.0%	276
Soil	1,214	0.0%	0	1,162	5.0%	58
Other paper	5,766	0.0%	0	5,520	15.0%	828
Other plastics	4,097	0.0%	0	3,923	10.0%	392
Other glass	1,214	0.0%	0	1,162	10.0%	116
Other metals	759	1.3%	10	727	20.0%	145
Other inorganics	228	50.5%	115	218	55.6%	121
Subtotal	17,906	0.7%	125	17,143	11.8%	2,021
Waste for private processing						
C&D waste	20,000	75.0%	15,000	19,148	75.0%	14,361
Septage	200	0.0%	0	202	0.0%	0
Subtotal	20,200	74.3%	15,000	19,350	74.2%	14,361
Total or overall	96,070	24.6%	23,660	91,989	31.0%	28,508
Waste stream summary						
Disposal by Town (tons)		67,210			58,492	
Overall recycling rate		24.6%			31.0%	
Waste reduction rate		NA			5%	
Total reduction/recycling rate		24.6%			36.0%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	1993 Quantity generated (tons)	1993 Recovery rate	1993 Quantity recovered (tons)	1994 Quantity generated (tons)	1994 Recovery rate	1994 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,273	60.1%	2,569	4,261	72.1%	3,074
Corrugated cardboard	10,866	31.3%	3,399	10,835	46.9%	5,084
Clear glass	2,753	48.0%	1,321	2,745	52.8%	1,449
Brown glass	580	44.3%	257	578	48.8%	282
Green glass	1,739	47.7%	829	1,734	52.5%	910
Steel cans	2,318	34.0%	788	2,312	37.4%	864
Bimetal cans	507	37.5%	190	506	41.3%	209
Aluminum cans	652	33.0%	215	650	36.3%	236
Office paper	3,694	32.3%	1,193	3,683	48.5%	1,785
HDPE bottles	507	41.0%	208	506	43.1%	218
PET bottles	73	33.0%	29	72	33.0%	30
Subtotal	27,961	39.3%	10,998	27,881	50.7%	14,141
Leaf/yard waste processing						
Leaf/yard waste	10,793	53.8%	5,809	10,763	59.2%	6,371
Other organic waste						
Contaminated paper	6,085	0.0%	0	6,067	0.0%	0
Food	5,939	0.0%	0	5,923	0.0%	0
Other organics	3,114	0.0%	0	3,105	0.0%	0
Subtotal	15,138	0.0%	0	15,095	0.0%	0
Direct Town marketing						
White goods	1,304	77.5%	1,011	1,300	81.4%	1,058
Tires	145	93.0%	135	145	93.3%	135
Subtotal	1,449	79.1%	1,146	1,445	82.6%	1,193
Other waste recycling						
Textiles	1,666	15.0%	250	1,661	30.0%	498
Wood waste	2,753	20.0%	551	2,745	30.0%	823
Soil	1,159	12.5%	145	1,156	25.0%	289
Other paper	5,505	36.0%	1,982	5,489	54.0%	2,964
Other plastics	3,912	25.0%	978	3,900	40.0%	1,560
Other glass	1,159	25.0%	290	1,156	37.5%	433
Other metals	725	44.6%	323	723	66.9%	483
Other inorganics	218	61.1%	133	217	67.2%	146
Subtotal	17,096	27.2%	4,651	17,047	42.2%	7,198
Waste for private processing						
C&D waste	19,095	75.0%	14,321	19,040	75.0%	14,280
Septage	203	0.0%	0	205	0.0%	0
Subtotal	19,298	74.2%	14,321	19,245	74.2%	14,280
Total or overall	91,735	40.3%	36,925	91,475	47.2%	43,183
Waste stream summary						
Disposal by Town (tons)		49,833			43,327	
Overall recycling rate		40.3%			47.2%	
Waste reduction rate		6%			7%	
Total reduction/recycling rate		46.3%			54.2%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	1995 Quantity generated (tons)	1995 Recovery rate	1995 Quantity recovered (tons)	1996 Quantity generated (tons)	1996 Recovery rate	1996 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,247	75.7%	3,217	4,241	76.5%	3,244
Corrugated cardboard	10,799	51.6%	5,574	10,782	54.2%	5,843
Clear glass	2,736	55.5%	1,517	2,731	58.2%	1,590
Brown glass	576	51.2%	295	575	53.9%	310
Green glass	1,728	55.1%	952	1,725	57.8%	998
Steel cans	2,304	41.1%	948	2,300	43.2%	994
Bimetal cans	504	45.5%	229	503	47.7%	240
Aluminum cans	648	40.0%	259	647	41.9%	271
Office paper	3,671	58.2%	2,135	3,666	61.1%	2,238
HDPE bottles	504	45.3%	228	503	45.7%	230
PET bottles	72	33.0%	32	72	33.0%	32
Subtotal	27,788	55.4%	15,386	27,746	57.6%	15,990
Leaf/yard waste processing						
Leaf/yard waste	10,727	62.2%	6,667	10,710	62.8%	6,724
Other organic waste						
Contaminated paper	6,047	0.0%	0	6,038	0.0%	0
Food	5,903	0.0%	0	5,894	0.0%	0
Other organics	3,095	0.0%	0	3,090	0.0%	0
Subtotal	15,045	0.0%	0	15,022	0.0%	0
Direct Town marketing						
White goods	1,296	82.2%	1,065	1,294	83.0%	1,074
Tires	144	93.6%	135	144	93.7%	135
Subtotal	1,440	83.3%	1,200	1,438	84.1%	1,209
Other waste recycling						
Textiles	1,656	45.0%	745	1,653	49.5%	818
Wood waste	2,736	48.0%	1,313	2,731	52.8%	1,442
Soil	1,152	40.0%	461	1,150	44.0%	506
Other paper	5,471	64.8%	3,545	5,463	71.3%	3,895
Other plastics	3,887	44.8%	1,742	3,882	47.0%	1,824
Other glass	1,152	41.3%	476	1,150	43.3%	498
Other metals	720	70.2%	506	719	70.9%	510
Other inorganics	216	70.6%	153	216	71.3%	154
Subtotal	16,990	52.6%	8,940	16,964	56.9%	9,648
Waste for private processing						
C&D waste	18,977	75.0%	14,233	18,948	75.0%	14,211
Septage	206	0.0%	0	208	0.0%	0
Subtotal	19,183	74.2%	14,233	19,156	74.2%	14,211
Total or overall	91,172	50.9%	46,426	91,036	52.5%	47,782
Waste stream summary						
Disposal by Town (tons)		39,796			38,309	
Overall recycling rate		50.9%			52.5%	
Waste reduction rate		8%			9%	
Total reduction/recycling rate		58.9%			61.5%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	1997 Quantity generated (tons)	1997 Recovery rate	1997 Quantity recovered (tons)	1998 Quantity generated (tons)	1998 Recovery rate	1998 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,234	77.3%	3,272	4,274	78.1%	3,336
Corrugated cardboard	10,765	56.9%	6,126	10,867	57.5%	6,246
Clear glass	2,727	61.1%	1,667	2,753	64.2%	1,767
Brown glass	574	56.6%	325	580	59.4%	344
Green glass	1,722	60.7%	1,046	1,739	63.8%	1,109
Steel cans	2,297	45.4%	1,042	2,318	45.8%	1,062
Bimetal cans	502	48.2%	242	507	48.5%	246
Aluminum cans	646	44.0%	284	652	44.5%	290
Office paper	3,660	64.1%	2,346	3,694	64.7%	2,392
HDPE bottles	502	46.2%	232	507	46.5%	236
PET bottles	72	33.0%	32	73	33.0%	33
Subtotal	27,701	60.0%	16,614	27,964	61.0%	17,061
Leaf/yard waste processing						
Leaf/yard waste	10,693	63.4%	6,780	10,795	64.0%	6,913
Other organic waste						
Contaminated paper	6,028	0.0%	0	6,085	0.0%	0
Food	5,884	0.0%	0	5,940	0.0%	0
Other organics	3,085	0.0%	0	3,115	0.0%	0
Subtotal	14,998	0.0%	0	15,140	0.0%	0
Direct Town marketing						
White goods	1,292	83.8%	1,083	1,304	84.7%	1,105
Tires	144	93.9%	135	145	93.7%	136
Subtotal	1,436	84.8%	1,218	1,449	85.6%	1,241
Other waste recycling						
Textiles	1,651	52.0%	858	1,666	54.6%	910
Wood waste	2,727	55.4%	1,511	2,753	55.7%	1,533
Soil	1,148	46.2%	531	1,159	46.7%	541
Other paper	5,454	74.8%	4,080	5,506	75.6%	4,162
Other plastics	3,875	47.5%	1,841	3,912	48.0%	1,878
Other glass	1,148	43.7%	502	1,159	44.2%	512
Other metals	718	71.3%	512	725	71.7%	520
Other inorganics	216	72.0%	155	218	72.4%	158
Subtotal	16,937	59.0%	9,989	17,098	59.7%	10,214
Waste for private processing						
C&D waste	18,917	75.0%	14,188	19,097	75.0%	14,323
Septage	210	0.0%	0	212	0.0%	0
Subtotal	19,128	74.2%	14,188	19,310	74.2%	14,323
Total or overall	90,891	53.7%	48,789	91,755	54.2%	49,752
Waste stream summary						
Disposal by Town (tons)		37,163			37,016	
Overall recycling rate		53.7%			54.2%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		63.7%			64.2%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	1999 Quantity generated (tons)	1999 Recovery rate	1999 Quantity recovered (tons)	2000 Quantity generated (tons)	2000 Recovery rate	2000 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,315	78.8%	3,400	4,356	79.6%	3,467
Corrugated cardboard	10,971	58.0%	6,363	11,075	58.6%	6,490
Clear glass	2,779	64.8%	1,801	2,806	65.5%	1,838
Brown glass	585	62.3%	365	591	63.0%	372
Green glass	1,755	64.4%	1,130	1,772	65.1%	1,154
Steel cans	2,340	46.3%	1,084	2,363	46.7%	1,103
Bimetal cans	512	49.1%	251	517	49.6%	256
Aluminum cans	658	44.9%	296	665	45.4%	302
Office paper	3,730	65.4%	2,439	3,765	66.1%	2,489
HDPE bottles	512	47.1%	241	517	47.3%	244
PET bottles	73	45.8%	34	74	46.0%	34
Subtotal	28,230	61.6%	17,403	28,499	62.3%	17,749
Leaf/yard waste processing						
Leaf/yard waste	10,897	64.7%	7,053	11,001	65.4%	7,190
Other organic waste						
Contaminated paper	6,143	0.0%	0	6,202	0.0%	0
Food	5,997	0.0%	0	6,054	0.0%	0
Other organics	3,144	0.0%	0	3,174	0.0%	0
Subtotal	15,284	0.0%	0	15,430	0.0%	0
Direct Town marketing						
White goods	1,317	85.6%	1,127	1,329	86.4%	1,149
Tires	147	94.1%	138	148	94.2%	139
Subtotal	1,463	86.5%	1,265	1,477	87.2%	1,288
Other waste recycling						
Textiles	1,682	55.1%	927	1,698	55.7%	946
Wood waste	2,779	56.0%	1,556	2,806	56.3%	1,580
Soil	1,170	47.1%	551	1,181	47.4%	560
Other paper	5,558	76.3%	4,241	5,611	77.1%	4,326
Other plastics	3,949	48.2%	1,904	3,987	48.5%	1,934
Other glass	1,170	44.4%	520	1,181	44.6%	527
Other metals	732	72.0%	527	739	72.4%	535
Other inorganics	220	72.8%	160	222	73.1%	162
Subtotal	17,260	60.2%	10,385	17,425	60.7%	10,569
Waste for private processing						
C&D waste	19,279	75.0%	14,459	19,463	75.0%	14,597
Septage	214	0.0%	0	216	0.0%	0
Subtotal	19,493	74.2%	14,459	19,679	74.2%	14,597
Total or overall	92,628	54.6%	50,565	93,510	55.0%	51,393
Waste stream summary						
Disposal by Town (tons)		37,029			37,035	
Overall recycling rate		54.6%			55.0%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		64.6%			65.0%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	2001 Quantity generated (tons)	2001 Recovery rate	2001 Quantity recovered (tons)	2002 Quantity generated (tons)	2002 Recovery rate	2002 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,409	80.4%	3,544	4,462	81.2%	3,623
Corrugated cardboard	11,209	59.2%	6,636	11,345	59.8%	6,784
Clear glass	2,840	66.1%	1,877	2,874	66.8%	1,920
Brown glass	598	63.6%	380	605	64.2%	388
Green glass	1,794	65.7%	1,178	1,815	66.4%	1,205
Steel cans	2,391	47.2%	1,129	2,420	47.7%	1,154
Bimetal cans	523	50.1%	262	529	50.6%	268
Aluminum cans	673	45.8%	308	681	46.3%	315
Office paper	3,811	66.7%	2,542	3,857	67.4%	2,599
HDPE bottles	523	47.5%	248	529	47.8%	253
PET bottles	75	46.3%	35	76	46.5%	35
Subtotal	28,845	62.9%	18,140	29,193	63.5%	18,546
Leaf/yard waste processing						
Leaf/yard waste	11,135	66.0%	7,349	11,269	66.6%	7,510
Other organic waste						
Contaminated paper	6,277	0.0%	0	6,353	0.0%	0
Food	6,127	0.0%	0	6,201	0.0%	0
Other organics	3,213	0.0%	0	3,252	0.0%	0
Subtotal	15,617	0.0%	0	15,806	0.0%	0
Direct Town marketing						
White goods	1,345	87.3%	1,175	1,362	88.1%	1,200
Tires	150	94.3%	141	152	94.4%	143
Subtotal	1,495	88.0%	1,316	1,513	88.7%	1,343
Other waste recycling						
Textiles	1,719	56.2%	966	1,739	56.8%	988
Wood waste	2,840	56.6%	1,607	2,874	56.8%	1,632
Soil	1,196	47.6%	569	1,210	47.8%	578
Other paper	5,679	77.9%	4,424	5,748	78.7%	4,523
Other plastics	4,035	48.7%	1,965	4,084	49.0%	2,001
Other glass	1,196	44.8%	536	1,210	45.1%	546
Other metals	748	72.7%	543	757	73.1%	553
Other inorganics	225	73.5%	165	227	73.8%	168
Subtotal	17,636	61.1%	10,776	17,849	61.6%	10,990
Waste for private processing						
C&D waste	19,699	75.0%	14,774	19,936	75.0%	14,952
Septage	219	0.0%	0	222	0.0%	0
Subtotal	19,917	74.2%	14,774	20,158	74.2%	14,952
Total or overall	94,644	55.3%	52,354	95,787	55.7%	53,341
Waste stream summary						
Disposal by Town (tons)		37,147			37,241	
Overall recycling rate		55.3%			55.7%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		65.3%			65.7%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	2003 Quantity generated (tons)	2003 Recovery rate	2003 Quantity recovered (tons)	2004 Quantity generated (tons)	2004 Recovery rate	2004 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,516	82.0%	3,703	4,570	82.8%	3,784
Corrugated cardboard	11,482	60.4%	6,935	11,621	61.0%	7,089
Clear glass	2,909	67.5%	1,963	2,944	67.8%	1,996
Brown glass	612	64.9%	397	620	65.5%	406
Green glass	1,837	67.0%	1,231	1,859	67.7%	1,259
Steel cans	2,450	48.1%	1,178	2,479	48.6%	1,205
Bimetal cans	536	51.1%	274	542	51.6%	280
Aluminum cans	689	46.7%	322	697	47.2%	329
Office paper	3,903	68.1%	2,658	3,951	68.7%	2,714
HDPE bottles	536	48.0%	257	542	48.2%	261
PET bottles	77	46.7%	36	78	47.0%	36
Subtotal	29,547	64.2%	18,955	29,903	64.7%	19,359
Leaf/yard waste processing						
Leaf/yard waste	11,406	67.3%	7,674	11,543	68.0%	7,849
Other organic waste						
Contaminated paper	6,430	0.0%	0	6,507	0.0%	0
Food	6,276	0.0%	0	6,352	0.0%	0
Other organics	3,291	0.0%	0	3,331	0.0%	0
Subtotal	15,997	0.0%	0	16,190	0.0%	0
Direct Town marketing						
White goods	1,378	89.0%	1,227	1,395	89.9%	1,254
Tires	153	94.5%	145	155	94.6%	147
Subtotal	1,532	89.6%	1,371	1,550	90.4%	1,401
Other waste recycling						
Textiles	1,761	57.4%	1,011	1,782	57.9%	1,032
Wood waste	2,909	57.1%	1,661	2,944	57.4%	1,690
Soil	1,225	48.1%	589	1,240	48.3%	599
Other paper	5,817	79.7%	4,636	5,888	80.2%	4,722
Other plastics	4,133	49.2%	2,034	4,183	49.4%	2,067
Other glass	1,225	45.3%	555	1,240	45.5%	564
Other metals	766	73.5%	563	775	73.8%	572
Other inorganics	230	74.2%	171	233	74.6%	174
Subtotal	18,065	62.1%	11,219	18,283	62.5%	11,418
Waste for private processing						
C&D waste	20,178	75.0%	15,134	20,422	75.0%	15,316
Septage	224	0.0%	0	227	0.0%	0
Subtotal	20,402	74.2%	15,134	20,649	74.2%	15,316
Total or overall	96,948	56.1%	54,353	98,118	56.4%	55,344
Waste stream summary						
Disposal by Town (tons)		37,326			37,442	
Overall recycling rate		56.1%			56.4%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		66.1%			66.4%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	2005 Quantity generated (tons)	2005 Recovery rate	2005 Quantity recovered (tons)	2006 Quantity generated (tons)	2006 Recovery rate	2006 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,624	83.7%	3,870	4,675	84.5%	3,950
Corrugated cardboard	11,757	61.6%	7,243	11,886	62.2%	7,393
Clear glass	2,978	68.1%	2,028	3,011	68.5%	2,063
Brown glass	627	66.2%	415	634	66.8%	423
Green glass	1,881	68.4%	1,287	1,902	69.1%	1,314
Steel cans	2,508	49.1%	1,232	2,536	49.6%	1,258
Bimetal cans	549	52.1%	286	555	52.6%	292
Aluminum cans	706	47.7%	337	713	48.1%	343
Office paper	3,997	69.4%	2,774	4,041	70.1%	2,833
HDPE bottles	549	48.5%	266	555	48.7%	270
PET bottles	79	47.2%	37	79	47.4%	38
Subtotal	30,254	65.4%	19,774	30,586	66.0%	20,177
Leaf/yard waste processing						
Leaf/yard waste	11,679	68.6%	8,016	11,807	69.4%	8,189
Other organic waste						
Contaminated paper	6,584	0.0%	0	6,656	0.0%	0
Food	6,427	0.0%	0	6,497	0.0%	0
Other organics	3,370	0.0%	0	3,407	0.0%	0
Subtotal	16,380	0.0%	0	16,560	0.0%	0
Direct Town marketing						
White goods	1,411	90.8%	1,281	1,427	91.7%	1,308
Tires	157	94.7%	149	159	94.8%	150
Subtotal	1,568	91.2%	1,430	1,585	92.0%	1,459
Other waste recycling						
Textiles	1,803	58.2%	1,049	1,822	58.5%	1,066
Wood waste	2,978	57.7%	1,719	3,011	58.0%	1,746
Soil	1,254	48.6%	610	1,268	48.8%	619
Other paper	5,957	80.6%	4,801	6,022	81.0%	4,878
Other plastics	4,232	49.7%	2,104	4,279	49.9%	2,135
Other glass	1,254	45.8%	574	1,268	46.0%	583
Other metals	784	74.2%	582	793	74.6%	591
Other inorganics	236	75.0%	177	238	75.3%	179
Subtotal	18,498	62.8%	11,615	18,701	63.1%	11,798
Waste for private processing						
C&D waste	20,661	75.0%	15,496	20,888	75.0%	15,666
Septage	230	0.0%	0	232	0.0%	0
Subtotal	20,891	74.2%	15,496	21,120	74.2%	15,666
Total or overall	99,270	56.7%	56,331	100,359	57.1%	57,289
Waste stream summary						
Disposal by Town (tons)		37,544			37,616	
Overall recycling rate		56.7%			57.1%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		66.7%			67.1%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	2007 Quantity generated (tons)	2007 Recovery rate	2007 Quantity recovered (tons)	2008 Quantity generated (tons)	2008 Recovery rate	2008 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,726	85.4%	4,036	4,778	86.2%	4,119
Corrugated cardboard	12,017	62.9%	7,559	12,150	63.5%	7,715
Clear glass	3,044	68.8%	2,094	3,078	69.2%	2,130
Brown glass	641	67.5%	433	648	68.2%	442
Green glass	1,923	69.4%	1,334	1,944	69.8%	1,357
Steel cans	2,564	50.1%	1,284	2,592	50.6%	1,312
Bimetal cans	561	53.2%	298	567	53.7%	304
Aluminum cans	721	48.6%	351	729	49.1%	358
Office paper	4,085	70.8%	2,892	4,130	71.5%	2,953
HDPE bottles	561	49.0%	275	567	49.2%	279
PET bottles	80	47.7%	38	81	47.9%	39
Subtotal	30,924	66.6%	20,595	31,264	67.2%	21,007
Leaf/yard waste processing						
Leaf/yard waste	11,937	70.1%	8,366	12,068	70.7%	8,535
Other organic waste						
Contaminated paper	6,729	0.0%	0	6,803	0.0%	0
Food	6,569	0.0%	0	6,641	0.0%	0
Other organics	3,444	0.0%	0	3,482	0.0%	0
Subtotal	16,743	0.0%	0	16,927	0.0%	0
Direct Town Marketing						
White goods	1,442	92.6%	1,336	1,458	93.6%	1,365
Tires	161	94.9%	152	162	95.0%	154
Subtotal	1,603	92.8%	1,488	1,621	93.7%	1,519
Other waste recycling						
Textiles	1,843	58.8%	1,083	1,863	59.1%	1,101
Wood waste	3,044	58.3%	1,775	3,078	58.6%	1,804
Soil	1,282	49.0%	628	1,296	49.3%	639
Other paper	6,088	81.5%	4,962	6,155	81.9%	5,041
Other plastics	4,326	50.2%	2,172	4,374	50.4%	2,204
Other glass	1,282	46.2%	592	1,296	46.4%	601
Other metals	801	74.9%	600	810	75.3%	610
Other inorganics	241	75.7%	182	243	76.1%	185
Subtotal	18,907	63.4%	11,995	19,115	63.7%	12,186
Waste for private processing						
C&D waste	21,118	75.0%	15,839	21,351	75.0%	16,013
Septage	235	0.0%	0	237	0.0%	0
Subtotal	21,353	74.2%	15,839	21,588	74.2%	16,013
Total or overall	101,466	57.4%	58,283	102,582	57.8%	59,260
Waste stream summary						
Disposal by Town (tons)		37,669			37,747	
Overall recycling rate		57.4%			57.8%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		67.4%			67.8%	

Table 6–2
Town of Southampton
Material Recovery Projections

Waste stream components and materials	2009 Quantity generated (tons)	2009 Recovery rate	2009 Quantity recovered (tons)	2010 Quantity generated (tons)	2010 Recovery rate	2010 Quantity recovered (tons)
Source–separated recyclables						
Newspaper	4,831	87.1%	4,208	4,884	87.9%	4,293
Corrugated cardboard	12,283	64.1%	7,873	12,418	64.8%	8,047
Clear glass	3,111	69.5%	2,162	3,146	69.8%	2,196
Brown glass	655	68.9%	451	662	69.5%	460
Green glass	1,965	70.1%	1,378	1,987	70.5%	1,401
Steel cans	2,620	51.1%	1,339	2,649	51.6%	1,367
Bimetal cans	573	54.2%	311	579	54.8%	318
Aluminum cans	737	49.6%	366	745	50.1%	373
Office paper	4,176	72.2%	3,015	4,222	73.0%	3,082
HDPE bottles	573	49.5%	284	579	49.7%	288
PET bottles	82	48.2%	40	83	48.4%	40
Subtotal	31,607	67.8%	21,426	31,955	68.4%	21,865
Leaf/yard waste processing						
Leaf/yard waste	12,201	71.4%	8,716	12,335	72.2%	8,901
Other organic waste						
Contaminated paper	6,878	0.0%	0	6,954	0.0%	0
Food	6,714	0.0%	0	6,788	0.0%	0
Other organics	3,520	0.0%	0	3,559	0.0%	0
Subtotal	17,112	0.0%	0	17,301	0.0%	0
Direct Town marketing						
White goods	1,474	94.5%	1,393	1,490	95.5%	1,423
Tires	164	95.1%	156	166	95.2%	158
Subtotal	1,638	94.6%	1,549	1,656	95.5%	1,581
Other waste recycling						
Textiles	1,883	59.4%	1,119	1,904	59.7%	1,137
Wood waste	3,111	58.9%	1,833	3,146	59.2%	1,862
Soil	1,310	49.5%	649	1,325	49.8%	660
Other paper	6,223	82.3%	5,121	6,292	82.7%	5,203
Other plastics	4,422	50.7%	2,242	4,470	50.9%	2,275
Other glass	1,310	46.7%	612	1,325	46.9%	621
Other metals	819	75.7%	620	828	76.1%	630
Other inorganics	246	76.5%	188	249	76.9%	191
Subtotal	19,325	64.1%	12,383	19,538	64.4%	12,580
Waste for private processing						
C&D waste	21,585	75.0%	16,189	21,823	75.0%	16,367
Septage	240	0.0%	0	243	0.0%	0
Subtotal	21,825	74.2%	16,189	22,065	74.2%	16,367
Total or overall	103,707	58.1%	60,263	104,850	58.5%	61,294
Waste stream summary						
Disposal by Town (tons)		37,808			37,858	
Overall recycling rate		58.1%			58.5%	
Waste reduction rate		10%			10%	
Total reduction/recycling rate		68.1%			68.5%	

more than educated estimates. However, the Town considers these estimates as their recovery rate goals for the entire planning period.

The results of this analysis, as summarized in Table 6-2, reveal that the Town should be able to achieve substantial recovery rates for various key elements of its program. Total reduction/recycling rate goals are 26 percent in 1991, 47 percent in 1993, 54 percent in 1994, and 59 percent and 68 percent in 1995 and 2010, respectively.

A comparative analysis of Table 3-7, Historical Solid Waste Quantities and Table 6-2 shows that for the years 1991 to 1993, the Town's recycling performance has been consistent with its goals. After factoring out: 1) C&D waste and septage waste processed, because there was no reliable data in 1992 and 1993; 2) leaf and yard waste recovered in 1991, because Hurricane Bob skewed the numbers; and 3) grass clippings in 1993, because they were banned from disposal at Town facilities and thus were no longer accounted for in the Town's scale house records, the adjusted recycling goals and actual rates for 1991 to 1993 are as follows:

	Goal	Actual
1991	7.8%	10.0%
1992	21.0%	17.1%
1993	20.1%	20.0%

When recycling is maximized in the Town, approximately 90 percent of the newspapers, white goods, and tires in Southampton's waste stream are expected to be recovered. Glass, corrugated cardboard, office paper, leaf and yard wastes, other uncontaminated paper, and certain metals and inorganics should be recoverable at a 60 to 80 percent range. Recovery of metal cans and plastic is restricted to the 40 to 50 percent range largely due to material contamination. Numerous types of metal cans and plastics are cross contaminated with other materials of construction (e.g., cans with metal alloys that cannot be recycled and plastic products consisting of other materials incompatible with plastics recycling). Other more difficult to recover materials include textiles and wood. These materials are often reused for other purposes and become contaminated and unfit for recycling (e.g., newspaper used for pet care and textiles used for automobile care). These materials are expected to be recovered at a 30 to 50 percent rate. Additionally, it is estimated that approximately 75 percent of the C&D debris generated within the Town will be recycled throughout the planning period.

The following provides a description of the proposed recovery programs for the major waste stream components that were used to develop the recovery rate projections.

- Corrugated/Office/Computer Paper: These materials will generally be handled by private sector recycling. Steady increases are anticipated due to intensive public education and technical assistance from the Town to private haulers. It is assumed that the implementation of a reporting system and an increase in Town enforcement efforts will cause significant increases through 1997.

- Newspaper: Since newspaper is already recycled at high levels, smaller increases in recovery rates are assumed after 1994. Such increases will be the result of increased enforcement of Southampton's mandatory recycling laws and public education.

- Books/Magazines and Other Paper: Recovery of these components is expected to be less than the recovery rates associated with other types of paper (i.e., ONP, OCC, etc.) because these components are often more difficult to segregate and more likely to contain contaminants.

- Metal/Glass/Plastic: These materials will be handled by both Town and private sector recycling. Steady increases are anticipated due to ongoing public education and increased enforcement of the Town's mandatory recycling laws.

- Wood/Tires/Textiles/White Goods: Recovery of these materials will experience continued growth due to promotion of drop-off facilities and enforcement of mandatory source separation.

- Yard Waste: Expanded awareness and enforcement of leaf and yard waste collection will cause moderately increasing rates for the yard waste category throughout the planning period.

- C&D Debris: Recovery of C&D debris is expected to remain constant throughout the planning period because of the long-standing ban on this material from the Landfill and effective private recycling efforts.

- HHW: HHW includes materials such us batteries, used oil, paint, and other toxic household materials. The Town's STOP program and facility located at the North Sea Landfill have facilitated the recovery of HHW materials since early 1991. Increases in recovery rates are expected during the project planning period due to public education and possible future enforcement.

The "Other Waste Recycling" categories in Table 6-2 represent an estimate of materials recycled by private entities, not by the Town, through source separation programs as a result of the Town's public education and awareness programs.

6.6 Materials Marketing

This section updates the available market information for recyclables and compost on and around Long Island. As a result of a telephone survey conducted during February 1991, existing markets located on Long Island and in the greater New York Metropolitan Area were identified. This information includes market locations, material specifications, unit prices, transportation requirements, market services offered, and projected market trends. Other relevant market considerations presented in this section include the processing requirements to satisfy various market specifications. Information regarding available recycling markets is essential for the proper design and implementation of the Town's integrated solid waste management program. Only by producing material acceptable to local or regional markets can the Town maximize the potential value of its recycling program.

It is essential to remember, however, that although a number of markets currently exist for the designated recyclable material generated within the Town, market price and volume fluctuations can affect recycling economics. Markets for recyclable material have traditionally been unstable since these markets reflect international fluctuations in demand for raw materials, domestic and foreign economic conditions, economics of competing raw materials, and the availability of recycled materials. Thus, the Town will retain flexibility, continue market research to identify alternative markets for recyclable materials, and adjust its recycling program accordingly.

6.6.1 Market Survey

The goal of the markets survey was to gather accurate information on possible market specifications and to identify which specifications are common for each material. The survey provided information on market services that may be available, the ability of these markets to accept the projected quantities of recyclable materials generated within the Town, and the delivery and transportation options that may be available to the Town. With respect to each market contacted, information regarding contract preference, plans for expansion and opinions on future market trends were obtained.

Markets were initially identified through a variety of sources including market listings from the New York State Department of Economic Development (NYSDED), local information available through the Town, telephone directory listings and information from industry journals. Appendix K contains the list of potential materials markets which were surveyed.

As the Town requested, the NYSDED provided a list of various markets existing on or around Long Island for a variety of materials including various grades of paper, OCC, glass, plastics, metals, batteries, textiles, C&D debris (including wood and bulky items), tires, white goods, used oil and compost. These "markets" include brokers, processors and end users. The NYSDED

provided additional information on the materials such as end use of some materials and what types of material these markets may prefer. This information is provided as Appendix L.

Experience has shown that buyers of recyclables, particularly brokers, frequently enter and exit the marketplace. As such, this market survey was not an attempt to develop an exhaustive list of all potential markets, but rather to identify key purchasers in the region who are likely to be purchasing recyclables in the near future. These purchasers fall into two basic categories: end-users (mills and manufacturers) and major brokers/processors who broker materials to overseas markets and domestic end-users. Brokers and processors typically purchase unprocessed material, whereas end-users typically purchase materials processed after collection. Purchasers in the tri-state area were preferred. However, for some materials, particularly for tin cans, it was necessary to expand the study area to contact end-users. An attempt was made to contact at least ten markets (if ten were identified) for each material to obtain a broad spectrum of information on potential market requirements.

The Town is currently engaged in a highly successful and comprehensive materials marketing effort. The following 15 categories of materials are marketed on a spot-market basis by the Town: office paper, OCC, low grade newspaper, high grade newspaper, scrap metal, No. 1 steel, cast iron, commercial aluminum, mixed color glass, mixed plastics, mixed cans, mixed glass, waste oil, tires and textiles. None of these materials are currently processed prior to shipment to market.

6.6.2 Market Survey Results

Overall the market survey was successful and informative. Although a few potential buyers were unresponsive, most contacts were enthusiastic about the possibility of accepting materials from the Town. Many contacts were not prepared to provide detailed responses because they typically determine marketing arrangements on a case-by-case basis after consideration of specific factors affecting each arrangement. Therefore, many were unprepared to respond to general survey questions in detail. For example, when asked about material processing requirements and associated revenues, many contacts would not elaborate on specific processing requirements and prices stating that, due to the changing nature of these issues, a specific answer may not apply in the future. Others preferred to discuss specifics during actual contract negotiations. Since this survey was generally concluded with one phone call, the results are not meant to be used as a direct comparison of the contacted companies.

The following material markets were reviewed as part of the survey:

- Glass
- Tin Cans
- Batteries
- Wood

- Aluminum
- Plastic
- Newspaper
- Old Corrugated Containers (OCC)
- Other Paper Grades
- Waste Oil
- Tires
- Textiles
- Construction & Demolition (C&D) debris and other bulky items
- Compost

A summary of the potential market services that may be available for each of these materials is presented in Table 6-3. Table 6-3 also provides the various processing requirements necessary to meet the material quality specifications identified through the survey. Appendix K provides the complete results of the market survey. Descriptions that summarize the marketability of each recyclable material are provided below.

Glass - Ten potential markets were surveyed to discuss glass marketing. Most of these markets required the glass to be color separated into clear, green and amber categories. The highest prices quoted were for clear glass (up to $55 per ton) followed by green (up to $40 per ton) and amber (up to $40 per ton). Another requirement was that contaminants such as ceramics, tar, concrete, etc. be thoroughly removed.

Many of the markets contacted wanted the glass broken with no beneficiation, since they preferred to remove the neckrings and caps themselves in order to make the glass furnace-ready. However, one unbiased contact from the New Jersey Glass Recycling Association offices reported that there are manufacturers in the area who may pay significantly higher prices for glass that is furnace-ready (beneficiated). The highest prices quoted represent the markets that want the glass beneficiated. It was reported by some brokers that glass manufacturers were very particular about the quality of incoming glass they receive and may reject whole shipments if they find trace contamination.

Tin Cans - All together, seven prospective tin can markets were successfully contacted. Two of these were detinning companies, three were steel mills, and the remaining two were processors. Although one detinning market would accept the various ferrous cans flattened, both detinning companies specified the material to be baled with a density of 35 to 50 pounds per cubic foot (lbs/cf) and that no processing other than removing contaminants would be required. This contrasts with the steel mills that wanted higher density bales (70 to 75 lbs/cf) or material that was shredded, densified or briquetted. Prices ranged from a low of $20 per ton up to $70 per ton. The highest prices offered were for baled cans.

The detinners were very enthusiastic to secure new sources of tin cans and to discuss market services, long-term contracts and prices. Their specifications require a minimal amount of processing of the material prior to marketing, yet prices are competitive with revenues of the steel mills. One detinning

Table 6–3
Summary of
Material Quality Requirements

Material	Material Quality Requirements	Number of Markets (1)	Quoted Revenue ($/ton)
Aluminum	1. Cans only, flattened, loose, no contaminants	6	400 to 700
	2. Cans only, baled, no contaminants	4	760 to 1000
	3. Aluminum foil only, baled (may be loose)	1	200 to 400
	4. Aluminum siding alone, baled	1	810
	Total contacted	8	
Batteries	1. Mixed household batteries	1	variable
	2. Auto batteries only, loose or on skids, 3 high with cardboard in between each one, bound	6	0.0325 to 0.085
	Total contacted	7	
Glass bottles	1. Color sorted into clear, green, and amber, no ceramics and either:		
	A. Caps, neck rings but labels acceptable	7	10 to 35
	B. No caps or neck rings but labels acceptable (furnace ready cullet)	3	10 to 55
	2. Mixed colors, may include other materials	2	−20 to −26
	Total contacted	10	
Newspaper	1. Baled (various densities), PS−86 grades 6,7,8	16	0 to 25
	2. Loose, no brown grades, Sunday inserts acceptable	5	−3 to 5
	Total contacted	17	
O.C.C.	1. Baled, flat sheet, clean, PS−86 grade 11, no contaminants	13	25 to 43
	2. Loose, clean PS−86 grade 11	5	0 to 20
	Total contacted	17	
Other paper grades	1. Baled or loose and either:		
	A. Mixed PS−86 grade 1	2	−13
	B. 'Blend pack', no groundwood, window envelopes, or kraft paper	1	30
	C. Office paper with glossy magazines and junk mail, no brown bags	1	0
	D. Various high quality office grades	11	1 to 230
	E. Mixed post consumer	1	−50
	F. Chip board only	1	−40
	Total contacted	15	
Plastics	1. Mixed and either:		
	A. All resin types, baled	2	variable
	B. Milk and soda bottles only, 12.5 lb/cf, 750 lb bale 3'x4'x5'	2	50 to 120
	2. Resin sorted and, if required, baled:		
	A. Clear PET	4	120 to 200
	B. Green PET	4	0 to 140
	C. Mixed PET	10	140 to 220
	D. Milk containers (HDPE) only	4	0 to 220
	E. Mixed color HDPE	10	0 to 220
	F. PVC	7	0 to 300
	G. LDPE	5	0 to 220
	H. Polystyrene	4	500 (approx)
	3. Granulated, resin sorted containers	1	200
	Total contacted	15	
Tin cans	1. Baled and either:		
	A. 35−50 lb/cf, bimetal and aerosol cans acceptable, paper labels acceptable, no precleaning needed	2	70
	B. 75 lb/cf, 2'x3'x4' bale	2	62 to 67
	2. Flattened, no precleaning needed, bimetal and aerosol cans acceptable	1	55
	3. Densified, residues and labels acceptable	1	65
	4. Shredded, separated, clean	1	55
	5. Nuggetized, separated, clean	1	55
	6. Briquetted, separated, clean	1	45
	7. Loose, separated	1	
	Total contacted	7	

Table 6–3
Summary of
Material Quality Requirements

Material	Material Quality Requirements	Number of Markets (1)	Quoted Revenue ($/ton)
Tires	1. Whole tires w/rims, tubes, truck tire flaps, other rubber tires	1	80
	2. Passenger tire only, no rims, good inner casings, no punctures	1	NA
	3. Passenger and truck tires w/ or w/out rims	2	95
	4. Passenger tires w/out rims	1	76
	Total contacted	5	
Textiles	1. Baled, loose, or bundled	2	40 to 100
	2. All natural fiber cutoffs, no post consumer	1	800
	3. Baled second hand clothing, paired socks. No stockings, handbags, shoes, belts or plastic jackets.	2	140 to 170
	Total contacted	5	
C & D debris (2)	1. Mixed C & D waste	3	variable
	2. White goods, furniture, rugs, appliances & other items	1	variable
	Total contacted	2	
Waste oil	1. All types of waste oil, no antifreeze	7	0 to 0.20/gal
	2. Antifreeze only	2	0.72 to 0.91/gal
	Total contacted	7	
Wood	1. Broken pallets, clean wood, no yard waste	4	−7 to −7.5/cy
	2. Loose or baled yard waste and stumps	1	−6/cy
	Total contacted	5	

Notes:
(1) The number of markets does not add up to the total contacted because some of the contacted markets accepted materials in more than or
(2) Includes construction and demolition (C&D) and other waste items like white goods, furniture, rugs, and other appliances

Source: Malcolm Pirnie Inc. market surveys

company reported that they have a broker in New York City who will accept the tin cans for them (this market also expressed an interest in taking newspaper, OCC, aluminum and plastic from the Town). Prices quoted for these other materials were competitive with other local markets.

In discussing the future of recycling tin cans, the general impression received from the markets contacted is that the detinning industry is likely to expand in the future to handle the growing amount of recycled tin cans being marketed while the steel industry will stabilize its demand for this type of scrap tin. Since the detinners have the ability to recover tin and make a scrap steel that can satisfy most steel mills' requirements, their product may be more marketable to the industry than an operation which can only produce tin-coated cans. Because of this advantage, many contacts believe that detinners may be the focal point of tin can recycling in the future.

Aluminum - Eight markets for aluminum were successfully contacted in the tri-state area. Six of the contacts accepted cans flattened and loose with no contaminants. It is not certain as to the percentage of contaminants that will be accepted in the aluminum since a minor amount of contamination is inherent in processing. These aluminum markets currently accept MRF aluminum. The two aluminum manufacturers contacted have also reported willingness to supply market services including the lease of equipment such as flattened can storage and transport containers, and to execute long term contracts. Four of the contacted markets would accept baled material. Some of the markets contacted reportedly accept other types of aluminum such as foil and siding. The prices for these forms are less than for cans but still represent a high return value.

Of the various materials to be marketed by the Town, aluminum will probably generate the highest unit revenue. Prices ranged from an estimated $760 to $1,000 per ton for picked-up baled aluminum cans, $400 to $700 for loose cans, up to $810 for aluminum siding and from $200 to $400 for aluminum foil. The markets contacted who wanted the aluminum baled quoted the highest prices.

Plastic - Fifteen plastic markets were successfully contacted on and around Long Island. When contacted, these buyers were asked to provide information on all resin types they process. Higher unit revenues were reported when the plastics were separated into various resins (i.e., PET and HDPE), although two markets expressed an interest in mixed plastics. Soda bottles comprise most of the PET found in the waste stream and milk bottles comprise most of the HDPE. The recent survey conducted produced several markets that were interested in accepting PVC, LDPE and polystyrene (PS). This new market acceptance is in contrast to market information from previous years, which indicated that few if any markets had historically accepted this resin.

The markets that were interested in resins other than PET and HDPE reported that they only purchase post-industrial plastic scrap. A few indicated possible interest in post-consumer PVC, PS and LDPE, but were concerned that, since even trace amounts of contamination can render the material unrecyclable, separation of these resins through curbside collection may not be feasible at this time.

Union Carbide has expressed interest in taking polyethylene-based resins (PET, HDPE, LDPE, LLDPE) film along with PET and HDPE containers. The materials would have to be segregated, with all three types being sold to Union Carbide.

With the exception of one market that required the plastics to be granulated, most markets preferred the plastics to be baled, although some would accept them loose. Since only one market for granulated product was found in the area and the prices quoted here were similar to other quotes, this market type does not appear to be an attractive option at this time.

One relatively new market type was presented by Polymerex in New Jersey. This company will accept separated and mixed plastics and make plastic lumber for products such as fences. The mixed plastics can contain milk and soda bottles as well as other plastics such as butter tubs, detergent bottles, bags, and food containers. This option of mixed plastics requires a minimum amount of processing and may be more viable in the future if other markets similar to Polymerex expand in this area. Polymerex recommended that the PET soda bottles be separated out of the plastic waste stream to maximize revenue for this resin or for their redemption value, and the remainder, including HDPE milk bottles, be commingled. If the HDPE fraction were removed, the remaining mixed plastics would not be acceptable to them. This market may represent an attractive option if a wide range of plastics come in from the curbside collection programs in the Town. Polymerex is planning another facility to be constructed in upstate New York. It is noted, however, that most brokers expressed strong reservations about the mixed plastics market, citing the standing necessity to segregate resins and the limited markets for plastic lumber.

One market contacted in New York City and not included in the Material Market Survey Summary Tables in Appendix K was Recycled Plastics Products (RPP). It is reported by RPP that due to New York City regulations they were prohibited from accepting plastics used as food containers. Other New York City markets did not express these concerns.

As with the other markets, most of the contacts surveyed would not discuss market services in any detail. Contacts reported a willingness to provide such services but the extent of these vary widely from contact to contact.

Newspaper - Twenty-two potential paper markets were able to respond to the survey questions and seventeen expressed an interest in newspaper. Most newspaper markets require the paper to be baled and sorted with bale weights ranging from 1,200 lbs to 2,000 lbs, although some would accept either baled or loose newspaper. The degree to which sorting was required varied according to the industry specification standard "Paper Stock Standards and Practices - Circular PS-86" published by the Paper Stock Institute of America. The highest prices quoted ($25 per ton) were for Grade 8 news or "Special News De-Ink Quality". The lowest grade of news acceptable would have to conform to the specifications under Grade 6 "News". This lowest grade of newspaper would still require some sorting since no more than 5 percent of it may consist of other papers. The one exception to this was Laidlaw Resources in Ontario, Canada, which reported accepting baled news with up to 35 percent magazines included. The revenues for this grade ranged from a low of costing $3 per ton to take the material to a high of $25 per ton paid with both prices including transportation.

Some markets stated that sometimes they may have to charge their suppliers to accept Grade 6 newspaper because it may cost them to dispose of it at certain times of the year. This negative revenue condition, most markets feel, is due to a market glut and most contacts believe that this condition may end in the near future. This lower grade of news may be more acceptable in the future as more mills are entering the market and the competition is increasing.

Old Corrugated Containers (OCC) - Seventeen markets were interested in OCC. Most of them specified that the material be baled though some would accept it loose. Some of the contacted markets wanted the OCC in high density bales which are of export quality. This export option is important as international customers may have limited natural resources and are apparently reluctant to pay for higher priced raw materials. Though only specifically mentioned by one respondent, the OCC will probably have to meet the "Paper Stock Standards and Practices - Circular PS-86" Grade 11 (corrugated containers) specifications to maximize its marketability. Prices ranged from a low of $10 per ton to a high of $43 per ton delivered.

Other Paper Grades - Fifteen markets were interested in accepting paper other than ONP or OCC. One mill, Marcal Paper in Elmwood Park, NJ, required the paper to consist primarily of office paper with glossy magazines and junk mail but no brown grades such as phone books or newspapers. Two brokers accepted baled office waste which consists of all types of paper and corresponds to the PS-86 Grade 1. One broker accepted a baled 'Blend Pack" which consisted of office waste with no ground wood paper, plastic window envelopes or kraft paper. One broker/processor, Westbury Paper Co., expressed an interest in accepting various grades of other paper. In addition to accepting high grades of office paper and OCC they also accepted mixed post-consumer paper for a charge of $50 per ton, and chipboard (paperboard)

that was highly separated for a charge of $40 per ton. Many markets contacted were willing to pay higher prices for homogeneous materials such as computer paper, white ledger etc. The prices for these materials range from costing $10 or $20 per ton for low quality mixed office paper up to a high of generating $230 per ton for some of the above mentioned separated high grades.

A few brokers reported that they are now paying to dispose of their own mixed paper waste. However, a few brokers reportedly have heard that new mills that would accept mixed waste paper exclusively are being planned. An outlet for mixed waste paper including junk mail, chipboard, brown grades, etc., without sortation would be an important step since mixed paper represents a large portion of the municipal waste stream.

Textiles - Five markets were successfully contacted for textiles, four in the local area (Bronx and Brooklyn, NY) and one in Philadelphia, PA. Two of the local markets were not specific as to their exact material requirements. One accepted only wool from industrial suppliers. The remaining two markets were able to provide more specific details on the materials they accept. It appears that the most marketable textiles will consist of baled second hand clothing with little or no contamination with other discarded items. Prices for this material ranged up to a high of $170 per ton. Most of the contacts were willing to enter into a contract and to provide some type of market services. Other outlets for textiles which were not a part of this survey include goodwill or community service organizations such as the Salvation Army, local church groups or homeless shelters.

Oil - Seven markets were contacted in and around the Long Island area. All of the markets wanted the waste oil separated from other contaminants such as anti-freeze. Waste oil may consist of gear, hydraulic, transmission and motor oils but not nonautomotive oils or thinners. Two of the markets would accept anti-freeze and pay up to $50 per 55-gallon drum for it. Waste oil prices ranged from no charge up to charging 20 cents per gallon. Many markets were willing to provide some type of services and contract.

Batteries - Six battery markets were contacted in the Tri-state area and one in Texas. One local market accepted mixed household batteries and the remaining six accepted auto batteries only. Revenue for the household batteries varies according to how much of the mix is recoverable. The auto batteries could either be bound on a skid or loose. Auto batteries revenue ranged from 3.25 cents to 8.5 cents per pound usually based on a trailer load basis. Many markets were willing to provide transportation and some type of contract.

Wood - Five markets were surveyed for wood. Four accepted what is referred to as "dimensional wood," originating from pallets, C&D waste, etc. Only one

market accepted yard waste and stumps. Charges to accept this material were $6 per cubic yard for yard waste and stumps and $7 to $7.50 per cubic yard for dimensional wood. No specifications other than requiring the dimensional wood to be free of yard waste and other materials were reported for this material. Yard waste and stumps could be delivered loose or baled. Four of the markets were willing to provide either containers and/or transportation and all were willing to enter into a contract.

Tires - Five markets were successfully contacted for used tires. Two markets accepted car and truck tires with or without rims for a price of up to $95 per ton. One market wanted good condition passenger car tires which could be remolded into new tires. Prices for these were unavailable at the time of contact. This market does not represent a viable one for the Town as the market reported a rejection rate of up to 90 percent of the tires they inspect. Another market accepted whole tires (any type) with rims for a revenue of $80 per ton and the last market wanted only passenger car tires without rims for a revenue of $76 per ton. Most markets were willing to enter into a contract and two reported a willingness to provide market services.

Compost - An important aspect of any composting program is finding end-users (i.e., markets) for the product. Unlike markets for recyclables, the marketing network for compost is relatively new and less established. The potential exists for marketing of the compost product to local farmers and commercial establishments such as landscaping companies, sod farms, golf courses, nurseries, cemeteries, and garden centers. Alternately, local residents or government agencies, primarily the Departments of Public Works, Transportation, and Parks and Recreation are often able to use locally-generated compost if it is given away free of charge. Some government bodies (such as Suffolk County), are adopting policies or ordinances requiring the use of compost for government projects. Additionally, the compost product may be suitable as daily or top cover for sanitary landfills, in accordance with NYSDEC regulations for landfills. It is anticipated that the compost product produced by the Town's **yard waste processing facilities** will be largely marketed to Town or County agencies and to local residents. Commercial compost markets will be solicited only if additional market outlets are required.

6.6.3 Market Development and Additional Sources of Information

In addition to the available markets identified in this Section, the Town will engage in efforts to encourage additional market development. Market development efforts will allow the Town to develop and pursue additional avenues of recycling, composting, and reuse which are not currently available.

For example, several communities outside of the Town are evaluating the potential for using glass or rubber as components in asphalt for road repairs and/or paving. The Town can encourage the development of these or other

marketing options for recyclables by sponsoring pilot programs, research and development projects, or by working with manufacturers and producers to encourage other potential future markets currently in developmental stages. Additionally, efforts to revise procurement policies favoring products made from recycled products will help to expand markets for them. The State's procurement law, GML §103, requires that only low bids be accepted. However, Chapter 70 of the Laws of 1988 mandates that New York State agencies are to purchase recycled paper even if the comparable recycled products cost up to ten percent more than paper made from virgin fiber. State law also permits local governments to adopt similar policies for the purchase of paper products. Several municipalities, including New York City, have established policies for a 10-percent price preference for recycled products when awarding bids for the provision of goods. The Town will consider action to establish a similar price preference procurement policy for paper and possibly other recycled materials.

Market information is also available through the following sources:

- The NYSDED provides free market information and materials marketing advice for recyclables in and around New York State. The NYSDED provides marketing assistance for both municipalities and for-profit businesses. The NYSDED was contacted and its most recent market listing for the Long Island region was requested. The market list, as obtained from the NYSDED, is presented in Appendix L. The Town will contact potential markets on this list as needed in the future to supplement its existing marketing efforts. In addition, the "Status of the Markets", published by the NYSDED, is available free of charge to municipalities and local recycling businesses. This document provides updated markets information for various types of materials.

- Industry trade associations are often useful sources of information regarding markets for industry-specific materials, such as paper, glass, plastic, or metals.

6.7 Public Education and Promotion

An effective public education and promotion program is critical to the success of any recycling effort. The residents and commercial establishments separating their recyclable materials must understand where and when the recyclable materials will be collected and how the recyclable materials must be prepared so that they are marketable. In general, recycling program efforts should strive to achieve two main purposes: first, to obtain high participation rates; and second, to keep those rates high. The campaign should be comprised of both project promotion and public education. These two elements should be designed to be integrated with project implementation efforts. Activities that fall under the broad heading of promotions are usually

short-term and involve imparting specific information to a wide audience. On the other hand, education programs aim to instill lasting change and tend to be aimed at long-term communication channels such as school curricula, business policies, and community standards. An overview of the promotional and educational activities planned for the Town's recycling program is provided in the following paragraphs.

6.7.1 Education

The Town is planning to conduct seminars for high school students in areas such as "new age" environmental buying habits, overpackaging problems, "precycling" efforts, hazardous household products alternatives, and other appropriate issues as they arise. The Town will continue to cooperate with teachers in exploring recycling opportunities within the classroom. To assist the commercial establishments in implementing recycling programs to comply with mandatory recycling laws, educational seminars will be conducted for local businesses. The Town will also have business community contacts for continuous assistance and recycling education.

The Town also sponsors a television program about recycling. "The Recycling Show" airs on channel 25, from 6:00 to 7:00 p.m. on Tuesday evenings. It is a "how to" show featuring information on waste reduction, source separation, recycling and reuse, and composting. The program is educational and reaches a wide audience. It can also be videotaped for subsequent use in the classroom.

6.7.2 Promotion

To promote source separation of recyclables, the Town will make recycling containers available upon request to all residents. To promote backyard composting, the Town will make available upon request home composting kits. The availability of the composting kits will be advertised through appropriate means.

The following are brief descriptions of some promotional materials that have been developed:

- Brochures: The Town has prepared two brochures. The first, "How to Participate in Southampton Town's Mandatory Recycling Program," is a comprehensive brochure on the Town's waste management and recycling program. The second brochure is entitled "How to Compost at Home". This brochure provides step-by-step instructions on how to build and maintain a compost pile around your home or business. The brochure describes the importance of home and business composting and how it interacts with the Town's recycling program.

Town will shift personnel within its existing workforce from current duties to recycling operations to the extent practical. Additional personnel will be hired only if required.

6.9 Procurement Practices

As a market participant, the Town may have some influence in the market place to expand the use of recyclables in manufacturing by developing a procurement policy favorable to products made from recyclables. If local, state and federal governments implement such a policy, it is anticipated that increasing demand for finished products made from recyclables will in time increase demand for the "raw" recyclables, thereby closing the recycling loop.

Significant efforts in this direction have already been initiated by the Town Board. Recycled paper is used for letter head at the Town Hall. Other recyclable materials that could be targeted include recycled asphalt and crushed glass which can be used as aggregate in new asphalt for Town roads, and, if good quality products become available, this could also include retread tires and recycled motor oil for the Town vehicles. Other recycled products may also become available.

The Town has taken several steps towards implementing a favorable recycled products procurement policy. Town Board resolution No. 1061 establishes the Town policy to purchase, wherever the price is reasonably competitive and the quality adequate for the purpose intended, products with recycled content. Materials specifications are being reviewed and modified to remove prejudicial requirements that favor virgin materials. The Town has established the policy to require that wherever products with a significant recycled content are available they be specified for use or purchase in Town procurement specifications. The New York State Legislature has adopted a similar policy. Chapter 70 of the Laws of 1988 mandates that State agencies are to purchase recycled paper even if the comparable recycled product costs up to ten percent more than paper made from virgin fiber.

6.10 Funding Sources

Funding of recycling equipment and operational activities can be achieved through a combination of sources. Available options include, but are not limited to:

- Public Funds: The extent to which recycling activities can be funded or financed through other sources will ultimately determine the amount of the Town funds required to finance the recycling program. Monies to fund recycling activities, among other solid waste projects, are generated through the tipping fees charged for the use of the Town's disposal facilities. However, the Town anticipates the issuance of General Obligation Bonds for financing the design, construction and operation of

the yard waste processing facilities. The Town will be responsible for making debt service payments on the bonds issued. Details of the financing arrangements will be developed during vendor negotiations.

- Private Sector Investment: The Town will pursue private sector investment as a means of reducing its financial burden in project development.

- Local Resource Reuse and Recovery Program (LRRRP): The Town will seek funding from the NYSDEC's LRRRP grant program, which provides grants for promotional and educational efforts associated with recycling activities and programs.

- New York State Environmental Facilities Corporation (EFC): The EFC provides technical and financial assistance to industries and municipalities for environmental regulations and projects. Technical assistance is provided through project design, implementation, and information. Financial assistance is provided through low interest loans backed by EFC special obligation revenue bonds. There are generally no set upper limits on the amount of these types of loans, which have repayment periods of up to 40 years.

- Solid Waste Management Act of 1988: This Act provided a substantial amount of money to State agencies and municipalities to design and implement solid waste management plans and projects.

The Town will explore each of these potential sources of funding to determine the exact amounts of money available, the terms of grants or loans, application procedures, and what items are eligible for financial assistance.

6.11 Environmental Impacts

6.11.1 Potential Environmental Impacts

Development of a yard waste processing system, while providing an environmentally sound waste disposal system, has the potential to adversely affect other environmental resources. These potential impacts are discussed below.

Air Quality

Yard waste processing operations can generate suspended particulate matter and fugitive dust from size reduction, windrow turning, and screening operations.

Water Supply

Substantial quantities of water are required to achieve and maintain a moisture content of about 50 percent for the composting mass. This level of moisture is

generally considered optimum for composting of leaf and yard waste. **Use of a windrow turner to turn the windrows regularly after snowfall or prolonged rain generally eliminates the need for a separate water supply for moisture addition or maintenance.**

Wastewater Disposal

Other than treatment and/or disposal of washdown water, composting operations generally require no wastewater disposal capacity.

6 NYCRR Section 360-5.5 governs operational requirements for yard waste composting facilities. Section 360-5.5(c) reads, "drainage must be controlled to prevent leachate run-off from the site. Surface water drainage must be diverted away from the compost site." Subsection (b) indicates that groundwater monitoring may be required for compost areas located on soils with a coefficient of permeability greater than $4x10^{-3}$ centimeters per second (cm/sec).

Noise

Noise is generated at yard waste processing facilities by rolling stock and by windrow turners, tub grinders, and shredding/screening equipment.

Odors

Malodorous gases will be generated if aerobic conditions are not maintained in the composting mass.

Public Health

Leaf and yard waste composting would not pose health hazards to the general public. A 1994 report by the New York State Department of Health on Aspergillus fumigatus emissions from the Islip composting facility concluded that although elevated levels of aspergillus fumigatus were associated with the composting facility, the facility was not linked to allergy or asthma symptoms reported in the neighborhood. The report recommended that composting facilities not be sited "close to hospitals or health care facilities where extreme precautions are being taken to prevent infection of severely immuno-compromised patients, unless bioaerosol emissions can be controlled" (NYSDOH 1994).

Traffic

Traffic from the construction of yard waste processing facilities would be minimal. Traffic during the operation of the facility would consist of collection vehicles, autos, and trucks delivering wastes to the site and of vehicles of

various design removing **finished products** and process residues from the operation. The exact traffic impacts would be influenced by the quantities of wastes to be processed, design of traffic patterns, and location of the facility.

Land Use and Aesthetics

Yard waste processing operations are industrial/commercial operations utilizing vegetative waste materials. The feedstock has characteristics that are similar to those of agricultural crops. The **finished products have** properties similar to products sold by horticultural businesses. The aforementioned characteristics of leaf and yard waste composting operations make such operations compatible with a number of other operations, including nurseries, agricultural operations, and soil suppliers, as well as other types of waste treatment facilities. The integration of yard waste composting operations into surrounding compatible land uses can be affected by proper design of the operation and by suitable setbacks.

6.11.2 Unavoidable Environmental Impacts

This section discusses those environmental impacts which cannot be avoided in **yard** waste processing systems.

Unavoidable environmental impacts associated with the implementation of yard waste **processing facilities** would include short term construction impacts and the commitment of resources for construction and operation activities. Construction of a facility may create short term impacts such as noise, fugitive dust, and soil erosion. Measures will be incorporated into the overall construction and operation plan to ensure all potential adverse impacts are mitigated to the greatest degree feasible.

6.11.3 Irreversible and Irretrievable Commitment of Resources

To a modest extent, development of **yard** waste processing facilities will result in minor loss of environmental resources; however, the overall effect is considered small. The short and long-term resources affected by development of a **yard waste processing** facility are identified below.

Resources expended during the implementation of yard waste **processing facilities** would include land utilized for site development and energy and financial resources utilized during both construction and operation phases of project implementation. In addition, the commitment of a labor force would be required during the construction phase. However, the development of such a facility would also result in reduction of landfill requirements and would reduce the consumption of natural resources **for mulching and soil improvement.**

6.11.4 Mitigating Measures

The following mitigating measures are methods that may be utilized to lessen the environmental impacts that may be associated with the development of a yard waste composting facility.

Construction Impacts

Emissions of fugitive dust during construction would be minimized by applying water to any areas that may be potential sources of dust. A soil erosion control plan will be developed to reduce the potential for erosion during construction activities. Where appropriate, hay bales, silt fences, and vegetation will be used to aid in erosion control. Traffic impacts during construction would be short term in nature and can be minimized by careful planning and scheduling.

Air Quality

The following measures would be used to mitigate impacts from particulate emissions and fugitive dust:

- Paving the most heavily traveled parts of the site
- Keeping material in the windrows moist by turning the windrows after snow or prolonged rain
- Minimizing contamination of the yard waste with dust and dirt
- Maintaining a buffer area around the active processing areas.

Water Quality

Short term impacts to water quality may occur as a result of increased runoff and construction of a facility. However, steps would be taken through the development and implementation of a soil erosion and sediment control plan to prevent undue siltation and erosion during facility construction.

Noise

Noise generated during construction and operation of a yard waste composting facility would be controlled by using vibration control and attenuation techniques. Low noise producing equipment would be utilized where appropriate and equipment would be maintained in proper operating condition. Control of vehicular traffic on the site would also lessen the potential noise emissions. A buffer would also be incorporated in overall site development plans to help reduce the potential for off site noise impacts.

Odors

Odor impacts from the two proposed yard waste processing facilities would be mitigated by maintaining aerobic conditions in the composting material. The following specific measures would be used to minimize the potential for odor generation:

- **The sites would be graded to prevent ponding of stormwater among the windrows.**
- **The windrows would be turned regularly to reaerate the composting material and to "fluff" the material to reestablish air passages through the windrows.**
- **Oxygen levels in the windrows would be monitored to indicate when turning is required.**

Traffic

While traffic impacts are site specific and therefore somewhat unknown, the likely traffic load would include bulk deliveries from the various Town drop-off centers, and as such would not involve large numbers of vehicles. However, a truck routing plan would take into consideration all potential impacts associated with facility operations. Some private automobiles and small trucks as well as large collection vehicles and large trucks would visit the site. The routing plan would address methods of minimizing traffic on and near the site.

Impact Conclusion

With proper design and operation and implementation of the mitigation measures described above, no significant environmental impacts are expected to result from development of the yard waste composting facilities described in the Town's proposed plan.

6.11.5 Growth Inducing Aspects

The implementation of a materials recovery facility and yard waste processing facilities is not expected to have any growth inducing aspects. The implementation of such a project provides an environmentally sound method of solid waste management that is a necessary service required by the community.

6.11.6 Use and Conservation of Energy

The energy usage of yard waste **processing facilities** is influenced by the amount of waste processed, the types of equipment employed, and the manner of operation of the facilities. The **facilities would produce** a compost product that serves as a soil amendment. The energy used to produce the compost displaces a portion of that used to acquire virgin high quality soil resources. Additionally, compost serves to upgrade marginal soils, thus improving their capacity to increase crop yields. Similar yields normally would require application of chemical agents and nutrients, each requiring energy resources for their production and application.

7

Section Seven

Section 7
Muncipal Solid Waste Processing Systems

In order to develop a long-term solid waste management program in accordance with the previously described (Section 5.0) NYSDEC hierarchy, the selected system must utilize a combination of techniques and programs which compliment each other to manage the entire waste stream. As discussed in Section 3.0, the waste stream can be divided into distinct components. The best management practice or disposal method for one component in the waste stream may not be the best for all components within the waste stream. Therefore, the best disposal method involves developing an integrated combination of methods. For example, as discussed in Section 6, recycling is an existing essential part of the Town's solid waste management system. However, recycling alone cannot fulfill all of the Town's solid waste management needs.

This section contains a discussion and evaluation of viable solid waste management technologies for the recyclables and the mixed waste portion of the Town's waste stream. Section 8.0 presents the recommended long-term solid waste management plan for the Town.

7.1 Technology Evaluation

Because several processing technologies are in various stages of development or refinement, which could affect the utility of their application in Southampton, and because project design and construction will require certain minimum standards of technical and financial experience and resources, the Town on February 21, 1989, issued a Request for Expressions of Interest (RFEI) to solicit information from interested solid waste processing system vendors. This information included technical, environmental, economic, and financial data from interested, capable and experienced vendors. Advertisements for the RFEI were placed in the "Waste Age" and "Bio Cycle" periodicals and were also sent to many prospective vendors. Responses to the RFEI were received in late March and April 1989 from 22 companies, who submitted a variety of material.

The RFEI was also intended as a means for vendors of new and emerging technologies to provide data on potentially successful processes, and the information obtained was used, in part, in the evaluation of technologies with regard to the issues stated above and in the development of the Town's solid waste management plan. No attempt was made to rank, prequalify or disqualify any vendors. However, the RFEI stated that systems which emphasized the potential for recovery, reuse and recycling of materials in accordance with the hierarchy of the New York State Solid Waste Management Plan were preferred.

A list of vendors who submitted responses to the RFEI and their respective technologies is presented in Table 7-1. Note the wide variety of systems that were proposed in the 22 responses.

While the submittal of this RFEI information was of considerable value, and the submitted information was used in part to complete the technical and economic evaluations in this report, it is also recognized that other companies, or design systems may also be available.

Based on responses to the RFEI, available technical information, the following processing systems have been described and evaluated by various criteria. The basic evaluation criteria used were technical information, environmental impacts, and implementation issues. The technical information describing each processing technology included equipment, process flows, process by-products, and materials recovered and disposed. The environmental criteria included potential and unavoidable environmental impacts, mitigation measures, and any growth inducing aspects of each technology. Finally, the implementation criteria included issues concerning factors that may affect the implementation of each processing system such as costs and procurement methods, project financing, energy material and energy markets, and technical reliability and feasibility.

In order to structure the discussions and evaluations of generic as well as specific technology systems, we have grouped them into the following **alternative solid waste management processing, treatment and disposal methods:**

- **waste reduction**
- **recycling and reuse (including MRF)**
- **composting**
- **waste distillation**
- **waste-to-energy**
- **transfer station**
- **landfilling**

7.2 Waste Reduction

Waste reduction is the first priority in the hierarchy of waste management options according to New York State's Solid Waste Management Policy. A goal of the New York State Solid Waste Management Plan is to reduce the amount of waste generated by 8 to 10 percent between 1988 and 1997.

Waste reduction, as defined by the solid waste industry and by the EPA, does not include traditional recycling of materials such as glass, aluminum and paper. Traditional recycling occurs when discarded materials are separated from the general waste stream, processed and reformed into new

Table 7-1

Town of Southampton
RFEI Vendor Responses

	Vendor	System Technology
1.	Agripost	MSW composting
2.	American Recovery Corporation	Materials recovery with RDF production and MSW composting
3.	Bedminster Bioconversion	In-vessel MSW composting with sewage sludge
4.	Daneco	MSW composting with sewage sludge
5.	Empire Return Corporation	Materials recovery facility
6.	Harco Waste System	Materials recovery and RDF production
7.	International Process Systems	In-vessel MSW composting with sewage sludge
8.	Katy-Seghers	Mass burns refractory wall furnace
9.	Labov	Fluidized bed reactor (RDF)
10.	National Recovery Technologies	RDF production
11.	National Resource Recovery Systems	Materials recovery/in-vessel MSW composting
12.	New England CR, Inc.	Materials recovery facility
13.	Purac Engineering	In-vessel MSW composting with sewage sludge
14.	Resource Systems Corporation	In-vessel MSW composting (Dano drum)
15.	R. Cave and Associates	Recycling program development
16.	Reuter, Inc.	Materials recovery with MSW composting and RDF production
17.	Trash Reduction System	MSW composting with sewage sludge or RDF production
18.	Waste Distillation Technology	Destructive distillation
19.	Waste Processing Corporation	In-vessel MSW composting (Dano drum)
20.	Waste Recovery Resources	MSW composting (static pile)
21.	Westinghouse	Materials recovery with mass burn
22.	WPF Corporation	Materials recovery and MSW composting

(mwc/table7)

products. Waste reduction includes the reduction, avoidance, or elimination of the generation of solid waste.

Waste reduction methods involve altering waste generating habits and processes rather than waste handling procedures. The objective of waste reduction is to reduce solid waste at its source, before it enters the waste stream. The methods vary depending on the potential source of generator of the waste. Further discussion on methods and programs for waste reduction is found in Section 6.0.

7.3 Recycling and Reuse

Recycling and reuse are the second element in the State's solid waste management policy. Recycling means separating or extracting materials from the waste stream and using them to manufacture new products. Reuse refers to minimizing the amount of waste requiring disposal by reusing items otherwise destined for the waste stream.

This section will discuss technologies available for the processing of recyclables. Various means for collection, marketing and alternative strategies are discussed in Section 6.0.

7.3.1 Processing

Understanding how materials need to be processed prior to transporting to markets is critical to the success of a program. End users and scrap dealers each have clear and detailed specifications on how materials need to be prepared for them to be accepted. For example, paper, glass and metals need to be sorted by color, and quality or composition, or bailed in measurable volumes. However, this does not automatically mean that there is a market for these materials.

Paper: Newsprint, corrugated, and white office paper are highly recyclable. Historically, prices and demand for these materials have fluctuated greatly. Even in good economic times it is difficult to find a stable market for these materials.

Glass: Clear, green, and amber glass is marketable. Ceramics, plateglass, dishes, and light bulbs are not. The demand is small and the processing requires careful sorting or the entire load will be rejected. (Mixing different colors of glass in recycling can create foam in the hot mixture and require the shutdown of the melting facility; pieces of ceramics can create weak parts in the glass.)

Metals: Demand for metals (especially aluminum) has risen. In some programs the revenues gained from the sale of aluminum have offset the losses from the other materials collected in recycling programs. Tipping fees at some processing centers are waived if a

certain percentage of the materials brought in for recycling is aluminum.

Plastics: PET and HDPE, (soda bottles and milk jugs) can also be recycled. Demand is dependent on the location of a plastic recycling facility.

7.3.2 Processing Facilities

Material Recovery Facilities (MRFs) are waste management facilities that receive, separate, process and store mixed waste or recyclables for the purpose of recovering marketable materials in the waste stream. MRFs may be classified into one of two categories: those that receive source separated recyclable materials (often called a clean MRF) and those that receive mixed MSW (often called a dirty MRF).

Clean MRFs are facilities that receive process and store only source separated recyclable materials for marketing. This type of MRF can be designed to handle materials that are fully separated at the source or receive commingled (mixed) materials. The manner in which the recyclables are collected greatly influences the type of technology required at the MRF.

Dirty MRFs are facilities that receive and process a mixed wastestream and require little or no separation of recyclables at the source. Dirty MRFs typically separate out recoverable recyclables for marketing and either dispose of the remainder of the mixed waste, or process it further into RDF and/or compost material. These types of facilities are usually more capital and mechanically intensive than clean MRFs.

Clean MRF technology has developed over the last 15 years and is now well proven with almost 200 of these facilities operating around the country today. They are usually implemented to serve the processing needs of communities that have well established curbside and drop-off center recycling programs. They are currently being designed to handle source separated commercial waste (e.g. cardboard, office and computer papers) in addition to typical residential recyclables (glass, aluminum cans, newspaper, steel cans, plastic containers).

The main components of a clean MRF facility include the tipping floor, materials conveying systems (i.e. conveyor belts), magnetic separators, hand picking stations, and balers for newspaper, cardboard, office paper, and plastic containers. They can be owned and operated by both the public and private sector. Most clean MRFs today are publicly owned and privately operated. The trend is moving toward the construction of larger and more complex clean mRFs which can serve regional areas as opposed to single communities.

7.3.2.1 Materials Recovery Facility Technology

There are many types of MRFs currently operating in the United States utilizing many different types of equipment and levels of technology to process incoming recyclables. The systems can generally be broken down into three categories; "low", "medium" and "high" technology. A "low technology" MRF is a basic system designed to accommodate small quantities of source separated materials. Very little mechanical automation is utilized. A "medium technology" MRF is designed to process larger quantities of commingled materials through a combination of manual and mechanical sorting. A "high technology" MRF typically utilizes mechanical separation and processing of the incoming material. A minimum of hand sorting is employed. The appropriateness of one technology as compared with another is based upon the type and amount of materials to be processed, as well as market specifications. These factors determine the facility's degree of sophistication and mechanization.

There are many qualified vendors with proven systems and operating facilities for all three levels of technology. In addition, there are numerous equipment manufacturers that supply individual components of a total system.

Low Technology System - The low technology approach is the simplest and least mechanized of MRF designs. This type of facility processes a specified range of materials which have been separated at the point of generation. These materials generally include source-separated newspapers, white paper, mixed colored paper, aluminum, bi-metal cans, plastics, corrugated cardboard, and glass mixed by color or source-separated at the origin. Capital investment in this type of facility is low. Equipment needs typically include a baler, conveyer, glass crusher, containers and a fork-lift.

Material processing is limited with low technology systems. Newspaper, cardboard and aluminum are baled separately for transport to market. Glass mixed by color or source-separated is shipped loose to a processing facility or bonification plant. A bonification plant upgrades glass into a furnace-ready cullet through crushing and screening processes which may also be included in a "medium or high technology" MRF design. Plastic, mixed by type (PET and HDPE), is shipped to market as received. The size of the MRF is determined by the amount and type of materials delivered.

Because of the limited processing capabilities of this type of facility, the revenues received on the recyclables are low, and the ability of the manager to market the material is subject to fluctuation in market demand. The main objective is to divert the materials from the wastestream and provide a "marshaling yard" or "transfer station" for the materials. The containers used to store and haul the source-separated materials are usually supplied by the end market.

Medium Technology System - A medium technology facility differs from the low technology facility in that larger quantities of materials as well as materials that arrive commingled are processed through a combination of manual and mechanical sorting. The capital investment is higher than a low technology facility because of the additional labor and mechanized sorting equipment.

Typically, mixed glass containers are manually separated by color from the other incoming materials. Ferrous materials are separated using a magnetic separator. Aluminum cans and plastic containers are also removed and sorted by type by hand. The remaining materials composed of broken glass and non-recyclable residuals are conveyed into a container for disposal. Paper is processed at a separate processing line. Since most curbside programs only accept newspaper rather than office paper, it is usually not necessary to separate other items from the wastestream, except the plastic and paper bags in which the newspapers are delivered. Medium technology facilities may also receive and process paper that is source separated by category or perform limited sorting through the use of a manual sorting station.

Following separation, the material can be processed. Unlike a high technology system that may use dedicated equipment for each type of material, the processing equipment is often used for several different types of materials. This minimizes cost and maximizes use of the equipment. Ferrous metal can be flattened and baled or slit and blown into a container. Plastic containers can be slit and baled, or granulated. Glass, separated by color, can be crushed and screened to remove contaminants.

High Technology System - A high technology system is the most sophisticated and mechanized method of processing mixed recyclables. Typically, a high technology system is not recommended if commingled tonnage is below 35 tons per day. It is distinguished from the other systems by the advanced development of the separation and processing equipment. Unlike the low and medium technology systems, the high technology system relies mainly on mechanized processing operations which include magnetic separation of ferrous metal, eddy current separation of aluminum from plastic, and screening and density separation to separate light materials from heavy materials.

Processing technologies may include crushing, screening, air classification, flattening, granulating, perforating, baling, and slitting. The objective of the high technology system is to process the materials to maximum market specifications in order to earn optimal revenue and assure long-term end markets.

7.3.2.2 Separation Systems for Commingled Recyclables

Throughout the industry there are standard mechanical processes to perform certain common separation steps, and innovative and proprietary technologies for performing more difficult separations. Common practices such as hand sorting, magnetic separation, eddy current separation, air classification, and density separation are used in developing design concepts for MRFs. There are numerous combinations of equipment that can be employed to accomplish effective separation of commingled recyclables.

It has been common practice in many MRFs of considerable size to incorporate the use of fixed or electromagnetic separation to remove the ferrous and bi-metal cans from the commingled stream. If a sufficient quantity of ferrous materials are contained within the commingled stream, then magnetic separation can be a more advantageous and economical alternative than manual hand sorting.

The separation of glass by color has been traditionally accomplished through hand sorting, although some research and experimentation in automated sorting using optics has been done. Where many design concepts differ is in the method of separating plastic (PET and HDPE) and aluminum from glass. These steps may include density separation, air classification or hand sorting. Non-magnetic metals may be removed from the material stream using hand sorting or eddy current separation. A description of the common separation technologies used in MRF design is presented below.

Magnetic Separation - One type of magnetic separator that is commonly used is an electro or fixed magnetic belt separator. Belt magnetic separators are typically suspended above the material flow. As material passes under the belt separator, magnetic material is attracted to the magnet which is mounted behind the overbelt. The components of the separator are made of non-magnetic material in the range of the magnetic field. The belt on the separator transports the suspended magnetic material past the magnet. When the magnetic material is no longer in the range of the magnetic field, it falls off the separator to a different point than where the non-magnetic material discharges from the feed conveyor below. Overbelt magnetic separators are preferably suspended concurrent with, and above the end of the discharge of a transport conveyer belt.

Another type of magnetic separator is a drum magnetic separator. Drum separators are similar to belt separators in that both are typically mounted above the feed conveyer at the discharge point and both work on the principle of attracting magnetic material to the separator and then transporting it beyond the range of the magnet's field. The magnetic material falls off in a different location from the non-magnetic material that discharges off the conveyer below. In the case of a drum magnet, a fixed or electromagnet is mounted within a drum made of non-magnetic material. The drum rotates around the fixed magnet. Magnetic material is attracted to

the drum's outer surface and travels with the rotation of the drum, beyond the magnetic field until the magnetic material falls off. Drum separators are more costly than belt separators, a reflection of their greater durability.

Separation may also be accomplished using a magnetic head pulley. During operation,the magnetic material is attracted to the head pulley and travels around the underside of the conveyer belt. Once out of the range of the magnetic field it is discharged into a bin. The non-magnetic material discharges off the end of the conveyer belt into a separate bin. Magnetic head pulleys are not as efficient as overhead belt or drum separators because of the limited amount of magnetic surface area which is limited to the circumference of the head pulley. This can result in the removal of lesser quantities of ferrous material from the commingled recyclable material flow and are typically included inlow technology systems. However, magnetic head pulleys are the least costly of magnetic separation systems.

Two high technology concepts exist to accomplish the effective separation of plastic and aluminum from glass. They include density separation and air classification. These types of separation processes tend to be sophisticated and complicated mechanical devices and often include a proprietary process developed by a MRF vendor.

Density Separation - Density separation works on the concept that light materials will behave differently than heavy materials when mechanically stimulated due to weight differences. With density separators, plastics and aluminum are considered the light material and glass the heavy material. Several proprietary mechanical density separators are available in the marketplace.

Density separators consist of two major components: a horizontally inclined ("tipped") conveyer and an overhead traveling chain or brush system. Material enters at the top of the separator and travels down the incline of the conveyer belt. The heavier fraction, glass, is too dense to be held by chains or brushes and continues down the incline and out of the density separator. Plastic and aluminum are moved to the side by the chains or brushes and deposited through a chute and onto a conveyer. There are variations among the different density separator designs; however, they allow work on the principle that plastics and aluminum, because of their lower density, are caught by a chain or brush while the more dense glass falls through the chains or brushes thus achieving separation. This type of process equipment has been proven in several MRF designs with very little cross contamination of the material.

Air Classification - Separation of plastics and aluminum by air classification works on the same principle as density separation with the exception that air rather than mechanical means is employed in the process. Light material (plastic and aluminum) is blown away from the heavier glass component

using either a concurrent or countercurrent air stream. This is typically employed at a conveyer discharge point where, as material discharges from the conveyer and becomes airborne, an air stream directs the material flow, causing lighter materials to be blown away from the glass.

All automated sorting systems, whether by mechanical means or air classification, exhibit some degree of materials cross-over. However, efficiency can be as high as 95 percent. For quality control, a manual hand sorting station can be included downstream of the classifier to ensure complete separation.

Eddy Current Separation - Once the task of separation of light from heavy material is accomplished, there remains the task of separating the aluminum from the various plastics. A mechanical separation process utilizing an eddy current can effectively separate the aluminum from plastics. Eddy current separation can be thought of as separation by a so-called "reverse magnet" whereby an electrical charge is forced on the aluminum causing the aluminum to repel away from the eddy current separator in much the same way as two magnets of similar polarity repel each other. Eddy current separators typically are mounted on the underside of a conveyer belt or chute and are located at a belt discharge point. When the mixed material is conveyed past the separator, the aluminum is repelled upwards and into a chute located past the normal trajectory of a non-metallic object which would be discharged by the conveyer belt. Thus, the repelling force of the eddy current separator alters the trajectory of the aluminum in such a way that the aluminum falls into a separate chute from the plastics.

To enhance the efficiency of the eddy current separator and to minimize cross contamination prior to the material entering the separator, a vibrating or rotating screen is used to remove the larger material which will consist primarily of large plastic bottles. The objective of screening off a portion of the plastic is to reduce the depth of the material on the conveyer containing the eddy current separator. Cross contamination occurs when the material on the conveyer containing the eddy current separator. Cross contamination occurs when the material thickness on the belt becomes too deep. If an aluminum can was covered by a plastic bottle during eddy current separation, the aluminum can should impact the plastic and propel the plastic into the aluminum bins. Screening as much of the plastic as possible improves efficiency and reduces the size requirements of the eddy current separator.

Color Separation - Separation of glass by color and plastics by resin type and color is currently accomplished using manual hand sorting methods. Presently, there are no proven mechanical processes available that can provide the reliable separation of these materials which is required by market quality demand.

Picking efficiency is attained through the proper selection of positive and negative hand sorting operations. Positive sorting involves a picker removing a material and depositing it into a separate container. Negative sorting includes letting the material of greatest quantity pass with direct discharge into a container or conveyer while the other constituents are hand sorted. Therefore, the picking process can be designed so that the constituents that are a smaller percentage of the total material flow are removed or positively picked, while the component of greatest quantity would be negatively sorted by allowing the material to pass by the pickers and discharge into a bin.

7.3.2.3 Separation Systems for Paper Products

The separation of paper products into individual components is accomplished using manual sorting techniques. Operation of a paper sorting system begins with the paper loaded into a pit feed conveyer that inclines up to a hand sorting platform. Pickers manually remove the various grades of paper products (corrugated, white, newspaper, and mixed paper) and deposit them through chutes into containers located below the sorting platform. Sorting efficiency can be increased by employing positive and negative sorting techniques depending upon the percentage of the individual components within the paper stream. Once separation of the individual components is achieved, the paper products are baled.

7.3.2.4 Processing Systems for Commingled Recyclables and Paper Products

As with separation systems for commingled materials, there are standard processes for the processing of materials. Standard process options include baling, perforating, granulating, crushing, slitting, and nuggetizing. The option selected is based on the material type and market specifications. The products that will be recovered at the MRF may be processed by the unit operations described for each material type.

Paper Products - After the paper products are separated and foreign materials removed, each paper type (i.e., mixed paper, cardboard, newsprint, and white paper) can be baled and loaded by fork-lift onto trailers or loaded loose. Baler types that are typically employed at MRFs include multi-ram, open-end, and channel balers. They are typically fed from the via an inclined conveyer. The feed material fall into the baler's loading chamber where a hydraulic ram(s) compresses the material to a specified size and density. To secure the bale, wire ties are automatically or manually wrapped completely around the material. Once the baling is completed, the bale is automatically removed from the feed chamber and another bale is started. It should be noted that paper balers typically have a fluffing mechanism upstream of the baling chamber to prevent material interleafing which can decrease bale density and cause bales to break apart during shipment.

The size and density of a bale is dependent upon the type of baler, market specifications, and the material baled. Bales produced are typically sized to allow complete loading of transport trailers and are approximately 4.3 feet long, 3.3 feet wide and 2.5 feet high although bale sizes are adjustable. The weight of paper bales varies by paper type.

If the paper is not baled, it may be directly loaded into a trailer. This is not an efficient process and is only done at MRFs with a low paper throughput or where markets will accept material in this form or in the case where the market is located in close proximity to the MRF to have little affect on transportation costs.

Plastic Containers - The high technology mechanical processing options currently used for plastics are influenced by the type of plastics resins HDPE, PET, and mixed HDPE, and the market demands for these products. Depending on the available markets, HDPE containers separated by color are either granulated, or baled. A granulator effectively shreds and grinds the HDPE containers into small particles of less than an inch in size using fast rotating steel knives. If the color-sorted HDPE is baled, a perforator is used to puncture the containers to eliminate voids created by capped containers during baling. The perforator creates numerous tiny holes int he containers. The holes allow air to be more easily removed from the container as it is being baled, thereby obtaining a denser bale.

PET containers may be baled, or perforated and then baled before shipment to end users. They are typically not granulated. The high level of contaminating materials usually found on PET containers, such as metal screw on caps, HDPE bottoms, and polyvinyl chloride (PVC) labels, currently discourages MRF operators from granulating PET containers. PET containers are separately processed at the markets or by end users.

The balers typically used to bale PET and HDPE plastic containers are similar to the paper balers discussed above and in many instances the same baler is used for multiple materials. The plastic containers are usually fed to the baler via an inclined conveyor.

Granulated HDPE plastic is stored in large cardboard boxes (approximately 64 cubic feet) called Gaylords which rest on wooden pallets. The granulated HDPE plastic is less than one inch in diameter and has a higher density than baled HDPE plastic.

Aluminum Containers - Separated aluminum containers are processed to increase density and thereby decrease transportation costs. Mechanical equipment currently used at MRFs to increase density includes balers and can flatteners.

Aluminum containers are either baled using a baler similar to the one used to bale paper products or with a brequette baler. They are fed using an

inclined conveyor. Bales produced by a brequette baler are much smaller than a standard size bale, but have a density which is approximately twice as much.

A can flattener mechanically flattens the aluminum containers using steel rollers to a density of approximately 8 pounds per cubic foot. The flattener, a blower with a delivery tube is placed downstream for blowing the flattened containers into the storage trailer.

Ferrous And Bimetal Containers - The mechanical techniques currently being applied at MRFs to process ferrous and bimetal containers include baling, flattening, slitting, and nugetizing. The principal reasoning for processing the ferrous containers is to increase the density of the material so that transportation costs are minimized. Slitting is sometimes employed to facilitate residual waste removal, thereby increasing product quality for end market de-tining processes.

Similar to the aluminum container flattening, the ferrous can be flattened and blown into a trailer for transport. However, if a higher quality product is desired, other processing techniques are available. Contamination such as labels, plastic covers, and garbage may be removed by first slitting and then air separating the material. By using a slitter to slit the ferrous containers into shreds, the lighter material (contaminants) may be separated from the heavier ferrous by using a forced air stream from a blower. The residual waste produced from air classification (light fraction) is sent to a disposal facility.

Nuggetizing is sometimes used as an alternate approach to flattening or slitting. A mechanical device grinds and twists the ferrous containers into nugget shaped pieces of approximately 0.5 to 1.5 inches in size. The nuggetizing process permits the lighter contaminants to be separated from the ferrous using air separation processes. The residual waste produced from air classification (light fraction) is sent to disposal.

Glass Containers - After the glass is separated from the other recyclable materials, the containers are separated by color (i.e. flint (clar), amber and green) and conveyed to a dedicated crusher. While controlling particle disbursement, the glass crusher's single or double rollers crush glass containers with alloy steel hammers. The glass cullet produced by the glass crusher can range from approximately 0.5 to 2.0 inches in size.

Depending on the market specifications, the different color glass cullet may require further processing using vibrating screens or trommels to increase product quality. These mechanical devices screen out the glass cullet product leaving behind contaminants and over-sized glass residue. To further capture the recyclable fraction, the contaminants and glass residue produced from the screens or trommels can be further processed to a mixed

glass cullett product using air separation. A forced air stream from a blower is used to separate the heavier over-sized mixed glass from the lighter contaminants. The over-sized mixed glass may be further processed by sending it to a crusher to produce a mixed glass cullet. The remaining contaminants are considered residual waste.

7.4 Composting

7.4.1 MSW Composting

The composting of municipal solid waste has been practiced over the past several decades in a number of countries, including the United States, Europe, and Japan. Early technologies utilized little or no pre-processing of the waste to remove inorganic materials prior to initiation of the stage of biodecomposition i.e., composting. While the compost product using these technologies could be rendered biostabilized, its appeal and utility as a soil amendment were severely compromised by the inherent inorganic contamination. The major contamination included glass, metals, plastics and other items such as commercial or household hazardous waste that could render the compost unusable, while the plastics made the product unsightly.

Present composting technologies employ front-end processing to remove many of the inorganic contaminants prior to the biodecomposition. The reason is to improve the quality of the product, thus increasing the acceptability of the recovered compost. Depending upon the requirements of available markets, the product from the cornposting process may then be further processed (post-processed). Post-processing commonly includes a final stage of size reduction and screening of the product. One of the main reasons for considering composting for the treatment of MSW or organic residues is that composting can, when properly conducted, render wastes hygienically and environmentally innocuous in an acceptable manner. As noted above, while there is no question that composting of various wastes can be done, many practical difficulties have prevented composting systems from becoming widely used on a successful basis in the U.S. in the past.

This section discusses some of the theory and overall considerations that are important to an evaluation of a mixed waste compost system for MSW in Southampton.

Definitions - In order to distinguish composting from the biological decomposition that takes place in nature, we define composting as a method of waste treatment in which solid wastes are biologically stabilized under controlled conditions. The term "stabilized" refers to a state in which a treated waste (the compost) would not be a source of nuisance if left unattended. The phrase "under controlled conditions" serves to distinguish an MSW disposal system utilizing composting from ordinary biological decomposition.

This application has all the advantages and disadvantages of biological waste treatment systems, among which are the following:

Advantages:

- Produces a product that is considered recyclable under the NYSDEC hierarchy criteria, and may therefore be preferred over other systems.
- The potential for lower capital and operating costs than for competing systems.
- May be more publicly acceptable than a facility that uses some form of incineration.
- Can be processed in combination with sewage sludge. (co-composting)
- Landfill requirement can be minimized if product can be marketed.
- Product can be used as a landfill cover or landfilled as a last resort, providing significant volume reduction.

Disadvantages:

- Relatively undeveloped status of commercially available systems in the U.S.
- Difficulty in obtaining long-term facility guarantees with the risks that are associated with this technology for the Town.
- Longer time required for processing than with nonbiological systems.
- Product may contain toxics from newsprint and other feedstock.
- Lignaceous composition of waste paper is resistant to decomposition.
- Requirement for complex multiple pieces of equipment or large equipment, for front-end and post-processing.
- Larger land requirement.
- Low monetary value (if any) and potential difficulty in marketing product, and the seasonal nature of compost markets.

Classifications - There are several classifications of composting. The three most useful are aerobic vs. anaerobic, mesophilic vs. thermophilic, and windrow vs. enclosed. Since almost all enclosed systems are proprietary, an alternative to the third classification is proprietary vs. non-proprietary. In enclosed systems, the composting material usually is contained inside a structure that may be in the form of a horizontal drum, a silo, or a bin. Modern composting usually is aerobic and is characterized by a thermophilic (high temperature) phase.

Principles of Composting

Principles of composting are important because of their special impact on process design, operational parameters, compost technology, and utility of the product. Since composting is a biological process, satisfactory composting depends upon the presence of a sufficiently large population of microorganisms capable of utilizing the wastes to be composted as a substrate. Generally, the microbial population indigenous to a waste is large enough to carry on the composting process. This situation will continue to prevail in the foreseeable future despite the development of new microbial strains through genetic engineering.

Since microbes are the principal active agents in composting, factors that affect their growth and activity also determine the rate and extent of the composting process. The more important of these factors are nature of substrate, nutrients, carbon-nitrogen ratio (C/N), particle size, oxygen availability (aeration), moisture content, pH, and temperature. In composting, the substrate is the waste to be composted. Almost all organic wastes of biological origin are amenable to composting. The rate and extent to which a given waste can be composted are determined by the concentration of essential nutrient elements in the waste and by their biochemical availability to the microbes.

The macro-nutrients for microbes are carbon (C), nitrogen (N), phosphorus (P), and potassium (K). Included among the micro-nutrients are cobalt (Co), manganese (Mn), magnesium (Mg), copper (Cu), and several other elements. Calcium (Ca) is somewhere between the macro- and micro-nutrients. With the exception of C and N, most of the essential nutrient elements are present in agricultural wastes and in the organic fraction of municipal wastes in the amounts required by the microbial population.

The amounts of C and N required (C/N ratio) are determined by the relative amounts of C and N used by the microbes in metabolism to obtain energy, and in the synthesis of new cellular material. Microbes oxidize a part of the carbon to meet their energy needs. Microbes also synthesize a part of the carbon into cell wall or membrane, into protoplasm, and into storage products. The only major consumption of nitrogen is in protoplasm

synthesis. As a result, the optimum C/N is on the order of 20/1 to 25/1. The particle size of the material to be treated has a significant bearing on the rate of composting. The higher the ratio of surface area to mass per particle, the more rapid is the rate of composting. Consequently, one would expect that the smaller particle sizes would be accompanied by higher composting rates. However, difficulties in maintaining the required porosity in a composting mass, combined with the cost of size reduction, place a lower limit on particle size in a practical operation. For MSW, the size reduction equipment should be selected to provide a size range from 0.5 inches to 1.5 inches to meet the porosity requirements of the composting mass and result in a reasonable composting rate.

Aeration is a very important factor because of its beneficial effect on rate of composting and its negative effect on the production of foul odors associated with anaerobic decomposition. Theoretically, the amount of oxygen required depends upon the quantity of carbon to be oxidized. In a practical operation, it would be extremely difficult to arrive at a precise determination of the 0_2 requirement on the basis of the carbon content of the waste. One reason is the need to know the precise fraction of carbon that will actually be converted into bacterial cellular matter. A second reason is the difficulty of accurately determining the amount of carbon that is inaccessible to the microbes. Theoretically, the optimum moisture content in composting would be saturation, because at that level moisture would not become a limiting factor. However, in practice, several factors render such a level unsuitable. Because of this, the designation "maximum permissible" moisture content is used. It is the highest moisture content at which potential, undesirable consequences are not realized.

Permissible moisture content and O_2 availability are closely related in most of the modern composting methods. They are related because the 0_2 for the microbes is supplied from the air entrapped within the voids between the particles of waste. The maximum permissible moisture content is the level at which sufficient air is left in the voids to assure an adequate supply of 0_2. Accordingly, permissible moisture content implies a level at which no nuisance develops and the process proceeds satisfactorily.

The greater the structural strength of the material, the higher is the permissible moisture content. If the particles have a poor structural strength, the permissible moisture content is lowered. Therefore, for mixtures in which paper is the major material (e.g., municipal refuse), the upper permissible moisture content is only 55 percent to 60 percent. The critical pH range in composting is broad. An acceptable pH range for compost is roughly between 5.5 and 7.6. Consequently difficulties due to high or low pH levels are rather rare. An exception could be in the composting of fruit wastes, in which case the pH might drop to 4.5.

Temperature - Several articles have been written about the relative merits of thermophilic rs. mesophilic temperatures with respect to composting. On the one hand, an important benefit of reaching thermophilic conditions is the destructive effect on pathogenic organisms. On the other hand, at temperatures of 150 degrees F and higher, the compost process is slowed or may even come to a complete stop. Consequently, if it can be done economically, the peak temperature should not be allowed to exceed about 140 degrees F.

Monitoring the Composting Process

Normally, the temperature of the material to be composted increases from ambient levels to about 100 degrees F within the first two to three days. After approximately one week, a high temperature plateau is reached. At this level, temperatures fluctuate between 140 degrees and 170 degrees F. The high temperature plateau may persist over a one to three-week period. Under less than satisfactory conditions the plateau may last much longer. It may be assumed that by the time the temperature has dropped to ambient or a few degrees above, the more biologically unstable compounds will have been stabilized. At this time, the material is sufficiently stable for storage or for utilization. Sharp deviations from this temperature profile indicate a need for remedial measures.

Recently, it has become popular to divide the compost process into two stages, the active (composting) stage and the maturation (curing) stage. The active stage is the period of rapid temperature rise and plateau. The maturation period is the period of temperature decline.

Odors - If the process is managed properly, within a few days the odor of the raw waste should be replaced by a diverse collection of odors. Depending upon how well the process is advancing, the odors range from a faint cooking odor to that of putrefaction, and at times, of ammonia. Eventually, all odors give way to an earthy odor. A putrefactive odor is indicative of anaerobic conditions. With a windrow operation, the onset of objectionable odors is a signal for checking for excess moisture content and increasing the frequency of turning in order to accelerate evaporation as a remedy. With an enclosed digester, the development of foul odor indicates the need to increase the air flow through the unit and to agitate the reactor contents more vigorously. By monitoring the variables of temperature, 0_2, moisture, and pH level, action can be taken to minimize the generation of foul odors.

Parameters in addition to temperature rise and fall and odor production are 0_2 consumption, CO_2 production, and rate and extent of destruction of volatile matter.

Composting Technology

In its broader sense, the technology of composting involves the preparation of the raw material (feedstock) via some form of front-end processing as previously discussed, the compost process itself, and the grading and upgrading of the final product.

Municipal solid waste is the waste for which preparation is most essential. Consequently, preparation of MSW for composting is the most extensive and expensive, and it can also be the most critical step in the overall processing system, since failure to produce a good compost feedstock can have a major impact on the quality and marketability of the final product as well as the economics of the system. On the other hand, most agricultural wastes and residues that are relatively uncontaminated may only require some size reduction and screening.

The sequence of size reduction and sorting for MSW is flexible, although the present tendency is to precede the size reduction with sorting. Sorting involves the removal of items that are undesirable, either because they may have a negative impact on the compost process or because they may lower the quality of the compost product. Sorting can be accomplished manually or mechanically. Mechanical sorting can be carried out through a series of steps which may include magnetic removal of ferrous materials, air classification, and screening to remove metals, plastics and glass components.

The area requirements for a municipal solid waste composting system employing either the turned windrow or the status pile processes depend upon the quantities processed; the exact composting process employed/and storage allowances for tipping floor storage and for product storage. Over a range of reasonable assumptions, a turned windrow or status pile composting system sized for the Town's waste supply could be expected to require 8 to 12 acres, however this is only part of the area required for the whole system. The following estimates are the total area requirements for a solid waste composting system:

Infrastructure Site Work	1.0 acres
Roads and parking	1.0 acres
Front end processing	4.0 acres
Composting system	8.0-12.0 acres
Post processing	0.2 acres
Loading and transport	0.3 acres
Curing and 6-month seasonal storage (25 ft high piles)	2.0 acres
Approximate Total Area	16.5 to 20.5 acres

Compost Systems

The general objective of all equipment in composting is to provide optimum environmental conditions for the microbial agents involved. This must be carried out without endangering the public health, adversely affecting the environment, and within the constraints of economic feasibility.

The environmental factor of most concern has become aeration. Accordingly, the emphasis in equipment design is usually on the development of effective aeration systems.

Methods of Aeration - The ultimate aim in the design of aeration equipment is to provide an adequate supply of oxygen to the microbes. Oxygen supply can be accomplished by any one of three methods or combinations thereof. Two of the methods involve physically moving the particles into a new position and thereby exposing them to fresh supplies of air.

Physical movement of the particles can be done by tumbling, stirring, or by a combination of the two. In the third method, the particles remain stationary and the gaseous environment is displaced and replaced with a new one. In such a system, called forced aeration, the air layer is constantly diluted or is replaced by air forced through the pile.

Windrow Systems - In other contexts, there is a distinction made between pile and windrow, with "pile" defined as a single mound or heap roughly in the shape of a haystack and with no physical size implied. "Windrow" is defined as an elongated pile or row of material with a cross-section roughly in the shape of a trapezoid with the size generally considered as that which can be handled by available mechanical equipment. For our purposes, the two terms are used interchangeably in this section.

Constructing a Windrow - The material to be composted is windrowed immediately after the size reduction and sorting steps. The method of setting up a windrow should be adjusted to local conditions and to the nature of the wastes. The size of the windrow is determined ultimately by its aeration requirements and by the efficient utilization of land area. The permissible dimensions of a pile depend upon the structural strength of the particles that make up the pile. With municipal refuse, the height is usually on the order of 5 ft to 6 ft. In practice, height is determined by the type of turning equipment to be used. The width of the pile depends upon convenience but generally is about 1.3 to 1.6 times the height. In cold areas, all dimensions can be increased during winter to promote heat retention. In arid regions, increasing the dimensions of the pile would minimize water loss due to evaporation.

Turned Windrow System - In the turning operation, a pile of composting material is torn down and then reconstructed. The reconstructed pile can occupy either its original position, or one immediately adjacent to the original position. The act of tearing down and reconstructing results in the replenishment of the oxygen supply.

Experience has shown that oxygen requirements in composting municipal refuse can be maintained at optimum concentration by turning the pile every third day, provided that the material is neither waterlogged nor compacted. The latter two conditions can be remedied by increasing the frequency of turning. Frequency of turning is not determined only by aeration. Hygienic considerations, especially when sewage sludge is mixed with refuse, may require a greater frequency. According to Part 360, a minimum of five turnings is required during a 15 day period when the temperature of the mixture is not less than 55°C within six to eight inches below the surface of the pike.

There are several types of mechanical turning equipment on the market. Because of the rigors imposed by its use, the equipment must be rugged. Consequently, most turning machines are relatively expensive.

Static Windrow System

The possibility of aerating a mass of composting material by forcing or pulling air through it has intrigued designers of compost systems for more than 30 years. If made to function successfully, forced aeration has many attractive features, not the least of them are simplicity of equipment and operation and lower costs.

A windrow can be constructed for forced aeration in various ways. They all involve the piling of the material upon a grid of perforated ducts through which air can be forced into the bottom of the pile by a fan. The pile may be covered with a layer (10 inches to 12 inches) of stable material to provide insulation. Insulation ensures the simultaneous exposure of all raw material to high temperatures. According to Part 360, the compost pile must be insulated and maintained at a temperature greater than 55°C throughout the compost pile for at least three consecutive days.

For a forced-air compost system, ideally, the waste should be granular and uncompacted, have a relatively small and uniform particle size, and not be excessively moist.

Mechanical (Proprietary) Systems - Currently, there are several proprietary systems on the market. The majority of the proprietary systems are characterized by the use of a reactor in which the active stage of the compost process is intended to take place. After a brief detention time, on

the order of one to six days, the composting material is removed from the reactor and is windrowed (curing stage).

According to Part 360, the compost mixture must be maintained at a temperature greater than 55°C for at least three consecutive days. Because of the variety of available systems and relatively short operating experience of some systems, as well as the difficulty of keeping abreast with the appearance of newcomers, only a few systems are described herein.

Post-Processing

The objectives of post-processing are: 1) to enhance the utility of the product, 2) to render it safe for use, and 3) to impart an attractive appearance to it. Steps 1 and 3 are accomplished by the removal of unsightly materials (e.g., plastic), and by the classification of the remaining material into fractions in which the particle size is relatively uniform. Both tasks can be accomplished by means of properly selected equipment. Prolonged storage or some form of sterilization will eliminate the pathogens or reduce their concentra

Markets

The availability of a firm market is a key element in a successful composting program. Markets are important because

1) an end-use must be found for the compost product, otherwise a new disposal problem would be substituted for the original disposal problem, and

2) a market may be the potential means of obtaining a financial return associated with the possible sale of the product. Although revenues obtained from the sale of the compost product would help in defraying the costs of a composting operation, it is unrealistically optimistic to expect that a composting operation would prove to be a profit-making venture. In any cost analysis of a composting operation, account should be taken of the benefit derived from a reduced requirement for landfill space and the avoided costs associated with hauling and tipping fees.

Vendors of MSW Composting Systems Turned Windrow Systems

Turned Windrow Systems - Several vendors are available to design and construct straight forward MSW composting systems using a turned windrow system. Several vendors may be willing to own and operate the facility, while others simply provide the equipment and design services. Usually, the system operates in conjunction with front-end manual and mechanical processing and/or sorting to remove recyclables and/or undesirables. This unit processing equipment has been previously described and may include hand

picking conveyor belt stations, ferrous separators, grinders, shredders, screening devices, and others. It can be integrated in various configurations using conveyor belts. The specific configuration depends on vendor preference, waste composition, and product quality desired. A typical system begins with a tipping floor where oversize bulky waste is removed. The refuse is then pushed into a trench or pit where it falls onto a conveyor belt. Bags can be opened and clumps of refuse loosened using a bag slitter or flail mill. The conveyor then passes under a magnetic device that attracts and separates ferrous metals. The remainder of the waste may be conveyed to a manual sorting station where a team of workers separates and drops recyclables, such as aluminum, glass, and cardboard, into chutes leading to storage bins. Plastic and other non-compostables can also be picked out here. The remainder of the waste, primarily compostable paper, food, and yard waste, passes through a hammermill or shear shredder for size reduction. The material can now be conveyed to a drop-off point where a front-end loader or truck delivers the ground material to the growing end of windrows. Alternatively, the ground material can be screened prior to composting. After a suitable period of composting, the material can be screened again to produce finer grades of compost.

Ecological Technologies, Inc., Ft. Worth. TX, and Environmental Recovery Systems, Inc., Denver, CO, are two system vendors who can build facilities similar to the one outlined above. Ecological Technologies adds a specially developed bacterial inoculum prior to composting, and screens the material after composting using air classification and an auger screw screen. Environmental Recovery Systems uses workers to open bags on the tipping floor, and subjects the sorted material to air classification and a 3/8" vibrating screen prior to composting. Buhler-Miag. Inc., Minneapolis, MN, is primarily an equipment supplier of waste processing equipment; however, it has licensed Wheelabrator Technologies, Inc. to distribute its equipment line. Wheelabrator can design and supply a system involving the above front-end processing, windrow composting, and more extensive post-composting processing equipment. This processing involves a second stage of grinding, a fine screening drum, and a ballistic separator that removes small stones and glass. Cholla Waste Management, Inc., Austin, TX, and Geotech Industries, Inc., Leesburg, FL, are two vendors who sell processing equipment that can be configured for MSW composting.

The MSW composting system developed by Agripost, Inc., Pompano Beach, FL., utilizes two hammermills in series to pulverize incoming MSW prior to formation of windrows. The raw waste is delivered to a tipping pit with an oscillating steel conveyor which transfers the waste to the hammermill infeed conveyor. After double grinding, an innoculant and water are added as needed and the ground waste is delivered to the windrows. The piles are turned four times over approximately 21 days and then re-conveyed to a third hammermill. The reground product is screened and the fines are ready for bagging while the oversize material,

approximately 15 percent of the reground product, is added back into the static piles. In this fashion, non-compostables and hard to grind materials are subjected to a continuous loop of grinding until they pass as fines.

Static Windrow Systems - Daneco is an Italian company with several operational plants overseas. Their process begins with shredding and ferrous separation. Two trommel screens are then used to produce a compostable organic fraction plus an oversize and an undersize fraction.

The undersize fraction is mainly soil and glass that can be wet separated into a construction aggregate. The oversize fraction tends to be plastic film and paper suitable for RDF production. The organic fraction is composted in pressure aerated static piles. After curing, the compost is shredded and screened to remove any remaining undesirables.

Mechanical Systems - Mechanical MSW composting systems take advantage of a closed or open-top vessel to contain and regulate the ground material mass during the critical high temperature stage of composting. Though enclosed, these systems use aerobic composting through the use of forced air circulation or mechanical stirring.

Bedminster Bioconversion Corporation and Recomp, Inc. take advantage of the Eweson rotary drum technology to compost MSW, commonly in conjunction with sewage sludge. The Eweson technology uses a long drum (typically 12 feet in diameter by 120 feet long) with three compartments. Waste is maintained in each compartment sequentially for one to two days. The tumbling action within the drum tears open plastic bags and softens and shears paper products. Temperatures in the first two compartments reach 160 degrees F due to aerobic bacterial action while the third chamber serves to dry the material somewhat through dry air circulation. Material emerging from the third chamber is screened to remove inorganics (20 to 30 percent) and the fines then go to aerobic piles to stabilize. The system can be integrated with front-end processing to remove recyclables and reduce the residue stream.

Riedel Waste Disposal Systems and Waste Processing Coporation are licensed to market the Dano drum technology developed in Switzerland. Minimal preprocessing, such as oversize removal and ferrous separation, prepares the raw wastes for entry into the Dano drum. Once inside, double screens with knives and slow rotation combine to pulverize the moistened waste for 8 to 12 hours. At the drum's tail end, a trommel screen separates the size reduced organics from the intact inorganics. Aerated static piles form the environment for 21 days of composting and 21 days of curing. Post-processing, such as shredding and screening, produce the final product. The inorganic stream can be handpicked for recovery of recyclables prior to landfilling.

Several companies have adopted sludge composting technology to MSW composting. Compost Systems Company has integrated a standard preprocessing line that removes recyclables and undesirables prior to double shredding and in-vessel composting. The vessel utilized can be one of several established sludge composting vessels such as a Pagro horizontal bin reactor or a Fairfield circular Digester. Royer Industries, Inc. also adapted their automated sludge composting vessels to MSW composting. Royer can also provide a self-cleaning trommel screen to remove oversize inorganics after composting. Several of these companies have responded to the RFEI issued by the Town in April 1989, and may be willing to respond to a Town project.

7.4.2 Leaf and Yard Waste Composting

Leaf and yard wastes constitute a significant portion of the Town's total waste stream - approximately 12 percent - and can be readily collected as part of the source separation program. This material can be easily composted in simple, low-cost unenclosed facilities, producing a relatively uncontaminated compost material which can be used in a wide variety of markets. Usually these materials are piled into windrows or static piles on a composting pad, and periodically turned to aerate by a front-end loader. Temperature and moisture content are monitored on a regular basis. These materials degrade, and very little maintenance is typically required to keep the operation nuisance-free. The technology is well-documented and utilized reliably throughout the country. After composting which takes approximately 3 months, the compost can be screened and shredded prior to storage and shipment to the appropriate markets.

The Town of Southampton currently composts a portion of its leaf and yard wastes in a very elemental fashion, without any problem. Leaves remain in large piles and are turned once or twice per year. This system will, however, be upgraded and expanded. The Town proposes to construct two in-town facilities (see Section 9.0, site selection). Additionally, the conceptual plan of the facilities is included in Appendix H of this document.

Leaf and yard wastes will be required to be source separated, and brought to the facility in biodegradable bags. The outdoor composting area will be designed to process seasonal peaks of leaf and yard waste, by providing excess processing capacity as well as curing and storage areas. Source separated leaf and yard waste will be prepared for composting via mechanical processing. Such processing will include bag breakers, shredders, window turner, and other equipment. From an environmental perspective, leaf and yard waste composting conserves landfill space by a reliable, proven method, and produces a useful, marketable product. A small amount of runoff may be generated, and collected in drainage swales and discharged to a recharge basin. This runoff may be a source of process water for the composting operation. Any potential odor problems can be

mitigated by monitoring of the piles and frequent aeration. No other adverse environmental impacts would be anticipated from such a facility.

7.4.3 Co-Composting

Introduction

As previously discussed in Section 3.3.5, Septage, septage generated within in the Town is processed at the Riverhead Scavenger Waste Plant. There is a possibility that this septage which is co-processed along with the septage from the Town of Riverhead into a sludge that is currently landfilled could be co-composted with the Town's mixed waste fraction. Since this possibility exists, the following co- composting technology has been evaluated as a means of processing the Town's mixed waste and septage. It is noted however, that the Riverhead plant produces a combined sludge cake, and Southampton is only responsible for a portion of it. Therefore, if this portion is removed by the Town, a special arrangement for measuring, handling and transport would be needed.

Two pressing needs are responsible for the recent resurgence of interest in co-composting. The more attractive features basically are the potentially lower costs, fewer unfavorable impacts upon the environment, as long as the septage is relatively uncontaminated, and the recovery of useful resources. The two needs are for an inexpensive and readily available bulking agent for composting sewage sludge and a method of treating organic refuse other than by landfill or incineration. Composting mixtures of refuse and sludge meets both needs the organic fraction of refuse can serve as a bulking agent, and simultaneously both materials are treated.

Development of Co-Composting

Co-composting refuse and sludge is as old as composting municipal refuse alone. The "old" (pre-1975) and the "modern" (1975 to the present time) approaches primarily differ in their emphasis. Originally, the emphasis was on the refuse fraction, and the sludge was regarded principally as a source of nitrogen and phosphorous, and to a lesser extent, of potassium for enriching the refuse. A seriously limiting factor before 1975 was the high moisture content of the sludge. At that time the technology of sludge dewatering was in its developmental stage and therefore the sludge underwent very little dewatering before being added to the refuse.

Co-composting systems in use before 1975 were the same versions of those currently available. Therefore, both forced aeration and turned windrow systems were used, as were several proprietary reactors.

One of the earliest reports on forced aeration of refuse deals with an operation in the Philippines. In 1959, the City of Manila, assisted by the World Health Organization, designed and built a 10 ton/day pilot plant to compost the organic fraction of refuse by the forced aeration method. The facility was located at a waste disposal site on the Island of Balut.

From the results obtained in the operation of the plant, it was concluded that forced aeration would be successfully used to compost the organic fraction of municipal solid wastes in the Philippines.

Period of Decline

The early interest and activity in co-composting was followed by a relatively sharp decline, despite the fact that it had been demonstrated as being technologically feasible. The decline began in the late 1960s and continued throughout the 1970s. The decline was strictly due to the loss of interest in composting municipal solid wastes and in resource recovery in general. Consequently, the factors that were responsible for the decline in composting also contributed to the decline of interest in co-composting. Some of the contributing factors included the disastrous financial outcomes of early ventures and the consequent discouragement of many potential users.

The absence of a market large enough to accommodate the output of composting operations effectively stopped the adoption of composting as a means of disposing of the organic fraction of MSW. The lack of a market, combined with the costs of processing and composting the wastes, rendered the economics of MSW disposal overwhelmingly in favor of landfill. This, combined with the fact that sufficient land was available for landfilling, made the decline of composting and of co-composting inevitable.

Current Status

The situation described in the previous section has now changed. The scarcity of land and the awareness of environmental and public health concerns caused by unregulated land disposal of solid wastes together with the removal of the economic advantages has resulted in a resurgence of interest in co-composting. However, the spread of sewage sludge composting is still hampered by the need for an easily available and reasonably priced bulking agent. Up until recently, wood chips were the most common materials for a bulking agent, but they are becoming difficult to obtain and consequently, more and more expensive. Therefore, other bulking materials are being sought. Consequently, it is not surprising that the potential of using the organic fraction of MSW as a bulking agent for sewage sludge composting is becoming increasingly attractive.

Steps and Problems in Co-Composting

With the exception of making provisions for adding and mixing sewage sludge, the steps in co-composting, regardless of compost method used, are the same as for composting refuse alone, except that provisions to handle the sludge in such a way that odor problems do not arise is very important. The overall process is as follows: collect the refuse and segregate the organic matter in the refuse, mix the refuse with the sludge, compost the mixture, and prepare the product for storage and post process the final product to market specifications. The following paragraphs describe certain aspects of co-composting and some of the requirements that have to be met.

Sludge Characteristics - Sludge or septage processing is not discussed in this report because the sludge usually is processed at the wastewater treatment facility and is delivered to the compost facility ready to be used. In this case the Town would have to provide for this transportation from Riverhead. The main requirement in terms of the compost process is a thorough knowledge of the physical, chemical, and biological characteristics of the material (e.g., organic content, moisture content, C/N ratio, P content). These characteristics have a major impact on the suitability of methods and equipment selected to handle and process the sludge.

Mixing Refuse and Sludge - Mixing involves two very important considerations, namely, 1) the proper ratio of sludge to refuse, and 2) the act of mixing the two wastes to form a homogeneous mixture. Many factors enter into a determination of a proper or suitable ratio. If the disposal of the sludge and refuse is of equal concern, the ratio should be such that the relative generation rates of both wastes would be matched. Fortunately, varying ratios can be used with equal success by adjusting the moisture contents of the constituents, and ensuring that the C/N ratio of the mixture is at a permissible level.

A thorough mixing of refuse with sludge is essential to the success of a co-compost operation. This is one of the more important tasks to accomplish. Ideally, the mixture should be completely homogeneous, and yet be porous. Furthermore, this porosity should be maintained throughout the duration of the composting process. The difficulty is that a mixture of refuse and sludge has an innate tendency to settle. The tendency is not surprising in view of the fact that refuse in the U.S. contains a high concentration of paper.

The utilization of raw sludge, septage, or digested sludge as a supplementary compost feedstock has the potential attendant problem of odor. Particularly in the case of raw sludge and septage, odor emissions can be substantial unless properly controlled. The problem of odor is

somewhat less in the case of digested sludge inasmuch as it has been subjected to greater treatment than sludge or septage. Consequently, digested or stabilized sludges are more desirable than raw sludge or septage as a compost feedstock with respect to potential odor problems. Additionally, stabilized sludges represent substantially less health risk to operating personnel at the composting facility. The Riverhead septage is digested and should not present a problem.

Compost Step and Product Preparation - Since the equipment and processing involved in the composting and product preparation steps are the same as those used in the composting of refuse alone, no further consideration is given them in this section.

The Product

If the entire operation has been properly conducted, the product will have all of the well known qualities attributed to a good compost. However, this statement must be qualified. Unless adequate measures are taken, the product will be contaminated by the presence of glass and plastic particles from the refuse contribution and by heavy metals and toxic organics from the sludge. These are important considerations that must be carefully evaluated for any proposed system.

7.5 Waste Distillation

According to information provided by the vendor, the Waste Distillation mixed waste processing system involves the destructive distillation of solid waste in the presence of heat and in the absence, or near absence, of stoichiometric oxygen. Distillation, by definition, is a process that consists of driving gas or vapor from liquids or solids by heating and condensing to liquid products especially for purification, fractionation, or the formation of new substances. Since there is no condensing of vapors, Waste Distillation is not a true distillation process. Pyrolysis, on the other hand, brings about a chemical change by the addition of heat. The Waste Distillation technology has been compared to pyrolysis technologies and it exhibits many similar characteristics. It should be noted that numerous pyrolysis processes were constructed during the 1970's, all of which were shut down as a result of technical and operational problems. Instead of comparing Waste Distillation with pyrolysis systems, it is reviewed herein on its own merits.

For the Waste Distillation system the incoming waste is ideally decomposed (distilled or pyrolyzed) into gaseous and solid waste products. The gas from the chemical reaction contains methane, carbon monoxide and water. The remaining residue is usually a mixture of solid char containing minerals, ash, tars, and other inorganics. Note that these are idealized reaction products and, in reality, the incoming solid waste is very nonhomogeneous, resulting in more varied reaction products.

The actual quantity and quality of the end products depend on several primary operating parameters such as the characteristics of the incoming solid waste, reaction temperature, reactor vessel pressure, and the amount of oxygen within the vessel.

No full scale facilities have been built nor are any proposed in an advanced stage of development to our knowledge. The raw solid waste is received at the tipping area where large, bulky items such as engine blocks and tree stumps are removed for separate disposal. Removal of inerts and other contaminants is important since these items can lower the energy content of the waste, cause slagging problems in the reactor, and cause mechanical problems within the system. After the waste has been preprocessed to remove these materials, the waste enters a shear type shredder and passes through a magnetic separator where a certain amount of ferrous material can be extracted. The waste is shredded again in order to reduce the particles to a uniform size before entering the feedstock pit.

The waste is removed from the feedstock pit via a hydraulic crane and is conveyed through a drying system which utilizes heat generated from the hot gases exiting the waste distillation chamber. The dried waste is discharged into a waste storage bin prior to being loaded into the feed ram. The waste is then fed into the chamber by the hydraulic feed ram. It is important that the feed ram compresses the waste into a semi-solid plug so that an air tight seal is formed at the entrance to the chamber.

The waste distillation system includes both a preheat and main operating area. The preheat system which is used mainly for start-up requirement is fueled by either natural or propane gas or fuel oil. The main operating chamber is initially preheated to 1200°F by the preheat system and burns the gas generated in the waste distillation chamber.

After the waste is fed into the main operating chamber, the destructive distillation process begins to occur in the high temperature, oxygen-free condition in the chamber. The waste continues to decompose as it moves through the slowly rotating chamber towards the discharging section of the system. The average residence of the waste in the chamber is approximately 15 minutes. The waste is thermally and chemically decomposed as it is heated in the oxygen-free atmosphere of the chamber. The waste decomposes into hot flue gases and char residue.

Although no direct combustion occurs within the waste distillation chamber, the hot gases produced which are not for internal system uses are burned (incinerated) in some type of furnace/boiler arrangement and the resulting steam is used to make electrical energy. The waste distillation system is equipped with steam turbine(s) and electric generator(s) which provide electricity to the facility and possibly a local energy customer.

The hot flue gases generated from the destructive distillation process contain vaporized tars, oils, water, and suspended char residue.

Since particulate matter and other combustion products are emitted as a result of this process, air pollution control equipment is required in order to meet all federal, state and local standards regarding air emissions. Since Waste Distillation involves combustion of the resulting gases, it will likely be subject to the requirements of the recently revised air permit regulations (6 NYCRR Part 219) for incinerators.

Controls for particulate, acid gases, and criteria pollutants will be necessary. The waste distillation system is being marketed with a supersonic free-jet scrubber system to control emissions. Due to the lack of operating data, it is uncertain if this scrubber system could meet the Part 219 regulations.

The remaining residual waste consists of glass, metals, other inorganics, and carbon char residue. The residual waste constitutes approximately 25 percent (dry weight basis) of the original processed solid waste input. Residues resulting from combustion systems typically exhibit many of the same constituents of the incoming waste, but is a more concentrated form. It is likely that the resulting char would exhibit similar characteristics. There have been no successful secondary uses of this carbon char material due to the presence of many impurities and any use of the char residue as a waste water filtration material is completely unproven at this time.

This technology was founded by Waste Distillation Technology, Inc. of Irvington-on-Hudson, NY and has only been used in a 50-TPD solid waste pilot plant at the Marcal Paper Co. in Elmwood Park, NJ. This unit was operated intermittently as a pilot plant between 1984 and 1985. The only Waste Distillation facility that is operational is located in Upland, CA. This facility only processes approximately 12 tpd which is much less than what is required for the Town's waste stream. Due to the extremely brief operational history of the waste distillation technology at the Marcal Paper Company and the lack of operating experience at a facility comparable in size to that required for the Town, it is difficult to draw conclusions regarding long-term cost effectiveness or environmental concerns, and this system is not recommended for further consideration.

7.6 Waste-to-Energy

Waste-to-energy systems are available in a variety of configurations and specific technologies for mixed waste processing systems and represent technologies in which solid waste is combusted to recover the heat energy contained therein. Waste-to-energy solid waste disposal technologies can be generally grouped into the mass burning and refuse-derived fuel (RDF) firing systems.

7.6.1 Mass Burning Systems

Mass burn technologies are the oldest and most widely demonstrated of the available mixed waste processing systems with thermal recovery. They have been proven as effective methods for burning waste in both large and small scale operating systems.

In a mass burn system, front-end preprocessing equipment is not necessary, except for the removal of oversized and bulky items from the waste stream, and waste is burned directly as-received. The system must be designed to promote efficient, thorough and consistent burning of nonhomogeneous waste. Metals may be recovered from the resulting ash residue following combustion before the residue is disposed of in a landfill.

Regardless of the mass burn technology, these facilities have certain common operational areas such as the following:

- receiving and storage area
- furnace feeding area
- furnace/boiler area
- steam and electrical generating system
- ash handling system
- air pollution control system

Solid waste is usually delivered to the plant receiving area and dumped through tipping bays into a storage pit. The storage pit is typically sized to hold the amount of waste that the system could process in three days when operating at its installed capacity. The receiving and storage area is enclosed to control dust and debris and to minimize noise and odor emissions from the facility. Waste is either fed by traveling overhead bridge cranes or conveyors into the feed hopper, where the waste is fed into the furnace. Generally, there are three typical furnace arrangements and two typical boiler configurations used in mass burn systems. These configurations are:

<u>Furnace Arrangement</u>

Grate stoker combustion
Rotary combustion
Controlled/starved air combustion

<u>Boiler Configuration</u>

Waterwall boiler
Convection boiler

Complete combustion of the solid waste occurs in the furnace and the resulting energy generates steam in the boiler section. This steam can be sold to a nearby steam customer, used to drive a steam turbine-electric generator set to make electricity, or do both (cogeneration). The flue gases exiting from the boiler pass through an air pollution control train which typically consists of an acid gas scrubber to remove acid gases followed by either an electrostatic precipitator or a fabric filter baghouse to removes particulate matter. The resulting bottom ash (from the stoker grate section) and fly ash (from the boiler and air pollution control train) are collected, quenched, and conveyed to a storage area.

The mass burn technology consists of field-erected and modular systems. A field-erected facility generally has a capacity of greater than 200 TPD. This system may include a stoker grate or rotary combustion arrangement with either a waterwall or convection boiler configuration. Currently, there are many vendors actively marketing this technology. Some of the U.S. vendors offering this technology have licensing agreements or other arrangements with European or Japanese companies.

According to the 1988-1989 Resource Recovery Yearbook, field- erected systems are the most common type of mass burn facility in the U.S. This technology has been used in Europe and Japan for many years, and its good reliability for disposing of solid waste has made it a common technology for processing waste in the U.S. Many of the U.S. mass burn field-erected systems have a demonstrated operational reliability at levels exceeding 80 percent. The required facility size for Southampton may be too small for feasible operation of a field-erected waterwall system. The refractory or convection boiler style would be more suitable.

As a result of the RFEI, Katy-Seghers's response included conceptual plans for a 250-tpd waste-to-energy facility. This preliminary facility design involves a stoker fired refractory wall furnace followed by a convection boiler for heat recovery. There are several operating plants located in the U.S. that have unit size ranges similar to the Town's requirements, and there are numerous Seghers refractory wall MSW incinerator plants in Europe that are in a comparable size range and such a facility is considered well proven.

Similarly, there are many operating modular facilities with capfacilities between 20 and 200 TPD. These modular systems are normally designed to process smaller quantities of MSW than field-erected systems, and are usually fabricated at a vendor's plant and delivered to the facility site for final assembly. Modular systems use a starved-air orcontrolled-air furnace arrangement with either a waterwall or convectionboiler configuration.

7.6.2 RDF Firing Systems

Refuse derived fuel (RDF) is a prepared fuel that is derived from the raw solid waste stream. The primary purpose of creating RDF from the solid waste is to make a more homogeneous fuel (containing less inert and non-combustible materials) which provides for greater combustion control. Typical front end processing systems utilize a series of mechanical equipment in a particular configuration to achieve RDF. This series of equipment (which can be very similar to that used to produce compost feedstock) can be broken down into the following individual unit operations that results in the production of a fuel that is easy to store, transport and combust:

- Size reduction
- Magnetic separation
- Air classification
- Size separation
- Glass, paper and plastics separation
- Drying
- Densification.

Depending upon the type of front-end preprocessing equipment used, material recovery of ferrous metals, aluminum, glass, and other materials may be accomplished, thus making the resultant RDF a more uniform fuel. The following is a list of potential benefits from processing raw solid waste into RDF:

- Creation of a more homegeneous fuel that decreases combustion air requirements.
- Improved combustion control.
- Higher heat transfer efficiencies between furnace and boiler.
- Recovery of recyclable materials.
- Reduced quantities of ash residue.
- Capability of the RDF to be co-fired with supplemental fuel.
- Improved RDF storage and transportation capabilities.

The major difference between RDF firing and mass burning is that, in the RDF system, the furnace/boiler area is entirely dependent upon the efficiency of the front-end preprocessing. An RDF facility would include a front-end material recovery system and combustion units that are smaller and of considerably different design from mass-burn units. Regardless of the RDF technology, these facilities have certain common operational areas similar to mass burn systems, including:

- receiving and storage area
- furnace feeding area
- furnace/boiler area
- ash handling system
- air pollution control system.

RDF facilities also generate steam for sale or to drive a steam turbine-electric generator set. The various RDF technologies have been organized into the following three separate systems for the purpose of this technology evaluation:

- spreader stoker system
- fluidized bed system
- suspension combustion system.

The prepared RDF fuel for the spreader stoker system requires front-end preprocessing, which may extract metals, glass and other inorganics. From storage, the RDF is fed into the furnace area via screw conveyors, belt feeders, or reciprocating ram feeders. Distributors utilizing air-swept spouts spread the RDF in the furnace area, causing a semi-suspension of the fuel. Combustion air is introduced both above and below the traveling grates.

Energy recovery from the furnace area is accomplished by the use of a waterwall boiler configuration. Air pollution control equipment and ash handling systems similar to those used in mass burn facilities can be utilized in conjunction with the spreader stoker technology.

A far smaller number of RDF plants are operating at this time, and many have undergone minor and in some cases major retrofits to enable proper operation. Major operating RDF installations include those at the following locations:

- Hartford, CT (2,000 TPD)
- Akron, OH (1,000 TPD)
- Columbus, ON (2,000 TPD)
- Biddeford, ME (700 TPD)
- Niagara Falls, NY (2,000 TPD)

Another very large spreader stoker facility (4,000 TPD) is being started up in Detroit, MI.

Some of the operational problems at various facilities have caused poor reliability and in some cases facility closure. Typical problems have included mechanical failure of preprocessing equipment, fuel feeding problems, and low quality RDF. Nevertheless, this technology is being implemented in some newer facilities. For example, the Biddeford, ME facility which began operating in the fall of 1987 was visited by Malcolm Pirnie in May 1988 and appeared to be operating successfully. The

Hartford, CT facility, which has experienced problems such as fires and mechanical failures that delayed full commercial operation of the facility, now appears to be running smoothly.

The only component of the fluidized bed system that differs from the spreader stoker system is the use of a fluidized bed reactor in the combustion area of the process train. The reactor vessel has two primary zones: 1) the bed, which provides mixing and combustion of the air and RDF and 2) the free board, where the particulate matter exits the reactor.

The fluidized bed system is a technology that appears to be emerging from the developmental stage. Information gained from numerous pilot plant projects has helped the fluidized bed system technology. The Northern States Power Company has a 400-TPD fluidized bed facility in LaCrosse, WI. This facility is currently undergoing startup and does not have any operational history yet. The fluidized bed facility in Duluth, MN operated by Western Lake Superior Sanitary District, initially operated intermittently due to various problems (i.e., low-quality RDF, ash slagging in the cyclones, poor combustion, and excess air emissions}, which caused a three-year shutdown in order to make extensive renovations and experienced a three-year shutdown in order to make extensive renovations.

A typical RDF combustion facility utilizing the suspension combustion technology is very similar to the spreader stoker system with only few exceptions. In suspension firing, the RDF is typically mixed with pulverized coal or fuel oil and introduced into the furnace by either horizontal cyclone burners or tangential burners. The fuel particles dry immediately, ignite and burn in a short period of time in the furnace. The conditions necessary for satisfactory combustion in full suspension is much more critical than those for a spreader stoker system. Variations in the quality of the fuel can hamper the efficiency and control of a suspension combustion system.

Projects where full suspension combustion systems have been attempted, used retrofitted electric utility plants which co-fired the RDF with supplemental fuel. Facilities that preprocess the RDF for full suspension combustion do not have a suspension furnace on-site. Instead, the RDF is stored and then transported to a utility-owned furnace and boiler arrangement as a partial replacement for fossil fuels.

Since no domestic suspension combustion facilities have a dedicated furnace/boiler due to the fact that such massive units are limited to electric utilities and large industrial plants, it has not been practical to use this technology as a long-term solid waste processing system.

7.7 Transfer Station Facility

Transfer stations are centrally located facilities where relatively small vehicles such as packer (collection) trucks, roll-off container trucks, pickups, and automobiles dispose of their waste. This waste is then transferred into large capacity transfer trailers or shipping containers ranging from 16 to 30 tons for hauling to a dispoal location either over-the-road or by rail. Because of their significant savings in labor and fuel, transfer trailers/shipping containers provide more economical hauling of solid waste to distant disposal facilities than would numerous smaller vehicles.

NYSDEC established a goal of reducing 50 percent of the total waste stream by the year 1997. Even if that goal is achieved, up to 50 percent of the waste stream will still remain, necessitating hauling to a final disposal site. North Sea Landfill is scheduled to close May 31, 1995 and waste will then have to be transported out of Town for processing/disposal, thereby increasing the potential that a transfer station in the Town of Southampton would be a necessary part of its solid waste management system.

7.7.1 Alternative Transfer Station Types

The two major categories of transfer stations are distinguished by the method used to load transfer trailers: top-loading and rear-loading. Top-loading station subcategories include direct dump, pit, and tipping floor designs. Rear-loading station subcategories involve waste compaction and include hopper, push pit, and pre-load types. Each subcategory has its own advantages and disadvantages, as described below.

7.7.1.1 Top-loading Stations

Direct Dump Station

Incoming vehicles dump their waste directly into the top of transfer trailers, eliminating both extra handling of the waste and the need for hydraulic compaction equipment. If the waste has been precompacted in the collection vehicles, reasonably high densities and payloads can be achieved in the trailers. Direct dump stations are amenable to drive-through access by transfer trailers, which improves safety and turnaround time. Direct dump stations can be smaller (hence less expensive) than tipping floor or pit type stations, as no waste storage space is provided. Disadvantages include the need for heavier, steel-body transfer trailers to withstand the impacts of loading, the need to tarp the trailer to prevent litter, and lack of waste storage space in the station.

Pit Station

Vehicles dump their waste into a storage pit. A bulldozer crushes and compacts the waste before pushing it to a "dump slot," where the waste falls

by gravity into a top-loading transfer trailer. Relatively high densities and payloads can be achieved. Pit-type stations provide storage capacity during emergencies, and surge capacity during peak waste delivery times. They are amenable to drive-through access by transfer trailers. Trailers can be of lighter construction than direct dump trailers. Disadvantages include higher cost, as the storage pit requires a larger building than a direct dump station. Pit type stations may require more extensive excavation and may not be suitable for high groundwater locations. Operationally, there is a risk of severe injury if a worker or station visitor fell into the pit. Open-top trailers must be tarped to prevent littering.

Tipping Floor Station

Vehicles dump their waste onto a storage floor where a front-end loader moves, stockpiles, and lifts or pushes it into a top-loading transfer trailer. Tipping floors provide surge capacity to handle peak loads and are amenable to drive-through access by transfer trailers. Inspection of waste loads for undesirable materials such as hazardous waste is easiest in this type of station. Trailers can be of somewhat lighter construction than direct dump trailers. Disadvantages include potential damage to vehicle tires and higher cost, as the storage floor requires a larger building than a direct dump station. Customers are in closer proximity to the waste, posing both aesthetic and safety problems. Resulting densities are lower than with pit or compaction type stations. Open-top trailers must be tarped to prevent littering.

7.7.1.2 Rear-Loading Stations

Compaction Hopper Station

In smaller stations of this type, vehicles dump directly into a hopper which gravity feeds a stationary compactor, which then packs the waste into a rear-loading trailer. Advantages include high density, rapid loading, and the ability to handle bulky wastes. A major disadvantage is the lack of an alternative way to load trailers if the compactor fails. Limited hopper storage space can cause queuing problems during peak periods. Reinforced steel trailers have lower net payloads and trailer drive-through access is not possible.

Compaction-Push Pit Station

Vehicles dump into a small storage pit, where a large hydraulic blade periodically pushes the waste to a dump slot at one end of the pit. This slot gravity-feeds a stationary compactor located below, which loads the trailer. Vehicles cannot tip while the blade is in motion, slowing waste delivery. Advantages include high density, the ability to handle bulky wastes, and some (limited) storage capacity. Besides having the same disadvantage as

compaction-hopper stations, construction of the push pit and hydraulic ram are expensive. Trailer drive-through access is not possible.

Pre-Load Compaction Station

Vehicles dump their wastes on a tipping floor or into a pit, where an end-loader or bulldozer pushes the wastes into the compactor's hopper. The waste is compacted in a reinforced steel chamber prior to being pushed into a trailer of light-weight construction. Advantages include very high density resulting in maximum net payloads, light-weight, lower cost trailers, and efficient unloading via hydraulic tipper or "walking" trailer floor. Disadvantages include the significant expense of the pre-load compactor and the inability to load trailers if the compactor fails.

Rail Transfer Station

In recent years, rail haul of solid waste has occurred in single or double-stacked shipping containers on flatcars. Loading of these containers is typically accomplished with pre-load compactors, as these cause the least amount of stress on the container's walls. In the case of a traditional transfer station, empty shipping containers are filled, then placed on a truck chassis and hauled to an intermodal yard operated by the railroad. There a crane or special lift vehicle lifts the container onto the flat car. With a true railroad transfer station, the containers would be filled with waste and loaded directly onto the train with a crane or lift vehicle.

7.7.2 Alternative Trailer Types

7.7.2.1 Top-loaded Trailers

Top-loaded trailers are used in conjunction with direct dump, pit and tipping floor type transfer stations. They can be constructed of steel or reinforced aluminum. After loading, these trailers must be covered with a tarp, mesh, net, or similar cover to prevent wind-blown litter, minimize access to vectors such as birds and insects, and control odors.

Although these trailers are loaded from the top, they are unloaded through rear doors. Traditional unloading methods using on-board equipment have included the hydraulic push-out blade and the rubber belt "live floor." A more recent development is the moving-slat type live floor, commonly known by its trade name "walking floor." External unloading equipment includes hydraulically operated ramps, or tippers, commonly found at high-volume landfills.

7.7.2.2 Rear-loaded Trailers

Rear-loaded trailers are used in conjunction with compactors of the hopper, push-pit, and pre-load type. Hopper and push-pit type compactors use the trailer as the compaction chamber, and require heavier, reinforced steel trailers. The pre-load compactor has its own integral compaction chamber

and can use a lighter weight aluminum trailer. Because these trailers are totally enclosed, litter, vectors, and odors are not a significant problem. Rear-loaded trailers are unloaded through their rear doors, typically with an on-board moving-slat live floor or with a hydraulic tipper.

7.7.2.3 Shipping Containers

Shipping containers are becoming increasingly popular to haul waste over long distances. Standard International Shipping Organization (ISO) are nominally 8 foot wide by 8 foot tall by 40 foot long. These containers are modified to handle waste, usually through the addition of a vent (to facilitate air release during loading via c compactor). Other modifications include a sealed floor and shallow sump to contain liquids draining out of the waste, and door seals to prevent leakage. ISO containers have no wheels of their own. This can be a significant advantage, allowing them to be intermodal, which means they can be transported by rail car, barge, or truck chasis simply by lifting the container from one mode of transport to another.

7.7.3 Evaluation of Alternatives

Any of the seven types of transfer stations could be designed to provide Southampton's required throughput. To choose among them, the two most important considerations are the ability to store waste, and the ability to load shipping containers used for long haul by road or rail.

Transfer stations must be able to accept and store waste under emergency conditions. These conditions may be internal to the station, such as when the front-end loader is out of service. Emergency conditions may also be external, such as periods when the MRF is shut down or roadways to the disposal site are impassable. Waste storage capacity is critical to providing continuous operation. Direct dump stations inherently lack waste storage capacity. The pit-type station, while having extensive storage capability, requires expensive pit construction and is probably not cost-effective on a relatively small station such as Southampton's. A tipping floor station provides significant surge and storage capacity; however, a waste storage floor could be designed into these stations.

Only the pre-load compactor type station has the ability to load shipping containers suitable for either hauling by rail or over-the-road. Hopper and push-pit type compactors are not suitable for use with shipping containers, as the compressive forces of these compactors will damage the container's walls.

Therefore, two types of stations, the tipping floor and pre-load compactor type, merit further consideration. They are evaluated below in terms of reliability, economics, traffic and compatibility with the chosen disposal system.

7.7.3.1 Reliability

Tipping floor stations require a rubber-tire-front-end loader to move waste. The working characteristics and maintenance needs for these machines are well-known. They are generally quite reliable. However, in case of an emergency repair, a substitute machine can usually be rented on short notice.

Unlike traditional compactors, pre-load compactors have a relatively short operating experience, having been used for only the last three or four years. The two well-known manufacturers are both located in Oregon, and most installations have been in the Pacific Northwest. Because of the compactor's relatively high capital cost, most facilities cannot afford a second, stand-by compactor. Instead, they keep a stock of spare hydraulic hoses and other parts that might be more likely to need replacement. To allow waste transfer in the event of compactor failure, many facilities provide some method of loading waste into open-top trailers, which can usually be obtained (on loan) on short notice. Loading is usually accomplished by direct dump from the collection vehicle (e.g. packer truck) or by gravity-feed waste pushed with n end-loader. In summary, the tipping floor station could be considered somewhat more reliable than a pre-load compactor station.

7.7.3.2 Economics

A pre-load compactor station maximizes payloads through higher waste density and use of light-weight shipping containers. The lighter the container, the higher the net payload, and the fewer round trips required. These economic advantages become particularly important when the landfill is distant (over 2 hours away) or the haul is by rail. Rail hauling a container not filled to its maximum weight capacity is uneconomical, since a large part of the cost is lifting the container on and off the train. use of a pre-load compactor ensures maximum payloads. If rail haul capability is described, and there is a large quantity of waste over which to spread the high capital cost (about $550,000) of a pre-load compactor, this type of station has advantages. A nominal amount of tipping/storage floor space is typically provided at a pre-load compactor station. If significant surge or storage capacity for emergencies is required, the station would have to be enlarged, increasing capital costs for the building.

7.7.3.3 Compatibility With Disposal System

If rail haul is a requirement, only the pre-load compactor station can be used to load shipping containers. If traditional road haul is used, both pre-load compactor and tip floor stations will work. The decision between the two types would then be based on system economics and any requirement for waste storage.

7.8 Landfilling

In the landfilling process, solid waste is spread in layers at a prepared site, compacted, and covered with earth. Regulations in 6 NYCRR Subpart 360-2 specify siting, planning and design, construction operation, and closure requirements. These include criteria for different types of landfills, such as MSW landfills, industrial waste landfills, and waste-to-energy ash landfills. Landfills proposed or operating in Nassau and Suffolk Counties also must comply with 6 NYCRR Subpart 360-8.

Under 6 NYCRR Subpart 360-8 landfills in Nassau and Suffolk Counties outside the deep flow recharge zone "can accept only solid waste and that waste must be limited to material that is the product of resource recovery, incineration, or composting and downtime waste, and untreatable waste" (6 NYCRR 360-8.3(d)(1). Waste in addition to that stated above may be accepted with approval of "the commissioner based upon the findings made after the opportunity for a public hearing that:

(i) no resource recovery facility is available to accept such waste;

(ii) the landfill's owner is making all reasonable efforts to implement a resource recovery system acceptable to the department; and

(iii) the landfilling of that waste will not have a significant adverse environmental impact" (6 NYCRR 360-8.3(d)(2).

As discussed in section 3.0, the Town landfills its non-recycled waste at the North Sea Landfill. Waste is disposed of in Cell No. 3. Both cells No. 1 and 2 are closed. There are approximately 54 acres available on the site. The Town has authority from NYSDEC to continue accepting and landfilling waste at the North Sea Landfill through May 31, 1995.

7.9 Environmental Impacts

This section discusses the generic impacts associated with implementing **the above technologies described in Sections 7.1 through 7.7.**

As described in Section 7.1, the technologies under consideration are

- **Waste reduction**
- **Recycling and Reuse (including MRF)**
- Front End Processing
- Composting
- Waste Distillation
- Waste-to-Energy
- **Transfer Stations**
- **Landfilling**

This discussion includes consideration of air quality, health effects, water quality, noise, odors, traffic, land use and aesthetic impacts resulting from these technologies.

The impacts from the MRF and waste-to-energy technologies are relatively well defined as a result of years of full-scale operating experience. At this time, solid waste composting in the United States must be considered a developing technology, with a number of systems on the market. However, full-scale operating experience with composting and co-composting technologies in the U.S. is limited. A number of facilities have been started and closed for various reasons including technical, odor, economic and marketing problems. The process has been successful with specific organic waste fractions such as sludges, manure, and agricultural or yard waste. However, there is limited experience with the full range of environmental impacts for MSW or co-composting projects in the U.S. at this time. Nevertheless, because of this experience with many other types of wastes, and the European experience, it is possible to predict approximately the impacts that might be expected from this technology. On the other hand, the impacts from the waste distillation technology are less clearly defined since experience with the technology has been limited to small scale pilot studies.

In general, impacts are mitigated through engineering design, the use of state of the art control technologies, best management practices, screening and buffers. Experience has shown that the impacts associated with front end processing and waste-to-energy technologies can be mitigated to levels which do not cause adverse impacts to the environment or to the public. In this regard the NYSDEC has recently published new emissions guidelines and procedures for ash disposal that specifically address and set limits for the compounds of concern. The nature and extent of mitigating measures to reduce the impacts from the remaining technologies are not as well established.

Some impacts will vary with the Town's seasonal population. For example, impacts such as traffic and noise will be greater during the summer months when the population peaks above the average population for the remainder of the year. Increased numbers of people will generate increased quantities of waste and increased solid waste-related activity. Mitigating measures to minimize these fluctuating impacts will also be taken into consideration in the design and operation of the facility.

The potential impacts, possible mitigation measures, unavoidable impacts, commitment of resources, growth-inducing aspects and energy requirements are discussed below.

7.9.1 Potential Environmental Impacts

Environmental impacts are generated as a result of the construction and operation of a solid waste facility. The nature and extent of these impacts will vary depending upon the technologies to be implemented and the site conditions at the selected site. Increasingly strict controls on solid waste facilities serve to minimize the environmental impacts from these facilities. **On October 9, 1993,** new 6 NYCRR Part 360 regulations became effective for solid waste management facilities. These regulations reduce impacts from such facilities by providing consistent, predictable rules for design, construction, operation, closure, and monitoring of facilities, and by requiring consideration of the entire solid waste management system. The aim is to safeguard the environment and public health by requiring state-of-the-art construction, stringent operation and maintenance standards, increased monitoring, and expanded status reporting on solid waste management facilities. New York's standards are among the strictest in the nation at this time, and the state has taken a lead role in promoting rigorous environmental protection measures.

The following section presents an overview of the impacts that can be expected.

Air Quality

Air emissions resulting from the processing of solid waste materials can include a variety of air pollutants in the form of aerosols, gases and particulates. The specific pollutants and the quantities produced will vary depending upon the specific technology selected, the size and type of system, as well as the engineering design employed. A number of air pollution control technologies are available to reduce emissions to levels that have been determined by the USEPA and NYSDEC to be acceptable.

If a combustion technology is selected, emission and control requirements will be based upon results of detailed site-specific air modeling analyses.

Air quality standards and combustion guidelines have been promulgated by the EPA and NYSDEC in order to protect human health from the effects of air contamination. Air pollution control requirements have become increasingly more stringent. These requirements are implemented by the State through Environmental Conservation Law Article 19 and regulations (6 NYCRR Parts 219 and 231). Typical air pollution control equipment that serve to meet these requirements include wet and dry scrubbers, baghouses, and electrostatic precipitators (ESP).

Emissions can also be expected from the resulting gas of the waste distillation process, which will be combusted to produce energy. The quality and quantity of the emissions along with the effectiveness of air pollution control

devices on these emissions are not well understood since there has been no full-scale operational experience with this technology.

Composting systems will also produce some emissions in the form of volatalized products of the organic decomposition process. The major air quality considerations for **MRFs, transfer stations** and composting facilities include particulates (dust) and odor.

MSW Composting, **Leaf and Yard Waste Composting** and Co-Composting - Air emission from MSW composting, and co-composting operations are generated during the mechanical processing steps as well as from organic decomposition. The primary emissions include suspended particulates, biological aerosols, and odors. These emissions may be viewed as potentially affecting two different but related environments which includes the immediate areas within the facility and the community which borders the facility.

A key source of particulate emissions includes size reduction and screening operations. In the case of composting and co-composting operations, particulates can also be generated during the formation of the compost piles and during the mixing of compostable material if the piles are mechanically turned to achieve aeration. Particulates present potential problems since there are a variety of materials commonly found in MSW that can be potentially hazardous if they enter the body.

Control of particulates generated during the handling and processing of **solid** waste material is achieved by conducting these operations within a building using a dust collection system at points of dust generation. Employee exposure to particulate emissions, can be eliminated through the use of respirators in areas of high concentration.

Particulate control in **MSW** composting and co-composting operations can usually be achieved through the application of water to the composting piles. Moistening of the compostable material to about 50 percent moisture content via water addition or application of septage or sludge is required at any rate to maintain optmum conditions for composting.

Biological contaminants can also occur in the air in the form of aerosols. The biological entities in these aerosols can be dispersed through volatilization of material during the composting process or by dust particles which have microorganisms adhering to them. Biological aerosols are particularly evasive because of the unknown numbers of organisms that are required for infective doses and the effects of dispersal of contaminants off site.

Studies have demonstrated that Aspergillus fumigatus, a causative agent of respiratory infections, has been found at elevated levels in solid

waste **and yard waste composting** facilities including composting facilities in which cellulose containing material is used as a bulking agent.

Studies have also demonstrated that elevated levels of airborne total coliforms may be expected, however, organisms isolated were not necessarily pathogenic.

A study conducted by the New York State Department of Health (March 1994) evaluated A.fumigatus levels at the Islip composting facility and associated health impacts. The study concluded that although elevated levels of A.fumigatus were observed in the nearby neighborhood, these levels were not linked to increased allergy and asthma symptoms reported in the area. The NYSDOH did recommend that composting facilities "not be sited close to hospitals or other health care facilities where extreme precautions are being taken to prevent infection of severely immuno-compromised patients, unless bioaerosol emissions can be controlled" (NYSDOH, 1994).

Biological aerosol emissions can be controlled by utilizing filters or a series of filters incorporated in a pneumatic dust collection system capable of capturing the various airborne contaminants that may escape during material processing.

Production of biological aerosols can be minimized in composting or co-composting by eliminating cellulose containing bulking agents and substituting it with recycled compost. Utilization of suitable masks in selected areas by employees will also minimize workplace exposure to these contaminants.

A formidable problem in **MSW and co-composting** facilities has been malodorous gases emanating from the raw waste stored on the tipping floor, processed waste, and the composting operation. Severe odor problems have resulted in the closure of some MSW composting facilities. Odors are generated primarily from: 1) freshly prepared compostable feedstocks, 2) any anaerobic areas within the composting mixture or storage areas, and 3) the raw septage or sludge feedstock, if co-composting is employed.

Odors can usually be controlled by careful monitoring of the composting operation and adequate aeration of the composting material. Odors can also be mitigated by conducting preprocessing operations in an enclosed area using odor control technology, although the technology has not been applied in the U.S. to MSW composting operations. The lack of historical experience is compounded by the relatively high cost of odor control systems. An exception is compost filters which are relatively inexpensive, but have an uncertain history in terms of satisfactorily controlling odors.

Good maintenance and cleaning practices in and around the facility are also important odor control measures that should be conducted on a regular basis. **For landfills, odors emanating from raw waste is controlled by the use of daily cover. Odors are also associated with leachate. Storing leachate in closed tanks effectively eliminates this source of odors. Odors are also present from hydrogen sulfide or mercaptans in methane that is vented to the atmosphere. These odors are controlled by proper venting and flaring.**

Combustion Processes - Air emissions from a waste-to-energy (WTE) technology facility are caused by the combustion of solid waste; while air emissions from a waste distillation facility are caused by the combustion of the gas produced by this facility. The exhaust flue gas typically contains such air pollutants as particulate matter, sulfur dioxide (SO_2), acid gases, nitrogen oxides (NOx), carbon monoxide (CO) and volatile organic compounds (VOCs). Therefore, these facilities are required to comply with USEPA and NYSDEC air pollution regulations and guidelines to reduce the impacts to acceptable levels based upon health risk limits. Through utilization of available air pollution control technologies (acid gas scrubbers, electrostatic precipitators or fabric filter baghouses) and monitoring and adjusting the combustion process, operating facilities have demonstrated the ability to meet or exceed regulatory levels of pollutant removal and emission standards.

For control of particulate matter emissions, fabric filter baghouses demonstrate an excellent collection efficiency. It can be further enhanced when used in conjunction with an acid gas scrubber. Electrostatic precipitators, although less efficient than a baghouse at removing smaller size particulate matter, have a long operational history demonstrative of their reliability and particulate removal efficiency.

Dioxins are thermally stable up to about 700°C (1,292 °F). Rapid decomposition to carbon dioxide, water, hydrogen chloride and chlorine occurs at 800°C (1,472°F). At 1,472°F, virtually complete decomposition has been shown to occur in 21 seconds (Duckett, 1981). The combustion rate is expected to double for every 10°C (18°F) increase in the temperature in the combustion zone (Browning-Ferris, 1983). Combustion units are generally designed to operate at 1,800°F, and will therefore have minimum dioxin emissions.

The generation and emission of dioxins and other organic compounds and the emissions of trace metals are concerns that have been raised by many public interest groups and opponents of waste to energy projects. Investigations have shown that efficient combustion processes with sufficient flue gas residence times at high temperatures and operation of state-of-the-art control technology minimize emissions of these toxic compounds. Health risk assessments reviewed and approved by the

NYS Department of Health that model the worst case exposure from such facilities have found that these emissions (within specific NYSDEC required guidelines) are sufficiently small and are not likely to pose an unacceptable health risk to the public.

Approximately 20 to 30 percent of the dioxins present in stack emissions are bound to fly ash. The remaining 70 to 80 percent are in the gaseous phase (Hutzinger, 1985). The dioxins present on fly ash are relatively easy to remove from the emissions using fabric filters or electrostatic precipitators. Scrubbers may be used to remove dioxins that are present in the gaseous phase.

Sulfur dioxide and acid gas emissions occur from the combustion of sulfur-, chlorine- and fluorine-bearing constituents in the solid waste.

Wet and dry scrubbers have been utilized to reduce SO_2 and acid gas emissions from waste-to-energy facilities. A dry scrubber is located prior to particulate removal while a wet scrubber is usually located after an ESP. In addition to flue gas control devices, implementation of an aggressive source separation and recycling program, for example the separation of plastic and paper products, has the potential for reducing the level of sulfur, chlorine and fluorine in the solid waste stream. Furthermore, many programs are targeting removal of batteries and other potentially toxic materials to further reduce emissions.

The formation of NOx compounds is inherent to all combustion reactions using air as the source of oxygen. Control of NOx emissions can be accomplished through proper design and operation of the waste-to-energy technology. Lower operating temperatures and shorter residence times have been shown to significantly reduce the formation of NOx compounds. However, modern waste-to-energy technology requires high temperatures and sufficient residence time to ensure complete combustion of the VOCs in the waste. Therefore, waste-to-energy technology facilities operate to control NOx output while reducing VOCs at the same time by adjusting combustion parameters such as lower excess air, using a staged combustion approach and installing flue gas NOx removal equipment such as selective non-catalytic reduction or selective catalytic reduction.

The formation of carbon monoxide (CO) instead of carbon dioxide (CO_2) during any combustion process indicates that the combustion process has not gone to completion. Incomplete combustion also causes the volatilization of unreacted organic compounds (VOCs) into the flue gas. Combustion of solid waste can pose special combustion considerations due to the heterogeneous nature of the material and its ability to undergo characteristic composition changes on a seasonal and even weekly basis.

Currently, emissions of CO and VOCs can be maintained within regulatory guidelines by addressing proper design and operational issues of the waste-to-energy technology, such as number and location of overfire air nozzles, combustion temperature, and excess air requirements.

Limited data are available on the composition and concentrations of air emissions from a waste distillation facility. However, the applicability of this data is questionable because the limits of detection of the monitoring equipment used during testing were not as sensitive as the usual industry tests for the detection of dioxins and furans. Further data are not available because there are no full-scale facilities currently in operation that utilize the waste distillation technology. Emissions from the combustion of gas produced by such a facility can be expected to be similar to the emissions from other combustion facilities that utilize state of the art technologies. However, data on the composition of the gas is limited. The quality and quantity of the impurities that may be present in the gas are not clearly defined. Consequently, mitigation measures to control emissions are also not clearly defined.

Health Effects

Potential human health hazards associated with various solid waste management technologies including MRFs, MSW composting, co-composting, waste distillation, waste-to-energy **and transfer station** facilities are summarized. Health hazards commonly identified with the disposal of solid waste may generally stem from the potential for odors, dust and chemical or contamination leaching from a composting facility with potential for nuisance effects, contamination of ground water, product or surface water, or the emission of gaseous or particulate contaminants from waste-to-energy or other waste destruction technologies. While potential hazards are identified, state-of-the art engineering designs, air pollution controls and operational practices would be employed in the selected technologies to minimize the release and transport of contaminants in the environment, the potential for human exposure and the potential for adverse human health effects.

As a clean MRF is a facility that processes source separated recyclables, the facility should not pose any potential health hazards to the general public.

MSW composting, **leaf and yard waste composting** as well as co-composting MSW with sludge or septage should not pose health hazards to the general public.

As noted above, a 1994 report by NYSDOH concluded that although elevated levels of A.fumigatus were associated with a composting facility the test facility was not linked to allergy or asthma symptons reported in the neighborhood. The NYSDOH did state that these facilities should not be

sited "close to hospitals or other health care facilities where extreme precautions are being taken to prevent infection of severely immuno-compromised patients, unless bioaerosol emissions can be controlled" (NYSDOH 1994).

The potential for fugitive release of pathogenic organisms contained in MSW or sludge, including bacteria, parasites, viruses and fungi, would be evaluated however. The intended end use of the composted product would also be evaluated in the context of public health risk and the specific time/temperature and metal content requirements of the Part 360 regulations. Destruction of pathogenic organisms in MSW and raw or digested sludge or septage, as well as the chemical content, must be acceptable for the intended end use (e.g., vegetable production, landscaping, etc.).

Contaminants released in stack emissions from combustion or other waste destruction technologies would be evaluated for the potential for human exposure. The dispersion of contaminants released into the atmosphere and the potential deposition of contaminants to the ground surface would be evaluated, as would the potential transport of contaminants in environmental media and terrestrial and aquatic food chains. The potential for human exposure from inhalation and non- inhalation pathways would be evaluated, and estimates made of the potential for any adverse health effects. Many predictive studies have been conducted to evaluate the potential health risks associated with exposure to contaminants in stack emissions from waste-to-energy facilities. Studies to date have indicated that modern, well designed and operated waste-to-energy facilities pose little threat to public health, although, elements of the public and professional community have not always agreed with this conclusion. The health risks associated with lifetime exposure to contaminant emissions from such facilities are in any event very small and generally less than risks associated with routine exposure to contaminants in the ambient environment and risks associated with routine, commonplace activities.

The development of a transfer station should not pose health hazards to the general public.

<u>Fugitive Dust</u>

Fugitive dust is generated during the delivery and processing of solid waste materials as well as in the handling of the resulting by-products.

These by-products can include ash, char or compost depending upon the solid waste treatment technologies selected. Engineering design and best management practices will reduce the impacts of fugitive dust emissions to insignificant levels.

Generation of suspended particulate matter can occur at the following sources: 1) tipping floor where vehicle unloading and loading of waste into the system occurs; 2) processing operations such as size reduction and screening, or furnace charging; 3) mixing operations for compost aeration, curing or storage and 4) loadout areas for recovered materials, including ferrous and compost, and for process residues.

Control of fugitive particulates is achieved via several means, including pneumatic dust control systems, moistening of dry material, adequate shrouding and containment devices at conveyor transition points and material discharge locations, and enclosing areas where fugitive particulate matter will be generated from processing operations.

Dust generation at the receiving floor and furnace charging areas can be minimized by maintaining a negative pressure in those areas to prevent migration of particulates out of the facility.

Fugitive dust is also common at landfills along temporary hauling roads. Keeping these roads wet effectively reduces dust. Seeding of closed landfill sections stabilizes and reduces dust as well.

Water Supply

Water is used for sanitary, process, fire control and cleanup needs. It is estimated that water requirements would vary between 10 and 40 gpm, depending upon the types of technology selected and the design of the facility. Water may be supplied by private wells or by public water supply. Water needs can be minimized by utilizing a number of engineering design recycling techniques and the use of best management practices.

MSW Composting, Leaf and Yard Waste Composting and Co-Composting - The composting of compostable materials derived from mixed solid waste requires substantial quantities of water. Water is required to raise the moisture content from a typical level of approximately 30 percent to a moisture content of about 50 percent for the composting mass. This level of moisture is generally considered optimum for composting of MSW. It is estimated that the water requirement during the peak season would be 13,000 gal/day or 9 gpm, and during the winter season would be 6,500 gal/day or 4.5 gpm.

The water utilized for this purpose is not required to be from a potable supply but can be contributed by septage or sludge. Depending upon the moisture content of the septage, or sludge, and their available quantities an additional source of water may also be required for MSW composting.

There is no water needed for composting leaf and yard waste. No water is needed to process waste at a landfill.

Combustion Process - A small quantity of water is required during the operation of a waste-to-energy facility for process needs and sanitary requirements. The quantity of process water required is dependent upon the specific technologies utilized. However, water supply requirements can be minimized through engineering design such as incorporating maximum recycle techniques and use of air-cooled instead of water cooled condensers. Water consumption data for a waste distillation facility are unknown. However, the Hydro-Sonic scrubber system does require the use of water.

Wastewater Disposal and Leachate from Residual Wastes

Wastewater sources include sanitary, wash down, fire control, and process water. The actual quality and quantity of wastewater generated will vary depending upon the particular technologies selected. It is estimated that sanitary wastewater will be generated by approximately 10 to 20 employees at the **solid** waste **management** facility.

There are several wastewater discharge options. These include use of an on-site septic or treatment system and/or pretreatment with trucking for off-site disposal. There are no sewage treatment facilities located within the Town. Septic systems are routinely utilized in the Town with no reports of implementation problems (SCDH, 1989).

MRFs, MSW Composting, Leaf and Yard Waste Composting and Transfer Stations, Co-Composting - Other than treatment and/or disposal of washdown water and of water used for fire control, composting operations require no water disposal capacity if the operations are protected from rain and snow and the operations are conducted on an impervious surface. If any water in the form of leachate is generated from the composting operations, it can be collected and injected back into the composting mass.

If the composting operation is exposed to rain or snow, water and leachate collection and treatment systems must be employed in order to prevent pollution of the surrounding site.

Leachates from compost or rejects produced in the compost process are likely to be similar to, but weaker than leachate from ordinary garbage. **Leachate is not a concern for leaf and yard waste composting or MRFs.**

Combustion Process - Waste-to-energy facilities can be designed for zero discharge of process wastewater, therefore the potential for ground and surface water impacts is negligible. Wastewater quality and quantities generated by the waste distillation process are unknown.

For both types of facilities, sanitary requirements are limited to washroom and lavatory needs and are not expected to have a significant impact on existing conditions. Process, wastewater (if any) and sanitary

wastewater will be discharged according to state regulations to prevent adverse impacts on the surrounding environment.

Stormwater runoff is influenced by annual weather conditions and the amount of impervious surface included in facility design. Runoff can be readily controlled by incorporating proper sediment erosion controls and outflow design to a holding or retention area before discharging to surface or ground water.

Runoff should be directed away from any solid waste to prevent potential problems such as the leaching of contaminants into the runoff.

Leachates from ash associated with combustion of MSW have been studied extensively in the past few years, because of concern that toxics may be capable of leaching from this material. The NYSDEC has established extensive testing requirements for ash and its disposal is permitted in lined landfills **if test results show the material to be non-hazardous.**

<u>Landfill</u> - Leachate is collected from landfills and often stored onsite in an enclosed tank. Processing onsite or off site is required prior to discharge to a receiving water body.

<u>Noise</u>

Noise may be generated by **MRFs, Leaf and Yard Waste Composting Facilities and Transfer Stations** during both construction and operation. Noise sources include mobile vehicles, both on-site and off-site, and mechanical equipment. The impact of this noise is dependent upon a number of factors including the proximity and sensitivity of receptors, the presence of vegetation and berms that may reduce the noise, the use of enclosed facilities, and the current level of ambient noise. An evaluation of potential noise impacts would be made in a subsequent document based upon the specific site and technology selected.

During the construction of a facility, noise would be generated from multiple sources including heavy equipment and vehicular traffic. Generally, noise levels generated during the ground clearing and excavation phases of construction are highest, foundation placement and erection phases somewhat quieter, and the finishing phases again producing higher noise levels. Noise levels from construction activities can range from 94 to 96 dB(A) at a distance of 50 feet from the combined noise sources.

Facility operations will generate noise from equipment sources such as fans, turbines, hydraulic systems, conveyors and the boiler for a waste-to-energy or distillation facility. Since these activities are conducted within an enclosed building structure, the noise levels can be reduced through the use of vibration controls and attenuation devices and are usually quite low outside of these enclosures. The volume of vehicular traffic associated

with the **waste-to-energy or distillations facility, as well as a MRF/central transfer station** will be similar to the volume currently going to the landfill.

Windrow composting operations generate noise during the mechanical turning of the piles. Diesel powered wheel loaders or special mechanical turners are usually employed for this purpose with the attendant noise levels. Static pile composting generates noise from the pneumatic blowers. The uncontrolled noise levels are generally low. In the case of large compost production operations where large blowers are employed, silencers can be utilized to mitigate noise.

Noise from hauling trucks and maintenance vehicles are common at landfills. Often the most noticeable noise is that of the warning sound as the trucks back up.

Odors, Vectors, Litter

Nuisance impacts are associated with virtually all solid waste management activities; the degree of impacts (e.g., odors) are technology and site specific. Engineering and operational controls, however, will minimize these impacts on the public.

Clean MRFs do not attract vectors; odors are rare and litter is contained within the processing building.

Odors and vectors originating from construction operations would not be noticeable since the materials used are not putrescible organic materials. Any litter generated by construction would be controlled by good housekeeping practices. Nuisance impacts associated with the processing facilities are discussed below.

MSW Composting, Co-Composting **and Transfer Stations**- Odors are generated within **waste material** processing operations **and transfer stations** from several areas. One area is the tipping floor where raw MSW is stored and handled by wheel loaders. Odors of raw waste are generated within the tipping floor area. The odors may be somewhat contained by enclosing the tipping floor area and by processing the raw waste as soon as possible after its arrival. The odor of processed waste can be mitigated by enclosing the processing system.

Odors are generated from the **MSW** composting operation. Malodorous gases are generated if aerobic conditions are not maintained in the composting mass. Consequently, adequate process monitoring and aeration are required to mitigate the production of foul (i.e., anaerobic) odors.

The use of septage or sludge as a supplementary compost feedstock also contributes to emission of odors from the process system. The liquid wastes are characteristically anaerobic upon arrival at the facility and malodorous

gaseous emissions will persist if not controlled, or until oxidized during composting.

Various types of systems are potentially available for odor control. However, there is little proven operating record for such systems in MSW composting facilities. In addition to their somewhat limited effectiveness, the systems are also relatively expensive in terms of percentage of cost of the processing facility. It is important to note that there is a direct relationship at this point between the potential desire to enclose composting facilities, and the cost and maintenance problems associated with the enclosure and odor control system if this is done. Ideally, the volatalized products of microbial decomposition from composting (mostly CO_2 and H_2O) are simply allowed to dispense in the atmosphere, and a provision for their release must be made. However, if they contain odors, an enclosure must be considered. This is a major issue that will directly affect the cost of any proposed system.

Unpleasant odors from leaf and yard waste composting operations may form if anaerobic conditions are allowed to persist. Proper site operation should eliminate the potential for most odor problems.

MSW composting **and transfer station** operations have historically posed some problems in terms of vectors. There are two primary areas for vector activity the solid waste and MSW compost storage areas, and the MSW composting operation area. Vector control in the storage area **(transfer station)** can be readily accomplished with a quick turnaround of the solid waste supply, design considerations, such as concrete walls to prevent penetration by vectors, and housekeeping measures, such as keeping garage doors to the tipping floor area closed during periods when the solid waste is not being delivered.

The use of open or unconfined piles of stabilizing MSW compost have attracted vectors. However, this problem can be minimized by proper design and operation of the compost system. Enclosing the operation or periodic turning of open compost piles can help prevent breeding in the compost operation areas.

It is expected that any potential vector problems within the waste storage and MSW composting areas would not be noticeable at off-site locations if facilities are designed and operated properly.

Because leaf and yard waste is not an attractive food source, vectors are not expected to be a problem at most sites. While some rodents may seek the warmth of the compost piles, proper site maintenance should eliminate this problem.

Facilities processing solid waste can create litter if not properly maintained. The design and operation of the facility would promote good housekeeping

practices, such as promptly covering or processing the solid waste before it is transported by wind currents and becomes an off-site problem. Enclosure of the facility, especially the tipping floor, can minimize potential impacts due to litter. Additionally, vehicles transporting solid waste to the facility would be appropriately covered to prevent blowing paper and litter.

Combustion Process - Refuse delivered to a facility would be unloaded and stored within the facility in an enclosed area under negative pressure. This creates a slight vacuum which causes any odors to be drawn into the furnace with the combustion air where the malodorous compounds can be incinerated. The residue generated by a waste-to-energy facility or waste distillation process contains very little, if any, putrescible material. Therefore, odors are not expected to create any adverse impacts during the operation of these facilities.

Potential vector and litter impacts can be expected in the waste storage area. These impacts and their control are similar to those discussed in the previous section.

Landfill - The presence of putrescible matter in the MSW attracts insects, rodents and avian scavengers, such as gulls. Prevention of insect and rodent breeding and the application of daily cover can control adverse impacts.

Traffic

Short-term traffic impacts from the construction activities of a solid waste management facility would be minimal. Current traffic to the landfill involves commercial haulers, Town-operated transfer trailers, and self-hauling residents. During the peak season, there are approximately 70 to 90 commercial hauling vehicles (including transfer trailers) and 1,000 to 1,400 self-hauling vehicles entering the landfill on a daily basis. During the off-peak season, the commercial hauling and self-hauling vehicles entering the landfill on a daily basis fall to about 50 to 70 and 300 to 600, respectively. Depending on site location, the local access roads may experience a slight increase in use during the peak traffic periods for the duration of the construction. The impact of traffic during operations, including both trucking of refuse to the facility as well as the transport of residual materials from the facility, is site specific. The short term traffic impacts for the various technologies are discussed below.

Leaf and Yard Waste Composting, MSW Composting and Co-Composting - If the composting facilities are located at the same site as the existing landfill, the onsite volume of traffic would be the same as the traffic volume now entering the Landfill. A slight increase in truck traffic would result from the transportation of compost material and recyclables off the site. It is estimated that during the peak summer season 7 truckloads of compost

and 9 truckloads of recyclables would be transported offsite each day. Considering that 70-90 trucks enter and leave the Landfill each day during the summer, the impact of these additional 16 trucks would be slight. Total truck volume during the winter season would be reduced below the volume of the summer season. It is estimated that an average of 4 truckloads of compost and 5 truckloads of recyclables would be transported offsite every day during the winter season. Since 50-70 trucks enter and leave the Landfill each day during the winter, the impact of these 9 additional trucks would be slight.

Combustion Process - If the combustion facility is located at the same site as the existing landfill the volume of traffic in the near term would be the same as the traffic volume now associated with the existing landfill. The entering waste stream would be comparable. It is estimated that only one truckload of residue material would be transported from a waste-to-energy facility to **a disposal location** (landfill) every day or every other day.

The quantity of residual material from a waste distillation facility is not known. Consequently, the truck traffic associated with the transport of residual material cannot be estimated although it is believed to be similar to that discussed above.

In the long term, the Town's waste stream is expected to increase. Traffic impacts can be expected to increase accordingly, and it may be necessary to consider some restrictions on the minimum amount of waste delivered by self-haulers, since they are a larger percentage of the volume.

Landfill - Waste is delivered to the Town's landfill via self-haulers, private carters and Town trailers. Residential streets are used to access the site.

Land Use and Aesthetics

In order to minimize the aesthetic impacts that such an industrial development may have upon adjacent land use, a minimum size of about 25 acres plus a generous buffer area is required of candidate sites. A 100 foot buffer area around all facility operations is considered desirable regardless of the technology selected. All technologies under review at the present time involve refuse handling and processing along with significant volumes of truck traffic. These types of activities are usually associated with municipal and commercial/industrial operations and would be most consistent with these types of land use. The impacts of each candidate technology upon surrounding land use are expected to be similar since all facility operations will be mostly within an enclosed structure and potential impacts would be minimized to the extent possible. In this respect, a composting system has the potential to have the greatest

amount of unenclosed operations, and this needs to be considered carefully as previously discussed.

Although most waste-to-energy and distillation technologies require multi-story facilities and an exhaust stack, such aesthetic impacts can be minimized through creative architectural treatments, buffer zones and landscaping. Every effort will be made to insure that any facility is an attractive and visually pleasing structure. Architectural treatment and landscaping are both very important considerations. The construction of an attractive and well designed facility will be a "good neighbor" and a credit to the community for many years in the future. Moreover, such a project is likely to be the largest public works project ever undertaken by the Town, and it is important that it receive appropriate attention.

Landfills can be screened by the use of landscaping, using existing topography and establishing the operating face at a distance from roads. Revegetating the site as portions of the site close helps to blend the mound into the viewscape.

Explosions and Fire

Mixed waste processing operations that employ size reduction equipment are susceptible to explosions and fires generated by this type of equipment. Typically, explosions, fires, or both are generated from the size reduction of combustible solids or from combustible gases liberated during size reduction.

Sparks, hot particles generated by size reduction, or both serve to ignite the combustible substances. Fire generated within the size reduction equipment may be spread throughout the processing facility by way of the mechanical or pneumatic conveying equipment. Control of fires is generally by way of deluge water systems and, where applicable, by conveying combusting material to storage areas for extinguishing.

Certain types of explosions within size reduction equipment can be controlled by gas inerting systems. Inerting systems can control conflagrations (i.e., explosions whose wave front is sub-sonic), but cannot exercise control over detonations (supersonic wave front).

The damage from explosions caused by size reduction processes can be mitigated by isolating the size reduction equipment from other equipment and from personnel. The isolation can include placing the equipment within a concrete enclosure. Further mitigation is achieved by properly designing and installing an explosion venting system on the size reduction device and by providing for organic vapor detection equipment and inert gas suppression systems.

7.9.2 Mitigating Measures

The following mitigation measures are designed to decrease the severity of environmental impacts that may be associated with the development of a facility. Virtually all of the adverse environmental impacts discussed in Section 7.8.1 can be mitigated to acceptable levels by design, construction, best management practices, screening and buffers, however, they must be carefully addressed in the procurement and design criteria of the facility.

Emissions of fugitive dust during construction would be minimized by the application of water to any areas that may be potential sources of dust. A soil erosion control plan will be developed to reduce the potential for erosion of sediments on- and off-site during construction activities. Where appropriate, hay bales, silt fences and vegetation will be used to aid in erosion control. Traffic impacts during construction would be short term in nature and can be minimized by careful planning and scheduling.

Mitigating measures will be employed to reduce the severity of the adverse impacts resulting from operation of the facility. The mitigating measures are summarized below.

Air Quality

The degree of impact from operation of the facility on existing air quality would be related to the particular technology employed. However, state-of-the-art methods of reducing air emissions would be incorporated into the design of the facility to meet the requirements of applicable regulations.

The extent of the mitigating measures for the waste distillation facility are less clearly defined than for the waste-to-energy facility since the impacts are less developed.

Fugitive dust emissions would also be controlled by wetting dust producing materials (ash residue, compost), pneumatic dust control systems and maintaining the processing facility under a negative pressure. In this regard the potential need to enclose composting facilities is a major issue that has important cost and environmental concerns.

Water Quality

Short term impacts to water quality may occur as a result of increased runoff and construction of a facility. However, steps would be taken through the development and implementation of a soil erosion and sediment control plan to prevent undue siltation and erosion during facility construction.

Impacts to water quality may occur over the life of the facility due to increased storm water runoff or point source discharges of process wastewater from the facility. These occurrences would be limited through the use of appropriately approved collection, treatment and discharge systems.

Leachates from residue or ash would be contained within a double lined landfill cell and would be **properly stored and treated.**

Noise

Noise generated during construction and operation of a facility would be controlled by using vibration control and attenuation techniques. Mufflers would be utilized on noise producing equipment where appropriate and equipment would be maintained in proper operating condition. Minimization of vehicular traffic on the site would also lessen the potential noise emissions. A buffer will be incorporated in overall site development plans to help reduce the potential for off-site noise impacts.

Traffic

Traffic impacts are site specific and will be evaluated in the subsequent EIS. Roadway and intersection improvements will be considered where mitigation is required for impacts associated with facility operations.

Increased heavy vehicle traffic will be experienced on weekdays in the vicinity of the transfer station. One method of mitigating local traffic impacts is to locate the transfer station near a major arterial, minimizing the amount of travel on surface streets. Another method is to provide adequate roadways to allow all vehicles to queue (wait to unload) within the property, rather than on public streets. Lengthening the hours of station operation also can decrease peak period traffic impacts.

7.9.3 Unavoidable Environmental Impacts

Unavoidable environmental impacts associated with the implementation of a **solid waste management** facility would include short term construction impacts, consumption of landfill space for residuals, and the commitment of resources for construction and operation activities. Construction of a facility may create short term impacts such as noise, fugitive dust, and soil erosion. Ash residue or char generated as a byproduct of the incineration process will require ultimate disposal in a permitted landfill facility, and the commitment of landfill space. However, the amount of landfill space required will be much less than that required for the disposal of raw MSW. In addition, state regulations prohibit the disposal of unprocessed MSW on Long Island after 1990. The severity of all other impacts associated with the implementation of a **muncipal solid** waste

management facility can be mitigated. Measures will be incorporated into the overall construction and operation plan to ensure all potential adverse impacts are mitigated to the greatest degree feasible.

7.9.4 Irreversible and Irretrievable Commitment of Resources

Resources expended during the implementation of a solid waste management facility would include land utilized for site development and energy and financial resources utilized during both construction and operation phases of project implementation. In addition, the commitment of a labor force would be required during the construction phase. However, the development of such a facility would also result in the reduction of landfill requirements. The consumption of natural resources could be reduced if energy is produced.

7.9.5 Growth Inducing Aspects

The development of a solid waste management facility is not expected to have any growth inducing aspects associated with it. The development of such a project provides an environmentally sound method of solid waste disposal that is a necessary service to the community.

7.9.6 Use and Conservation of Energy

The amount of energy generated and consumed by such a facility is dependent upon the technology selected, the amount of waste available for processing and the costs associated with operation of the facility. A waste-to-energy or waste distillation facility could generate steam and/or electricity. A clean MRF would remove recyclable materials thereby conserving energy that would be expended for the production of virgin materials. Implementation of such a project will in part fulfill the state requirements for the disposal of solid waste.

7.10 Implementation Issues

This section discusses the institutional issues that must be addressed to implement a solid waste management system. These issues include:

Materials and energy markets
Solid waste stream flow control
Facility procurement
Financing and funding assistance
Risk posture
Reliability and feasibility
Town solid waste organization
Intertown agreements
Collection system
Transfer station utilization

7.10.1 Materials and Energy Markets

7.10.1.1 Compost Market Analysis

A preliminary market analysis for compost derived from the organic fraction of municipal solid waste was conducted in the Long Island region (Suffolk and Nassau Counties). The purpose of the analysis was to identify potential users of solid waste compost, product demand, and competitive pricing requirements. The analysis performed by Cal Recovery Systems Inc. (CRS) for this report included consideration of the following:

- characteristics and properties of the recovered end product;
- the types and locations of potential users of the enc~ product;
- the size of the market of potential users; and
- a description and selling prices of competitive products currently used in the marketplace.

Although this analysis was conducted in association with potential users of solid waste derived compost, it is reasonable to assume that the conclusions drawn here are appropriate for compost generated from leaf and yard waste.

The market analysis was predicated upon the availability of a solid waste compost that would meet Class I and Class II specifications.

Approximately 31,000 tons per year of solid waste derived compost may be produced by a MSW composting facility serving Southampton, although this amount could be less if large amounts of paper and fiber are removed via source separation. Assuming that the leaf and yard waste, MSW, and sludge is co-composted, compost production during the design year (2003) is estimated to range from 57 to 115.0 tons per day for an average of 86.3 tons per day X 365 days = 31,000 tons per year. At a moisture content of 50 to 60 percent, the density of compost derived from municipal solid waste is approximately 700 pounds per cubic yard. Therefore, the expected annual volume of compost produced is approximately 31,000 tons X 2,000 pounds per ton X 700 pounds per cubic yard = 88,000 cubic yards per year. Based upon the characteristics of the compost product required by state regulations, the material is potentially suitable for use in both agricultural and non-agricultural sectors. Compost material has been demonstrated to be beneficial for a variety of plant materials and serves a number of purposes including:

- acting as a mulch to aid water retention,
- inhibit weed growth,

- acting as a top dressing by improving appearance, and
- adding to the organic matter of the soil.

Each of the two proposed leaf and yard waste composting facility would receive approximately 15,000 tons of a receiving area. The 15,000 tons of yard waste received by each facility would include approximately 9,000 tons of leaves and 3,000 tons of grass clippings, which would be combined in composting windrows. Of the total of 12,000 tons of leaves and grass formed into windrows, approximately 40 percent would be lost during composting, leaving 7,200 tons of compost. Of the 7,200 tons of compost, 5 percent or 360 tons would be screened out and disposed of, leaving 6,840 tons of screened compost for temporary storage and marketing.

Each facility would also receive approximately 3,000 tons of woody yard waste. This waste would be shredded and formed into windrows for curing. During curing, the woody yard waste would lose approximately 15 percent of its weight, primarily through loss of moisture. After curing, therefore, approximately 2,550 tons of mulch would be transferred to the product storge area.

Agricultural Market Analysis

According to the Long Island Farm Bureau, USDA, there are roughly 39,000 acres of land utilized by the agricultural industry in Long Island, the majority located in Suffolk County. The towns of Riverhead, Southold, and Southampton alone comprise 75 percent of the total acreage. The major agricultural commodities include potatoes, nurseries, sod, grain, and cabbage. The total market value of produce sold by Suffolk County farmers exceeded $115 million in 1987, an increase of 25 percent compared to 1982.

A variety of vegetables and fruits is grown in Suffolk County. Potatoes, cabbage, cauliflower, grapes, and sweet corn comprise the largest acreage. All varieties of potatoes, sweet corn, and cabbage are grown for fresh market, according to the Cornell Cooperative Extension Association of Suffolk County. Except for grapes (wine), there is little evidence that the remaining vegetable and fruit crops are grown for other than direct human consumption.

Based on state regulations, the application of solid waste-derived compost on these crops is prohibited. Unless an exception is granted from the New York State Department of Conservation, the main vegetable/fruit crop acceptable to apply compost is grapes, which are primarily grown for wine production.

In addition to the crops mentioned, grain and hay comprised 6,000 acres in 1988. The grain is most likely grown to support the relatively small

herds of dairy cows (Holstein breed), beef cattle (Black Angus and Whiteface Hereford), and sheep.

Non-Agricultural Market Analysis

Private Sector - Nurseries and greenhouses have become the major horticultural producers for Suffolk County. These nurseries and greenhouses generate roughly one-half of the entire state's horticultural production, a market share of $67.3 million in 1987.

Approximately 300 acres of greenhouses exist in Suffolk County. Both potted plants and cut flowers are grown. Cut flowers include roses, chrysanthemums, and orchids. Potted plants include azaleas, geraniums, poinsettias, lilies, perennials, and foliage plants. Production of these plants varies from year round (i.e., chrysanthemums) to one specific season (i.e., poinsettias), with an estimate of roughly two crops per year. Solid mixtures generally include peat moss and vermiculite.

Approximately 6,500 acres of nursery crops exist in Suffolk County, with the major crops being deciduous shrubs, evergreens, shade and ornamental trees, and container - field grown perennials. Nursery operations range in size from one acre to over 400 acres. Plants are grown both in nursery fields and containers. Growing mediums generally include a coarse building sand, peat moss, and fine shredded bark.

Approximately 4,500 acres of sod are grown in Suffolk County, generating $10 million annually. Sod farms are primarily located in Brookhaven, Riverhead, Southampton, and Huntington. Kentucky bluegrass is the primary sod grown, with an 18-month growing period. Prior to seeding, the soil is plowed, barrowed, limed and fertilized. During harvest, approximately one-half inch of topsoil is lost. Thus, the application of compost to these fields may be very beneficial.

There are approximately 583 landscaping and horticulture businesses in Suffolk County, with an employment of 2,010 persons, according to the Department of Commerce. The majority of these companies are small operations; over 80 percent of these businesses have less than four employees. Eighteen companies employ 20 or more persons.

Landscapers use significant quantities of organic soil amendments. Soil amendments are required for new construction projects (e.g., residential housing developments and commercial buildings), and the maintenance of existing landscaping. Materials used include: topsoil, mulch (bark), compost, and peat. These materials are typically purchased in bulk form, when possible.

Public Sector - Municipalities and other government agencies often require organic soil amendments for use as a soil conditioner or top dressing in

parks, recreation areas (such as ballfields and golf courses), landscaping, turf repair, etc. Public agencies which are potential markets for compost in the area include:

Town of Southampton, Highway Department
Town of Southampton, Parks and Recreation
Suffolk County Department of Parks and Recreation
Nassau County Department of Parks and Recreation
New York State Department of Transportation

These agencies were surveyed for their demand of soil amendments. In the Town of Southampton, for example, the Highway Department reported using roughly 3,500 cubic yards per year of topsoil. This material was obtained from a recharge area, thus the major costs were digging and transportation. The Southampton Parks and Recreation Department reported purchasing roughly 300 cubic yards per year of topsoil at a price of $12 per cubic yard.

Suffolk County Department of Parks and Recreation reported an annual purchase of 500 cubic yards of topsoil at a cost of $0 per cubic yard, 600 cubic yards of top dressing mix at $50 per cubic yard, and minimal quantities of peat. Nassau County Department of Parks and Recreation reported the usage of 4,500 cubic yards of compost at a cost of $0 per cubic yard, 200 cubic yards of manure at a cost of $0 per cubic yard, and 67 cubic yards of peat moss at roughly $35 per cubic yard.

The New York State Department of Transportation (NYSDOT) is also a user of topsoil. Topsoil is used for planting and dressing slopes. Specifications include a pH range of 5.5 to 7.6, organic content of between 2% and 20%, and size distribution by weight as follows:

Screen Size	Passing Rate
2 inch	100%
1 inch	85% - 100%
1/4 inch	65% - 100%
200 mesh	20% - 80%

The ability and willingness of public agencies to utilize compost would obviously benefit the marketing for this material. The use of compost by public agencies will depend largely on price, specifications, and procurement procedures by each agency. In addition, markets can be improved if state or local legislation provides a bidding incentive for agencies to purchase compost rather than other soil amendments. A similar program has been developed for the purchase of office paper made from secondary paper. This has greatly improved the purchase and usage of recycled paper in the State of New York.

Market Demand

An estimate of potential compost demand for Suffolk County of 1,133,000 cubic yards per year of compost may exist for compost produced, in the Town or from other local supply sources to replace soil amendments now being used. This includes an annual demand of 831,000 by nurseries, 80,000 cubic yards by wine grape growers, 95,000 cubic yards by sod growers, and 28,000 cubic yards by landscape services. It should be noted that very conservative application rates were used for the markets presented.

The quantity of compost which would be produced in the Town represents about 7 percent of the total potential market demand. It should be noted that the marketing of compost from the Town would be competing with other composting projects in Suffolk County, including Islip, East Hampton and Southold at this time, and others in the future.

MSW Compost Marketing Overview

Marketing of compost has historically been one of the key issues of concern since the feasibility of composting largely depends on the ability to sell, or at least give away or find a beneficial use for the compost product. This preliminary compost market analysis indicated a theoretical demand for composted material in and around the Town of Southampton. However, compost is not a soil, but a soil amendment that will undoubtedly require a demonstration period before potential customers accept the material.

There are several factors that will affect the actual marketability of the composted material. These factors are; the material being composted, the quality of the product, market confidence (a function of the length of time the product has been used) and the channels of market distribution. Before a new compost product can gain market acceptance, it will first have to prove its usefulness. Market penetration may be quite difficult and this market is competitive. Consequently, a well planned market development effort must be a key element of the solid waste management program, to facilitate acceptance and use of the product.

Direct marketing of compost to the end user, the highest paying market segment, while desirable, is not the usual means for marketing a new product. The end user market for compost generally consists of small to mid-sized commercial or retail establishments. These firms tend to be rather conservative relative to the introduction of a new product. Even though some firms may be using a composted material, it is a material that the establishment has worked with before, and knows that the material will not adversely affect their business. Direct marketing of compost must also compete with an existing channel of distribution. The interests that comprise these channels would view any new source of compost as competition. In

this light, Southampton would be competing with the East End Towns along with other towns on Long Island that have leaf and yard composting programs.

The primary issue is not really one of profit or loss, but disposing of the solid waste stream. It is important not to be overly optimistic about markets, particularly with the quantities involved. The Town of Southampton should be in a position to initially give the compost material away. To minimize the marketing risks, the sale of compost should be part of an overall design, build, and operate scenario for a composting system, where the selected vendor is financially capable of guaranteeing and end market for the resultant material. This would minimize the Town's risks for marketing this material.

Composting as a Volume Reduction Strategy

Given some of the potential uncertainty in marketing compost, it is important to review the feasibility or necessity of landfilling portions of the compost should this become necessary. While this strategy is not desirable, principally because it requires the use of considerable valuable landfill volumes and results in negative revenue.

Depending on the amount of source separation, the types of compost produced and the ability to extract additional salable recyclables from the process, the compost systems could result in a net volume reduction range between 40 and 20 percent of incoming total waste. A number of variables associated with compaction and subsequent decomposition in the landfill must be considered to accurately predict final volumes, and these can be more accurately assessed after a specific system is selected. However, it is concluded that landfilling of compost could be available as a back-up alternative should it not be possible to market compost product for limit periods of time.

It is noted that such a strategy should be avoided, and that the total cost of disposal will increase substantially should this be necessary. In essence, this strategy should only be considered as a last resort, and would ultimately depend on the Town's ability to develop substantial additional landfill volume at the North Sea site.

7.10.1.3 Energy Markets

If an energy-producing technology is selected, energy markets will be needed for the electricity produced by a waste-to-energy facility or for the RDF that may be produced. Once the Town has selected an appropriate technology, potential energy markets will be actively pursued.

The Citizens' Advisory Committee on Public Power (CACPP) for the Town has been examining the possibility of implementing a municipal

electric district within Southampton. Due to Long Island Power Authority legislation in connection with the takeover of the Shoreham Nuclear Power Plant, the CACPP efforts to implement another means of supplying and distributing electric power to the municipal electric district were discontinued. However, the CACPP suggested that a municipal electric district created by the Town could receive and distribute electricity produced by a waste-to-energy facility to the residents of the Town. Therefore, this proposed municipal electric district is a possible energy market that would need further examination once the Town selects the mixed waste processing technology.

LILCO is another possible customer for electricity generated by a waste-to-energy facility. The Public Utility Regulatory Policies Act (PURPA) of 1978 and the New York Public Service Law (PSL) requires electric utilities, in this case LILCO, to purchase electricity from qualifying facilities. It was expected that the Town could receive payments based on estimated long-run avoided costs for each kilowatt-hour delivered to LILCO. However, LILCO submitted a bidding system plan in the fall of 1988 to the PSC, which was accepted and responded to the Public Service Commission's (PSC) interest in developing a competitive bidding process for future generating capacity. This bidding system allows LILCO to cease negotiations with independent power producers except for those waste-to-energy facilities that would be on line by May 1991. Further, on June 13, 1989, the PSC withdrew its waste-to-energy exemptions and is now awaiting the recommended policy for these facilities from the New York State Energy Office (NYSEO). The two options regarding parallel generation agreements with New York State utilities are that waste-to-energy facilities would be:

- required to participate in one competitive bidding process, and
- exempt from the bidding process but would receive payments based on the average energy price awarded to the bidders.

Thus, the recommendations of the NYSEO will be an important issue affecting the possible sale of electricity to LILCO and will likely increase the cost of waste-to-energy options by reducing the minimum payments for energy currently enjoyed by operating facilities.

If the NYSEO recommends the competitive bidding process option, there is the possibility that revenues could be reduced to include only the avoided cost if the facility were not successful in the bidding process. Although this is quite unlikely, given projected future energy needs for Long Island, this possibility should be considered, since it would have a substantial effect. Moreover, under a more likely competitive situation, the price could potentially drop to as low as $0.03-0.06 per Kwh, which would result in a $5-10 per ton increase in tipping fees.

Energy markets for RDF could include local industries that require additional and/or auxiliary fuel for their furnace/boiler systems. However, a more detailed examination of possible RDF markets will be considered if such an RDF-producing technology is selected.

7.10.2 Solid Waste Stream Flow Control

An analysis of the annual solid waste stream quantities and characteristics has been discussed in Section 3.3, Solid Waste Quantification and Characterization. This quantitative assessment, however, does not in itself ensure that this available quantity of solid waste will be delivered to a waste disposal facility. The facility owners (Town or vendor) and/or operators must also have some form of control to ensure that the solid waste will indeed be routed to the facility. Without this control of available solid waste to the facility, the risks of owning and operating such a facility increase substantially. The net effect of a scenario in which no solid waste stream control is in place would be that the facility becomes a "merchant" plant competing for the raw solid waste supply with other solid waste disposal facilities and financing such a plant is untenable. Therefore, it is critical to obtain control of the solid waste stream to minimize these risks.

Historically, there have been three prevalent methods of solid waste stream flow control successfully used by waste disposal facilities in the U.S.:

- Legislative methods
- Contractual methods
- Economic methods

The Town currently has an ordinance related to solid waste management activities (see Section 3.3.5, Local Ordinances). However, this ordinance does not specifically direct the waste to designated disposal facilities. The Town may wish to revise this ordinance to direct mixed waste to the appropriate processing facilities as required for implementation of the SWMP. **A recent U.S. Supreme Court ruling states that flow control legislation is unconstitutional. Therefore, legislative methods are no longer an effective method to controlling waste stream flow.**

Historically, one of the simplest methods of controlling the solid waste stream flow is to have the owner of a waste disposal facility contract directly with the private haulers collecting the solid waste or with the municipalities in which the solid waste is generated. A contract includes the initial tipping fee and escalation of the tipping fee throughout the contract term, commitment by the facility owners to accept a specified amount of solid waste and a commitment by the hauler or municipality to deliver a guaranteed waste quantity and to pay the tipping fees regardless of whether the guaranteed tonnage is actually delivered. These provisions control the flow of the waste collected to the facility and provide economic security over the long term.

A typical contract term for this method of solid waste stream flow control is 20 to 25 years and has the potential to guarantee long-term cooperation between the municipalities or the private haulers and the facility owners. This method is unlikely to be useful to Southampton, however, since contracts, with local haulers cannot be backed up to any significant financial guarantee.

Economic methods of controlling the solid waste stream flow involve attracting the solid waste stream flow to a waste disposal facility by setting artificially low tipping fees at the facility. The rationale behind such methods is simply that if the tipping fee charged is set low enough, the economic advantages of decreased cost and higher profit for the private haulers is too great an incentive for them to deliver the solid waste stream to another waste disposal facility. For example, a county-wide landfill facility may charge a tipping fee to the private haulers lower than that charged by present alternative waste disposal facilities such as out-of-county or local landfills. This method of flow control does not appear to be applicable to the Town's solid waste management system since a regional approach to mixed waste disposal is not being utilized.

As the above discussion indicates, there are advantages and disadvantages associated with each of these solid waste stream control methods.

The Town currently has some ordinances related to flow control of MSW. As discussed in Section 6.3.1, Mandatory Participation Laws, it may be appropriate to control the flow of recyclables via contractual methods.

7.10.3 Procurement Methods

The purpose of this section is to provide an overview of the procurement methods by which a solid waste disposal facility can be implemented in New York State. A brief review of applicable New York State General Municipal Law regulations for the procurement of solid waste disposal facilities will also be discussed in this section.

There are four primary methods of procuring a solid waste disposal facility:

- Conventional Architect/Engineer
- Turnkey
- Full Service with Private Ownership
- Full Service with Public Ownership

The following subsections will discuss these four methods by which a solid waste disposal facility can be procured.

7.10.3.1 Conventional Architect/Engineer

From a historical perspective, the conventional architect/engineer (A/E) procurement method has been the most common approach to public works projects. A municipal entity, such as the Town or other entity that may be empowered in the future to develop waste management facilities, utilizing this approach procures goods or services by having its consulting engineer or architect design the project, then requesting and receiving formal bids. Award of the contract or purchase order is then made to the lowest bidder. The intent of the A/E approach is both to ensure the lowest cost possible for the municipal entity and also to prevent collusion in the award of the contract or purchase order.

Typically legal constraints on this procurement method permit only very limited exchanges of information and modifications to specifications during the formal bidding process. Accordingly, the contract documents, including drawings and specifications, must be detailed and thorough. Once the contract for construction of a waste disposal facility has been awarded, the facility should be built in accordance with the schedule and for the price provided in the contract. 'The completed waste disposal facility would be owned by the municipal entity and may be operated either by public sector employees or private sector employees under an operations contract.

The A/E procurement method has been modified as of late by some municipal entities. This modified A/E procurement method seeks bids on the entire solid waste disposal system and facility as one single package, rather than seeking bids on each individual piece of equipment for the waste disposal facility as is done in the conventional A/E procurement method. As an example, for a waste-to-energy disposal facility this modified A/E procurement method is commonly referred to as a "chute-to-stack" procurement. In this modified method, the professional A/E is still responsible for designing the structural and ancillary features. The modified A/E procurement method reduces the number of potential vendors that the municipal entity must interact with, and as a result provides more evenly distributed risk allocation to the lowest bidding contractor awarded the work. This approach can also be employed in procuring recycling facilities and processing equipment.

7.10.3.2 Turnkey

The turnkey procurement method has one contractor responsible for the design, construction, start-up, and acceptance testing of a solid waste disposal facility. Under this procurement method, the turnkey contractor is responsible for both acquiring the needed equipment for the waste disposal facility and ensuring that the architectural and engineering design work is accomplished. Once the acceptance testing of the facility is successfully completed, the contractor has fulfilled its responsibilities, and responsibility for operation of the waste disposal facility reverts to the municipal entity.

The turnkey procurement method often uses a negotiated contract procedure rather than a formal competitive bidding process as is done in the A/E procurement method. The main advantage of a negotiated contract is that it provides the opportunity for the contractor and the municipal entity to modify and refine the project approach to best suit the needs of the municipality, while addressing the contractor's capabilities. In addition, a negotiated procurement method also allows the municipal consider qualitative aspects with respect to the turnkey contractor such as expertise in scheduling, project management, and cost control.

A negotiated turnkey procurement typically involves a multiple step Request for Proposals (RFP) solicitation. The first step, the draft RFP, solicits comments from contractors interested in submitting proposals for a solid waste disposal facility and outlines the qualifications that the respondents will have to meet in order to be responsive to the RFP. The second step. the final RFP, is a comprehensive document identifying the specific information to be contained in the vendor proposals. The RFP is usually advertised requesting the submittal of technical proposals which are evaluated by a selection committee upon receipt. Thereafter, discussions are held with the proposers to determine the completeness of their responses and to allow them to make changes in their proposals if appropriate. These discussions are normally concluded when the municipal entity requests a best and final offer from each respondent by a specific cut-off date. Upon receipt of these offers, the municipal entity reviews and evaluates them. The proposer whose offer is most responsive and complete is subsequently awarded the turnkey contract. Negotiating turnkey procurement in New York State is regulated by Section 120-w of the New York State General Municipal Law (Section 120-w).

7.10.3.3 Full Service with Private Ownership

The full service approach represents an expansion of the contractor's role from that described in the A/E or turnkey methods. In the full service with private ownership procurement method, the municipal entity assigns total responsibility to a private firm over the life of a waste disposal facility, recycling facility or recycling service, possibly including the design, construction, start-up, acceptance testing, operation, ownership and, in certain instances, limited responsibility for providing for a portion of the financing. Ownership of a full service procurement facility may involve partial equity contributions by the contractor, private investors, or an autonomous public entity such as an industrial development authority.

The full service procurement method with private ownership approach allows a municipal entity to acquire recycling or disposal services without making itself responsible for daily operation and maintenance.

However, it is important to note that the municipal entity should continue to play an active role in solid waste management. By

developing the procurement process, monitoring the ongoing performance of the full-service contractor, coordinating with the appropriate regulatory agencies and continuing to have alternate responsibility for solid waste management, the municipal entity will in fact have an ongoing role in solid waste management.

The full service approach allows for some flexibility in conducting the procurement and negotiation processes. Historically, proposals were received in response to an RFP and one vendor then selected for contract negotiations.

This approach basically ended the competitive nature of the procurement process at the start of the contract negotiations. As a result, the contractor was placed in a very strong negotiating position, since the municipal entity usually had committed a significant amount of time and money to get to that point. In addition the community is often faced with limited time schedules to meet regulatory requirements, which would severely restrict its ability to go back and start negotiations with the second-ranked contractor.

A recent development in the procurement process is to extend the competitive aspect of the procurement process by conducting contract negotiations with several qualified contractors simultaneously. These "simultaneous negotiations" are conducted after proposals have been received and serve to clarify and finalize any issues that exist in the proposals. At the end of these negotiations, the community should have a final contract agreement that is acceptable to it and to the contractors who have completed the negotiating process. This approach has been very successful on a number of waste-to-energy projects and can be used for other solid waste disposal facilities such as recycling, composting and landfill facilities.

Normally, the process begins with the municipal entity advertising the release of a draft RFP to contractors. The draft RFP contains some basic information such as system performance, procurement schedule, desired technology, and financing requirements. The draft RFP also requires contractors submitting proposals to include detailed technical, managerial, and financial qualifications.

Once the contractor proposals have been received, the documents undergo detailed evaluation (technical, legal, and financial) to rank the proposals according to the criteria established in the RFP. The next step is to begin competitive negotiations with usually two or more of the top-ranked proposers as described above. Once the final proposals revised on the basis of the simultaneous negotiations have been received and evaluated, the contract is typically awarded to the single top-ranked proposer.

7.10.3.4 Full Service with Public Ownership

In the full service procurement method, the waste disposal facility is owned by the municipal entity rather than the private sector. The design, construction, and operation of the waste disposal facility, however, are still the responsibility of the contractor.

7.10.3.5 New York State General Municipal Law

In New York State, the procurement of a solid waste disposal facility or facility expansion is affected either by competitive bidding (Section 101 and 103 of the General Municipal Law) or by Request for Proposals under New York General Municipal Law Section 120-w. Since the question of which requirements are applicable to a specific procurement involves legal questions, the Town should obtain appropriate legal counsel with regard to this issue prior to pursuing the procurement of a new facility.

With the exception of the conventional A/E approach, the procurement of a resource recovery facility or facility expansion is regulated by Section 120-w. Section 120-w contains provisions which address unique aspects of turnkey and full service procurements such as:

- The use of long-term (up to 25 years) service agreements with private companies for the design, construction, and operation of resource recovery facilities

- The use of long-term contracts for the sale of products (such as steam, electricity, and/or materials) recovered by the facility.

Section 120-w also identifies the procedure for conducting the procurement process, and indicates that the overall cost of the facility should be a major criterion in the selection of contractors.

7.10.3.6 Summary of Facility Procurement Methods

As indicated above, the Town will continue to have the ultimate responsibility to dispose of the waste in the event of a contractor failure. Accordingly, it is appropriate for the community to maintain sufficient control to minimize the opportunity for exposure of the community to the environmental, technical, contractual, legal, and financial risks associated with solid waste disposal facilities. As the Town moves forward with the implementation of its solid waste management system, it will be necessary to consider these issues in determining the procurement process for the facilities which are to comprise this system.

7.10.4 Financing and Funding Assistance

The construction and operation of solid waste disposal facilities involve substantial capital expenditures as well as operating budgets. Accordingly, an examination of financing and funding assistance alternatives

is appropriate. As previously mentioned, the construction of proposed solid waste facilities is likely to be the largest public works protect ever to be undertaken by the Town and therefore careful consideration is advised.

Generally, solid waste disposal facilities can be financed from public sources, private sources, or some combination thereof. The cost of financing also must be considered when evaluating terms, issuance costs, and interest rates. In addition, it may be possible to obtain funding assistance in the form of grants or subsidies to aid in the financing of such a project.

There are numerous financing sources for a solid waste disposal facility in the Town. Instruments such as general obligation bonds, municipal revenue bonds, industrial development bonds, pollution control revenue bonds, and alternatives like leveraged leasing may be utilized alone or in various combinations to provide the necessary financing to implement the Town's solid waste management program.

The following provides an overview of the various financing instruments and types of funding assistance that may be available to the Town for implementing solid waste facilities.

7.10.4.1 Sources for Financing

There are several methods available as sources for financing solid waste disposal facilities in the U.S.

- General Obligation Bonds
- Municipal Revenue Bonds
- Industrial Development Bonds
- Leveraged Leasing
- Private Equity
- Other Sources

The following subsections discuss these sources of financing available for solid waste disposal facilities.

<u>General Obligation Bonds</u>

General obligations (G.O.) financing is backed by the full faith, credit, and taxing power of the issuing municipal government. As a result, the credit rating of the governmental entity is the primary determining criterion as to the cost of financing rather than the technical or marketing risk associated with the project.

G.O. bonds are secured by a pledge of ad valorem taxes despite the possibility that the bonds may be paid from other sources of unrestricted income such as income taxes, sales taxes, and other fees. Therefore, G.O. bonds normally carry the lowest interest rate among available financing

sources. The low interest rate is the expected outcome when a municipal entity produces the guarantees to back such an instrument.

When determining whether G.O. bonds are appropriate for financing the Town's solid waste disposal facilities, certain factors must be considered including, but not limited to:

- Current credit rating of the Town
- Debt ceiling on the issuing body's borrowing capacity
- Projected impacts of the financing on the issuing body's creditrating
- Availability of other types of financing.

The Town may wish to consider G.O. bond financing if it is determined that the waste management facility(ie) will be publicly owned.

Municipal Revenue Bonds

Municipal revenue bonds (revenue bonds) are long-term, tax-exempt obligations that are payable from the project revenues or revenues from other facilities owned by the Town. Revenue bonds are also referred to as project revenue bonds since the success or failure of the project directly affects the ability to repay the debt.

Revenue bonds for a solid waste disposal facility rely on the revenue generated from the project, such as user tipping fees and material and/or energy recovery revenues. Generally, revenue bonds issued by a municipal entity require a pledge to set and collect rates and charges for performance of the facility that equal the operating expenses, bond principal, and interest during the life of the issue.

Interest rates on revenue bonds are usually higher than the interest rate on G.O. bonds since there is more risk in the instrument because repayment depends upon success of the project. Because the potential for unforeseen revenue shortfalls is implicit with the increased risk of revenue bonds, such instruments necessitate the formation of a debt service reserve fund as protection against this event.

Industrial Development Bonds

Industrial development bonds (IDBs) represent another form of revenue bond. IDBs are normally tax-exempt, long-term bonds issued by a municipal entity or a public benefit corporation acting on behalf of the municipal entity to foster industrial or economic development.

The use of IDBs to finance a project results in the project either being leased or sold to a private corporation, or, in some instances the bond proceeds are loaned to a private corporation. Although IDB's have been

successfully used for solid waste disposal facility financing, the Federal Tax Reform Act of 1986 (the Act) has significantly changed the use of such an instrument. For example, the Act reduced the tax-exempt IDB allocation for privately owned waste-to-energy projects. Therefore, privately owned projects must now compete with all types of industrial development projects for a share of the State's allocation during the year. The allocation limit established in the Act is set at $50 per capita or $150 million per state.

Another impact of the Act on IDBs is the establishment of nonqualifying costs. In certain cases, non-qualifying equipment costs are limited to 5 percent of tax-exempt issuances. Thus, under this "95/5 rule", expenses for the construction or installation of equipment related to the sale of by-products from the facility are not tax-exempt. Examples of non-qualifying equipment include magnetic separation equipment for the recovery of ferrous metal in a materials recovery facility. Therefore, these portions of the facility expenses must now be financed with taxable debt.

Leveraged Leasing

Leveraged leasing is a financing alternative rather than a financing instrument such as bonds. In leveraged leasing, the intent is to finance the project so that the project participants will gain either tax benefits or lower financing costs.

These benefits are realized by the leveraging of equity investor funds for a "passive" third party investor who then turns around and leases the facility to the user or operator. This financing alternative can be successfully utilized when the user or operator cannot obtain the full tax benefits of facility ownership. Therefore, the involvement of a third party to provide the equity contribution and lease back the facility can provide lower financing costs for the community.

However, due to the Tax Reform Act of 1986 reducing the attractiveness of private equity as a financing source for solid waste disposal facilities as described under Private Equity, this method, while still available, is no longer commonly used.

Private Equity

Private equity is another financing source available for solid waste disposal facilities. Private equity involves capital contribution from the facility developer or third parties such as commercial banks, insurance companies, and private investors. This alternative is restricted to privately owned facilities.

In a private ownership structure, private equity as some percentage of the capital construction cost is invested by the developer and possibly a third party. The private equity contributed by investors normally requires that

the developer become the owner of the facility. The profits include a rate of return and are generated from accrued revenues for the project such as user tipping fees, a share of the project's energy and/or materials recovery revenue and the attainment of tax benefits as owner of the facility.

The private equity contribution can be made up front during the construction phase as a lump sum or spread out over a fixed term in installments. The lump sum method has the advantage of lowering the required bond size while the installment method has the advantage of subsidizing tipping fees during that term.

The Tax Reform Act of 1986 has significantly reduced the attractiveness of private equity as a financing source for solid waste disposal facilities. Examples of significant changes include the elimination of the 10 percent investment tax credit, doubling of the depreciation schedule for both real and personal property from 5 to 10 years, and the reduction of the use of tax-exempt debt for facilities.

The Town may wish to seek an equity contribution if the solid waste management facility(ies) are to be privately owned.

Other Sources

In addition to the alternatives described above, there are other sources that may be used to finance solid waste facilities. An example of another source would be the use of bank loans. This approach is typically used for smaller projects which may not require enough capital to warrant a bond issue and may have shorter repayment schedules.

7.10.4.2 Review of Funding Assistance

Funding assistance, typically in the form of grants or low-interest loans, may also be available to offset the costs associated with the solid waste management program. Such funding may be available from federal, State, and/or local sources. Historically, the federal government has not provided direct funding for solid waste programs. However, prior to the Tax Reform Act of 1986, significant tax advantages were available for solid waste projects. The principal source of funding assistance has been the States. In the case of New York State, there are several sources of funding available. For recycling activities the Local Resource, Reuse and Recovery Program (LRRRP) and Environmental Quality Bond Act (EQBA) are two grant programs which have provided funding for public education and recycling equipment, respectively. The five Eastern Long Island towns have received approval for a LRRRP grant for hiring a recycling manager and for a public education program. In order to obtain funding through the EQBA resource recovery grant program, submission of a report of the municipality's progress in meeting the state's solid waste management goals is required. Accordingly, the Town submitted a report of the Town's progress

in developing its GEIS and its mandatory recycling program. Based upon the progress reports received, the State distributes the grant moneys on a priority basis.

The Town should continue to monitor State as well as federal activities to determine if other sources of funding will become available, and whether such funding is applicable.

7.10.5 Risk Posture

Risks associated with implementing solid waste management facilities have increased significantly in the recent past due to the development of more stringent regulations, emergence of new and complex disposal technologies and the concurrent increase in costs. To minimize these risks and the associated costs, it is crucial that the risks be carefully weighed from a technical and financial point of view. This means using a flexible procurement and implementation approach to deal with the new developments in the field as they arise as well as building various guarantees and safe guards into the program. The desired risk posture of the Town will influence the evaluation of whether to build an in-Town **solid waste disposal** facility or participate in a regional facility.

There are several risk areas typically associated with implementing a solid waste disposal facility, including the following:

- Recovered products risk
- Solid waste stream flow risk
- Facility ownership
- Facility construction risk
- Facility operation risk
- Legal and regulatory risk

The following subsections discuss the elements comprising these six risk areas. A general discussion of how to minimize or allocate these risk elements is also presented.

7.10.5.1 Recovered Products Risk

The primary risk element associated with products recovered from a solid waste facility recovering materials and/or energy is that of lower than expected product revenue or an inability to market a major facility product. Reduced revenues may result from a reduced amount of products recovered based upon facility performance or may be the result of variances in market conditions. Recovered products may include materials such as compost, paper, glass, aluminum, and ferrous metal and/or energy.

Should lower market prices occur, there is a risk of a revenue shortfall. Perhaps the best method for reducing this risk is to enter into long-term contracts for sale of the recovered products. This has historically been

easier to achieve for the sale of recovered energy products than for recovered material products. Problems associated with obtaining long-term contracts for recovered materials include unstable markets, stringent product specifications, and the variable quality of the recovered materials. In the case of compost, for example, it is usual for products to require a considerable period of energetic marketing before acceptance is achieved, and even then long-term sales cannot usually be contracted for. Based on the difficulty many past compost projects have had in marketing their products, this risk is a very important consideration.

7.10.5.2 Solid Waste Stream Flow Risk

There are two primary risk elements associated with the solid waste stream flow. First, there is the potential failure of a sufficient quantity of solid waste to be delivered at a waste disposal facility. Second, there is a risk of detrimental characteristic changes in quality of the solid waste.

The first risk has historically been the responsibility of the municipal entity, whether it be the Town or another entity empowered to develop municipal waste management facilities in the future (e.g., E2RA or Brookhaven). To minimize the burden of this risk, the municipal entity must guarantee that the solid waste stream generated within its jurisdictional boundaries will be routed and delivered to the waste disposal facility. Methods of achieving this solid waste stream flow control to reduce the risk involved are outlined in Section 7.9.2, Solid Waste Stream Flow Control.

In addition to control of the mixed waste stream, another variable that affects the quantity of waste is the efficacy of the source separation program. The overall size of the Town's **municipal** waste stream after recycling may vary significantly depending on recycling success. Accordingly, a successful source separation program can affect the economics of an oversized mixed waste processing facility by decreasing the waste stream flowing to that facility. Conversely, if an overly optimistic high recycling capture rate is assumed in sizing a mixed waste processing facility, the facility may be overwhelmed with mixed waste, and expansion of the facility would be required.

Accordingly, the facility should be sized and related financial analyses should be based on a reasonable estimate with allowances for waste stream variation and with provisions for future expansion. The Town should be conservative in its waste quantity guarantees, accounting for seasonal fluctuation (if a guarantee based on less than an annual total is provided) and future recycling. The Town may have data available from its source separation program to refine its estimates by the time it would be required to provide such a guarantee. Similarly, if the Town provides a guarantee of source separated recyclable materials, consideration of varying collection efficiencies and seasonal fluctuations should be taken into account.

The second risk element regarding the solid waste stream is the potential impact of detrimental changes in the quality of the solid waste deposited at the facility. For example, the percentage of various types of paper, plastic, and metals can affect the economical operation of a source separated or mixed waste processing system. Since neither the municipal entity nor the operator of a solid waste facility has direct control over the composition of the solid waste, this is an area of risk which can be shared contractually. By making waste composition a risk that the contractor is responsible for, the municipal entity is protecting itself from significant exposures on the operation of the facilities, but this allocation of risk is typically offset by an increase in costs since the contractor wants to be compensated for accepting this risk. Further, any assumption of risk by a contractor is only as good as the Towns ability to collect any damages through rigorous contractual provisions and vendor financial backing.

In summary, solid waste stream flow control for guaranteed quantity is generally the responsibility of the municipal entity from within whose jurisdictional boundaries the solid waste stream delivered to a facility is obtained, while the risk associated with waste composition is generally allocated to the contractor or shared by the municipality and the contractor.

7.10.5.3 Facility Ownership

A decision regarding the ownership of a waste disposal facility is one of the most important issues a municipal entity must address. To be able to reach that decision, consideration must be given to several key factors. There are basically only two methods of ownership for a solid waste disposal facility:

- Public ownership
- Private ownership.

This section will discuss, in general terms, the key factors that should be evaluated in analyzing different ownership arrangements and also what the relative advantages and disadvantages are for each arrangement.

<u>Public Ownership</u>

In a public ownership arrangement, a waste disposal facility is usually owned by the municipal entity whose solid waste stream is disposed of at the facility. This may be a county, one or more municipalities, or an autonomous public entity such as an industrial development or municipal authority. This ownership arrangement has historically been used for public works facilities such as water and wastewater treatment plants, roads, and school buildings.

A major advantage associated with public ownership is the level of control the municipal entity maintains over the program. This control can manifest itself in a number of ways including negotiations with regulatory agencies regarding permitting issues, directing private operators to comply with contractual or regulatory requirements, or using municipal employees to operate the facility or monitor the day-to-day activities of a private operator. In addition, with the recent changes in tax laws, the economic advantages of private ownership (such as accelerated depreciation and investment tax credits) are greatly reduced. Through public ownership, the community should own a viable asset in the form of a recycling, compost, or waste-to-energy facility, and when the bonds are paid off, the Town, not the vendors, owns the facility.

Disadvantages of public ownership include increased responsibility for facility operations as well as more direct involvement in the risks associated with operation and ownership of such facilities. To some extent, operating risks (such as operating costs, technical issues, regulatory compliance) can be shifted to a private operator through either a full-service contract or, in the case of an A/E or turnkey procurement, through an operating contract.

Private Ownership

In a private ownership arrangement, a waste disposal facility is owned by a private firm, typically the full-service contractor. This ownership arrangement for solid waste disposal facilities became quite popular in the 1970s and early 1980s as a result of the tax advantages available under the tax laws in place at that time.

From the standpoint of the municipal entity, private ownership of the waste disposal facility can help offset some of the construction capital costs, in that equity capital contributed by the private owner may be applied towards the debt. The equity capital provided by the private owner usually takes the form of either one lump-sum contribution or several annual contributions early in the life of the waste disposal facility.

Regardless of which form is preferred, the equity contributions must be structured such that the private firm is recognized as the owner of the waste disposal facility if any tax benefits are sought. The private equity contribution is typically augmented with either tax-exempt or taxable bonds to complete the financing.

Currently, approximately two-thirds of all waste-to-energy facilities in operation or under construction will be privately owned. However, a major impact on this trend has been the Act. The Act has significantly altered some of the tax benefits previously available for private owners of waste disposal facilities. Perhaps the most drastic change is the reduced

availability of tax-exempt industrial development bonds (IDB's) for financing the construction of a waste disposal facility. Other significant changes include the loss of investment tax credits, classifying passive activity losses undetectable and the phasing out of accelerated cost recovery system (ACRS) for depreciation. These tax reform impacts are discussed further in Section 7.9.4, Financing and Funding Assistance.

The primary advantage of private ownership has been the economic benefits of reduced capital cost by having the private owner pass the tax advantages on the community in the form of an equity contribution. As previously indicated, this advantage has been described by changes to the tax laws. Another advantage offered by private ownership is placing the risks associated with the day-to-day operation of the facility on a private firm.

This approach can be valuable, particularly when the community does not have the resources or technical capability to operate the facility. It should be noted that private operation is an option in a public ownership approach.

A disadvantage of a private ownership arrangement is that the municipal entity will not own the waste disposal facility even though its taxpayers have contributed significantly towards retirement of the bonds used to finance its construction. Another disadvantage of a private ownership arrangement is that the municipal entity will have limited control over operation of the facility.

Summary of Facility Ownership Methods

Other issues which can affect the ownership decision include the procurement approach utilized, the risk appetite of the community, and the type of facility. If inter-town cooperation seems appropriate, it may also be necessary for the Town, the East End Recycling Association or a Regional Authority to determine the most appropriate ownership approach for common source separated waste processing facilities.

7.10.5.4 Facility Construction Risk

There are many risk elements associated with facility construction. Chief among these are:

- Facility design errors and omissions
- Underestimation of facility construction
- General inflation
- Failure of contractor to meet its schedule due to events such as subcontractor problems or strikes

- Problematic subsurface conditions

- Force majeure.

In the case of a full service procurement method, these risks can usually be allocated to the contractor with the exception of force majeure events. This is possible since the contractor is normally responsible for the design, technology performance, and equipment in this procurement method.

Other facility construction risks within the reasonable control of the contractor also are the burden of the contractor. Examples of these risks include, but are not limited to, total construction price, construction time, and performance of the subcontractors within budget and on schedule. Typically, these risks are insured against by project insurance policies and construction and performance bonds.

Facility construction risks that are normally the burden of the municipal entity include uncontrollable events and force majeure. Examples of these risks are:

- Earthquakes
- Floods
- Other natural disasters
- Sabotage
- War, declared or undeclared
- Explosions
- Any other acts of God

Although these risks may be significant, they typically can be minimized by the municipal entity through the use of specific insurance policy coverage for such risks.

7.10.5.5 Facility Operation Risk

Important risk elements associated with the operation of a solid waste disposal facility include, but are not limited to:

- Unexpectedly high operating costs

- Facility damage and unscheduled downtime resulting from the processed solid waste

- Increased regulation and cost for non-processable waste and facility residue disposal.

The use of a full service procurement method or private sector operation of the facilities can reduce these risks to the municipal entity by sharing or allocating most of these risks onto the contractor.

7.10.5.6 Legal and Regulatory Risk

The development and implementation of a solid waste management program can involve a wide range of legal and regulatory issues representing risks which will be addressed by the municipality or private sector. The following are three major examples of these types of risks:

- Environmental permitting risks
- Tax code change risks
- Change-in-law risks

Risks due to environmental permitting arise from the realization that permitting of a solid waste disposal facility can be one of the most time-consuming and difficult steps in the entire implementation process.

Reasons for this difficulty include both the voluminous amount of data required for application submission to governmental agencies and also the distribution of permit reviews among federal, State, and local agencies.

In addition, there is a wide range of environmental and regulatory issues that are addressed during the permitting process. These issues can range from health risk assessments to approval of long-term energy agreements, to potential impact on sensitive environmental resources, to local building permits.

To adequately address all of the permitting issues involves a lengthy and complicated process that typically involves the municipal entity and its legal and technical advisers as well as the private sector firm responsible for design, construction, or operation (or, in a full service arrangement, responsible for all of these activities).

Tax code changes represent a specific area where the municipality can shift the risk to the private sector firm. This approach has been utilized in many full-service projects, and with the changes in the 1986 Act it represents an area where contractors should continue to be willing to accept this risk. In addition to tax code changes, the potential for change in law to other laws and regulations represents another potential risk facing communities in developing solid waste management programs. These types of changes can involve environmental regulations that require new or different standards for the construction and/or operation of facilities. This risk is virtually always a risk the community must bear, since private contractors are very reluctant to commit to meeting standards or requirements that they are unaware of at the time of entering into a contract.

7.10.5.7 Summary of Risk Elements

The likelihood and feasibility of a solid waste disposal facility to satisfactorily dispose of the Town's solid waste stream is strongly

influenced by the assessment of potential risks and their equitable allocation among the project participants.

7.10.6 Reliability and Feasibility

Because the Town is responsible for supplying solid waste disposal facilities, it is important to choose a system of technologies that are both reliable and feasible. Factors to be considered when determining the reliability and feasibility of an option include the following:

- Technical feasibility
- Operating reliability
- Marketing security
- Financing
- Public acceptance
- Environmental issues
- Compatibility with NYSDEC solid waste hierarchy
- Compatibility with Town's solid waste management goals

This section considers the above factors with respect to the non-incineration, MSW composting, **leaf and yard waste composting, MRF, transfer station** and co-composting) and the incineration (mass burn, RDF, and waste distillation) options for processing mixed waste.

Non-incineration Options

While there is little question that MSW contains many materials that can be successfully composted, full-scale operating projects in the U.S. have had only marginal success so far, and the field is generally considered to be in a developmental phase. Many facilities have been shut down because of various technical and marketing problems, or because they could not compete with the economics of lower cost landfill disposal. Of 27 facilities recently surveyed by Malcolm Pirnie that were constructed between 1951 and 1988, only a few are still operating and some of these operate on an interim basis. Many of these projects are relatively small in size, and most did not adequately address the tough questions that must be answered to make the operation a success.

However, a number of projects involving composting of sewage sludge and/or leaves and yard wastes are successfully operating at this time, and the European MSW experience, while somewhat different, has provided opportunities to visit and review a number of system and ideas that could be potentially useful here.

A major factor in determining the feasibility of a composting project is to identify a market for the compost product. As discussed in Section 7.9.1.1, Materials Markets, composted MSW may contain contaminants that create marketing difficulties. The product must meet the standards of the users and

must be environmentally acceptable. In addition, the market is limited by the land area available where compost can be utilized in the region where the composting facility is located. Typically, it is not possible to obtain a long-term contract for the sale of compost, and the transport of compost to another region is typically not economically feasible. Accordingly, the Town should pursue a detailed market study and market development activities if a composting facility is to be implemented.

Any compost not marketed (either for sale or given away) or utilized by the Town will end up being landfilled. The Town has available capacity at the Landfill, however, the use for this purpose is restricted by the Landfill Law and by NYSDEC Part 360 regulations. The composted material will occupy less volume than non-composted material. In addition, the compost material could be considered as cover material for non-processed waste.

An option that could be vigorously pursued would be to transfer responsibility for marketing to the system vendor, however, it is usually prudent to have reasonable confidence that this can be done before accepting a guarantee. A vendor could also be asked to be responsible for disposing of any compost not marketed. The financial status of the vendor is very important to this risk transfer and should be analyzed to ensure the ability of the vendor to meet its guarantees.

To obtain financing of a project, the feasibility of the project must be established. The use of an emerging technology would likely require a substantial guarantee from the vendor, and if the vendor is not part of a well-established parent company with significant financial resources, the vendor may be required to have an alternate financial guarantor such as a letter of credit. With suitable provisions to "make the Town whole" in 'the event of a default or partial default. In addition, the Town itself may be required to provide some sort of guarantee, including backup disposal capacity in the event of system (or marketing) failure.

Non-incineration options tend to enjoy greater public acceptance than incineration options due to the relatively lower perceived environmental impacts of the non-incineration options. In addition, NYSDEC has indicated that in the solid waste hierarchy, composting is considered a recycling option for processing MSW. Accordingly, composting would rank above incineration in the hierarchy (see Section 5.0, Integrated Waste Management Concepts).

Representatives of the Town have expressed an interest in emphasizing recycling and avoiding incineration if this is practically achievable. Accordingly, this report, while considering all the available options and identifying the potential difficulties of developing systems, has developed

realistic scenarios in which the Town can critically assess its waste management goals in this context.

Finally, it should be noted that as landfill closures have forced the price of land disposal and waste-to-energy options to unprecedented levels, many communities similar to the Town, have decided to consider more carefully the role that composting might have in an overall strategy. This renewed emphasis on composting has resulted in a significant increase in activities of all kinds, including the merging and dissolution of various vendor groups, increased interest by European system vendors, and the formation of an array of new firms who potentially can provide a wide range of products and services, as long as the Town is aware of the need to carefully structure the project to minimize unnecessary exposure.

In this regard, a key point is the recognition that the assumption of some additional risk may be required and that considerable care and attention to structuring the procurement, the design, and mitigating measures for environmental impacts will be needed to make the project a success.

Incineration Options

Incineration of MSW has a long history which has resulted in a variety of incineration technologies that are proven, reliable, and feasible. When an energy market is available, it is possible to negotiate long-term (e.g. 20-25 years) contracts for the sale of energy to a utility or industry. In addition, many projects have been successfully financed based on the experience and guarantees provided by the system vendor, the reliability of the technology and the revenues guaranteed by energy sales contracts and waste disposal contracts.

However, the perception of environmental risk coupled with a sense that conservation of material resources should command a high priority, has resulted in a climate where incineration options are not now receiving the same public acceptance as materials recovery systems with many segments of the public or regulatory agencies. Though many health risk assessments have been performed to allay the fears of health effects resulting from air emissions or residue generated from incineration of MSW, these effects remain controversial and in several instances, incineration projects have been delayed as a result of public opposition. Therefore, among the risks that must be considered is the overall consensus and direction that the Town wishes to pursue. In a very real economic sense, delay of any substantial order can be very costly.

7.10.7 Town Solid Waste Organization

The Landfill is currently operated by the Sanitation Department, which reports directly to the Town Board. Future administrative needs related

to the Town's solid waste management program will be determined by the approach to implementation of the solid waste action management plan. For example, a publicly operated waste processing facility(ies) would require expansion of the Sanitation Department.

The basic duties that must be addressed during implementation of the SWMP would include a liaison to provide the Town's input into the permitting and construction phases of implementation. The Town would also need to provide for any ongoing activities involved in municipal waste management, including maintenance and oversight of the recycling program. It is recognized that implementation of activities and facilities proposed in this SWMP involve a significant and long term commitment to solid waste management at a considerably higher level of resource needs than is presently required. The Town may consider opening a new position in the town work force dedicated exclusively to the development of Solid Waste Management programs depending on the need that will be more apparent when the program is being fully implemented.

7.10.8 Intertown Agreements

The five eastern Long Island towns had discussed the development of a cooperative recycling program created a Regional Recycling Manager position funded with a LRRRP grant. This program has since been abandoned.

Each of the five towns currently operates one or more landfills and have established similar but somewhat varying approaches to long-term solid waste management. Further, Southampton's mixed waste stream is sufficiently large to provide a cost effective facility size. Accordingly, while towns may cooperate in a regional recycling program, it is possible that they will continue to be wholly or partially responsible for disposal of mixed municipal waste on an individual basis.

The Town of Southampton has expressed an interest in providing a minimum of 10,000 tpy of residential solid waste for processing at the East End Recycling & Composting facility to be constructed in Calverton, Long Island. (See Appendix I). Waste brought to the Town's drop off centers by self-haulers will be transferred in self-compacting trailers by Town vehicles to the MSW composting facility. The Town intends that the waste collected by private carters will be accepted at the designated processing and disposal facility. The waste would be transported directly by the carters.

East End Recycling & Composting Co., currently has a NYSDEC permit to construct a 500 ton per day (tpd) solid waste recycling/composting facility on 51 acres in Calverton, Long Island. A draft and final EIS has been completed. A special use permit from the Town of Riverhead has been issued for the facility. All waste processing will be conducted under cover. The tipping floor, pre-processing, paper baling, plastics processing, in-vessel

composting, and wood processing will be within an enclosed structure. The compost will be stored on a paved surface within prefabricated steel buildings (Cameron Engineering, P.C., 1990). Odor control devices are included in the facility design. It is anticipated that the facility will operate seven days per week and receive waste on a six day per week basis. The facility will use the KOCH system to compost the organic fraction of the wastestream that will remain after the material recovery/preprocessing step. From the anticipated 500 tpd of waste received, it is expected that 225 tpd will be compostable; generating 100 to 120 tpd of compost available for market (Cameron Engineering, P.C., 1990).

As of November 1994, East End Recycling & Composting is in contract negotiation with the Town of Brookhaven to process and dispose a minimum of 60,000 tpy of MSW. They also have a letter of interest for MSW from the Town of Southampton for a minimum of 10,000 tpy. The Town of Riverhead also has a contract with East End Recycling & Composting for the processing and disposal of their MSW. Construction is expected to begin in the spring of 1995 with full facility operation by fall 1996. An agreement with the Town of Riverhead would be required to transport waste into the Town for disposal.

The Town of Southampton has had discussions with the Towns of Huntington and Babylon for use of their waste-to-energy facilities. In addition to a tip fee, Southampton would also take the leaf and yard waste from the host Town for composting. Discussions were also held for the use of the Town of Brookhaven's landfill.

While cooperative efforts may enhance marketing of resources such as aluminum, glass, and paper, it may hamper marketing of compost, for which the market may be local and more limited. Consequently, the Town may find itself in competition with other towns for compost market.

7.10.9 Collection System and Transfer Issues

The current system consists of a combination of residential self haul and private curbside or backyard collection service. Thus far, the private haulers and residents have been cooperating in adapting to improvements to the existing recycling program although the cost of recyclables collection may increase as more items are added to the program. The commercial haulers have exhibited a continuing interest in working with the Town to adjust to logistical changes necessary to implement the SWMP. Although existing practices appear to be adequate at this time and compatible with the SWMP, two collection systems modifications issues; flow control laws as they affect collection, and the possible future consideration of garbage districts, are briefly considered in this section.

A "flow control" law enacted by a municipality places certain constraints upon collection and disposal of solid waste. Specifically, the Town may

consider constraining the disposal of all or certain categories of garbage and recyclables to the Town-sponsored facilities. This law will ensure that sufficient quantities of these materials flow to the facilities to make them cost effective. **Recently a Supreme Court ruled that municipalities or planning units cannot legislatively enforce flow control of solid waste.**

The Town could at some future time consider the formation of a garbage district or districts. In a garbage district system, the Town would engage private companies under formal agreements to collect garbage generated in that district. Since district contracts are let on an open, competitive basis, it is sometimes argued that the average cost of collection to the homeowner may be less. On the other hand, since commercial haulers have specified service limits and specifications under their contracts, the risk exists that good service through responsiveness to individual customer service and complaints will be sacrificed in exchange for profits. [See Refuse Collection Practice, Committee on Solid Waste, American Public Works Association, (3rd Edition, 1966). Certainly, the Town would have to be more involved in administering the collection system under a district set-up. In addition, the Town may face Home Rule Law and monopoly-oriented challenges similar to those described for flow control laws.

7.10.10 Drop-off (Transfer) Station Utilization

There are two transfer stations that accept waste from self-haul vehicles and serve as drop-off centers for recyclables. **Facilities also exist at the North Sea Landfill.** It is recommended that these transfer stations continue current operations. **The Town's fourth residential drop-off station is under construction in Sag Harbor. This facility will be operational in early 1995.**

8

Section Eight

Section 8
Candidate Options Analysis and Recommendations

8.1 Introduction

This section presents the recommended solid waste management system for the Town of Southampton. The recommended system is designed to manage the Town's municipal solid waste stream for the next twenty years. The recommended system is also designed to meet State waste reduction and recycling goals; and to comply with the Long Island Landfill Law.

This system recommendation is based on information contained in the preceding sections and the accompanying documentation. The programs and facilities recommended are based on:

- Existing and projected solid waste quantities, as presented in Section 3.
- An evaluation of existing solid waste management facility capacities and locations, as presented in Section 3.
- An analysis of waste composition, as presented in Section 3.
- Conceptual plan of the leaf and yard waste processing facilities, presented in Appendix H.
- An evaluation of MSW technologies presented in Section 7.

8.2 Summary of Recommended System

Program Recommendations

Recommendation 1:	Continue a public education program to encourage recycling.
Recommendation 2:	Hire a recycling coordinator.
Recommendation 3:	Augment efforts to enforce recycling law.
Recommendation 4:	Implement a "pay-per-bag" system for residential MSW.
Recommendation 5:	Provide recycling containers and home composting kits to all Town residents.

Facility And Disposal Recommendations

Recommendation 6:	Upgrade residential drop-off area at North Sea Landfill so that MSW and recyclables can be cost-effectively and efficiently transported to a processing/disposal location or market, respectively.
Recommendation 7:	Construct two in-Town leaf and yard waste composting facilities, one east and one west of the Shinnecock Canal.
Recommendation 8:	Construct fourth residential drop-off recycling center at Sag Harbor and continue with operations at Hampton Bays, Westhampton and the North Sea Landfill.
Recommendation 9:	Transport non-recyclable MSW to an on-Island processing and disposal facility, preferably an MSW composting facility.
Recommendation 10:	Establish a mechanism so that MSW collected by the private carters can be accepted at the on-Island processing and disposal facility.
Recommendation 11:	Continue discussions with on-Island municipalities for waste disposal capacity if the on-Island composting facility should not be online when the Town's landfill reaches its permitted capacity or for the portion of the waste stream not committed for MSW composting.
Recommendation 12:	Close the North Sea Landfill when the Town's on-Island processing and disposal facility, i.e. MSW composting facility, becomes operational.
Recommendation 13:	Consider expanding residential drop-off facility to accomodate C&D from self-haulers.

8.3 Program Activities

The Town Board Supervisor's outline for the solid waste system is contained in Appendix G. Several of the items identified are programs and actions to promote waste reduction and the reuse of recyclables. The following details these non-structural activities of the solid waste management plan.

Public Education

In 1993, approximately 9,360 tons of recyclables were collected, up from the approximately 5,060 tons collected in 1991. This increase is attributed to an expanded list of mandatory recyclables and the extensive public education and promotional activities undertaken by the Town. These activities are seen as an integral part of the system. The Town will continue its efforts to educate and encourage the Town residents to purchase environmentally sensitive consumer products, conduct backyard composting and promote recycling with commercial establishments.

Staffing

The Town additionally feels that the recycling activities and promotional efforts necessitated are to be on-going and extensive, and require the support of a full-time staff person. The Town Board has authorized the hiring of a full-time Recycling Coordinator in the fourth quarter of 1994.

Enforcement

The Town has also augmented its efforts to enforce the recycling law. Enforcement efforts have been increased to 56 manhours per week (2,900 hours annually), up from approximately 1300 manhours dedicated in 1993. The Town will evaluate the need for increased enforcement efforts, if target recycling rates are not met.

Fee System

The most significant action the Town will take in the area of waste reduction, is the implementation of a residential MSW fee system based upon volume. The Town will implement a "fee-per-bag" approach to disposal starting in early 1995. The system will utilize either a designated bag or sticker system, with the resident's fee dependent upon the volume of MSW generated. This, in association with a "no-charge" for source separated recyclables, should significantly decrease the volume of MSW requiring disposal and enhance the collection of recyclables.

Containers/Kits

The Town will make available recycling containers and home composting kits to Town residents in 1996. Providing these should promote further waste reduction and recycling by making the necessary actions easier for the residents.

Feasibility Study

A feasibility study will be performed to ascertain the assets/liabilities of municipal waste collection services.

- Perimeter road, 3,000 linear feet
- Receiving area pad, 40,000 square feet (approximately 1 acre)

The equipment storage building would be an unheated, prefabricated steel structure with a concrete slab floor and a rollup door at each end. The eave height (height of roof at lowest point) would be between 14 and 16 feet.

The perimeter road and receiving area would be paved with gravel. The perimeter road would be slightly elevated to prevent run on of stormwater and runoff of stormwater containing leachate. The conceptual design assumes that the volume of runoff would not be large enough to require retention basins.

Details relating to these facilities, including layout and space requirements, are provided in Appendix H.

8.4.2 Residential Drop-Off/Recycling Facilities

The Town currently operates three drop-off/recycling centers for self-haulers. A fourth facility is now under construction in Sag Harbor. It is recommended that the drop-off facility at North Sea Landfill be upgraded to accommodate transfer vehicles. Presently, waste is dropped into roll offs and then transported to the landfill's working face. Self-compacting transfer vehicles would be more cost effective for the Town as it plans to haul the waste to an out-of-town processing and disposal location.

The existing facilities at both Hampton Bays and Westhampton accommodate self-compacting transfer vehicles. The facilities at Sag Harbor are designed to accommodate self-compacting transfer vehicles.

8.4.3 MSW Disposal

Under the Town's prosposed plan, a minimum of 10,000 tpy of residential solid waste will be accepted for processing at the East End Recycling & Composting facility to be constructed in Calverton, Long Island. Waste brought to the Town's drop off centers by self-haulers will be transferred in self-compacting trailers by Town personnel to the MSW composting facility. The Town intends that the waste collected by private carters will be accepted at the processing and disposal facility. This waste would be transported directly by the carters.

East End Recycling & Composting Co., currently has a NYSDEC permit to construct a 500 ton per day (tpd) solid waste recycling/composting facility on 51 acres in Calverton, Long Island. A draft and final EIS has been completed. A special use permit from the Town of Riverhead has been issued for the facility. All waste processing will be conducted under cover. The tipping floor, pre-processing, paper baling, plastics processing, in-vessel

composting, and wood processing will be within an enclosed structure. The compost will be stored on a paved surface within prefabricated steel buildings (Cameron Engineering, P.C., 1990). Odor control devices are included in the facility design. It is anticipated that the facility will operate seven days per week and receive waste on a six day per week basis. The facility will use the KOCH system to compost the organic fraction of the wastestream that will remain after material recovery/prepocessing. From the anticipated 500 tpd of waste received, it is expected that 225 tpd will be compostable; generating 100 to 120 tpd of compost available for market (Cameron Engineering, P.C., 1990).

As of November 1994, East End Recycling & Composting is in contract negotiation with the Town of Brookhaven to process and dispose a minimum of 60,000 tpy of MSW. They also have a letter of interest for MSW from the Town of Southampton to process and dispose a minimum of 10,000 tpy. The Town of Riverhead also has a contract with East End Recycling & Composting for the processing and disposal of their MSW. Construction is expected to begin in the spring of 1995 with full facility operation by fall 1996.

As a contingency, the Town will pursue disposal of its waste at a Long Island municipal waste-to-energy facility if the East End MSW composting facility should experience a delayed startup and no additional capacity exists at the North Sea Landfill. The Town intends that any agreement for waste processing and disposal at the East End MSW composting facility will include the identification of an alternative disposal facility should the Calverton facility experience operational difficulties.

Depending on available capacity and/or other factors, the Town reserves the right to pursue off-Island disposal options.

8.5 Plan Advantages and Disadvantages

The advantages of the proposed plan include:

- end landfilling activities at North Sea Landfill
- reduced truck traffic on Majors Path Road
- continued use of established Town solid waste facilities minimizing capital expenditures for solid waste projects
- increased recycling rates thereby reducing the volume of material requiring disposal
- generation of quality compost material from yard waste
- processing of MSW via in-vessel composting
- no significant environmental impacts anticipated from the proposed yard waste composting facilities or other components of the proposed plan

The disadvantages of the proposed plan include:

- reliance on another municipality for the disposal of the Town's unrecycled portion of the solid waste stream
- inability to account for recyclables collected by private carters will preclude assurance that maximized rates are being achieved
- lack of assurance that private carters will transport waste to the Town identified disposal location
- the cost to residents who use private carters may rise due to increased cost of hauling waste to a remote location
- volume reduction of material requiring ultimate disposal

9

Section Nine

Section 9
Site Selection

9.1 Introduction and Overview

The siting of long-term solid waste management facilities is a critical step in project development. As described in Section 8, the candidate options analysis has recommended **four residential drop off/recycling centers and two leaf and yard waste processing facilities. The town's municipal solid waste would be hauled to an out-of-Town disposal location, preferably an MSW composting facility.** The objective of this siting process is to provide a methodology for evaluation of the entire Town to assure that the locations that are selected for in-Town facilities are consistent with long term planning and appropriate for the development of these important projects. This will enable the Town to identify and review all potential sites that may be suitable for these projects and to verify that the ultimate selection is reasonable and environmentally sound. Several environmental, social, and economic factors are considered in selecting potential sites. The siting criteria in this report considered current planning and development patterns within the Town and existing aesthetic qualities, while still providing an economically feasible and environmentally sound location for the proposed facilities.

The purpose of this section is to recommend sites **for two leaf and yard waste processing facilities** that can provide long-term solid waste management in the Town for the planning period. **It is the intention of the Town that one leaf and yard waste facility will be located west of the Shinnecock Canal and the other one will be located east of the Shinnecock Canal.**

The proposed facilities for **solid waste and leaf and yard** waste processing are described in Section 8.0. The siting requirements **for the residential drop-off/recycling centers are not relevant to this study as three facilities are established and the fourth facility is under construction. The leaf and yard waste processing facilities will receive material from Town residents and possibly from out of Town. The facilities will each be designed to process approximately 15,000 tons per year and require approximately 18 acres each including the required 50 foot buffer. The conceptual plans for these facilities is in Appendix H.**

Evaluation Procedures - This siting study has been divided into a two stage evaluation. The initial stage of the site selection process included the application of exclusionary criteria to identify land available for consideration. This evaluation focused on existing zoning and land ownership for identification of potential sites. Preference was given to areas zoned light industrial and Town-owned parcels. **The exclusionary criteria evaluation also eliminated areas where siting of solid waste facilities is prohibited. Solid waste facilities are prohibited in certain areas according to 6 New York Code**

of Rules and Regulations (NYCRR) Part 360. In addition, development is prohibited in the Pine Barrens Protected Core Area.

The qualitative-evaluation of the candidate sites that remained following the application of exclusionary criteria was the final step in this study. **The qualitative evaluation is a more detailed evaluation than the exclusionary criteria evaluation. The qualitative evaluation did not necessarily eliminate sites from consideration, but helped to develop a description of site environmental conditions. The parameters in the qualitative evaluation included deep flow recharge areas, inactive hazardous waste sites, and adjacent land use.**

9.2 Exclusionary Criteria

Exclusionary criteria were first applied to the entire Town. This phase was intended as an application of broad criteria to eliminate those areas that are not properly suited for the development of the proposed facilities. Existing zoning and land ownership were utilized for identification of potential areas. Then, the potential sites were screened based on environmental and social exclusionary criteria.

Site acquisition can be both costly and time consuming, so economic benefits would be derived from developing land that is already owned by the Town. Based on discussions with the Town Planning Department, and examination of the Town's property database and tax maps, undeveloped Town-owned parcels have been identified. These sites were further considered regardless of existing zoning.

In order to maintain current and future land use patterns and to reflect the goals of the Town's Master Plan and recent planning updates to the extent possible, existing zoning was used as a guideline for identifying potential sites **for the two leaf and yard waste processing facilities.** The Town's zoning falls into four general categories, including residential, business, light industrial and open space conservation. **Residential zoning is for typical family dwellings, including one family and two family homes. These areas are not considered suitable for consideration.** Highway Business, Motel Business, Shopping Center Business, and Village Business zonings are located in areas that have been identified by Town Planners as being best-suited for developments that provide service to the public such as shopping malls, service stations and convenience stores. Therefore, these areas are not considered suitable for further consideration. Resort and Waterfront Business and Office Business zonings are considered inappropriate for the proposed facilities. **Parklands, conservation areas, cemeteries, and areas within incorporated villages have also been excluded.** Light Industrial zonings were identified as suitable for the development of the proposed **solid waste management** facilities. **All Town solid waste management facilities remain as possible sites regardless of zoning.**

Additionally, only areas that are presently undeveloped are considered suitable for the identified facilities. Currently developed and utilized areas were excluded from consideration due to the potentially costly and time consuming impacts associated with the relocation of the land use or demolition of existing structures. Maps and additional information available from the Town Planning Department and the LIRPB identified areas designated as conservation or developed areas.

Besides the zoning and land ownership criteria, environmental exclusionary criteria were used to exclude areas where solid waste facilities are prohibited. One such area is land that falls within certain portions of the Pine Barrens Conservation Zone. The Pine Barrens Conservation Zone is divided into two zones: the central zone and the three periphery zones (South Setauket Woods Zone, Eastern Zone, and Montauk Zone). Before any development can be approved in the three periphery zones, the local Long Island Commission must evaluate the effects of the development on the Pine Barrens ecosystem. The local commission presents its nonbinding recommendation to the affected Town that has the authority to override the Commission's recommendation.

Alternately, the central zone is regulated by a five member state commission that makes a binding recommendation concerning development within the boundaries of the central zone. The state commission must approve any development before construction begins. The central zone is broken into two areas: the core area where no development is allowed, and the compatible growth area where limited development is allowed. Since no future development is allowed in the protected core area, those areas have been eliminated from further consideration.

The NYSDEC Division of Solid Waste in 6 NYCRR Part 360 1.7(2) specifies four areas where solid waste facilities are prohibited. They are:

- Agricultural lands;
- Floodplains;
- Areas containing endangered species; and
- Regulated wetlands.

In accordance with 6 NYCRR Part 360-1.7(a)(2)(i), solid waste management facilities must not be placed on areas containing primarily agricultural soil groups 1 and 2 (Land Classification System as certified by the New York State Commission of Agriculture and Markets) if such land is being actively used as cropland within an agricultural district formed pursuant to the Agricultural and Markets Law. The Town identifies these soil types in the Town zoning maps as the Agricultural Overlay District. Areas that are within the Agricultural Overlay district have been eliminated from further consideration.

Development of solid waste management facilities within a floodplain is prohibited pursuant to 6 NYCRR Part 360-1.7(a)(2)(ii). Development within the floodplain is regulated by the federal government to reduce the potential for catastrophic losses due to flooding. The Federal Emergency Management Agency (FEMA) has designated floodplains as the area within the 100-year flood elevation contour. These areas are identified on the Federal Flood Insurance Rate Maps (FIRMS). The Town's zoning maps identify the 100-year flood elevation as the boundary of the Tidal Wetlands Overlay district. In addition, the Town restricts development in those areas. Therefore, the Town's boundaries for this Tidal Wetlands Overlay district were used to eliminate sites within the 100-year floodplain. The boundaries were confirmed using the FEMA maps.

The next environmental criteria which prohibits the siting of solid waste facilities is an area where endangered or threatened species have been sighted. The regulations are found in 6 NYCRR Part 360-1.7(a)(2)(iii). This regulation protects not only endangered or threatened species, but also protects their critical habitat from destruction or adverse modification attributed to the siting of a solid waste facility. These habitats are defined by NYSDEC as a specific place, area, or location in New York State that has a value for fish or wildlife extending beyond its own border. Areas that contained endangered or threatened species or critical habitats, according to the NYSDEC Natural Heritage Unit, were eliminated from further consideration.

The fourth environmental criteria which prohibits the siting of solid waste facilities concerns wetlands. The appropriate state regulations are found in 6 NYCRR Part 360 1-7(a)(2)(iv). Tidal and freshwater wetlands are regulated by the state and federal government. NYSDEC has mapped tidal wetlands and is in the process of preparing final freshwater wetland maps for the Town. The Town supports extensive areas of both freshwater and tidal wetlands. Wetland areas are a valuable natural habitat and provide benefits such as open space, storm and flood water control, education and research areas, fisheries habitat, water supply purification, wildlife habitats and recreational opportunities. Areas designated as wetlands on the NYSDEC maps were eliminated from further consideration.

The exclusionary criteria evaluation has eliminated areas that are not suited for development of the proposed facilities. Section 9.3 describes the remaining candidate site areas. Section 9.4 is the qualitative evaluation of the remaining candidate site areas.

9.3 Identification of Candidate Site Areas

Application of the previously discussed criteria effectively eliminates over 90 percent of the Town from further consideration. As a result of this phase of the site selection process, five sites have been identified as candidate sites for

the Town's solid waste management facilities. The five candidate sites for the leaf and yard waste processing facilities are:

- Hampton Bays Transfer Station
- Westhampton Transfer Station
- North Sea Landfill
- East End Recyclers Association site
- Eastport-Route 111

The North Sea Landfill and two existing residential waste transfer stations currently support solid waste facilities and are considered available for future solid waste management activities. The Hampton Bays Transfer Station is located at the end of Jackson Avenue, south of Old Squires Road (see Figure 9-1). Five acres of the site currently support a residential drop off area for MSW and recyclables. A portion of the site is also used by the Highway Department as an equipment and material storage area. A Town Park is located east of the facilities site which contains ballfields and other recreational facilities. A fireman's training yard is located in the northern section of the site. A portion of the site was also used for landfill activities in the past. Compost piles and gravel piles exist at the site. Eighteen acres remain for future development, excluding buffer area.

The Westhampton Transfer Station is located at Old County Road just outside of the incorporated Village of Westhampton Beach (see Figure 9-2). This site also supports a residential drop-off area for MSW and recyclables. The site contains a salt shed, sand quarry, shooting range and compost piles. The drop-off area uses seven acres of land and approximately ten acres remain undeveloped, excluding buffer area.

The North Sea Landfill is located at Majors Path in the northeastern portion of the Town (see Figure 9-3). The Landfill is southeast of North Sea Harbor and Fish Cove and is in a residential neighborhood. The site currently supports landfill activities and a residential drop-off for MSW and recyclables. Typical equipment for landfill operations exist at the site. Compost piles are also located at the site. Approximately 54 acres of land are still available for solid waste management activities and 18 acres could be dedicated for a leaf and yard waste processing facility.

The East End Recyclers Association discussed implementing a materials recovery facility in the southeast corner of the Suffolk County Airport in Westhampton (see Figure 9-4). This facility was proposed to process material from the 5 East End Towns. The site is bordered by Long Island Railroad tracks to the south. A dredging yard is located to the west of the site, where pipes and tanks are stored. A bird sanctuary is located approximately 2,000 feet east of the site. Scrub pine and sandy soil exist at

the site. The East End Recyclers' conceptual plan included the lease of 5 acres, although additional acreage may be available if more land is required. Implementation of the proposed facility at the site would require access roadway and site development improvements. Little more than 10 acres are available at this location. The existing access road from Old Riverhead Road (Rt. 31) to the site extends for approximately one mile, which can serve as queuing for trucks entering the facility during peak hours.

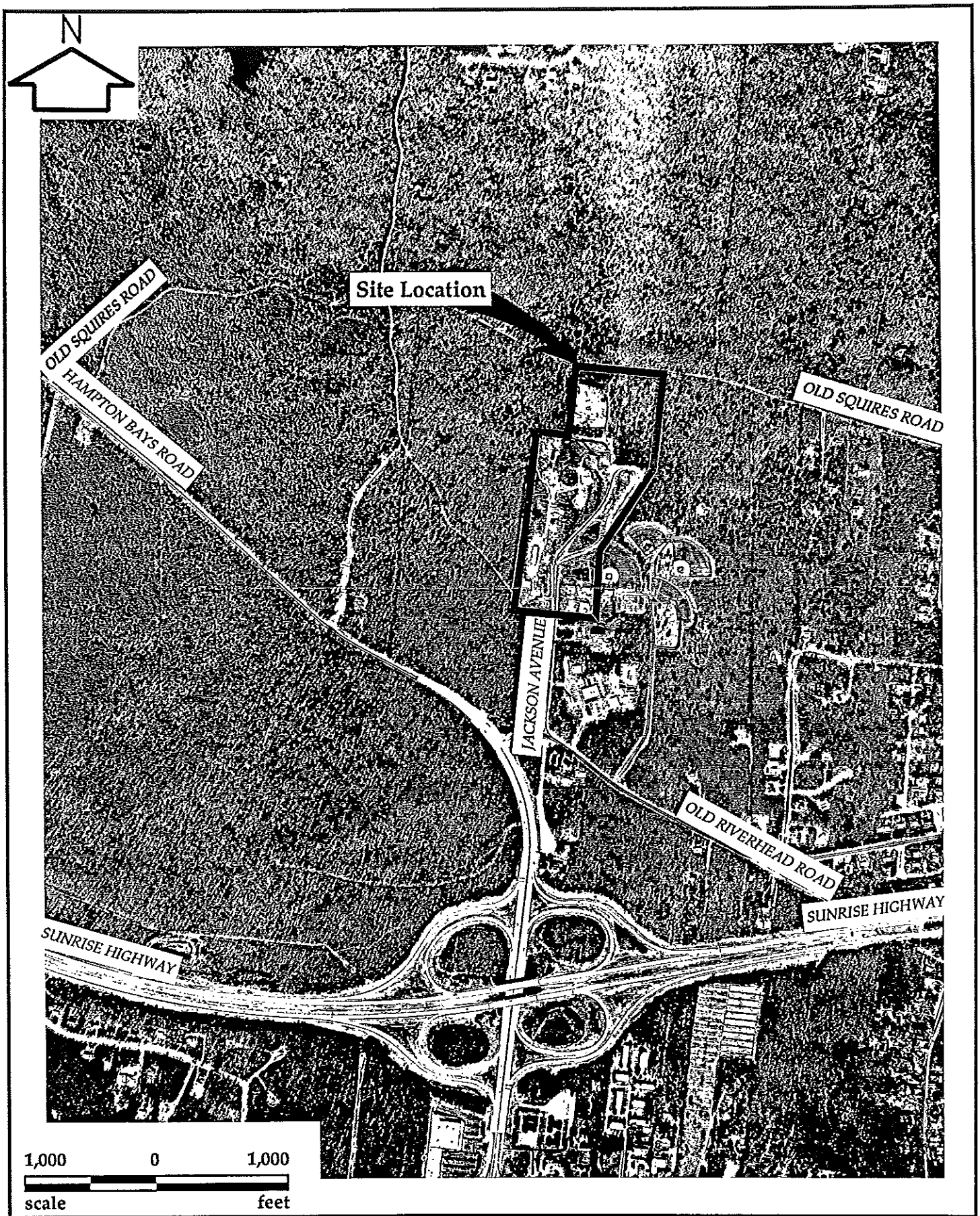
The Town owns a parcel of land southeast of the intersection between Sunrise Highway and Route 111 (see Figure 9-5). An adjoining parcel to the south of the Town-owned parcel is currently owned by Dawkirk Corp.; together these two parcels total 25 acres of land. A Suffolk County recharge basin is located northeast of the site. Extension of Route 111 is needed for site access.

9.4 Qualitative Site Evaluation

Qualitative criteria have been identified to select preferred sites for the proposed facilities from the five candidate sites identified in the exclusionary phase. A summary of the qualitative site evaluation is presented in Table 9-1. These qualitative criteria were applied to each of the five candidate sites. These qualitative criteria will not necessarily eliminate any of the identified sites, but will assist in the development of a general description of the environmental conditions that exist at potential sites. These qualitative criteria are:

- Deep Flow Recharge Area;
- Pine Barrens Compatible Growth Area;
- Inactive Hazardous Waste Sites;
- Archaeological and Historical Resources;
- Site Access;
- Adjacent Land Use;
- Site Acquisition Feasibility;
- FAA policy for airport land use.

The Deep Flow Recharge Area is the area of primary groundwater recharge to aquifers below Long Island. This area is critical for maintenance of high quality groundwater since these aquifers are designated as sole-source aquifers for water supply on Long Island. The specific boundaries of the Deep Flow Recharge Area are delineated in the Suffolk County Department of Health Services (SCDHS) Sanitary Code, Article 7. The Department of Health Services regulates development within the Deep Flow Recharge Area through permit requirements for water supply and wastewater disposal. The SCDHS Groundwater Management Zone maps were used to identify deep flow areas which have been designated as Zones I, II, and III. Four of the candidate sites are located within the designated Deep Flow Recharge Zones and one site is located outside these zones in the shallow flow recharge area.



CDM

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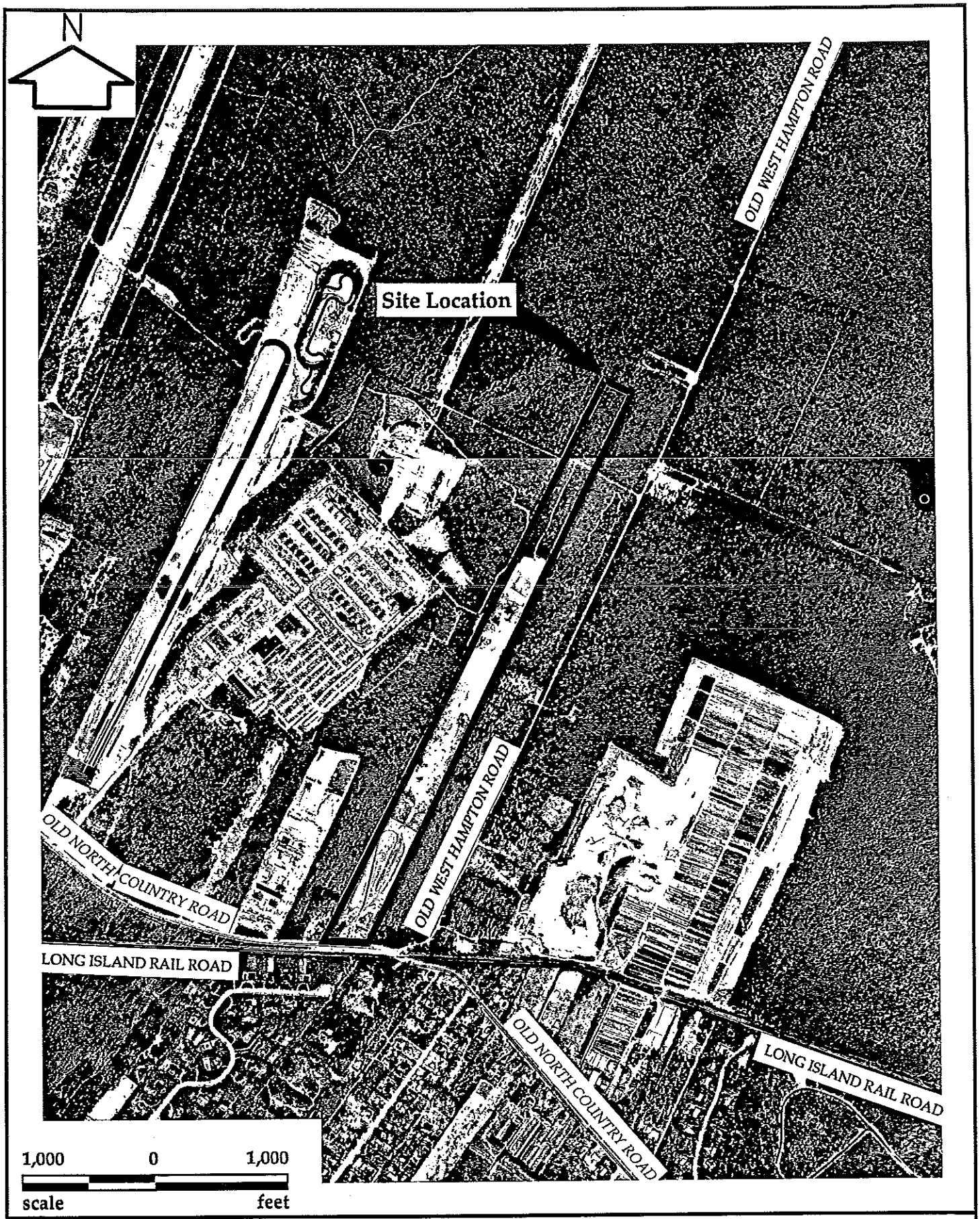
Solid Waste Management Plan
Town Of Southampton, New York

Hampton Bays Transfer Station
Aerial View

Figure 9-1



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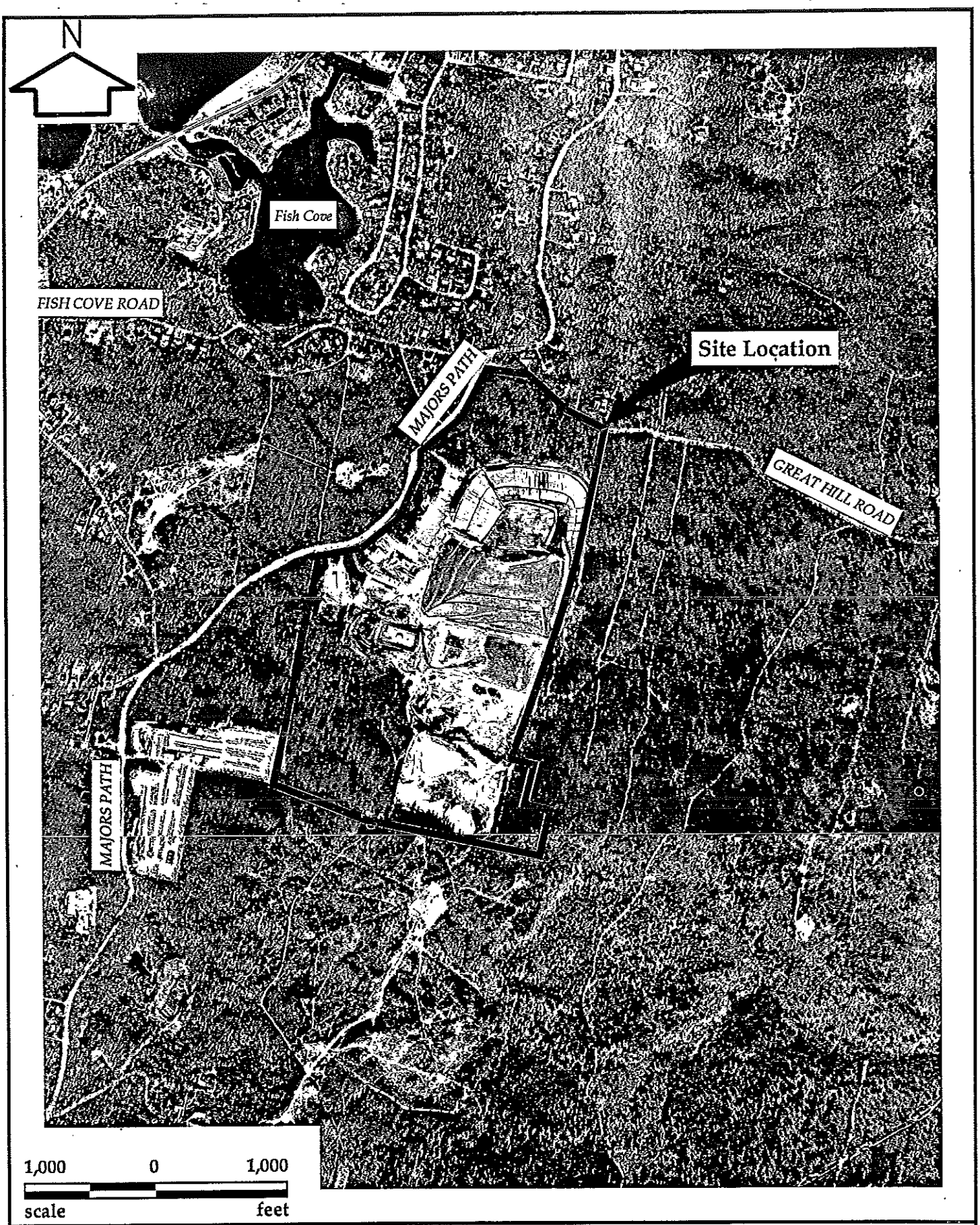
Solid Waste Management Plan
Town Of Southampton, New York

Westhampton Transfer Station
Aerial View

Figure 9-2



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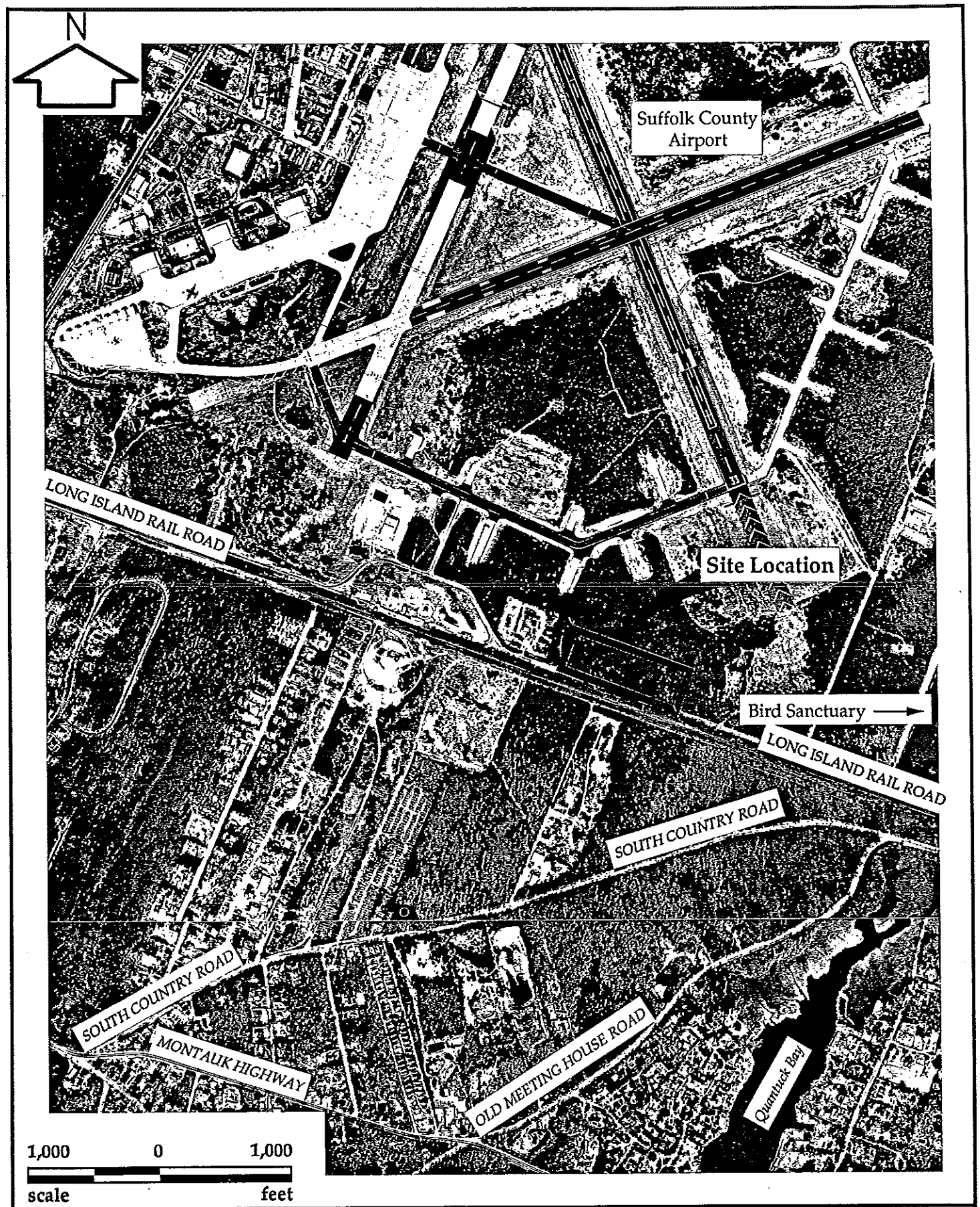
Solid Waste Management Plan
Town Of Southampton, New York

North Sea Landfill
Aerial View

Figure 9-3



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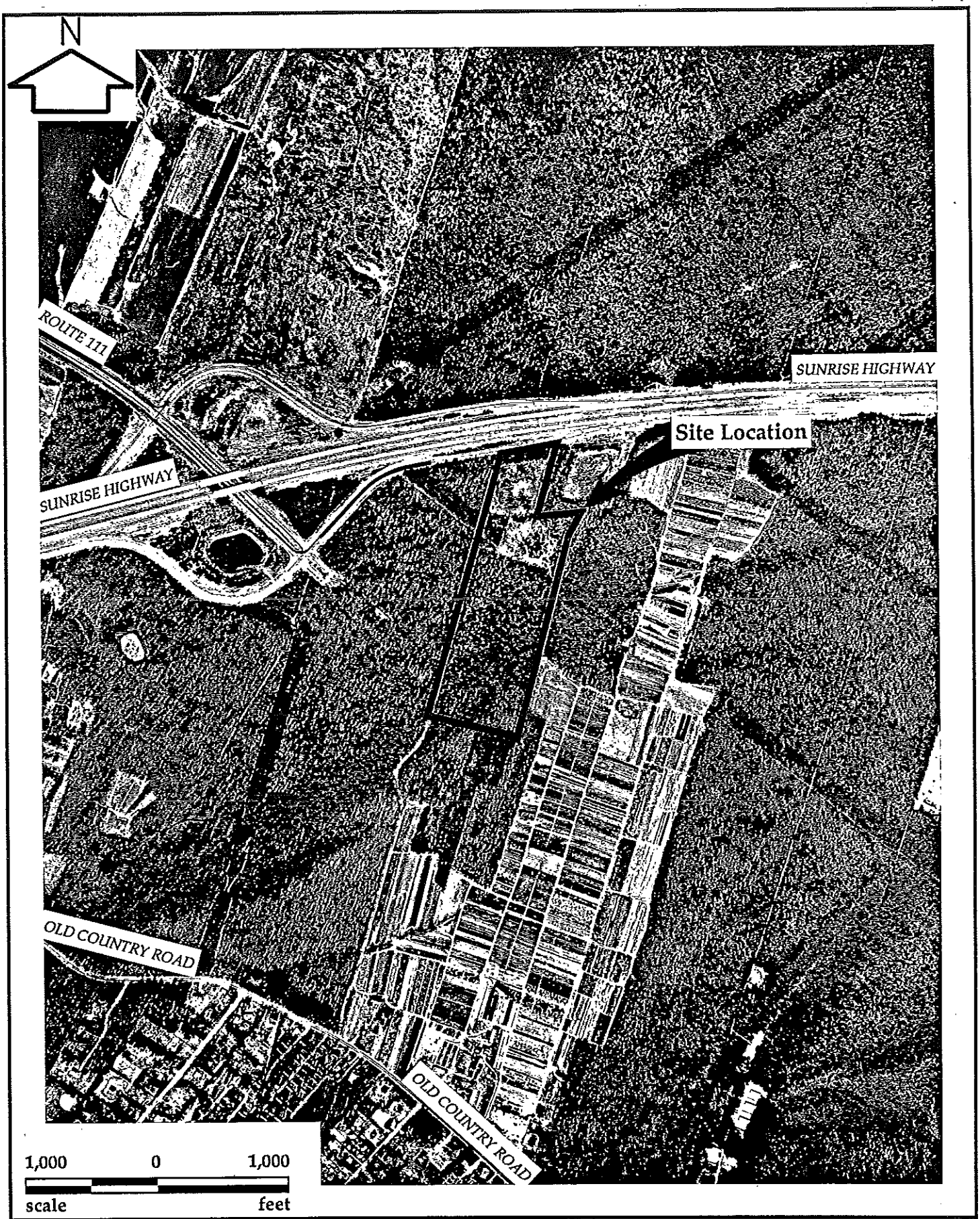
Solid Waste Management Plan
Town Of Southampton, New York

East End Recyclers Association
Aerial View

Figure 9-4



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Solid Waste Management Plan
Town Of Southampton, New York

Eastport - Route 111
Aerial View

Figure 9-5

Table 9-1

Preliminary Candidate Site Evaluation

Solid Waste Management Plan
Town Of Southampton, New York

	Available Acres (Less Buffer)	*Current Ownership*	*Current Land Use*	*Zoning*	*Pine Barrens*	*Inactive Hazardous Waste Site (Contaminants)*	*Hydrogeologic Zones*	*Comments*
East End Recyclers Association	5 [a]	Suffolk County	Undeveloped south-east section of County Airport	Light industry (200,000 sq ft)	Compatible growth area	No	Zone III	Bird sanctuary located to east of site; Site no longer pursued by EERA.
Eastport-Route 111	25	Town of Southampton and Dawkirk Corp.	Undeveloped	Country residence (200,000 sq ft)	Compatible growth area	No	Zone III	Intermittent stream feeds to Seatuck Creek; Western border is protected Pine Barrons area
Hampton Bays Transfer Station	18	Town of Southampton	Existing residential transfer station	Open space conservation	Compatible growth area	No	Zone III	Site delisted from State inactive waste listing in 1994.
North Sea Landfill	35	Town of Southampton	Two capped cells, one cell in use and existing residential transfer station	Open space conservation	Not within Pine Barrens	2A (Pesticides, Solvents, Chromium)	Zone V	Town solid waste management operations.
Westhampton Transfer Station	10	Town of Southampton	Existing residential transfer station	Country residence (200,000 sq ft)	Compatible growth area and protected core area	2A (Unknown)	Zone III	Northern border is protected Pine Barrens area.

KEY:

[a] - The revised Solid Waste Action Management Plan states additional acreage may be available, if required, in addition to the five acres at the East End Recyclers site. (Malcolm Pirnie, Southampton FGEIS, Page 10-11).

The Long Island Regional Planning Board, Pine Barrens Review Commission has designated areas within the Pine Barrens Conservation Zone. The Pine Barrens Conservation Zone has been protected because it is a unique habitat that supports numerous species of plants and wildlife and is also an area of significant groundwater recharge. Unplanned development within the Pine Barrens poses a significant threat to the natural resources and potential value of this area.

The Pine Barrens Conservation Zone was previously discussed in the exclusionary criteria. Potential sites located in the protected core area were eliminated from further consideration because future development is prohibited in the core area. The Pine Barrens are presented in the qualitative evaluation because development in the Pine Barrens compatible growth area must be approved by the State Pine Barrens Commission.

The Central Pine Barrens Planning Commission was contacted to identify the location of the candidate sites relative to the Pine Barrens compatible growth area. Sites which fall within the compatible growth area include: Eastport-Route 111 and Hampton Bays Transfer Station. The northern undeveloped portion of the Westhampton Transfer Station has been designated as protected core area, but the remaining section of the parcel has been designated as compatible growth area. The undeveloped southeast part of the Suffolk County Airport has been designated protected core area, except for areas identified for Airport future use in the Airport Master Plan. The North Sea Landfill site is not located in a designated Pine Barrens area.

Sites located on or within 150 feet of NYSDEC listed inactive hazardous waste disposal sites fall under the requirements of 6 NYCRR Part 360-1.9(g). This regulation requires that siting any solid waste facility within 150 feet of inactive hazardous waste disposal sites is prohibited unless a report is filed which finds that the facility will neither interfere significantly with remedial programs nor expose the environment or public health to increased harm. The NYSDEC has established the following codes for inactive hazardous waste disposal sites located in New York State:

1. Causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or environment - immediate action required;

2. Significant threat to the public health or environment - action required;

2a. Temporary classification assigned to sites that have inadequate and/or insufficient data for inclusion in any of the other classifications;

3. Does not present a significant threat to the public heath or the environment-action may be deferred;

4. Site is properly closed - requires continued management;

As Table 9-1 shows, the North Sea Landfill and Westhampton Transfer Station are listed on the 1994 inactive hazardous waste disposal site registry. The NYSDEC Inactive Hazardous Waste Disposal Site registry was examined and no inactive hazardous waste sites were identified within 150 feet of the five candidate site areas.

Proximity to landmarks of cultural significance such as those having historical or archaeological value should be considered in evaluating feasibility of site development. Detailed cultural resource surveys involving two stages of investigation are required if an archaeological or historic site is identified within a proposed project area. If unrecorded resources are found during construction, site activities will have to be halted until appropriate investigations are conducted. If there are known historical or archaeological resources on a site, that site will be considered less suitable for project development. **According to Robert Keene, the Town Historian, the only designated historic site in the Town is the Speonk-Fordham Mill on Montauk Highway in Speonk. The closest candidate site is the Westhampton Transfer Station which is approximately one mile north of the Speonk-Fordham Mill.**

The land use adjacent to the identified sites must also be considered during the selection of appropriate sites for the **leaf and yard waste** processing facilities. To the extent possible, adjacent land use should be consistent with the proposed site development. **Table 9-1 identifies the land uses near the candidate sites.**

The construction of roadways capable of providing adequate facility access to a site can cause unacceptable delays in the implementation of a facility. Therefore, sites with existing access capable of supporting heavy truck usage are more suitable for facility development. **Access exists to all candidate sites except for the Eastport-Route 111 site.**

The costs associated with site acquisition and site preparation, including road construction and blasting, are important factors to consider in the selection of a preferred site. Sites that are already owned by the Town or that require little site preparation will be considered more suitable for project implementation. **The Town would need to purchase, lease or take by eminent domain the southern parcel associated with the Eastport-Route 111 candidate site. The East End Recyclers site is currently owned by the Suffolk County Airport.**

The East End Recyclers site is located on the Suffolk County Airport, so Federal Aviation Administration (FAA) policies need to be considered. The FAA regulates land use on airport property to protect the aircraft from hazards which may threaten the safety of the aircraft passengers. Solid waste management activities have the potential to attract birds which could get caught in aircraft engines or obstruct the view of aircraft pilots, thus endangering the safety of the passengers.

The current FAA policy prohibits all solid waste management activities at airports. Proposed FAA policy is due out in late 1994. The new policy would not affect municipal waste transfer stations which would remain prohibited on airport property. Although studies were performed that showed leaf and yard waste processing does not attract birds, the FAA still does not recommend siting leaf and yard waste processing facilities on airport property.

9.5 Results and Recommendations

Of the five sites identified in Section 9.3, three will be further evaluated here for the leaf and yard waste processing facility. The North Sea Landfill has been identified for the leaf and yard waste facility. Sufficient space is located in the southwest corner of the landfill site to support these waste management activities. The Town's plan outline (Appendix G) endorses construction of one leaf and yard waste facility east of the Shinnecock Canal and one west of the Shinnecock Canal. The North Sea Landfill is the only site identified for a leaf and yard waste facility east of the Shinnecock Canal.

While the proposed development is not necessarily consistent with adjacent residential land use, constructing a leaf and yard waste processing facility is not expected to exacerbate existing conditions since the site already supports solid waste management activities. The site is not within the compatible growth area of the Pine Barrens. Site access to the leaf and yard waste landfill processing facility is adequate. The roadways leading to the site currently support solid waste hauling vehicles, though several potholes exist on Majors Path. MSW and recyclables from self-haulers only would be accepted in addition to the leaf and yard waste.

The New York Natural Heritage Unit has identified 17 sightings of rare species within a one mile radius of the North Sea Landfill. These sightings include three sitings of endangered animals, two sitings of threatened plants, and five sitings of rare plants. The remaining seven sightings are for unprotected species. Three significant habitats were reported within a one mile radius of the North Sea Landfill. If this site is chosen for future solid waste management facilities, a site survey is recommended to identify any endangered or threatened species on the parcel. The site is listed on the NYSDEC inactive hazardous waste disposal site listing. However, work has been limited to Cell No. 1 and the area of the former scavenger waste lagoons. Investigation of the scavenger waste lagoons confirmed that the former lagoons were decommissioned. Capping activities at Cell No. 1 are virtually complete pursuant to federal and New York State direction and supervision. Following additional investigation, a second Record of Decision was issued in connection with the North Sea Landfill which concluded that "No Further Action" was warranted. Remedial activities are almost complete. Moreover, location of the proposed leaf and yard waste

processing facility would be more than 150 feet from these areas at the North Sea Landfill subject to remedial action.

Site access to the East End Recyclers Association site is from Old Riverhead Road which intersects with Sunrise Highway. The roadway along the southern perimeter of the airport, from Old Riverhead Road to the site, consists of weathered pavement which has cracks and potholes. A bird sanctuary is located east of the airport property, in the adjoining parcel of land. However, the bird sanctuary does not border the candidate site; the bird sanctuary is approximately 2,000 feet east of the candidate site.

The New York Natural Heritage Unit has identified 17 sightings of rare species within a one mile radius of the East End Recyclers site. These sightings include two sightings of threatened plants, three sightings of rare plants, and 12 sightings of unprotected species. Two significant habitants were reported, one which is the bird sanctuary mentioned previously, and one other significant habitat. If this site is chosen for a future solid waste management facility, a site survey is recommended to identify any endangered or threatened species on the site. The site is designated within the Pine Barrens compatible growth area, where development is permitted, but requires the approval of the state commission.

As previously discussed in Section 9.4 Qualitative Site Evaluation, 6 NYCRR Part 360-1.9(g) prohibits siting any solid waste facility within 150 feet of inactive hazardous waste disposal sites unless a report is filed which finds that the facility will neither interfere significantly with remedial programs nor expose the environment or public health to increased harm. There are four sites listed in the Inactive Hazardous Waste Disposal Site Registry located in the southeast corner of the Suffolk County Airport near the East End Recyclers site:

Site Name	NYSDEC Site No.	Approximate Distance from East End Recyclers Site:
C and D Site	152078	300 feet-east
Fire Training Area	152122	1,000 feet-north
Quogue Landfill	152061	300 feet-southwest
L and C Concrete Corp.	152087	1,000 feet-southwest

Since these four inactive hazardous waste sites are more than 150 feet from the border of the East End Recyclers site, it is not expected that the reports will need to be filed with the NYSDEC.

The site also falls within existing airport property which is subject to the FAA policies discussed in Section 9.4, Qualitative Site Evaluation. FAA officials have said that a leaf and yard waste processing facility on airport property would not be a permitted use of the land, under either the current

or proposed policy. As such, this site is not considered viable and is eliminated from further consideration.

The Eastport-Route 111 site, located west of the Shinnecock canal, is removed from established populated residential areas. There are no inactive hazardous waste disposal sites located for the site. The Town of Southampton does not currently own all the land proposed for the site, so site acquisition costs would need to be considered. If the Town acquires the additional parcel, sufficient space would be available for the leaf and yard waste processing facility. The New York Natural Heritage Unit has identified two rare species within a one mile radius of the candidate site. One sighting is for a threatened plant species and the other sighting is for a rare plant species. In addition, one significant habitant has been reported within the one mile radius of the site. A site survey is recommended if the site is chosen for future solid waste management facilities to identify any endangered or threatened species on the site. The site falls within the Pine Barrens Compatible Growth Area, so the State Pine Barrens Commission would need to approve any development at the site. Access to the site is proposed through an extension of Route 111, which currently ends at Sunrise Highway. The Suffolk County Board of Legislators would need to approve the extension. This site is not considered further as the Town would need to purchase additional land, and site access could be a problem.

The Hampton Bays site is the second site west of the Shinnecock Canal which has been identified for the leaf and yard waste processing facility. The Hampton Bays site currently operates as a residential drop-off for residential municipal waste and recyclables. The leaf and yard waste facility would be consistent with this current land use. Compost piles currently exist at the site. Sunrise Highway and Hampton Bays Road provide site access while Old Riverhead Road and Jackson Avenue provide access to the site from Hampton Bays Road. Since this site is currently used for solid waste management activities, access roadways at the end of Jackson Avenue have already been constructed into the site. The Hampton Bays site was delisted from the Inactive Hazardous Waste Disposal Site registry in 1993. The New York Natural Heritage Unit has identified 34 sightings of rare species within a one mile radius of the Hampton Bays Site. These sightings include two threatened animals, two endangered plants, one threatened plant, and 20 rare plants. Nine unprotected species were also reported. No significant habitats were reported within the one mile radius of the site. If the site is chosen for a future solid waste management facility, a site survey is recommended to identify any endangered or threatened species on the site. The site is within the Compatible Growth Area of the Pine Barrens, and future development would require the approval of the State Pine Barrens Commission.

The Westhampton Transfer Station is another site west of the Shinnecock Canal which has been identified for the leaf and yard waste facility. Similar to the Hampton Bays site, Westhampton currently operates as a residential drop-off for municipal waste and recyclables, so siting a leaf and yard waste processing facility would be considered a consistent land use. Leaf composting piles and a sand quarry also exist on the site. Site access is available from Old North Country Road. The New York Natural Heritage Unit has identified 20 rare species within a one mile radius of the site. Of these 20, one is protected wildlife, three are threatened plants, three are rare plants, and 13 are unprotected. No significant habitats were reported within the one mile radius of the site. A site survey is recommended if the site is chosen for a future solid waste management facility to identify any endangered or threatened species on the site. The northern undeveloped part of the Westhampton Transfer Station has been designated as protected core area of the Pine Barrens, but the identified candidate site section of the parcel is located within the Pine barrens Compatible Growth Area. Since this part of the parcel is compatible growth area, any future development must be approved by the State Pine Barrens Commission. The site is listed on the Inactive Hazardous Waste Disposal Site registry and a NYSDEC preliminary site assessment is ongoing. The site is approximately 300 feet wide, which may limit the layout of windrows from the processing facility. Also, about 10 acres of land are available for use. Because of the site size limitations, this site was dropped from further consideration.

9.6 Summary

Two sites are required for leaf and yard waste processing facilities, one east and one west of the Shinnecock Canal. The North Sea Landfill is the only site identified east of the Canal. While two sites are identified west of the Canal: Eastport-Route 111 and Hampton Bays Transfer Station; the Hampton Bays Transfer Station is the preferred site west of the Shinnecock Canal.

10

Section Ten

Section 10
Implementation

10.1 Waste Reduction and Recycling Program

The Town of Southampton has implemented a mandatory recycling program for newspapers, corrugated cardboard, mixed paper, junk mail, PET and HDPE plastics, aluminum and tin cans, and clear, brown and green glass. This program applies to both the residential and commercial sectors. The Town also recycles white goods, tires, used motor oil and leaf and yard wastes. In addition, a permanent household hazardous waste program (S.T.O.P.) was instituted in 1991, so that residents could safely dispose of their lawn and garden products, household cleaners and paints, automotive products and other hazardous products typically found in the home. These materials are classified and consolidated by type, and transferred out of Town for disposal. Violations of the Town's recycling law are subject to increasingly stringent fines.

The recyclables drop-off program has proven to be extremely successful, as a result of continued educational efforts and programs initiated with the private haulers to facilitate curbside collection of these materials. Commercial establishments have been encouraged to expand their in-house reuse and recycling capability. Quantities of source separated recyclables received by the Town have increased from about 1100 tons in 1987, to about 9,400 tons in 1993.

The Town plans to continue to operate its drop-off facilities for recyclables, and will continue marketing these materials on a spot-market basis. Southampton will continually evaluate the success of its recycling program, and will add additional materials to the mandatory list, as deemed appropriate.

The Town will be implementing a "pay-per-bag" system to encourage waste reduction and will be providing residents with recycling containers to encourage greater participation.

The Town has actively promoted home composting and environmentally aware consumer purchasing. The Town will continue to expand these programs by providing residents with home composting kits and by additional educational efforts and legislation.

Revised March 1995

10.1 Solid Waste Management Program Implementation

Implementation of the solid waste management program includes the major activities outlined in Table 10-1.

Several interim measures will be necessary for the effective management of Southampton's solid waste stream, while the proposed plan is being implemented. Some of these interim measures already are in place and are presented in this document. Throughout implementation of the proposed plan, the Town will continue to manage collected recyclables and accommodate the increasing participation rates in this program. In addition to its existing transfer facilities at the North Sea Landfill and in Westhampton and Hampton Bays, the Town is undertaking construction of another transfer station in Sag Harbor. With respect to its Westhampton and Hampton Bays facilities, the Town is considering upgrades to better enable materials to be shipped directly to market, thereby resulting in reduced truck traffic to the North Sea Landfill.

Additionally, the Town's North Sea Landfill Cell No. 3 is the only active landfill in Nassau and Suffolk Counties operating pursuant to a NYSDEC Part 360 permit. Although the current permit limits the type of waste that can be disposed of at Cell No. 3 after May 31, 1995, the Town intends to request that NYSDEC extend this time frame while the plan encompassed by the Modified SWMP/DGEIS is implemented. More specifically, the processing and disposal facility proposed to handle a significant portion of the Town's waste stream is not yet constructed. Construction is expected to begin in early March or April 1995. It is anticipated that the facility will be operational by September 1996. While the facility is under construction, the Town will continue to aggressively market its recyclables and use Cell No. 3 for disposal of the part of its waste stream remaining after waste reduction and recycling.

The Town expects NYSDEC to grant its request, but if the Town's petition were to be denied, the Town would be forced to procure a short-term arrangement for the disposal of the mixed waste portion of its waste stream. If necessary, out-of-Town land disposal and/or waste-to-enery options would be further evaluated for this material.

10.2 Regulatory Requirements

The actions proposed in this GEIS/SWMP must comply with applicable environmental laws and regulations of all federal, state, county, and local agencies having jurisdiction over the proposed action. The agencies that may

Table 10-1
Town of Southampton
Solid Waste Management Program
Implementation Schedule

ACTIVITY	TARGET DATES
1. Implementation of source separation, waste reduction, education, and enforcement activities	Ongoing
2. Solidify basis for intermunicipal agreement for out-of-Town resource recovery facility capacity and in-Town leaf and yard waste management facilities to DEC	Ongoing
3. Submit Modified Solid Waste Management Plan ("Modified SWMP")/Draft GEIS to DEC and make available for public review pursuant to SEQRA	December 9, 1994
4. Close of SEQRA review and comment period on Modified SWMP/Draft GEIS	January 9, 1995
5. Issue modified SWMP/Final GEIS to DEC and make available for public review pursuant to SEQRA	February 20, 1995
6. Issue Finding Statement. SEQRA is now complete	On or about March 2, 1995
7. East End Recycling & Composting facility begins construction	Spring 1995
8. Execute Intermunicipal Agreement for out-of-Town resource recovery facility (capacity and in-Town leaf and yard waste composting facility if needed.)	After SEQRA is concluded
9. Finalize acquisition, to extent necessary, of properties selected in Modified SWMP/Final GEIS	After SEQRA is concluded
10. DEC Approval of SWMP/Final GEIS	DEC action
11. Submit application for permit to construct the in-Town solid waste management facilities identified in the Modified SWMP/Final GEIS	Two weeks after DEC approval of modified SWMP/Final GEIS
12. Release of facility-specific designs and specifications for in-Town solid waste management facilities	One week after DEC issues permit to construct the in-Town solid waste facilities management
13. Award and execution of contract(s) for construction of the in-Town solid waste management facilities	Two to three months after release of plans and specifications for the in-Town solid waste management facilities

Table 10-1 Town of Southampton Solid Waste Management Program Implementation Schedule (Cont.)	
ACTIVITY	TARGET DATES
14. East End Recycling & Composting facility begins operation	Fall 1996
15. Construction of in-Town solid waste management facilities	6-9 months

[dt14shtab1]

be involved in a project review include the Federal Aviation Administration (FAA), United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC), New York State Department of Transportation (NYSDOT), Suffolk County Department of Health Services (DOHS) and the Southampton Planning Board and Building Inspector. Each of the **potential** permits is discussed below. Several permits required for each facility are site-specific.

10.2.1 Federal Permits/Approvals

Federal Aviation Administration Regulations—The FAA requires an approval for any proposed construction or alteration of a structure that may interfere with air traffic or radio and radar communications. This would apply if a facility is located in close proximity to an airport. Based on information provided in the Part 77 Permit Application, the FAA would conduct an aeronautical study to determine whether the proposed facilities would represent a hazard to air navigation. That study would consider flight paths of aircraft traveling in the vicinity of the site, as well as major airport flight routes, and the potential for bird hazards. Since the proposed **yard waste** processing facility sites are greater than three miles from an airport, they will not require a FAA permit.

10.2.2 State Permits/Approvals

Certain permits required by the Environmental Conservation Law must follow application requirements as delineated in Title 6 NYCRR Part 621, Uniform Procedures and hearing procedures contained in Part 624.

State Environmental Quality Review Act—In accordance with the requirements of the New York State Environmental Quality Review (SEQR) Act, and specifically Environmental Conservation Law, Article 8, and Title 6 NYCRR Part 617.15, all actions that may have a significant effect on the environment must **undergo an** environmental **review** to review potential effects associated with its implementation. The Generic EIS (GEIS), presented herein, provides a means for agencies to give early consideration to environmental factors, as well as social and economic issues, by reviewing the conceptual framework of the proposed action. It represents a means for project sponsors to systematically consider these aspects in project planning and design, and for project sponsors to identify the criteria that will be utilized in selecting a site and a technology. **However, this document goes further in that specific impacts associated with the various program components (i.e., siting, construction and operation of leaf and yard waste composting facilities) are identified and evaluated.**

Solid Waste Management Permits—In accordance with the Environmental Conservation Law Article 27 and pursuant to 6 NYCRR Part 360, proposed solid waste facilities to be constructed and operated in New York State require a Part 360 permit to construct and a certificate to operate. The submissions

that accompany the construction permit application are extensive and include maps and plans; a description of the proposed plan of operation; analyses of financial data, economic conditions, and marketability of recovered materials; and construction plans and schedules.

In addition to the above requirements, the NYSDEC has the jurisdiction to regulate the prevention or reduction of impacts on water, air, noise, odors, and aesthetic conditions to ensure the public health, safety, and welfare is maintained. The proposed **yard waste** facilities will comply with these specifications.

The Part 360 permit review process also considers such factors as traffic and adjacent land use and requires demonstration that the facility is consistent with the State-approved solid waste management plans for the region. This demonstration must include justification of facility need, description and control of inter- or intra-district waste flow agreements, and discussion of overall facility implementation and management.

State Pollution Discharge Elimination System (SPDES) Permit—Environmental Conservation Law Article 17 and implementing regulations 6 NYCRR Part 750 provide the NYSDEC with authority to review and approve proposed new point source discharges of wastewater, including stormwater, process, and thermal discharges. Potential wastewater sources may include leachate from composting or processing facilities and collected stormwater runoff. If these wastewaters are treated and discharged to surface or groundwaters, this permit would be required. The effluent must be in compliance with federal and State effluent standards, when applicable. In addition, a brief description of the principal types of processing done at the facility would be required as well as the specific chemical constituents of the discharge, if any.

Highway Access Permit—This permit is required by the NYSDOT for facilities that are developed along a State highway.

Long Island Well Permit—Installation of water supply wells with capacities in excess of 45 gpm in Suffolk County require a Long Island Well Permit. If the facility utilizes on-site wells for water supply during operations, this capacity may be exceeded and a permit would be required.

10.2.3 County Permits

A septic system permit would be required by the Suffolk County Department of Health Services if a septic system is to be developed.

10.3 Schedule

The preferred solid waste management system for the Town of Southampton involves a combination of expanded recycling programs, composting of leaf and yard waste, and the **processing and disposal of the remaining wastes at**

one or more out-of-Town facilities preferably an on-island MSW composting facility to be constructed in Calverton, New York.

The Town's waste reduction and recycling goals are presented in Table 10-2. This table details the progressively increasing percentages of the total waste stream which will be removed via waste reduction and recycling mechanisms. As shown by this table, the Town of Southampton's goals will exceed the statewide goal of recycling at least 40 percent of the waste stream by 1997. By the year 2010, realistic estimates indicate that the Town will be recycling approximately 58% of its waste stream, and an additional 10% will never be landfilled as a result of waste reduction measures.

The implementation program **outlined in Table 10-1** serves as a guide to achieving the Town's solid waste initiatives. It covers the topics of timetable, management responsibilities, **permitting, design** and construction activities.

(dt14shsec10)

Table 10-2
Proposed Solid Waste Management Program

Goals Schedule

Activities through 1994

- Continued efforts with commercial and self-haulers to promote recycling activities to divert materials away from the landfill.

- Instituted office paper recycling at government and private offices.

- Expanded educational efforts to encourage home composting and purchasing of environmentally sensitive consumer products.

- Increased enforcement of mandatory source separation.

- Submit modified Solid Waste Management Plan to NYSDEC with recommendation to expand mandatory source separation and implement composting of yard waste stream.

- Hire a recycling coordinator

- Continued recycling programs for the following materials: newsprint, cardboard, clear, green and brown glass, cans and scrap metal and oil, tires, mixed plastics, leaf & yard wastes, office paper, batteries, manure and other organics.

- Continued stockpiling and marketing of white goods and tires at the landfill.

- Interfaced with other Eastern Long Island towns to promote a regionalized approach to recycling.

- Initiated a public promotion campaign including the distribution of bumper stickers throughout the Town.

- Funded a separate study to analyze the municipal waste stream.

- Initiated consultant services to draft original Solid Waste Action Plan (SWAMP) study to explore solid

Table 10-2
Proposed Solid Waste Management Program
(continued)

Goals Schedule

waste management alternatives applicable to the Town.

- Pursued funding through the following channels:

  - The Town of Southampton Conservation Board submitted an application to the NYSDEC for a Community Assistance Competitive Grant (August 1988).

  - Applied to the NYSDEC for a permanent S.T.O.P. facility (September 1988).

  - Submitted a NYSDEC LRRRP grant application to request funding for a regional recycling manager and for promotion/education activities (October 1988).

- Implemented phased 1989 Recycling Plan for significant expansion and improvements to the existing program, including mandatory source separation for newspapers, scrap metal and yard waste and cans, glass, corrugated cardboard and office paper.

- Expanded public education program to increase participation with:

  - Newsletters on the new recycling measures and solid waste management planning distributed to all residents and businesses.

  - Instructional "how to" participate flyers and mailers distributed to residents for each new program phase as it is implemented.

  - Press releases and other periodic media contacts publicizing the Town's recycling activities.

- E2RA hired Recycling Manager and commenced promotional activities.

Table 10-2
Proposed Solid Waste Management Program
(continued)

Goals Schedule

- Evaluated plastics test program already underway and identified and implemented ways to increase plastics diversion through better promotion and mandatory source separation and developed plastics markets.

- Expanded public education programs with general recycling promotion by E2RA and supplementary local public education by the Town regarding collection schedules and new initiatives.

- Improved materials marketing through expanded contacts with brokers in the region.

- Continued to evaluate economic feasibility of adding other materials to the Town's program.

- Included recyclable plastics in commingled materials collection stream.

- Continued and expanded public education programs to promote new initiatives, including Recycling Program on local cable TV, fliers on enhancing recycling promoting home composting.

- Developed and opened permanent household hazardous waste program (STOP).

- Developed pilot recycling program for beach and public areas using collection containers for cans and bottles.

- Expanded educational efforts to encourage home composting and purchasing of environmentally sensitive consumer products.

- Expanded recycling program to focus on voluntary recycling of materials such as textiles, other paper,

Table 10-2
Proposed Solid Waste Management Program
(continued)

Goals Schedule

other plastics, other glass, other metals, other inorganics, used oil, batteries, and wood scrap.

- Landfill tip fee increased to $60/ton in 1992.

- Instituted office paper recycling at all government and private offices.

- Increased enforcement of mandatory source separation.

- Submitted Revised Solid Waste Action Management Plan to NYSDEC with recommendation to expand mandatory source separation and implement in-Town composting of organic waste portion of the Town's municipal waste stream.

- Mandated separation of junk mail and low grade paper.

- Approval of Revised SWMP/GEIS and Petition by NYSDEC.

- Continued aggressive marketing of all recyclable materials.

- Amended Town's procurement ordinance to establish a policy for procurement of recycled materials.

- Initiated formal recycling program at beach and public areas to target seasonal residents and tourists.

- Developed Town procurement protocol and waste reduction strategy.

54%
Total Reduction Recycling Rate

<u>Activities through 1995</u>

- Expand mandatory recycling program to include materials such as textiles,

Table 10-2
Proposed Solid Waste Management Program
(continued)

Goals Schedule

other paper, other plastics, other glass, other metals, used oil, and batteries.

- Continue with commercial and self-haulers to promote recycling activities to divert materials from landfill.

- Continue educational efforts to encourage home composting and purchasing of environmentally sensitive consumer products.

- Review and update Comprehensive Recycling Analysis (every two years, beginning in 1995).

- Submit all permit applications for construction and operation of **yard waste processing facilities**

- Continue all programs initiated in previous years.

- Evaluate effectiveness of mandatory source separation efforts and increase enforcement efforts as deemed appropriate.

- **Implement a "pay-per-bag" system for residential MSW**

- **Provide recycling containers to all residents**

- Continue aggressive marketing of all recyclable materials.

- **Continue education efforts to promote recycling activities with commercial establishments and self-haulers**

- Continue evaluation of recycling goals and objectives; expand program if goals are not achieved.

Table 10-2
Proposed Solid Waste Management Program
(continued)

Goals Schedule

- Receive permit to construct yard waste processing facilities.

- Commence construction activities.

- Evaluate potential markets for yard waste compost.

59%
Total Reduction/Recycling Rate

Long Term Activities (1995-2000

- **Evaluate recycling program in light of established goals, and consider additional materials in mandatory program.**

- Optimize Town procurement policies with respect to recyclable products.

- Evaluate solid waste management goals and objectives.

- **Provide home composting kits in 1996 to all residents.**

- Continue educational efforts.

- Evaluate feasibility of removal of additional recyclables from MSW, and implement necessary measures.

65%
Total Reduction/Recycling Rate

- **Continue aggressive marketing of all recyclable materials**

Total Reduction/Recycling Rate Goal for Year 2010 *68%*

11

Section Eleven

Section 11
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Appendices

A

Appendix A

Appendix A
Written Comments

TO: Southampton Town Board
RE: Modification to the Town of Southampton Solid Waste Management Plan Draft Generic Environmental Impact Statement December 1994

FROM: Henry W. Moeller
10 Squires Pond Rd.
Hampton Bays, N.Y. 11946

SUBJECT: Comments

DATE: December 28th,1994

RECEIVED '94 DEC 29 AM 10:14

After reading the GEIS statement there are a number of observations that I would like to make as a member of the Citizens Advisory Committee, as a scientist and as a resident of the Town of Southampton,N.Y.

#1. The GEIS makes no provision for emergency situations(i.e. hurricanes,etc.) for the handling of compost. The Highway department and other agencies familiar with these types of situations should be consulted in the preparation of a final environmental impact statement. 1-1 LYW

#2. The GEIS does not mention that there are 20 to 25 feet of rubbish buried in a landfill at the proposed location for a composting facility at Hampton Bays site. To place 15,000 tons of leaves per annum on top of a landfill containing rubbish could create some serious environmental effect to our ground water supply and to the surrounding estuaries. This subject need to be seriously addressed in an environmental impact study. 1-2 LYW

#3. The GEIS does not mention Christmas trees that are taken to a composting facility. Should these trees be placed on our sand dunes or should they be composted? In conversations I have had with the N.Y.D.E.C. the general impression I received was that they were actually harmful on the barrier beach and arrangements should be made to compost them. 1-3 LYW

#4. The Hampton Bays transfer station receives quantities of bay scallop shells,etc... The Southampton Town Trustees should be consulted about their eventual disposition. Placing them in the waste stream is a problem they should address. I know scallop shells and clam shells create a smell after they have been shucked. Therefore this problem needs to be addressed from a public health perspective. It is my view however that they should eventually be returned to the water after a period of several months or a year. The fee for handling these wastes should be incorporated in the commercial baymen licensure fee. It is merely a cost of doing business. 1-4 TRA

#5. The GEIS statement continually refers to leaf and yard wastes. The report should distinguish between the quantity (tonnage) of leaf and yard wastes. It is against the Southampton Town law to dispose of grass clippings at a transfer facility. Camp, Dresser and McKee should amend their GEIS statement to include tonnage of leaf and yard wastes exclusive of grass clippings.

#6. In the Hampton Chronicle on August 18,1994 I argued for more privatization of the composting function. It should be a good business for some young persons in our community who would like to start an entrepreneurial enterprise. In conversations with scientists on Long Island familiar with the composting issue there is almost unanimous agreement that other communities on L.I. are moving towards privatization and yet the GEIS makes no mention of this government trend. Why? This is a fundamental flaw in this GEIS study. Shouldn't the Town of Southampton request proposals from private vendors to design and construct new composting facilities? It would be a good idea for this administration to try and create new business opportunities for young people. This administration has been unfairly charged with being called anti-business. Here is an opportunity to reverse public opinion!

#7. The GEIS statement makes note of the North Sea site as a depository for household hazardous wastes. There should be two sites for household hazardous wastes. One to serve the eastern end of the town and one for the western end of the town. This is far more important than having two composting facilities- one on the eastern end of the town and one on the western boundary. These toxic household chemicals need priority over other issues in solid waste management.The GEIS statement does not give them a high priority.The GEIS report does not adequately address the serious environmental hazards of household hazardous wastes. What about agricultural hazardous waste materials that enter our waste stream? Identify them for us!

#8. The GEIS statement refers to exchanges with one or two other municipalities in a garbage for twigs program. Southampton would transport our solid wastes to a site in another town and bring home compost wastes. These compost or organic wastes which are defined as "twigs" in the report suggests that additional demand would be placed on our composting facilities. I would rigorously oppose this concept.
It is difficult to handle the wastes Southampton generates. What is the economic benefit to Hampton Bays and North Sea from importing compost or organic wastes?

#9 The GEIS statement does not adequately deal with the percentage of nitrogen in the leaf wastes. Leaf wastes have a low nitrogen content and to facilitate decomposition the nitrogen content is usually raised by mixing it with other organics. What other source of organics do you have in mind to accomplish this objective?
Is the objective decomposition or to stabilize? The GEISS statement did not make this clear but did state that some of the compost would eventually be landfilled. How much will be landfilled?

#10 The GEIS statement does not adequately address the Aspergillus fumigatus issue or the potential pathogenic bacteria in the composting facility. There has been a lawsuit on L.I. about this issue. Won't you educate us on this matter? 1-10 LYW

#11 In my concluding remarks, I would like to address the composting facility at Hampton Bays. One or more members of the Southampton Town Board have recently argued that we need an economic plan for composting. I would argue that the Town of Southampton had an economic plan at North Sea. That changed as a result of evolving legislation and new ethical attitudes. What is the new ethical position? I believe the North Sea experience has taught us no matter what we do with our solid waste we must be responsible citizens and share the responsibility and the burden of handling solid wastes. We can no longer expect as our town grows to be able to place all of our solid wastes in one location. It is my view that the citizens of Hampton Bays are willing and prepared to share in handling the wastes we generate in our community but we do not want to become a major repository for the entire town or worse yet to import compost from another community under the guise that this is the only economically viable route for handling solid wastes. We surrendered the ideal economic model at North Sea in the interest of compassion. Once we made that decision was made it would be unfair to make Hampton Bays the new North Sea site. Instead, the enlightened vision of the future must be one where each sector of the town bears some responsibility in handling part if not all of the generated wastes. We must now and in the future be prepared to handle what we generate but we should not be expected to handle all or even half of the town's wastes. The rich cannot be expected to dump on the poor in the Town of Southampton. We are all committed to making our solid waste management plan a success and to do otherwise would rip this community apart. Hampton Bays would vigorously oppose plans to make it the DumpHampton! 1-11 LYW

North Sea Community Association
P.O. Box 318
Noyac Road
Southampton, NY 11969

January 10, 1995

Fred Thiele, Supervisor
Southampton Town
Southampton Town Hall
116 Hampton Road
Southampton, NY 11968

Re: Modification to the Town of Southampton Solid Waste Management Plan
Dated December 1994
Prepared by Camp Dresser & McKee

Dear Supervisor Thiele,

At our annual organization meeting on January 9, 1995 the North Sea Community Association membership voted to respectfully respond to the above-captioned matter. The North Sea Community Association wishes to go on record **opposing** any request by the town of Southampton for an extension to the continuation of landfilling at the Southampton Town Landfill on Major's Path in the hamlet of North Sea **beyond the latest extension** date of May 1995 for the following reasons:

2-1
NSLF

1. Perpetual non-compliance with several D.E.C. provisions which are required for any permit which has been given to the town of Southampton for landfilling purposes since 1978 at the facility on Major's Path in North Sea.

   a. poor/no vector control (i.e. seagulls, deer, rats, domestic dogs and cats, etc.);
   b. litter past the boundaries of the facility and strewn onto private property, especially noticeable hanging from woodland trees;
   c. run off (possibly leachate) accumulating on private property beyond the border of the facility;
   d. obnoxious off-site odors emanating past the perimeters of the Southampton Town Landfill causing nausea and headaches to local residents especially children;
   e. nuisance odors in areas used for recreational use (i.e. Fish Cove Harbor, North Sea Fire Department baseball field, North Sea Fire Department's soccer field used by young children, historical Conscience Point, Southampton Village, etc.);
   f. nuisance odors affecting local businesses (i.e. restaurants, boatyards, etc.);
   g. potential health risks due to air-borne spores and flying insects invading residences in the immediate area, especially prevalent in the warmer months;
   h. uncovered trucks both municipal and private utilizing the Southampton Town Landfill;
   i. eyesore, aesthetically this facility is visible from Major's path both through the trees and above the trees.

2. Hazardous road conditions due to poor/no planning for heavy traffic use to the Southampton Town Landfill on residential/country roads in the hamlet of North Sea an area zoned for residential use.

3. Additional removal of vegetation due to planned expansion of the Southampton Town Landfill operation.

4. Perpetual changes in authority on all levels (elected town officials, D.E.C. officials and employees, and state officials and employees) which stagnates any and all efforts for proper management of the Southampton Town Landfill facility and eliminates good future management and planning.

The above complaints are not new; they are on-going.

In October 1992 the North Sea Community Association joined with Southampton Town in requesting an extension for a permit from the D.E.C. to continue landfilling. At that time local residents still had hopes that they could work with town officials towards an end which would satisfy all residents in the township. However, it was soon evident that North Sea would still be the scapegoat and dumping ground for **all refuse** because no other area in the township is willing to share in the burden, not even for something as simple and safe as recyclables.

Eastern Long Island has been designated as a sole source aquifer by the E.P.A. According to the town of Southampton's own master plan the town landfill is situated in an environmentally sensitive area and recharge zone, the Pine Barrens. Additionally, the landfill on Major's Path is located in a residentially zoned area.

Therefore, in order to protect the future of our community the North Sea Community Association will do whatever is necessary to oppose any further extensions for landfilling at the Southampton Town facility on Major's Path. We see no reason not to utilize an alternative method to the present way of handling our garbage problem namely transferring the solid waste.

2-2
PLAN

We feel that the aforementioned alternative is the most viable alternative presently for compliance with the intent of environmental and health laws which is adequate protection of the environment and adequate protection of the health and well being of the residents in the immediate vicinity.

Very truly yours,

Barbara Sacher

Barbara Sacher, President

cc: Councilwoman, Gubbins
Councilman, Heaney
Councilwoman, Rogers
Camp Dresser & McKee

JAN 13 1995

120 Fishcove Road
Southampton, N.Y. 11968
January 14, 1995

Mr. Curtis Velsor
Camp Dresser & McKee
100 Crossways Pk. W.
Woodbury, N.Y. 11797

Dear Mr. Velsor,

I would like to comment on the Draft Environmental Impact Statement Modifications of December 1994.

I am unhappy to see the focus of disposal of yard and leaf waste as well as bulk items and the STOP facility is planned for the North Sea Landfill. 3-1 NSLF

With these arrangements traffic will continue thru residental areas on roads unable to accomodate large trucks.

Why are two yard & leaf waste facilities be built for a capacity of 30,000 Tons each? Curently the town produces 10,000 Tons yearly. Is the town going to operate a compost facility for profit? 3-2 LYW

Grass clippings are mentioned altho they have been banned from the landfill, why are they listed in the new draft? It is a proven scientific fact, grass clippings produce odors and are unhealthy. 3-3 LYW

There should have been alternate sites examined for the disposal of leaf and yard waste. 3-4 SITE

Anything you can do to improve the recommendations would prove to Southampton taxpayers that their tax dollars were well spent when CDM was hired.

Very truly yours,

Alice G. Martin

Alice G. Martin

BY FISH COVE ROAD
SOUTHAMPTON, N.Y. 11968
SATURDAY, JANUARY 14, 199

DEAR MR. VELSOR,

ENCLOSED PLEASE FIND A COPY OF LETTER SENT TO SUPERVISOR FRED W. THIELE, JR. TOWN OF SOUTHAMPTON NEW YORK.

WE WOULD LIKE YOU TO BE AWARE OF OUR FEELINGS ABOUT SOME OF HIS PROPOSED MODIFICATIONS TO THE TOWN OF SOUTHAMPTON SOLID WASTE MANAGEMENT DATED DECEMBER 1994.

THANK YOU FOR YOUR KIND ATTENTION IN THIS MATTER.

VERY TRULY YOURS

Lincoln Thompson

Helen Thompson

LINCOLN AND HELEN THOMPSON

159 FISH COVE ROAD
SOUTHAMPTON, N.Y. 11968
SATURDAY, JANUARY 14, 199

FRED THIELE
SUPERVISOR
SOUTHAMPTON TOWN BOARD
116 HAMPTON ROAD
SOUTHAMPTON, N.Y. 11968

DEAR MR. THIELE,

IN REGARD TO THE PROPOSED MODIFICATIONS TO THE SOUTHAMPTON TOWN SOLID WASTE MANAGEMENT PLAN THAT YOU HAVE INDICATED, PLEASE BE ADVISED THAT:

4-1 NSLF ① WE DO NOT WANT ANY FURTHER EXTENSIONS TO PERMIT LANDFILLIN AT THE NORTH SEA SITE, AS OF THE END OF THE CURRENT PERMIT ON MAY 31, 1995.

4-2 NSLF ② WE DO NOT WANT ANY MORE MIXED SOLID WASTE TO BE BROUGHT TO THE NORTH SEA SITE TO BE LANDFILLED.

4-3 LYW ③ WE DO NOT WANT LEAF AND YARD WAST TO BE COMPOSTED AT THE NORTH SEA SITE. WE BELIEVE THAT

THERE ARE PRIVATE COMPANIES
WOULD BE GLAD TO TAKE THIS TYPE
OF WASTE OFF YOUR HANDS. WE
WHO LIVE IN NORTH SEA ARE STILL
LIVING WITH THE NOXIOUS ODORS
AND GASES EMANATING FROM
THE LANDFILL, WHICH HAVE NOT
BEEN ELIMINATED AS PROMISED.
TO PROPOSE ADDING A COMPOSTING
FACILITY TO THE NORTH SEA
LANDFILL (WHICH IF NOT PROPERLY
MANAGED WILL PRODUCE NEW
AND DIFFERENT FOUL ODORS)
IS ADDING INSULT TO INJURY
AS FAR AS WE ARE CONCERNED.

(4) WE ARE ALSO NOT IN FAVOR OF
THE TOWN ALLOWING THE DEVELOP-
MENT OF PRIVATE MATERIAL
RECOVERY SITES IN AREAS OF
THE TOWN WHERE PEOPLE LIVE —
AND ESPECIALLY NOT IN NORTH SEA.
IN 1985 WHEN WE BOUGHT THE
PROPERTY ON FISH COVE ROAD WE
WERE ASSURED AT THAT TIME

THAT THE LANDFILL WOULD CL
SO, IN 1990 WE PROCEEDED TO
HOME THERE TO FULFILL OU
DREAM OF LIVING IN THE BE
HAMLET OF NORTH SEA
WELL THE DREAM IS FAST
BECOMING A NIGHTMARE, HERE IT
IS 1995 AND YOU ARE PROPOSING
DELAYING STOPPING LANDFILLING
LATE INTO 1996. THIS IS UNACCEPTABL
NORTH SEA HAS HAD ITS SHARE OF
PUTTING UP WITH THE LANDFILL
AND ALL ITS ILLS. WE CANNOT
ACCEPT IT ANY MORE.

VERY TRULY YOURS,

Lincoln Thompson

Helen Thompson

LINCOLN AND HELEN THOMP

COPIES SENT TO:

PATRICK (SKIP) HEANEY
DOUGLAS R. PENNY
MARTHA ROGERS
BARBARA GUBBINS
CURTIS VELSOR
THOMAS JOHRLING
RAY COWEN

40 Knoll Road
Southampton, NY 11968
283-2481

January 16, 1995

Supervisor Fred W. Thiele, Jr.
Town of Southampton
116 Hampton Road
Southampton, NY 11968

Re: Modification to Town of Southampton Solid Waste Management Plan - December 1994

Dear Supervisor Thiele:

I would like to address several issues with regard to the above-referenced Solid Waste Management Plan.

1. No extension should be applied for nor granted for the continued landfilling at North Sea beyond the scheduled closing date of May 31, 1995. It is time to close this operation and move ahead with correcting the damage that has been done to the surrounding area with regard to odor, traffic, litter, gas migration, leachate, etc. This should be done with a great degree of urgency and with no cost-cutting in the remediation plan. 5-1 NSLF

The Town can enter into a short-term agreement for the handling of MSW until such time as East End Recycling (Omni) is on line or until another inter-municipal agreement has been entered into. Other Eastern Long Island Towns are coping with their solid waste in this way. Short-term interim agreements will not have a severe financial impact on the Town, as we see from other Town's contracts. The North Sea area has suffered enough with the operation (or mis-operation) of the Landfill. May 31, 1995, is the scheduled closing date and NO extensions should be applied for NOR granted. 5-2 PLAN

(Next page, please)

2. Regarding leaf and yard waste composting, I question why privatization was not addressed in the modified Solid Waste Management Plan. There are private concerns who will eagerly handle this part of the Town's waste stream. 5-3 LYW

If, however, the decision is that leaf and yard waste composting should be conducted at Town facilities, then it should be done at several Town-owned properties (and/or transfer stations) throughout the Town. One or two hamlets should not be impacted more than any other in Town. In addition, the clearing of 20 additional acres at North Sea (the Town's self-designated critical aquifer overlay district) to handle this operation is totally unacceptable. Enough environmental damage has been done at this location. 5-4 LYW

3. Bulk items should be accepted at all transfer stations and not at just one or two. 5-5 TRANS

4. Large quantities of construction and demolition debris should not be accepted at any of the transfer facilities from any contractors, etc. Small amounts from the "do-it-yourself" (self-hauler) homeowner should be accepted at all transfer stations. 5-6 TRANS

Finally, close the Landfill on May 31, 1995, dedicate the rest of the property to Parks and Open Space use - AND PUT THIS NIGHTMARE BEHIND US.

Very truly yours,

Joan G. Brennan

Joan G. Brennan

Copies to: Mr. Curtis Velsor, Jr.
Camp Dresser & McKee
Mr. Thomas Johrling - NYS DEC
Mr. Raymond Cowen - NYS DEC
Councilmen and Councilwomen - Southampton Town Board

THE LEAGUE OF WOMEN VOTERS OF THE HAMPTONS

January 16, 1995

League of Women Voters
of the Hamptons
P.O. Box 2781
Sag Harbor, NY 11963

Southampton Town Board
116 Hampton Road
Southampton, NY 11968

Re: Comments on Modification to the Town of Southampton Solid Waste Management Plan (December 1994)

Dear Supervisor Thiele and Town Board Members,

The Natural Resources Committee of the League of Women Voters met on January 10th to discuss Camp Dresser & McKee's Modification to the Town's Solid Waste Management Plan (SWMP). Our comments and questions follow:

RECENT INITIATIVES (RECOMMENDATIONS SECTION): The League congratulates the Town Board for hiring a recycling coordinator and establishing a pay-per-bag system. The League supports expanding the pay-per-bag system to include all residents. We support the Town's distribution of recycling bins and home composting kits as soon as possible. 6-1 RECY

TRANSFER STATION IMPROVEMENTS: The League has lobbied Town Board for years to improve the user friendliness of the North Sea site. The SWMP suggested improvements appear to consider ease of transporting waste out by the town, and NOT ease of dropping off the waste by residents. Improved conditions should be part of the SWMP. 6-2 TRANS

INCINERATION: The League is opposed to incineration of our MSW. Incineration pollutes our air, concentrates toxic elements in ash residue, and generates a sizable residue (25%) which must still be landfilled. Incineration contracts require annual minimum tonnage rates which will be costly to the Town and discourage recycling. Incineration should not be considered as a contigency in the Town's SWMP. 6-3 PLAN

TOWN'S MSW DIRECT RESPONSIBILITY: This SWMP significantly reduces the Town's MSW responsibility. The Town will handle only Leaf & Yard Waste (L&YW) and self-haulers' MSW. Based on Table 3-7, this represents anywhere from .1% (1994) to 21% (1990) of the total Town waste, depending on how you interpret the data. This scenario leaves the Town dependent on private, independent companies; who must supply the Town with recycling information in order to comply with DEC mandates. There are no incentives in the plan for these carting companies to reduce waste or increase recycling rates. How can the town control and expand recycling rates with this system? 6-4 RECY

MUNICIPAL PICK-UP FEASIBILITY STUDY: The League supports this program activity. 6-5 PLAN

BALE MACHINE: Purchase of this capital equipment will allow the town to better prepare recyclables for market. Buyers of recycled goods pay significantly higher prices for baled products. It would be a good investment of the town's money for our future. 6-6 RECY

LEAF & YARD WASTE CAPACITY: The SWMP calls for a 15 fold increase in L&YW capacity (Table 3-7, 1993 data), concentrated at two sites. Care for a 15,000 ton per year facility is more exacting than currently required. The League is concerned about Southampton Town's ability to to manage these sizable facilities. Additionally, if the Town accepts other Town's L&YW then minimum quality standards should be specified to insure the Town is not left with tainted loads. We are concerned this increased capacity represents an implied "Trash for Twigs" swap which is not spelt out in the SWMP. 6-7 LYW

CELL 3 MANAGEMENT: The League urges the Town to continue &/or increase measures to mitigate landfill odors, clean-up liter surrounding the North Sea facility, and strictly enforce speed limits on Majors Path. 6-8 NSLF

POPULATION PROJECTIONS: The statistics appear to be based on data at least six years old. More current information should be used as a basis for decision making. The Long Island Regional Planning Board can provide more current data to the Town.

QUESTIONS:
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1. Table 3-17 is referenced in Table 3-12 but not in our copy. 6-9 DATA
2. Table 3-9 (Seasonal Variations of Scalehouse Tonnage) details 1987 and 1988 data. More recent data is necessary to intelligently critique the document. 6-10 DATA
3. Table 3-1 (Residential Drop-off Stations): Is the quantity data on self haulers only? If yes, why is it not used in Table 3-7? 6-11 DATA
4. Table 3-7 (Historical Solid Waste Quantities): Why is 1992 and 1993 self hauler data so low when compared with prior years? 6-12 DATA
5. Table 6-3 (Recyclable Material Quality Requirements): This table specifies revenue ranges for recycled materials. The ranges do not reflect our neighboring (East Hampton) town's rates of up to $120 for corrugated cardboard and $105 for newspaper. Baled. 6-13 RECY
6. SITING SECTION 9: Our copy contains a gap in the text from the bottom of page 9-5 to the top of 9-13. Are the missing pages available? 6-14 SITE

CONCLUSION

The League appreciates participating in this Public Review, and welcomes the opportunity to discuss our input with members of the Town Board. We can be contacted at the numbers listed below. Thank you.

Sincerely,

Kathryn Szoka,
Natural Resources Chair
725-1149

Jacqui Lofaro,
President
537-3361

Jan. 17, 1995

Dear Supervisor Thiele,

I am writing with regard to the proposed composting site in Hampton Bays. I am concerned with regard to the possible damage to our water supply and with the likelihood that there will be problems with odors in the area.

7-1
LYW

The citizens of Hampton Bays seem to have no difficulty with the idea of having their own compost deposited in our hamlet but we do object to being the site for all the other hamlets and villages in the Town of Southampton.

I hope that the town board can take our objections under advisement when adopting any plans with regard to this matter.

Sincerely,

Maureen Steigerwald

Maureen Steigerwald

RECEIVED
JAN 18 1995

235 Mary's Lane
Southampton, New York 11968
January 18, 1995

RECEIVED
JAN 20 1995

Fred Thiele, Supervisor
Southampton Town
Southampton Town Hall
116 Hampton Road
Southampton, NY 11968

Re: Modification to the Town of Southampton Solid Waste Management Plan As prepared by Camp Dresser & McKee December 1994

Dear Supervisor Thiele,

After carefully reviewing the latest modification to the Town of Southampton's S.W.M.P. I respectfully submit the following observations:

Solid waste received at the Southampton Town owned landfill has had an actual, unforeseen **decrease** of 42% in five years, specifically 68,000 tons in 1988 down to 39,310 tons in 1993 (section 3, 3-1, paragraph 1), yet all schedules and figures in the S.W.M.P. project an increase in solid waste. In fact the modified S.W.M.P. refers to information gathered in 1989, statistics and figures that are now six years old.

"Only self-haul vehicles (no commercial haulers) are permitted to use the transfer stations" (section 3, 3-2, paragraph 2). When E.E.R.C., or whatever alternative Southampton Town so chooses, comes about, the commercial carters (they handle fifty percent [50%] of the solid waste in Southampton Town according to a March 1989 survey, section 3, page 3-5, paragraph 1) will have to make their own deals and will not be allowed to utilize the Town's facilities. This too will add to a **decline** in the amount of solid waste being processed at the transfer stations. It appears at present that the figures **projected** in Appendix M may be drastically in error.

Because the carters will have to fend for themselves when Southampton Town contracts with E.E.R.C. (or whatever alternative the Town so chooses) the carters should be allowed to retain any recyclables they collect, if they so choose, to enable them to collect any revenues to which they may be entitled. This would lower even further the **projected** recyclable figures.

While Southampton Town should not be in the garbage business it should also consider not being in the leaf and yard waste business. Section 5 deals with the prospect of the Town constructing two composting facilities for leaf and yard waste. Since the Town handles 12,000 tons per year this means approximately 6,000 tons or 3,000 cubic yards per facility; yet the S.W.M.P. proposes a "Trash for Twigs" program (section 5, 5-1, paragraph 3) which will bring in additional leaf and yard waste. This additional leaf and yard waste is projected to swell our total leaf and yard waste to approximately 30,000 tons per year. This leaves the Town with the prospects of large capital investments and additional governmental intervention. Additional governmental

intervention because there are strict regulations and mandates for any leaf and yard facility handling 3,000 cubic yards (approximately 600/700 tons) or more (Appendix H, page 2-1, paragraph 5, 6NYCRR Part 360 Subpart 360-5). Perhaps the Town would prefer to look into privatization of this part of the waste stream. 8-5 LYW

Section 8 recommends a feasibility study into municipal waste collection services. This just seems to be an added cost at this time.

Southampton Town has indicated it will try to encourage its citizenry to learn about and participate in Home Composting. Many people will do so and this again will create a **decrease** in the solid waste and leaf and yard wastes and alter figures in the Appendixes.

The Town was **forced** to begin a mandatory recycling program by December 31, 1989 (section 3, page 3-1, paragraph 1) by requirements attached to a D.E.C. Consent Order which allowed the Town to continue to landfill. The fact that municipalities have constant changes in administration dictates that they must be forced or penalized in some way to encourage them to act or not to act.

That is exactly why there is no contingency plan presently available to the Town of Southampton in the event that E.E.R.C. (the regional option) is not up and running by May 31, 1995 no one has forced them to do so. 8-1 PLAN

Extensions to continue to landfill at the Town of Southampton's sanitary disposal area on Major's Path have been given continuously over the last ten years. It is time for the extensions to stop.

Very truly yours,

Charles Styler

Virginia Styler

Virginia Styler
Homeowner, Southampton Town

cc: Councilwoman, Gubbins
Councilman, Heaney
Councilwoman, Rogers
Camp Dresser & McKee ✓

New York State Department of Environmental Conservation
Building 40—SUNY, Stony Brook, New York 11790-2356
Telephone (516) 444-0375
Fax (516) 444-0373

Langdon Marsh
Commissioner

February 16, 1995

RECEIVED FEB 16 1995

Honorable Fred Thiele, Supervisor
Town of Southampton
Town Hall
116 Hampton Road
Southampton, NY 11968

Dear Supervisor Thiele:

The New York State Department of Environmental Conservation (Department) has reviewed the Town of Southampton's 'Modification to the Town's Solid Waste Management Plan' (SWMP), submitted on December 19, 1994, by the Town to the Regional Director, Ray Cowen.

The Town has done a very good job of developing it's modified SWMP which contains a single consolidated version of each section of their plan. Since repetitive material and material that is no longer pertinent has been deleted, and all modified text is now in bold print, the plan is more readily understandable and much easier to follow than the original revised SWMP which contained an original and a revised version of each section of the planning document. With that said, the Department has the following comments on the proposed modification to Southampton's SWMP.

On page 10-2 Section 10 'Implementation', there is a statement regarding the May 31, 1995, deadline which reads: "...the current May 31, 1995 deadline should not apply since additional time is required for the Town to fully implement it's resource recovery system in accordance with the Long Island Landfill Law." The Department believes that this statement is incorrect and recommends that it be deleted as this deadline does not reflect SWMP constraints, but is part of a permit condition. 9-1 PLAN

Also on pages 10-2, it is indicated that the Town would seek judicial intervention if the Department would not allow the Town to continue landfilling. While the Department recognizes the Town's right to take such legal action, due to the threatening tone of the statement and since such statements add nothing to a SWMP, the Department strongly recommends that it be deleted. As such, the Department recommends that the statement should read as follows: "The Town expects NYSDEC to grant its request, but if 9-; PLA.

Supervisor Thiele

the Town's petition were to be denied, the Town would be forced to procure a short-term arrangement for the disposal of the mixed waste portion of its waste stream."

Finally, the Department has some concerns that the recommendations in the Town's SWMP are tentative. Under normal circumstances, a modification to a Town's SWMP is undertaken because the Town decides to take a course of action different than that originally proposed. In the case of the Town of Southampton's SWMP modification, the Town now identifies a possible and preferred course of action and then a number of other general alternatives if the preferred course of action does not materialize. In almost all instances, we would not request that the modification be submitted until the Town finalized it's decision and a tentative contract or memorandum of understanding on the proposed project was agreed upon. However, the Department is prepared to approve this modification with the understanding that it is an interim document that will require further modification at the point which the Town finalizes it's decision on long term solid waste management.

9-3
PLAN

If you have any questions, please feel free to call Ms. Joanne Howell of my staff at (516) 444-0375.

Sincerely,

Anthony J. Cava, P.E.
Regional Solid Waste Engineer

AJC:ek

cc: R. Cowen, Regional Director
J. Howell, NYSDEC

ORDERED, that funds shall be disbursed from the environment fund created above only upon the written authorization of the General Counsel and that within five (5) days of receipt of writ authorization from the General Counsel, the Respondent will forw to the General Counsel for his signature, a completed voucher fo disbursement of the approved funds. Within thirty (30) days of receipt of the voucher signed by the General Counsel, the Respon dents shall forward the approved funds to the General Counsel c/ the Regional Attorney, Region One, New York State Department of Environmental Conservation Building 40, S.U.N.Y., Stony Brook, York, and it is further

AND GENERAL COUNSEL SHALL DISBURSE THOSE FUNDS TO THE PAYEE WITHIN

MCD

ORDERED, that the General Counsel shall forward copies of a authorizations to the following:

Mr. John Bennett, Town Attorney
Town of Southampton
116 Hampton Road
Southampton, N.Y. 11968; and it is further

FROM THE ENVIRONMENTAL FUND

MCD

ORDERED, that no monies shall be expended for any activities required under this Order; or otherwise required by law; and it i further

ORDERED, that all environmental review and permit requiremen applicable to any activities for which environmental fund monies are expended, must be complied with; and it is further

ORDERED, that any activities for which environmental fund monies are expended must primarily benefit the environment and th public, rather than the Department or the Respondents; and it is further

ORDERED, that the terms of this Order shall not be construed to prohibit the Commissioner or his duly-authorized representativ from exercising any summary abatement powers, either at common la or as granted pursuant to statute or regulation; and it is furthe

ORDERED, that Respondents shall not suffer any penalty under any of the provisions, terms and conditions hereof, or be subject to any proceedings or actions for any remedy or relief, if they cannot comply with any requirements of the provisions hereof because of an Act of God, war, riot or other catastrophe as to which negligence or willful misconduct on the part of Respondents was not a proximate cause, provided however, that Respondents sha immediately notify the Department in writing when they obtain know ledge of any such condition and request an appropriate extension c modification of the provisions hereof; and it is further

MCD

ORDERED, that in those instances in which the Respondents desire that any of the provisions, terms or conditions of th Order be changed, it shall make written application, setting ... the grounds for the relief sought, to the Commissioner, c/o Lori Riley, Regional Attorney, New York State Department of Environmental Conservation, Building 40, S.U.N.Y. Campus, Stony Brook, York 11794; and it is further

ORDERED, that nothing contained herein shall be construed a preventing the Department from collecting regulatory fees where applicable; and it is further

ORDERED, that nothing contained herein shall be construed as preventing the Department or any other agency from requiring additional investigation and/or remediation of the site, includir any investigation or remediation required pursuant to ECL §27-13 CERCLA, SARA, et al; and it is further

ORDERED, that any change in this Order shall not be made or become effective except as specifically set forth by written orde of the Commissioner, after notice to the Respondents, such writte order being made either upon written application of the Responden or upon the Commissioner's own findings; and it is further

ORDERED, that any such written order by the Commissioner changing this Consent Order shall be a final administrative determination subject to review pursuant to Article 78 of the CPLR.

Dated: Stony Brook, New York
1988

THOMAS C. JORLING
Commissioner of Environmental Conservati

By_____
HAROLD D. BERGER
Regional Director

To: Town of Southampton
c/o Beveridge & Diamond
101 Park Avenue
Suite 1202
New York, New York 10178

Louis K. McLean Associates, Inc.
c/o Bracken & Margolin
One Suffolk Square - Suite 300
Islandia, New York 11722

SCHEDULE A

Compliance Schedule
for
Respondent,

TOWN OF SOUTHAMPTON

Immediately,	Respondent shall submit monthly repor to and meet on a monthly or bi-monthl basis with the Department to discuss the progress of all matters which are the subject of this Order and Schedul A and B.
Immediately,	The final elevation (before settlemen of Cell #2 shall not exceed a height 175 feet above Mean Sea Level.
Immediately,	Respondent shall not re-enter (for the purpose of landfilling) the capped portion of the landfill known as Cell #1.
Within fifteen (15) days of the date of execution of this Order,	Respondent shall submit a report detailing the volumetric/useful life for Cell #2 of the North Sea Landfill.
I. RECYCLING/COMPACTION	
Immediately,	Respondent shall take any and all necessary steps to maximize recycling and compaction of solid waste.
	Respondent shall place solid waste in Cell #2 in lifts not to exceed two (2' feet in order to facilitate compaction
Within sixty (60) days of the date of execution of this Order,	Respondent shall have submitted an approvable[1] plan for the implementatio of mandatory recycling within the Town of Southampton, said plan to include a schedule of dates leading to implementation by December 31, 1989. Said plan shall be for the recycling of newspaper, cardboard, glass, yard waste, grass, metal, miscellaneous paper products, and brush.

[1] Approvable in the context of this Order, shall mean capable of approval by NYSDEC with minimal revision. Minimal revision shall mean that the Respondent can incorporate revisions required by NYSDEC and resubmit the document for approval within fifteen (15) business days of receipt of the NYSDEC's comments.

Within six (6) months of the date of execution of this Order,	Respondent shall submit to the Department, a statement pledging its full faith and credit for the amount specified in the Final Closure Plan, covering the cost of proper closure of Cell #2. If necessary, the Department shall be entitled to enforce such pledge by any means available to it, including the withholding of State aid and collection of taxes.

III. METHANE GAS COLLECTION/RECOVERY SYSTEM

Within ninety (90) days of the date of execution of this Order,	Respondent shall submit an approvable plan for methane gas collection and/or recovery system for Cells #1 and #2 to the Department for its approval, said plan to include an implementation schedule.
Within one hundred twenty (120) days of the date of Department's approval of the plan for methane gas collection and/or recovery system,	Respondent shall commence installation of the methane gas collection and/or recovery system for Cells #1 and #2, and shall complete installation in accordance with the approved implementation schedule. Upon installation, said methane gas collection and/or recovery system shall be maintained and operated in accordance with the Department-approved plan

IV. OFF-ISLAND TRUCKING

Within forty-five (45) days of the date of execution of this Order,	Respondent shall submit to the Department, a complete[2] conceptual design, including site selection and construction and implementation schedule, for a proposed temporary transfer station in the event that off-Island trucking should become necessary.

[2]Complete in the context of this Order, shall mean containing all necessary information as required by the Department.

Within one hundred and twenty (120) days of the date of notification by the Department of its determination,	Respondent will have completed the repair or replacement of leachate collection well, as required by the Department.

VI. INVESTIGATION AND REMEDIATION OF CELL #2

Within one hundred twenty (120) days of the date of execution of this Order,	Respondent shall submit to the Department a complete report including all data gathered and interpretations made by Geraghty & Miller, pursuant to the investigation and monitoring of Cell #2, North Sea Landfill.
Following final acceptance and approval by the United States Environmental Protection Agency (EPA) of the North Sea Landfill RIFS (Remedial Investigation and Feasibility Study) for Cell #1 and submittal of an approved post-closure monitoring plan to the Department for Cell #2 by Respondent,	Department will review all data pertinent to the groundwater investigation of Cell #2 and assess the need for additional monitoring requirements as to contamination if any, from Cell #2, that would involve an area not covered by RIFS.
Within one hundred and eighty (180) days of notification by the Department of additional data requirements, if any, for completion of the Cell #2 groundwater investigation,	Respondent will have completed the installation of all additional wells, if required, and incorporated these in the existing complement of Cell 2 monitoring wells, and shall submit a complete report indicating the limits of extant groundwater contamination associated with Cell 2.
Within sixty (60) days of notification of the Department's approval of completeness of the Cell #2 investigation,	Respondent shall submit to the Department, an approvable plan for the remedial alternatives, if any for Cell #2, consistent with the EPA-accepted RIFS for Cell #1. Said plan shall include an implementation schedule.
Following Department review of the plan for remedial alternatives for Cell #2,	Department will notify Respondent concerning what remedial action, if any, is required for Cell #2, consistent with the EPA-approved RIFS for for Cell #1.

IX. CLEANUP OF SLUDGE LAGOONS

Within one hundred twenty (120) days of the date of execution of this Order,	Respondent shall have submitted to the Department for its approval, an approvable workplan for the cleanup of the sludge lagoons at the North Sea Landfill site. Said plan shall include a survey delineating the boundaries of the lagoons, a review of existing relevant data, soil boring results, if any, and an implementation schedule.
Upon approval by the Department,	The cleanup of the sludge lagoons shall be completed in accordance with the implementation schedule in the Department-approved plan.

WMD

3. Erosion Control

   a. Maintenance program.
   b. Activities required to repair erosion.
   c. Replacement cover.
   d. Vegetative cover replacement if lost during drought condition.

4. Maintenance of groundwater monitoring and leachate collection systems in or contiguous to Cell 2.

5. Monitoring of the leak detection system in the leachate holdin pond and landfill proper. See "2.A" above for sub-elements.

6. Maintenance of surface water collection system.

7. Planned responses to possible occurrences of:

   a. Loss of containment integrity, including surface water collection system and leachate holding pond failure.
   b. Severe storm erosion.
   c. Drainage failure, including leachate generation and breakouts.
   d. Groundwater intrusion, including excess leachate generation.
   e. Contamination of the surface waters.
   f. Restrictions on disposal of excess leachate produced (e.g., extra hauling required).
   g. Outline of remedial action plan to address water contamination and cleanup.

Activities Required During Post-Closure Period

1. Collecting, removing and disposing of leachate from all sources.

   a. Leachate collection system (i.e., pumping and collecting procedures).

      1. Monitoring system.
      2. Measured volume and characteristics of leachate collected monthly.
      3. Pretreatment history and activities, if required.
      4. Maintenance schedule for leachate collection/ storage system including lagoons.

B

Appendix B

A solid waste composition analysis was conducted for the Town of Southampton using existing landfill records and waste composition data. This data was complemented with national data to provide further detailed analysis, especially pertaining to subcategories.

Table B-1 presents the existing waste composition based on landfill records, combined with data from a previous waste composition study in Southampton. The landfill data column represents predominant loads of specific materials delivered to the North Sea Landfill. These categories include yard waste (i.e., leaves, landscaping debris), food waste (i.e., potato waste), wood (i.e., wood chips), soil (i.e., dirt, sand), and mixed refuse (i.e., garbage, miscellaneous). These figures are based on an average of records from 1987 and 1988. In addition, quantities of materials recycled (cardboard, white goods, glass) were added. The waste sort data are based on a sampling of the mixed refuse fraction, which comprises 86.8 percent of the total waste stream. Using these data and landfill records, an overall combines waste composition was developed in column (3) of Table B-1.

To provide further analysis, information from waste composition studies in Long Island and other locations was also evaluated for Southampton. Table B-2 provides data on waste composition from a pilot recycling/composting program conducted in East Hampton, New York. These data reflect the waste composition from 100 households that voluntarily participated in a pilot source separation program for a period of 10 weeks. The figures were adjusted to reflect yard waste and bulky items in the solid waste stream. These components of the waste stream were exclusive to the study. Interestingly, the East Hampton data presents a 51 percent higher paper composition than that shown for Southampton (see Table B-1). In addition, glass was 26 percent lower.

Table B-3 shows detailed waste composition data from five different studies in the United States. Based on these figures, averages of the various components of the waste stream are presented in Table B-4. In addition, range values (maximum value and minimum value) are also shown.

TABLE B-1

EXISTING WASTE COMPOSITION DATA
TOWN OF SOUTHAMPTON

Component	Landfill[1] Data	Waste[2] Sort	Combined[3]
Paper	1.2%	38.2%	34.3%
OCC/Kraft	0.5%	11.6%	10.5%
Newsprint	0.7%		
High Grade			
Magazines			
Mixed Paper/Other Paper			
Plastic		8.6%	7.5%
Film			
HDPE			
PET			
Polystyrene			
Other Plastic			
Yard Waste	7.7%	11.8%	17.9%
Wood	1.1%	4.0%	4.6%
Food	0.3%	10.9%	9.8%
Textiles		3.2%	2.8%
Other Organics			
Total Organics:	10.3%	76.7%	76.9%
Metals		9.1%	7.9%
Steel Cans			
Bimetal Cans			
Aluminum Cans			
Other Aluminum			
Other Metals			
Glass	0.1%	14.0%	12.2%
Clear Containers			
Brown Containers			
Green Containers			
Other Glass			
Soil	1.6%		1.6%
Other Inorganics			
Total Inorganics:	1.7%	23.1%	21.7%
Special Wastes	1.3%		1.3%
Oversize Bulky	1.1%		1.1%
Tires	0.2%		0.2%
Mixed Refuse:	86.8%		
Total:	100.0%	99.8%	99.8%

Notes:

(1) As received at the landfill. Average of 1987 and 1988. Quantities of newspaper and glass are based on partial data from 1988.

(2) Based on solid waste sampling and characterization study conducted by H2M, 4/86, for the Town of Southampton. This includes only the mixed refuse fraction (83.24%).

(3) Based on a combination of landfill records and waste characterization study.

Example: paper = .868 x 38.2 + 1.2 = 34.3%

TABLE B-2

WASTE COMPOSITION FOR THE TOWN OF EAST HAMPTON
RESIDENTIAL SECTOR[1]

Component	Pilot Program	Pilot Program with Yard Waste & Construction Debris[2]
Paper	64.6%	51.7%
OCC/Kraft	3.0%	2.4%
Newsprint	19.1%	15.3%
High Grade		
Magazines		15.3%
Mixed Paper	19.1%	18.7%
Other Paper	23.4%	
Plastic	3.5%	2.8%
Film		
HDPE		
PET		
Polystyrene		
Other Plastic		
Yard Waste		18.7%
Wood	11.5%	9.2%
Food	0.9%	0.8%
Textiles	5.4%	4.3%
Other Organics		
Total Organics:	86.0%	87.5%
Metals	2.9%	2.3%
Steel Cans	2.2%	1.7%
Bimetal Cans		
Aluminum Cans		
Other Aluminum	0.2%	0.2%
Other Metals	0.5%	0.4%
Glass	11.2%	9.0%
Clear Containers		4.9%
Brown Containers		1.0%
Green Containers		3.1%
Other Glass		
Soil	0.0%	
Other Inorganics	0.3%	0.3%
Total Inorganics:	14.4%	11.5%
Special Wastes	0.0%	1.3%
Oversize Bulky		1.3%
Tires		
Total:	100.4%	100.3%

Notes:

(1) Source: Reference 1.

(2) Assumes a 20% total of yard waste and oversize bulky.

TABLE B-3

COMPOSITION OF DISCARDED MUNICIPAL SOLID WASTE
BASED ON WASTE COMPOSITION FIELD STUDIES

Component	Los Angeles Co California (1)	Ann Arbor Michigan (2)	San Francisco California (3)	Broward Co Florida (4)	Ramsey/ Washington Co Minnesota (5)
Paper	31.0%	38.0%	46.7%	40.7%	46.5%
OCC/Kraft	12.3%	7.5%	14.3%	15.3%	17.4%
Newsprint	5.4%	5.9%	10.4%	12.1%	6.5%
High Grade		4.3%			5.3%
Magazines					
Mixed Paper	13.3%				
Other Paper		20.3%	22.0%	13.3%	17.3%
Plastic	9.1%	5.8%	8.6%	8.6%	10.0%
Film	4.4%			3.2%	
HDPE	3.8%			1.1%	
PET	0.2%			0.2%	
Polystyrene					
Other Plastic	0.7%			5.5%	
Yard Waste	26.9%	10.8%	3.5%	14.5%	11.8%
Wood	5.4%	5.4%	5.7%	6.8%	6.2%
Food	5.5%	4.1%	10.2%	7.2%	6.8%
Textiles	4.2%				
Other Organics	3.0	13.7%	5.3%	6.7%	6.8%
Total Organics:	85.1%	77.7%	80.0%	84.5%	88.1%
Metals	6.5%	6.2%	6.2%	6.6%	4.6%
Steel Cans					
Bimetal Cans					
Aluminum Cans	0.6%	0.7%	0.9%	1.1%	0.6%
Other Aluminum					
Other Metals	5.9%	5.4%	5.3%	5.5%	3.2%
Glass	3.8%	3.1%	7.8%	5.6%	3.6%
Clear Containers					
Brown Containers					
Green Containers					
Other Glass					
Soil					
Other Inorganics	4.8%	13.1%	6.0%	3.3%	2.6%
Total Inorganics:	15.1%	22.3%	20.0%	15.5%	10.8%
Special Wastes					
Total:	100.2%	100.0%	100.0%	100.0%	98.9%

Notes:

(1) Source: Reference 2.
(2) Source: Reference 3.
(3) Source: Reference 4.
(4) Source: Reference 5.
(5) Source: Reference 6.

TABLE B-4

RANGE VALUE OF VARIOUS COMPONENTS OF THE WASTE STREAM[1]

Component	Average	Maximum Value	Minimum Value
Paper	40.6%	46.7%	31.0%
OCC/Kraft	13.4%	17.4%	7.5%
Newsprint	8.1%	12.1%	5.4%
High Grade	4.8%	5.3%	4.3%
Magazines			
Mixed Paper			
Other Paper	18.2%	22.0%	13.3%
Plastic	8.4%	10.0%	5.8%
Film	3.8%	4.4%	3.2%
HDPE	2.5%	3.8%	1.1%
PET	0.2%	0.2%	0.2%
Polystyrene			
Other Plastic	3.1%	5.5%	0.7%
Yard Waste	13.5%	26.9%	3.5%
Wood	5.9%	6.8%	5.4%
Food	6.8%	10.2%	4.1%
Textiles			
Other Organics	7.1%	13.7%	3.0%
Total Organics:	83.1%	88.1%	77.7%
Metals	6.0%	6.6%	4.6%
Steel Cans	0.5%	0.5%	0.5%
Bimetal Cans	0.8%	1.1%	0.6%
Aluminum Cans	0.3%	0.3%	0.3%
Other Aluminum	5.1%	5.9%	3.2%
Other Metals			
Glass	4.8%	7.8%	3.1%
Clear Containers			
Brown Containers			
Green Containers			
Other Glass			
Soil	6.0%	13.1%	2.6%
Other Inorganics			
Total Inorganics:	16.7%	22.3%	10.8%
Special Wastes			
Oversize Bulky	-	-	-
Tires	-	-	-
Total:	-	-	-

Notes:

(1) Based on waste composition studies presented in Table B-3.

TABLE B-5

VALUES FOR SOUTHAMPTON WASTE

Component	Default Value
Paper(1)	1.00

Corrugated	0.37
Newsprint	0.14
High Grade	0.12
Magazines	0.07
Mixed Paper	0.10
Other Paper	0.20
Plastic(1)	1.00

Film	0.32
HDPE	0.11
PET	0.02
Polystyrene	0.02
Other Plastic	0.53
Metals(1)	1.00

Steel Cans	0.49
Bimetal Cans	0.10
Aluminum Cans	0.14
Other Aluminum	0.06
Other Metals	0.20
Glass(1)	1.00

Food & Beverage	0.81
Other	0.19
Food & Beverage Glass(2)	1.00

Clear	0.54
Brown	0.11
Green	0.35

Notes:

(1) Source: Reference 6.
(2) Source: Reference 1.

TABLE B-6

WASTE COMPOSITION
TOWN OF SOUTHAMPTON

Component	Estimate[1]	Estimate with Subcategories[2]
Paper	34.3%	34.3%
OCC/Kraft		12.7%
Newsprint		4.8%
High Grade		4.1%
Magazines		2.4%
Mixed Paper		3.4%
Other Paper		6.9%
Plastic	7.5%	7.5%
Film		2.4%
HDPE		0.8%
PET		0.1%
Polystyrene		0.1%
Other Plastic		4.0%
Yard Waste	17.9%	17.9%
Wood	4.6%	4.6%
Food	9.8%	9.8%
Textiles	2.8%	2.8%
Other Organics		
Total Organics:	76.9%	76.9%
Metals	7.9%	7.9%
Steel Cans		3.9%
Bimetal Cans		0.8%
Aluminum Cans		1.1%
Other Aluminum		0.5%
Other Metals		1.6%
Glass	12.2%	12.2%
Clear Containers		5.4%
Brown Containers		1.1%
Green Containers		3.4%
Other Glass		2.3%
Soil	1.6%	1.6%
Other Inorganics		
Total Inorganics:	21.7%	21.7%
Special Wastes	1.3%	1.3%
Oversize Bulky	1.1%	1.1%
Tires	0.2%	0.2%
Total:	99.8%	99.8%

Notes:

(1) See Table B-1.

(2) Based on default values shown in Table B-5.

TABLE B-7

ADJUSTED ESTIMATED WASTE COMPOSITION
TOWN OF SOUTHAMPTON

Component	Adjusted[1]	Adjusted Average TPD
Paper	42.2%	79.3
OCC/Kraft	15.6%	29.3
Newsprint	5.9%	11.1
High Grade	5.1%	9.6
Magazines	3.0%	5.6
Mixed Paper	4.2%	7.9
Other Paper	8.4%	15.8
Plastic	6.2%	11.7
Film	2.0%	3.8
HDPE	0.7%	1.3
PET	0.1%	0.2
Polystyrene	0.1%	0.2
Other Plastic	3.3%	6.2
Yard Waste	14.9%	28.0
Wood	3.8%	7.1
Food	8.2%	15.4
Textiles	2.3%	4.3
Other Organics	4.3%	8.1
Total Organics:	81.9%	154.0
Metals	6.6%	12.4
Steel Cans	3.2%	6.0
Bimetal Cans	0.7%	1.3
Aluminum Cans	0.9%	1.7
Other Aluminum	0.4%	0.8
Other Metals	1.3%	2.4
Glass	8.7%	16.4
Clear Containers	3.8%	7.1
Brown Containers	0.8%	1.5
Green Containers	2.4%	4.5
Other Glass	1.6%	3.0
Soil	1.6%	3.0
Other Inorganics	0.3%	0.6
Total Inorganics:	17.1%	32.1
Special Wastes	1.3%	2.4
Oversize Bulky	1.1%	2.1
Tires	0.2%	0.4
Total:	100.0%	188.0

Notes:

(1) From 1987/1988 landfill data and adjusted to reflect CRS experience with similar waste streams.

Appendix C

ANIMAL SPECIES

I. ENDANGERED

**Chittenango Ovate Amber Snail	Succinea chittenangoensis
*Karner Blue Butterfly	Lycaeides melissa
*Shortnose Sturgeon	Acipenser brevirostrum
Longjaw Cisco	Coregonus alpenae
Round Whitefish	Prosopium cylindraceum
Pugnose Shiner	Notropis anogenus
Eastern Sand Darter	Ammocrypta pellucida
Bluebreast Darter	Etheostoma camurum
*Gilt Darter	Percina evides
Blue Pike	Stizostedion vitreum glaucum
Spoonhead Sculpin	Cottus ricei
Deepwater Sculpin	Myoxocephalus thomosoni
Tiger Salamander	Ambystoma tigrinum
*Bog Turtle	Clemmys muhlenbergi
*Leatherback Sea Turtle	Dermochelys coriacea
*Hawksbill Sea Turtle	Eretmochelys imbricata
Atlantic Ridley Sea Turtle	Lepidochelys kemopii
Massasauga Rattlesnake	Sistrurus catenatus
*Golden Eagle	Aquila chrysaetos
*Bald Eagle	Haliaeetus leucoceohalus
*Peregrine Falcon	Falco peregrinus
Eskimo Curlew	Numenius borealis
Least Tern	Sterna albifrons
Roseate Tern	Sterna dougallii
*Loggerhead Shrike	Lanius ludovicianus
*Indiana Bat	Myotis sodalis
*Sperm Whale	Physeter catadon
*Sei Whale	Balaenoptera borealis
*Blue Whale	Balaenoptera musculus
*Finback Whale	Balaenoptera physalus
*Humpback Whale	Megaptera novaeanglias
*Right Whale	Balaena glacialis
*Gray Wolf	Canis lupus
Cougar	Felis concolor

*Indicates that the species is currently listed as "endangered" by the U.S. Department of the Interior.

**Indicates that the species is currently listed as "threatened" by the U.S. Department of the Interior.

III. SPECIAL CONCERN (cont'd)

Common Nighthawk	*Chordaeiles minor*
Common Raven	*Corvus corax*
Sedge Wren	*Cistothorus platensis*
Eastern Bluebird	*Sialia sialis*
Henslow's Sparrow	*Ammodramus benslowii*
Grasshopper Sparrow	*Ammodramus savannarum*
Vesper Sparrow	*Pooecetes gramineus*
Small-footed Bat	*Myotis leibii*
New England Cottontail	*Sylvilagus transitionalis*
Harbor Porpoise	*Phocoena phocoena*

[1] DEFINITIONS

Endangered Species are any species which meet one of the following criteria:

(1) Any native species in imminent danger of extirpation or extinction in New York.

(2) Any species listed as endangered by the United States Department of the Interior, as enumerated in the Code of Federal Regulations.

Threatened Species are any species which meet one of the following criteria:

(1) Any native species likely to become endangered within the foreseeable future in New York.

(2) Any species listed as threatened by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

Special Concern Species are those native species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York. These species could become endangered or threatened in the future and should be more closely monitored. Unlike the first two categories, species of special concern receive no additional legal protection under Environmental Conservation Law Section 11-0535 (Endangered and Threatened Species). This category is presented primarily to enhance public awareness of this group of species which bear additional attention.

PLANT SPECIES

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
ACONITUM NOVEBORACENSE	NORTHERN MONK'S-HOOD	T	LT
ADOXA MOSCHATELLINA	MOSCHATEL	T	
AGALINIS ACUTA	SANDPLAIN GERARDIA	E	LE
AGALINIS VIRGATA	PINE-BARREN GERARDIA	R	
AGASTACHE NEPETOIDES	YELLOW GIANT-HYSSOP		
AGRIMONIA PARVIFLORA	AGRIMONY	R	
AGRIMONIA ROSTELLATA	WOODLAND AGRIMONY	R	
AGROSTIS MERTENSII	NORTHERN BENTGRASS	T	
ALLIUM CERNUUM	WILD ONION	R	
ALLIUM SCHOENOPRASUM	WILD CHIVES		
AMARANTHUS PUMILUS	SEABEACH AMARANTH		C2
AMELANCHIER X NANTUCKETENSIS	NANTUCKET JUNEBERRY	E	
AMERORCHIS ROTUNDIFOLIA	ROUND-LEAVED ORCHIS	V	
AMIANTHIUM MUSCAETOXICUM	FLY-POISON		
ANEMONE MULTIFIDA	CUT-LEAF ANEMONE		
ANGELICA LUCIDA	ANGELICA	E	
APLECTRUM HYEMALE	PUTTYROOT	V	
ARABIS DIVARICARPA	PURPLE ROCK-CRESS	R	
ARABIS MISSOURIENSIS	GREEN ROCK-CRESS	R	
ARABIS SHORTII	TOOTHED ROCK-CRESS		
ARETHUSA BULBOSA	SWAMP PINK	R	
ARISTOLOCHIA SERPENTARIA	VIRGINIA SNAKEROOT		
ARMORACIA AQUATICA	LAKE-CRESS	R	
ARNICA LANCEOLATA	ARNICA	E	

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
BERULA ERECTA	WILD PARSNIP		
BETULA GLANDULOSA	TUNDRA DWARF BIRCH	E	
BETULA MINOR	DWARF WHITE BIRCH	E	
BETULA PUMILA	SWAMP BIRCH	R	
BIDENS BIDENTOIDES	ESTUARY BEGGAR-TICKS	T	
BIDENS HYPERBOREA	ESTUARY BEGGAR-TICKS	T	
BIDENS LAEVIS	SMOOTH BUR-MARIGOLD	R	
BLEPHILIA CILIATA	DOWNY WOOD-MINT	T	
BOTRYCHIUM LUNARIA	MOONWORT	E	
BOTRYCHIUM MINGANENSE	MINGAN MOONWORT	E	
BOTRYCHIUM RUGULOSUM	RUGULOSE GRAPE FERN	E	
BOUTELOUA CURTIPENDULA	SIDE-OATS GRAMA	E	
BUCHNERA AMERICANA	BLUE-HEARTS		
CACALIA SUAVEOLENS	SWEET-SCENTED INDIAN-PLANTAIN	R	
CALAMAGROSTIS LACUSTRIS	POND REEDGRASS		
CALAMAGROSTIS PICKERINGII	PICKERING'S REEDGRASS	R	
CALAMAGROSTIS PORTERI SSP PERPLEXA	WOOD REEDGRASS	E	
CALAMAGROSTIS PORTERI SSP PORTERI	PORTER'S REEDGRASS	R	
CALAMAGROSTIS STRICTA SSP STRICTA	NORTHERN REEDGRASS	E	
CALAMAGROSTIS STRICTA VAR INEXPANSA	NORTHERN REEDGRASS	T	
CALAMINTHA ARKANSANA	CALAMINT		
CALLITRICHE ANCEPS	ARCTIC WATER-STARWORT		

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
CAREX COLLINSII	COLLINS SEDGE	R	
CAREX COMPLANATA	HIRSUTE SEDGE	R	
CAREX CONJUNCTA	SOFT FOX SEDGE		
CAREX CRAWEI	CRAWE SEDGE	T	
CAREX CRYPTOLEPIS	NORTHEASTERN SEDGE		
CAREX CUMULATA	CLUSTERED SEDGE	R	
CAREX DAVISII	DAVIS SEDGE	R	
CAREX DECOMPOSITA	CYPRESS-KNEE SEDGE		C2
CAREX EMMONSII	EMMONS SEDGE	R	
CAREX EMORYI	EMORY SEDGE		
CAREX FLACCOSPERMA VAR GLAUCODEA	SEDGE	R	
CAREX FORMOSA	HANDSOME SEDGE	R	
CAREX FRANKII	FRANK SEDGE		
CAREX GARBERI	ELK SEDGE	R	
CAREX GRAVIDA	HEAVY SEDGE	R	
CAREX GYNOCRATES	NORTHERN BOG SEDGE	R	
CAREX HAYDENII	CLOUD SEDGE		
CAREX HITCHCOCKIANA	HITCHCOCK SEDGE		
CAREX HORMATHODES	SEDGE	R	
CAREX HOUGHTONIANA	SEDGE	R	
CAREX HYALINOLEPIS	SHORE-LINE SEDGE	E	
CAREX JAMESII	NEBRASKA SEDGE		
CAREX LAXIFLORA VAR SERRULATA	LOOSE FLOWERED SEDGE		
CAREX LIVIDA VAR RADICAULIS	LIVID SEDGE		

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
CAREX WIEGANDII	WIEGAND SEDGE	E	
CAREX WILLDENOWII	WILLDENOW SEDGE	R	
CARYA LACINIOSA	BIG SHELLBARK HICKORY		
CASSIOPE HYPNOIDES	MOSS-HEATHER		
CASTILLEJA COCCINEA	SCARLET INDIAN-PAINTBRUSH	T	
CEANOTHUS HERBACEUS	PRAIRIE REDROOT	T	
CHAEROPHYLLUM PROCUMBENS	SPREADING CHERVIL		
CHAMAECYPARIS THYOIDES	ATLANTIC WHITE CEDAR	R	
CHAMAELIRIUM LUTEUM	BLAZING-STAR	R	
CHASMANTHIUM LAXUM	SLENDER SPIKEGRASS		
CHEILANTHES LANOSA	WOOLY LIP-FERN	V	
CHELONE GLABRA VAR DILATATA	TURTLE-HEADS		
CHELONE GLABRA VAR ELATIOR	TURTLE-HEADS		
CHENOPODIUM RUBRUM	RED PIGWEED		
CHENOPODIUM STANDLEYANUM	GOOSEFOOT		
CIRSIUM ALTISSIMUM	TALL THISTLE		
CLEMATIS OCHROLEUCA	CURLY-HEADS		
CLITORIA MARIANA	BUTTERFLY-PEA		
COLLINSIA VERNA	BLUE-EYED-MARY		
COMMELINA ERECTA	SLENDER DAYFLOWER		
CORALLORHIZA STRIATA	STRIPED CORALROOT	E	
COREMA CONRADII	BROOM CROWBERRY	E	
COREOPSIS ROSEA	ROSE COREOPSIS	R	
CORNUS DRUMMONDII	ROUGH-LEAF DOGWOOD	T	

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
CYPRIPEDIUM CANDIDUM	SMALL WHITE LADYSLIPPER	E	3C
CYSTOPTERIS PROTRUSA	LOWLAND FRAGILE FERN	E	
DESCHAMPSIA ATROPURPUREA	MOUNTAIN HAIRGRASS		
DESCURAINIA PINNATA SSP BRACHYCARPA	NORTHERN TANSEY-MUSTARD		
DESMODIUM CILIARE	TICK-TREEFOIL	T	
DESMODIUM GLABELLUM	TALL TICK-CLOVER	T	
DESMODIUM HUMIFUSUM	SPREADING TICK-CLOVER		
DESMODIUM LAEVIGATUM	SMOOTH TICK-CLOVER		
DESMODIUM NUTTALLII	NUTTALL'S TICK-CLOVER		
DESMODIUM OBTUSUM	BEGGAR-LICE		
DESMODIUM PAUCIFLORUM	SMALL-FLOWERED TICK-CLOVER		
DIAPENSIA LAPPONICA	DIAPENSIA	T	
DICENTRA EXIMIA	BLEEDING-HEART	E	
DIGITARIA FILIFORMIS	SLENDER CRABGRASS	R	
DIOSPYROS VIRGINIANA	PERSIMMON	R	
DODECATHEON MEADIA	SHOOTING-STAR		
DRABA ARABISANS	ROCK-CRESS	R	
DRABA GLABELLA	ROCK-CRESS	E	
DRABA REPTANS	CAROLINA WHITLOW-GRASS	R	
DRACOCEPHALUM PARVIFLORUM	AMERICAN DRAGONHEAD	R	
DRYOPTERIS CELSA	LOG FERN	V	
DRYOPTERIS FRAGRANS	FRAGRANT CLIFF FERN	T	
ECHINODORUS TENELLUS VAR PARVULUS	BURHEAD		

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
ERIOPHORUM ANGUSTIFOLIUM SSP SCABRIUSCULUM	COTTONGRASS		
ERYNGIUM AQUATICUM	MARSH ERYNGO		
EUONYMUS AMERICANUS	AMERICAN STRAWBERRY-BUSH	T	
EUPATORIUM LEUCOLEPIS	WHITE BONESET	E	
EUPATORIUM RESINOSUM	PINE BARRENS BONESET		C2
EUPATORIUM ROTUNDIFOLIUM VAR OVATUM	ROUND-LEAF BONESET		
EUPATORIUM ROTUNDIFOLIUM VAR ROTUNDIFOLIUM	ROUND-LEAF BONESET		
EUTHAMIA GYMNOSPERMOIDES	FLAT-TOP GOLDENROD		
FESTUCA BRACHYPHYLLA	ALPINE FESCUE		
FESTUCA SAXIMONTANA	SHEEP FESCUE		
FIMBRISTYLIS CAROLINIANA	CAROLINA FIMBRY		
FIMBRISTYLIS CASTANEA	MARSH FIMBRY	T	
FIMBRISTYLIS PUBERULA	VAHL HAIRY FIMBRY		
FRASERA CAROLINIENSIS	GREEN GENTIAN	R	
GALACTIA REGULARIS	EASTERN MILK-PEA		
GALACTIA VOLUBILIS	DOWNY MILK-PEA		
GALIUM BREVIPES	MATTED BEDSTRAW		
GALIUM CONCINNUM	SHINING BEDSTRAW		
GALIUM KAMTSCHATICUM	NORTHERN WILD-LICORICE		
GENTIANA PUBERULENTA	PRAIRIE GENTIAN	V	
GENTIANA SAPONARIA	SOAPWORT GENTIAN	R	
GENTIANOPSIS PROCERA	FRINGED GENTIAN	E	
GEOCAULON LIVIDUM	PURPLE COMANDRA	T	

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
HOTTONIA INFLATA	FEATHERFOIL	T	
HYDRANGEA ARBORESCENS	WILD HYDRANGEA	R	
HYDRASTIS CANADENSIS	GOLDEN-SEAL	T	3C
HYDROCOTYLE VERTICILLATA	WATER-PENNYWORT	E	
HYPERICUM ADPRESSUM	CREEPING ST. JOHN'S-WORT	E	
HYPERICUM DENSIFLORUM	BUSHY ST. JOHN'S-WORT	E	
HYPERICUM DENTICULATUM	COPPERY ST. JOHN'S-WORT	E	
HYPERICUM DISSIMULATUM	ST. JOHN'S-WORT		
HYPERICUM GYMNANTHUM	ST. JOHN'S-WORT		
HYPERICUM HYPERICOIDES SSP MULTICAULE	ST. ANDREW'S CROSS	E	
HYPERICUM KALMIANUM	KALM'S ST. JOHN'S-WORT		
HYPERICUM PROLIFICUM	SHRUBBY ST. JOHN'S-WORT	T	
IPOMOEA PANDURATA	WILD POTATO-VINE		
IRIS PRISMATICA	SLENDER BLUE FLAG		
IRIS VIRGINICA VAR SHREVEI	SOUTHERN BLUEFLAG		
ISOETES MACROSPORA	LARGE-SPORED QUILLWORT	R	
ISOPYRUM BITERNATUM	FALSE RUE-ANEMONE		
ISOTRIA MEDEOLOIDES	SMALL WHORLED POGONIA	V	LE
JEFFERSONIA DIPHYLLA	TWIN-LEAF	R	
JUNCUS BRACHYCARPUS	SHORT-FRUIT RUSH		
JUNCUS DEBILIS	WEAK RUSH	T	
JUNCUS PLATYPHYLLUS	FLATLEAF RUSH		
JUNCUS STYGIUS SSP AMERICANUS	MOOR-RUSH		
JUNCUS SUBCAUDATUS	WOODS-RUSH	R	

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
LINDERNIA DUBIA VAR INUNDATA	FALSE-PIMPERNEL		
LINUM INTERCURSUM	SANDPLAIN WILD FLAX	-	
LINUM MEDIUM VAR TEXANUM	SOUTHERN YELLOW FLAX	T	
LINUM SULCATUM	YELLOW WILD FLAX	R	
LIPARIS LILIIFOLIA	LARGE TWAYBLADE	R	
LISTERA AURICULATA	AURICLED TWAYBLADE	E	C2
LISTERA AUSTRALIS	SOUTHERN TWAYBLADE	R	
LISTERA CONVALLARIOIDES	BROAD-LIPPED TWAYBLADE	V	
LITHOSPERMUM CANESCENS	HOARY PUCCOON		
LITHOSPERMUM CAROLINIENSE SSP CROCEUM	GOLDEN PUCCOON		
LITTORELLA AMERICANA	AMERICAN SHORE-GRASS		
LOBELIA NUTTALLII	NUTTALL'S LOBELIA	R	
LOISELEURIA PROCUMBENS	ALPINE AZALEA	E	
LUDWIGIA SPHAEROCARPA	LUDWIGIA	R	
LUZULA CAMPESTRIS VAR BULBOSA	HAIRY WOODRUSH		
LUZULA SPICATA	SPIKED WOODRUSH		
LYCOPODIUM CAROLINIANUM	CAROLINA CLUBMOSS	E	
LYCOPODIUM COMPLANATUM	NORTHERN RUNNING-PINE	V	
LYCOPODIUM SABINIFOLIUM	CYPRESS CLUBMOSS	-	
LYCOPODIUM SITCHENSE	SITKA CLUBMOSS	E	
LYCOPUS RUBELLUS	GYPSY-WORT		
LYGODIUM PALMATUM	CLIMBING FERN	E	
LYSIMACHIA HYBRIDA	LANCE-LEAVED LOOSESTRIFE	T	3C
LYSIMACHIA QUADRIFLORA	FOUR-FLOWERED LOOSESTRIFE		

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
OXYPOLIS RIGIDIOR	STIFF COWBANE		
PANICUM ACUMINATUM VAR WRIGHTIANUM	PANIC GRASS		
PANICUM ANCEPS	PANIC GRASS		
PANICUM FLEXILE	PANIC GRASS	T	
PANICUM LEIBERGII	PANIC GRASS		
PANICUM OLIGOSANTHES VAR OLIGOSANTHES	PANIC GRASS		
PANICUM SCABRIUSCULUM	PANIC GRASS		
PANICUM SCOPARIUM	VELVET PANIC GRASS		
PANICUM STIPITATUM	TALL FLAT PANIC GRASS		
PASPALUM LAEVE VAR CIRCULARE	FIELD BEADGRASS		
PASPALUM SETACEUM VAR SETACEUM	SLENDER BEADGRASS		
PEDICULARIS LANCEOLATA	SWAMP LOUSEWORT	R	
PELLAEA GLABELLA	SMOOTH CLIFF BRAKE	T	
PHACELIA DUBIA	SCORPION-WEED		
PHLOX MACULATA	WILD SWEET-WILLIAM	R	
PHLOX PILOSA	DOWNY PHLOX		
PHYLLITIS SCOLOPENDRIUM	HART'S-TONGUE FERN	E	
PHYSALIS PUBESCENS VAR INTEGRIFOLIA	GROUND-CHERRY		
PHYSALIS VIRGINIANA	VIRGINIA GROUND-CHERRY		
PHYSOCARPUS OPULIFOLIUS VAR INTERMEDIUS	NINEBARK	R	
PILEA FONTANA	CLEARWEED		
PINGUICULA VULGARIS	BUTTERWORT	R	

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
POLYGONUM SETACEUM VAR INTERJECTUM	SWAMP SMARTWEED		
POLYGONUM TENUE	SLENDER KNOTWEED	R	
POLYMNIA UVEDALIA	BEAR'S-FOOT	T	
POLYSTICHUM LONCHITIS	NORTHERN HOLLY-FERN	V	
POPULUS HETEROPHYLLA	SWAMP COTTONWOOD	T	
PORTERANTHUS STIPULATUS	AMERICAN IPECAC		
POTAMOGETON ALPINUS	NORTHERN PONDWEED	R	
POTAMOGETON CONFERVOIDES	PONDWEED	R	
POTAMOGETON FILIFORMIS VAR ALPINUS	SLENDER PONDWEED		
POTAMOGETON FILIFORMIS VAR OCCIDENTALIS	SHEATHED PONDWEED	R	
POTAMOGETON HILLII	HILL'S PONDWEED	T	SC
POTAMOGETON OGDENII	OGDEN'S PONDWEED	E	
POTAMOGETON PULCHER	SPOTTED PONDWEED		
POTAMOGETON STRICTIFOLIUS	STRAIGHT-LEAF PONDWEED		
POTENTILLA ANSERINA SSP PACIFICA	SILVERWEED	R	
POTENTILLA PARADOXA	BUSHY CINQUEFOIL	E	
PRENANTHES BOOTTII	BOOTT'S RATTLESNAKE-ROOT	E	SC
PRENANTHES CREPIDINEA	NODDING RATTLESNAKE-ROOT		
PRENANTHES NANA	DWARF RATTLESNAKE-ROOT	T	
PRENANTHES RACEMOSA	GLAUCOUS RATTLESNAKE-ROOT		
PRIMULA MISTASSINICA	BIRD'S-EYE PRIMROSE	T	SC
PROSERPINACA PECTINATA	COMB-LEAVED MERMAID-WEED	R	

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
RHYNCHOSPORA CEPHALANTHA	CAPITATE BEAKRUSH		
RHYNCHOSPORA CHALAROCEPHALA	LOOSE-HEADED BEAKRUSH		
RHYNCHOSPORA GLOBULARIS	GLOBE BEAKRUSH		
RHYNCHOSPORA GRACILENTA	SLENDER BEAKRUSH		
RHYNCHOSPORA INUNDATA	DROWNED HORNED RUSH	E	
RHYNCHOSPORA PALLIDA	PALE BEAKRUSH		
RHYNCHOSPORA TORREYANA	TORREY'S BEAKRUSH		
RIBES HIRTELLUM VAR SAXOSUM	NORTHERN GOOSEBERRY		
ROSA ACICULARIS SSP. SAYI	PRICKLY ROSE	R	
ROTALA RAMOSIOR	TOOTH-CUP	R	
RUBUS CHAMAEMORUS	CLOUDBERRY		
RUDBECKIA HIRTA VAR HIRTA	BLACK-EYED-SUSAN		
RUMEX HASTATULUS	HEART SORREL	-	
RUMEX MARITIMUS VAR FUEGINUS	GOLDEN DOCK	-	
RUMEX MARITIMUS VAR PERSICARIOIDES	GOLDEN DOCK	-	
SABATIA ANGULARIS	ROSE-PINK	E	
SABATIA CAMPANULATA	SLENDER MARSH-PINK	E	
SABATIA DODECANDRA	SEA-PINK	/	
SAGINA DECUMBENS	PEARLWORT		
SAGITTARIA CALYCINA VAR SPONGIOSA	SPONGY ARROWHEAD	-	
SAGITTARIA TERES	QUILL-LEAF ARROWHEAD	E	
SALIX CORDATA	SAND DUNE WILLOW	-	
SALIX HERBACEA	DWARF WILLOW	E	

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
SCUTELLARIA INCANA	HOARY SKULLCAP		
SCUTELLARIA INTEGRIFOLIA	HYSSOP-SKULLCAP		
SCUTELLARIA NERVOSA	VEINED SKULLCAP		
SCUTELLARIA PARVULA VAR LEONARDII	SMALL SKULLCAP	R	
SCUTELLARIA PARVULA VAR PARVULA	SMALL SKULLCAP		
SCUTELLARIA SERRATA	SHOWY SKULLCAP		
SEDUM INTEGRIFOLIUM SSP LEEDYI	ROSE SEDUM	E	
SEDUM ROSEA	ROSEROOT	E	
SEDUM TELEPHIOIDES	LIVE-FOREVER		
SESUVIUM MARITIMUM	SEA PURSLANE	E	
SISYRINCHIUM MUCRONATUM	MICHAUX BLUE-EYED-GRASS		
SMILAX PSEUDOCHINA	FALSE CHINA-ROOT	E	
SMILAX PULVERULENTA	JACOB'S-LADDER	E	
SOLIDAGO CUTLERI	ALPINE GOLDENROD		
SOLIDAGO ELLIOTTII	COASTAL GOLDENROD		
SOLIDAGO ERECTA	SLENDER GOLDENROD		
SOLIDAGO HOUGHTONII	HOUGHTON'S GOLDENROD	E	PT
SOLIDAGO OHIOENSIS	OHIO GOLDENROD	R	
SOLIDAGO RIGIDA	STIFF-LEAF GOLDENROD	T	
SOLIDAGO RUGOSA SSP ASPERA	ROUGH GOLDENROD		
SOLIDAGO RUGOSA VAR SPHAGNOPHILA	TALL HAIRY GOLDENROD		
SOLIDAGO SPATHULATA VAR RACEOMSA	MOUNTAIN GOLDENROD		

RARE PLANT STATUS LIST
NY Natural Heritage Program

SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS
TRIOSTEUM ANGUSTIFOLIUM	FEVERWORT		
TRIPHORA TRIANTHOPHORA	NODDI G POGONIA	V	
TRISETUM MELICOIDES	MELIC-OATS	E	
TROLLIUS LAXUS SSP LAXUS	SPREADING GLOBEFLOWER	T	3C
UTRICULARIA BIFLORA	TWO-FLOWERED BLADDERWORT	R	
UTRICULARIA FIBROSA	FIBROUS BLADDERWORT	R	
UTRICULARIA GEMINISCAPA	HIDDENFRUIT BLADDERWORT	R	
UTRICULARIA JUNCEA	RUSH BLADDERWORT	R	
UTRICULARIA RADIATA	SMALL FLOATING BLADDERWORT	R	
UVULARIA PUBERULA	MOUNTAIN BELLWORT	E	
VACCINIUM BOREALE	HIGH-MOUNTAIN BLUEBERRY	R	
VACCINIUM CESPITOSUM	DWARF BLUEBERRY	E	
VACCINIUM ULIGINOSUM SSP PUBESCENS	BOG BILBERRY	R	
VALERIANA SITCHENSIS SSP ULIGINOSA	MARSH VALERIAN	T	
VALERIANELLA CHENOPODIIFOLIA	GOOSEFOOT CORN-SALAD		
VALERIANELLA RADIATA	BEAKED CORN-SALAD		
VALERIANELLA UMBILICATA	CORN-SALAD		
VERBESINA ALTERNIFOLIA	WINGSTEM	T	
VERNONIA GIGANTEA	TALL IRONWEED		
VERONICA PEREGRINA SSP XALAPENSIS	NECKWEED		
VIBURNUM DENTATUM VAR VENOSUM	SOUTHERN ARROWWOOD		
VIBURNUM EDULE	SQUASHBERRY	R	
VIBURNUM NUDUM	POSSUM-HAW	T	

D

Appendix D

1989 RECYCLING PLAN

Town of Southampton, New York

May 1, 1989

Printed on Recycled Paper

1989 RECYCLING PLAN
TOWN OF SOUTHAMPTON, NEW YORK

TABLE OF CONTENTS

		Page
1.0	SUMMARY	
	1.1 Introduction and Background	1-1
	1.2 Phased Implementation Approach	1-3
	1.3 Drop-off Depot Improvements and Materials Handling	1-4
	1.4 Roles and Responsibilities	1-5
2.0	PHASE 1: NEWSPAPER, BULKY SCRAP METALS AND YARD WASTE	
	2.1 Mandatory Recycling Measures for Phase 1	2-1
	2.2 Park and Beach Recycling Program	2-5
3.0	PHASE 2: CANS, GLASS, CORRUGATED CARDBOARD AND OFFICE PAPER	
	3.1 Quantities	3-1
	3.2 Cans and Glass Containers	3-2
	3.3 Corrugated Cardboard	3-5
	3.4 Office Paper	3-6
4.0	DROP-OFF DEPOT IMPROVEMENTS AND MATERIAL HANDLING	
	4.1 Phase 1 Improvements	4-1
	4.2 Phase 2 Improvements	4-3
	4.3 Materials Handling and Processing	4-4
5.0	ROLES AND RESPONSIBILITIES	
	5.1 Program Coordination	5-1
	5.2 Promotion and Education	5-2
	5.3 Operations	5-4
6.0	1989 SCHEDULE	
	6.1 Phase 1	6-1
	6.2 Phase 2	6-2
	6.3 Implementation Time Table	6-2

LIST OF APPENDICES

APPENDIX A MANDATORY RECYCLING ORDINANCE

APPENDIX B WASTE STREAM COMPOSITION ESTIMATES

APPENDIX C RECYCLABLES MARKETS SURVEY

1.0 SUMMARY

1.1 INTRODUCTION AND BACKGROUND

The Town of Southampton is now developing a Solid Waste Action Management Plan (SWAMP) to address all aspects of its long-term solid waste needs. Waste reduction and recycling will be an integral part of this plan, in accordance with the hierarchy established in the New York State Solid Waste Management Plan, and Part 360 Regulations. The Town has also recognized that there is an immediate need to reduce the quantity of solid waste disposed at the North Sea Landfill (Landill). Recycling will not only be an important part of the SWAMP, but also represents an opportunity in which immediate action can be taken that will divert significant quantities of material from the Landfill. For this reason, and in accordance with the Town's Consent Order with the New York State Department of Environmental Conservation (DEC) for Construction of Cell 3 at the Landfill, this plan for the implementation of mandatory recycling activities in 1989 has been developed.

While proposed activities for 1989 are quite aggressive, and will require considerable effort and a definite committment of resources this year, this is only the beginning. It is anticipated that the SWAMP will recommend continued growth of these efforts, the addition of other materials and further development of a recycling infrastructure, and promotional and enforcement activities in subsequent years.

The Town recognizes that initial expenditures will be needed to make the program a success. However, when considering the "avoided cost savings" realized as new landfill space is saved through diversion of each ton of recyclables captured, this program is considered to be very cost effective, and capable of significantly reducing the overall cost increases that are associated with current environmentally sound waste disposal methods.

For several years, the Town of Southampton has conducted a successful voluntary recycling program. In 1988 alone, over 5,000 tons of recyclables and organic materials were diverted through the Town's recycling program. In addition, there is a ban on the disposal of con-

- Commercial wastes are collected by private haulers.

- An estimated doubling of the population is experienced between May and September, which significantly increases the quantity of waste generated during these months.

1.2 PHASED IMPLEMENTATION APPROACH

A two phased approach has been developed for the implementation of the 1989 recycling program. Phase 1 will consist of activities that can be implemented quickly by expanding the existing voluntary program. Phase 1 will be started in June. Phase 2 will involve the implementation of new program measures that are more complicated to implement and require more time for development. For Phase 2, mandatory recycling will be initiated for cans and glass containers generated by residents as well as corrugated cardboard and office paper.

The phased approach has two added advantages. First, by phasing in the program, the public will not be overwhelmed with too many new responsibilities, which could have a negative impact on participation. Second, the Town will be able to expand and develop the facilities needed to handle the anticipated additional quantities of recyclables in an orderly manner.

In particular, the following measures will be undertaken during each Phase.

<u>Phase 1 (June)</u>

- Enact Town ordinance revisions for the Phase 1 mandatory recycling program to be initiated in 1989. The ordinance was enacted on April 25, 1989 (see Appendix A for a copy of the ordinance).

- Distribute informational newsletter concerning the SWAMP and new recycling programs to all residential property owners.

- Initiate mandatory recycling of newspaper, bulky scrap metals and yard wastes Townwide.

- Initiate curbside pick up of newspaper every other Thursday for all residents who use a private hauler service.

- Distribute instructional flyers concerning participation in the mandatory program concurrent with program start up.

1.4 ROLES AND RESPONSIBILITIES

There are three general areas into which the responsibilities in the recycling program fall: program coordination, promotion/education and operations.

The Town Board has appropriately assumed the program coordination role. Program coordination responsibilities include: providing the impetus for program implementation, coordinating all aspects of the program, and providing information and assistance when requested. While it is expected that the East End Regional Recycling Program Manager will help in these efforts, the Town may need to hire a recycling coordinator for Southampton or arrange for recycling coordination activities to be distributed among various departments to meet these responsibilities.

Promoting active public participation is an absolute must in any recycling program that captures recyclables primarily through source separation. Residents and businesses need to separate out their recyclables and properly prepare them for collection in accordance with program instructions. The Town is responsible for raising public awareness of the program and educating the public on how to recycle.

The operations role will be filled by the private haulers, the Town's Sanitation Department and possibly by other private organizations. The haulers have agreed to provide recyclables collection services to their customers. During 1989, the Sanitation Department will continue to operate, maintain and monitor the drop-off depots and transfer the recyclables to market. The Department may also need to take on new activities including organic wastes composting, and possibly some can and glass container sorting if necessary. With the implementation of the mandatory recycling plan, the Sanitation Department's role is likely to expand due to increased drop-off depot use, greater quantities and new sorting responsibilities. This new level of effort will be determined as the proposed activities are implemented.

2.0 PHASE 1: NEWSPAPERS, BULKY SCRAP METALS AND YARD WASTES

Phase 1 of the 1989 recycling program focuses on initiating mandatory recycling with improved collection for newspaper, ferrous and non-ferrous bulky scrap metals ("white goods", metal doors, old pipes, etc.), grass and other yard wastes as well as developing a park and beach area recycling program. Phase 1 is delineated as those measures that can be substantially implemented by the start of the 1989 summer season. It should be noted that the Town has not waited for the completion of this report to begin implementing the program, and many activities for Phase 1 implementation are underway. Phase 2 will involve implementation of mandatory recycling of cans, glass containers, corrugated cardboard and office paper.

2.1 MANDATORY RECYCLING MEASURES FOR PHASE 1

The rationale for selecting newspaper, bulky scrap metal, grass and other yard waste for Phase 1 includes: 1) the relative ease with which these materials can be collected; 2) these materials can be handled using the Town's existing infrastructure for recycling initially; and 3) the current status of the Town's voluntary recycling program will make the transition to mandatory participation for these materials easier. By beginning with measures that were substantially developed through the voluntary programs, the new mandatory measures can be implemented quickly.

The basic collection and marketing infrastructure for newspaper, scrap metal and yard waste already exists. These items are collected separately on a voluntary basis by the private haulers who collect residential wastes. Also, drop-off centers for these materials are conveniently located at the landfill and transfer stations for self-haulers. The Sanitation Department currently markets the newspapers. Scrap metals, i.e., white goods, metal doors, pipes, etc., are stock piled and are currently being sold to a private recycling firm. Grass, leaves, wood chips and potato wastes are also stock piled, where they partially decompose. Last year the Town recycled about 5,000 tons of

TABLE 2-1

PHASE 1 MATERIALS
GENERATION AND RECYCLING
IN 1988

Material	Tons Generated (1)	Tons Recycled
Newspaper	4950	907 (2)
Scrap Metals	3800	702 (3)
Yard Wastes	10900	3060 (4)

NOTES:

1. Assumes the following theoretical percentages of the total waste stream:
   - Newspaper = 7%
   - metal = 5% (Includes all metal waste other than ca
   - Yard waste = 16%

   See Appendix B for further information.

2. Based on scalehouse tonnage records of actual newspaper sold to markets.

3. Based on scalehouse tonnage records of actual scrap metal sold to markets.

4. Assumes all yard waste (brush, wood chips, leaves and landscaping waste) separately delivered to the landfill is composted except brush which has been burned in the past. The total tons of yard waste diverted for the whole Town is not shown since only yard waste brought to the Landfill site has been quantified. Substantial quantities are also collected and stock piled separately at the Hampton Bays and West Hampton transfer stations, but these quantities are unknown at this time.

The metal category, on the other hand, is heterogeneous and different metal items are often physically integrated with other materials making recycling of metal difficult. Therefore, recovery rates for scrap metal is not expected to be as high.

Newspapers were recycled at an average of 23 percent of the estimated total quantity of newspaper generated on an annualized basis in 1988. Although this recycling rate is enviable for a voluntary program, it can be expected that recycling will increase when the program becomes mandatory. Table 2-2 presents a range of potential recycling rates for newspaper, and the tons that may be diverted at 40, 60 and 80 percent recycling.

Experience with other programs has shown that the quantity of most materials collected will increase during the initial months of a new mandatory program and then level off at a higher rate. For the mandatory newspaper program for example, Southampton may expect to be recycling as much as 60 percent or more after the initial start-up period depending on public response to promotion and enforcement measures.

Yard Wastes

Presently, the Town has provided drop-off centers at the Landfill for various organic wastes including brush, leaves, grass, wood chips and remnants from potato processing. Landscapers and some homeowners bring separated grass clippings and brush to the drop-off centers. The Highway Department collects leaves and chips some brush and tree limbs. A few private haulers have indicated that they only collect yard wastes by special pick-up.

To institute mandatory recycling of these wastes, the Town's recycling ordinance will ban grass, leaves and brush from disposal in the Landfill. These materials will go to the recycling drop-off centers located next to the Landfill on the same site. Landscapers and private haulers will be required to observe this ban, and to chip or otherwise size reduce bulky yard wastes. By publicizing the need for these measures and enforcing the ban, nearly all of these materials could be diverted for composting. The drop-off of grass, leaves and other yard

TABLE 2-2

POTENTIAL RECYCLING
RATES FOR NEWSPAPER

1988 Months	1988 Recycling Tons (1)	1988 Recycling Rate (2)	40% Recycling (Tons)	60% Recycling (Tons)	80% Recycling (Tons)
JAN	0	0%	106	159	212
FEB	0	0%	108	162	216
MAR	0	0%	134	201	268
APR	62	16%	152	228	304
MAY	73	16%	183	274	365
JUN	114	22%	204	306	408
JUL	107	19%	228	342	456
AUG	130	24%	221	332	442
SEP	122	25%	194	291	389
OCT	93	25%	152	228	304
NOV	105	28%	151	227	303
DEC	101	28%	145	218	291
TOTAL	907	23% (3)	1978	2968	3958

NOTES:

1. The quantities shown are based on 1988 scalehouse data (see Appendix B). Since this plan is for 1989 only, it was assumed that generation would remain the same for 1989.

2. Recycling Rate = Tons Recycled / Tons Generated. Tons Generated are estimated to be 7% of the total waste stream (see Appendix B).

3. Average monthly recycling rate.

contraversial since many villages have ordinances banning curbside collection for aesthetic reasons. Existing village ordinances which forbid curbside collection may need to be modified to explicitly exclude recyclable materials from that mandate. It should be noted that the Town does not have jurisdiction to require the villages to do this. However, the Town will mandate that recyclables must be separated prior to disposal in the Landfill. The Town has already requested that the villages consider these changes to their laws.

3) Specific requirements for resident preparation of newspaper to facilitate collection and increase market value are necessary. These requirements will include:

   - Newspaper only at this time. No magazines, telephone books, paper bags, junk mail, or other paper wastes.

   - Tying newspaper bundles in 2 directions with strong string only (no paper or plastic grocery bags).

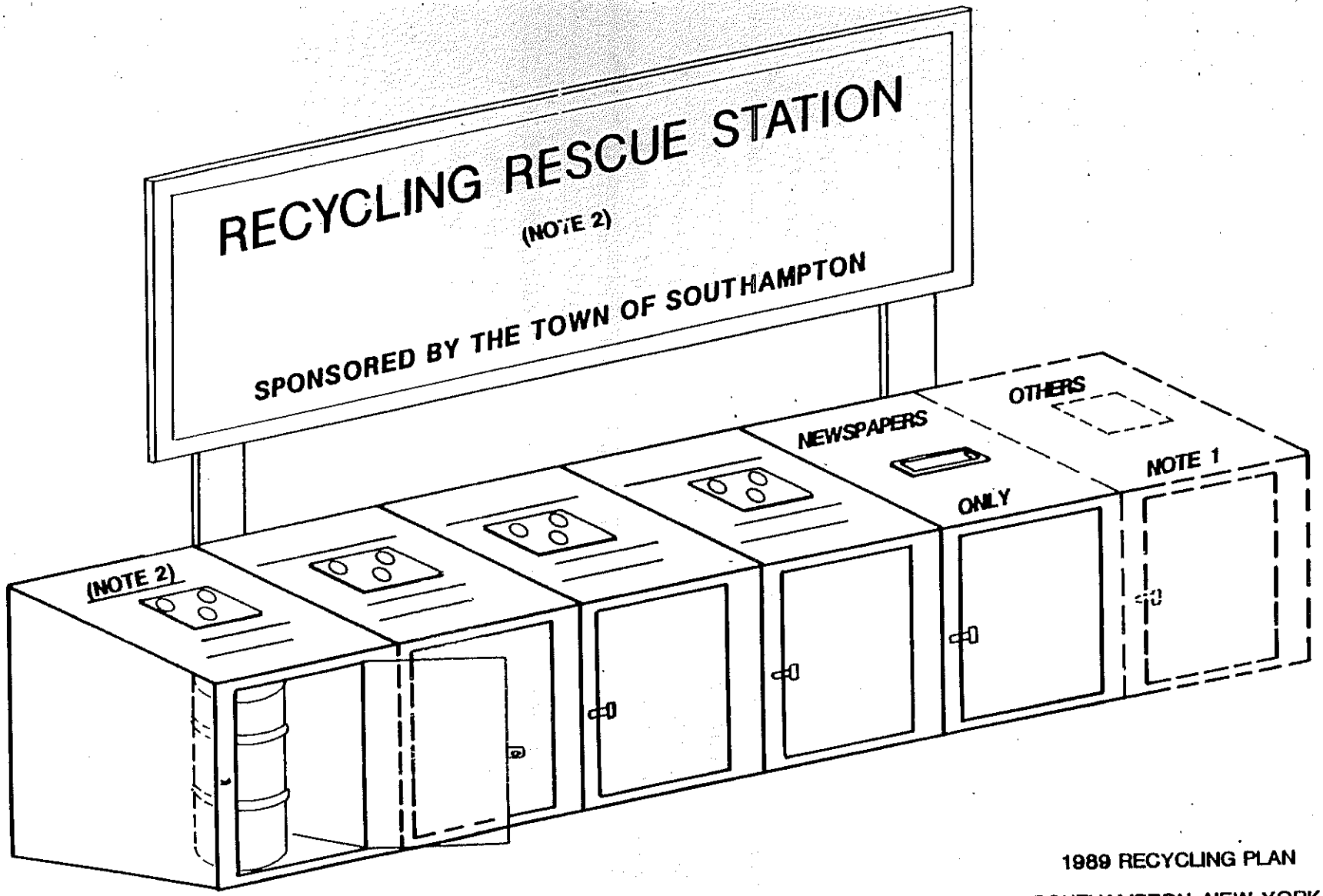
   - Placing the bundled newspapers in visible locations at the curb (exact location to be specified).

4) Consider certain temporary improvements at the drop-off centers for more efficient operation. Section 4.0 describes these improvements in more detail.

2.2 PARK AND BEACH RECYCLING PROGRAM

Southampton is known for its pristine beaches and parks which draw large crowds during the summer. Placing specially designed receptacles at the parks and beaches will not only divert material from waste disposal, but will also provide an excellent opportunity for raising awareness of recycling with the summer crowds.

There will be two elements to Southampton's parks and beaches recycling program. Receptacles for collection of newspapers will be placed at most or all of the public locations where containers for trash collection are serviced by the Town. These receptacles will be specially constructed and serviced by the Town's Parks and Recreation Department. The second element will consist of a test project for the collection of glass and aluminum beverage containers along with newspaper. At two locations, Tiana Beach in East Quogue and Ponquogue Beach in Hampton Bays, special receptacles will be placed for cans and glass containers. It is unknown at this time how effective these receptacles



1989 RECYCLING PLAN

SOUTHAMPTON, NEW YORK

BEACH AND PARKS RECYCLING CENTER

CONCEPTUAL DESIGN

NOTES:

1. THESE RECEPTACLES CAN BE BUILT AS DETACHABLE MODULAR UNITS WITH THE POSSIBILITY OF ADDING MORE FOR OTHER MATERIALS.
2. THE PARKS AND RECREATION DEPARTMENT WILL DEVELOP APPROPRIATE LABELS

3.0 PHASE 2: CANS, GLASS, CORRUGATED CARDBOARD AND OFFICE PAPER

Phase 2 of the 1989 Recycling Program will add recycling of cans, glass containers (bottles and jars), corrugated cardboard and office paper to the program in late Fall. The exact date for start-up has not yet been determined. Implementing Phase 2 will require more time and attention than Phase 1 since these materials have been recycled only to a limited extent or not at all; and their collection and marketing is relatively more complex.

3.1 QUANTITIES

Table 3-1 presents 1988 estimated generation and recycling quantities for cans, glass containers, cardboard and office paper. Significant improvement in the quantity of material recycled can be expected through the implementation of mandatory recycling for these materials. Tables 3-2, 3-3, 3-4, and 3-5 were developed show recycling quantities that would be diverted at recycling rates of 20%, 40%, 60% and 80% on a month by month basis for cans and glass containers, cardboard and office paper.

Can and glass container recycling tends to be more cumbersome and time consuming for the waste generators (residents) who separate these materials. Therefore a lower recycling rate is expected for cans and glass than is expected for newspaper. After the initial start-up period, the Town may expect 20 to 40 percent or more recycling of cans and glass containers.

Corrugated cardboard and office paper recycling rates are difficult to estimate since each commercial establishment and office is different in terms of waste generation characteristics and likelihood of compliance. Many commercial businesses already recycle cardboard, because it is cost-effective to do so. Generally, if a business or institution does recycle, the recycling rate for that business will be high. Therefore, with good promotion and enforcement, higher overall diversion rates may be achieved in time. Given these variables, it is quite

TABLE 3-1

PHASE 2 MATERIALS
GENERATION AND RECYCLING
IN 1988

Material	Tons Generated (1)	Tons Recycled (2)
Cardboard	6185	420
Glass	4330	107
Cans	3090	15
Office Paper	4950	(3)

NOTES:

1. Assumes the following theoretical percentages of the total waste stream: including recyclables:
   - Cardboard = 9%
   - Glass = 6%
   - Cans = 5%
   - Office paper = 7%

   See Appendix B for further information.

2. Based on scalehouse tonnage records for the Town's program only. Significant quantities may also be recycled through private efforts as well. Recycling rates can be better quantified through further characterization studies.

3. The Town office building is recycling office paper and has recycled an estimated 1,500 lbs. as of February. Also, since paper recyclers will pay for higher grades of office paper, it is likely that office paper is recycled on a private basis to some extent. Recycling rates for office paper can be quantified through further waste characterization studies.

TABLE 3-2

POTENTIAL RECYCLING
RATES FOR CARDBOARD

1988 Months	1988 Recycling Tons (1)	Rate (2)	20% Recycling (Tons)	40% Recycling (Tons)	60% Recycling (Tons)	80% Recycling (Tons)
JAN	9	3%	66	132	198	265
FEB	14	4%	68	135	203	270
MAR	27	6%	84	168	251	335
APR	21	4%	95	190	285	380
MAY	47	8%	114	228	342	457
JUN	54	8%	127	255	382	510
JUL	77	11%	143	285	428	570
AUG	61	9%	138	276	415	553
SEP	32	5%	121	243	364	486
OCT	24	5%	95	190	285	380
NOV	21	4%	95	189	284	379
DEC	33	7%	91	182	273	363
TOTAL	420	6% (3)	1237	2473	3710	4948

NOTES:

1. The quantities shown are based on 1988 scalehouse data (see Appendix B). Since this plan is for 1989, it was assumed that generation would remain the same for 1989.

2. Recycling Rate = Tons Recycled / Tons Generated. Tons Generated are estimated to be 9% of the total waste stream (see Appendix B).

3. Average monthly recycling rate.

TABLE 3-3

POTENTIAL RECYCLING
RATES FOR GLASS

1988 Months	1988 Recycling Tons (1)	Rate (2)	20% Recycling (Tons)	40% Recycling (Tons)	60% Recycling (Tons)	80% Recycling (Tons)
JAN	0	0%	46	93	139	185
FEB	0	0%	47	95	142	189
MAR	0	0%	59	117	176	235
APR	0	0%	67	133	200	266
MAY	0	0%	80	160	240	320
JUN	0	0%	89	178	268	357
JUL	26	5%	100	200	299	399
AUG	12	3%	97	193	290	387
SEP	11	3%	85	170	255	340
OCT	29	9%	67	133	200	266
NOV	8	2%	66	133	199	265
DEC	21	7%	64	127	191	254
TOTAL	107	5% (3)	867	1732	2599	3463

NOTES:

1. The quantities shown are based on 1988 scalehouse data (see Appendix B). Since this plan is for 1989, it was assumed that generation would remain the same for 1989.

2. Recycling Rate = Tons Recycled / Tons Generated. Tons Generated are estimated to be 6% of the cotal waste stream (see Appendix B).

3. Average monthly recycling rate.

TABLE 3-4

POTENTIAL RECYCLING
RATES FOR CANS

1988 Months	1988 Recycling Tons (1)	1988 Recycling Rate (2)	20% Recycling (Tons)	40% Recycling (Tons)	60% Recycling (Tons)	80% Recycling (Tons)
JAN	0	0%	33	66	99	132
FEB	0	0%	34	68	101	135
MAR	0	0%	42	84	126	167
APR	0	0%	48	95	143	190
MAY	0	0%	57	114	171	228
JUN	0	0%	64	127	191	255
JUL	3	1%	71	143	214	285
AUG	2	1%	69	138	207	276
SEP	2	1%	61	121	182	243
OCT	4	2%	48	95	143	190
NOV	1	1%	47	95	142	189
DEC	3	1%	45	91	136	182
TOTAL	15	1% (3)	619	1237	1855	2472

NOTES:

1. The quantities shown are based on 1988 scalehouse data (see Appendix B). Since this plan is for 1989, it was assumed that generation would remain the same for 1989.

2. Recycling Rate = Tons Recycled / Tons Generated. Tons Generated are estimated to be 5% of the total waste stream (see Appendix B).

3. Average monthly recycling rate.

TABLE 3-5

POTENTIAL RECYCLING
RATES FOR OFFICE PAPER (1)

1988 Months	20% Recycling (Tons)	40% Recycling (Tons)	60% Recycling (Tons)	80% Recycling (Tons)
JAN	53	106	159	212
FEB	54	108	162	216
MAR	67	134	201	268
APR	76	152	228	304
MAY	91	183	274	365
JUN	102	204	306	408
JUL	114	228	342	456
AUG	111	221	332	442
SEP	97	194	291	389
OCT	76	152	228	304
NOV	76	151	227	303
DEC	73	145	218	291
TOTAL	990	1978	2968	3958

NOTES:

1. The actual amount of office paper being recycled has not been quantified. These quantities are based on estimated generated tons of office paper being 7% of the total waste stream (see Appendix B).

materials are then collected separately. Alternatively, the different cans and glass containers can be collected mixed together ("commingled"), but separate from the garbage, and then later sorted into the various components. Each approach has its advantages and disadvantages.

A separate container program places more responsibility on the homeowner. Typically (but not in all cases), fewer homeowners will participate for this reason. Although several collection variations are possible, traditionally, special sectionalized collection vehicles are used to keep the materials separated. However, depending on how the materials are contained, it is possible to use ordinary garbage trucks. The primary advantage of this approach is that it may not require a full Materials Recovery Facility (MRF) to sort and process collected materials since this sorting has already been done by the homeowner. Thus, homeowner willingness to provide this separation may result in overall cost savings, since higher revenues will be received with minimum processing cost.

Commingling is easier for the homeowner and therefore participation rates tend to be higher. In addition, since the materials are collected together, existing garbage trucks can be utilized. Also, many more recyclable components can be added to the commingled stream without over burdening the residents with many different containers. A disadvantage is that commingled recyclables must be sorted into its various components before an end-user will purchase them. Sorting the materials has a cost associated with it. This sorting, as well as other processing in preparation for market, is done at what is called a Materials Recovery Facility (MRF). Some privately operated MRFs operating in Western Long Island, have expressed interest in taking commingled materials collected in Southampton. Currently, private MRFs are charging from about $10 to $35 per ton f.o.b. the facility to process these materials. Processing of cans and glass containers is discussed in more detail in Section 4.0.

At this time, it is likely that a commingled collection approach will be preferred for several reasons although this has not yet been finally determined yet. First, the higher participation rates expected with commingled collection may divert greater quantities of recyclables

Department staff (about 4 hours labor every 2 weeks would be required), who would then market them in the same way that has been done for materials collected for the voluntary program.

The bagged approach may be less costly than the commingled approach for the Town. The private haulers can use existing collection equipment with either method and there should be no difference in collection cost. The Town could save in a number of ways. The bagged materials are already separated, so minimal processing is necessary, and revenues will be generated from the sale of the recyclables. Comparatively, the commingled material must be trucked to a MRF in western Long Island. These MRFs are currently charging between $10 and $35 per ton to accept and process the commingled material. Therefore, the bagged approach may be the most cost effective.

However, the extra responsibilities the bagged approach places on the home owner may have a negative impact on the overall participation rate. This possiblity and actual cost savings would be quantified and evaluated to ascertain if the bagged approach is a viable option for the Town.

If considered, such a pilot program would not be undertaken before the end of the summer.

3.3 CORRUGATED CARDBOARD

Corrugated cardboard is generated in significant quantities (see Table 3-1). Most of it is generated by commercial establishments such as grocery stores and restaurants. Moreover, there are potential difficulties with space for storing cardboard at smaller establishments, and it may be necessary to phase in mandatory recycling of cardboard over a longer period of time.

Collection of corrugated cardboard will be the joint responsibility of the commercial establishments and their haulers. Each commercial establishment will need to keep cardboard separate from its trash and make arrangements with its garbage collection service to pick up the cardboard separately. The private hauler can then drop-off the card-

Over twenty-five recycling companies located on Long Island identified by Malcolm Pirnie through past contacts were surveyed to ascertain which paper grades are currently marketable. None indicated an interest in mixed waste paper separated from the general municipal waste stream. On the other hand, seven recycling firms will pay for office paper grades including: computer paper, white and colored stationery, photocopy paper, etc., (see Appendix C, Recycling Markets Survey).

The source of this paper includes: corporate offices, law firms, real estate brokerages, municipal office buildings, schools, banks, personnel services and business services. It should be noted that an office paper recycling program was started at the Town office building in January of this year. An estimated 1,500 pounds of office paper has been recycled as of April. In addition, the Town uses recycled paper for its letterhead and is currently looking for recycled photocopy and computer paper brokers. By creating markets for recycled products we can close the loop and expand markets for recyclables diverted from the waste stream.

An important aspect of office paper recycling is developing readily available outlets for the paper generators. Most paper recycling markets contacted will deal directly with the individual businesses and institutions. Many also offer their expert assistance in setting up collection systems within the office itself. Alternatively, since office paper has value, the private haulers will be encouraged to provide office paper collection services as well. Given the current market situation it may not be necessary for the Town to get directly involved in the collection and marketing aspects of office paper recycling.

Paper buyers have indicated that regardless of the size of the office, they may provide storage containers and pick them up when full. Given the Town's interest in diverting as much waste as possible, all offices and businesses, regardless of size, that generate office paper waste should be required to recycle after a reasonable time has been allowed for working out any special difficulties. Appendix C contains a preliminary list of potential markets that may be contacted for assistance.

4.0 DROP-OFF CENTER IMPROVEMENTS AND MATERIALS HANDLING

With the introduction of mandatory recycling, the Town will need to improve and expand the existing recyclables drop-off centers for both self-haulers and private haulers. A minimal sorting capability for the commingled or bagged cans and glass containers collected by the private haulers may also need to be developed in 1989 or later depending on the curbside collection method selected. Sorting and possible processing capabilities will be evaluated in conjunction with long-term planning to determine the most cost effective approach.

The drop-off centers currently used by self-haulers are located at the three transfer stations and the Landfill site. Improvements to these centers will focus on making each more convenient, attractive and efficient to boost public participation and reduce operating costs. Improvements will take place in two stages: 1) short-term improvements needed for 1989 and 2) longer term improvements associated with the SWAMP study recommendations. Initial work will include site planning to assure compatibility with long-term needs. Since the 1989 implementation program is moving very quickly, it is important that initial activities and expenditures be well planned and coordinated so that positive momentum is achieved, while at the same time providing for an orderly and cost effective transition. A new drop-off center is recommended for the private haulers and self-haulers at the North Sea Landfill site. The center will be designed for direct tipping from collection vehicles into transfer containers so that minimum Town labor will be required.

Ultimate designs for all drop-off center improvements and processing facilities will be considered after the collection methods have been fully defined and the SWAMP has been developed. This section describes, in general terms, the improvements to be considered for 1989.

4.1 PHASE 1 IMPROVEMENTS

This section describes changes to the existing drop-off centers and new composting activities that should be undertaken with the implementation of Phase 1; i.e. the introduction of mandatory recycling of news-

This pilot effort will be an important part of the 1989 activities, since it will provide the Town with an opportunity to develop and test the capability to compost separated organics of various kinds. The experience gained will therefore be valuable towards determining the Town's long-term composting possibilities.

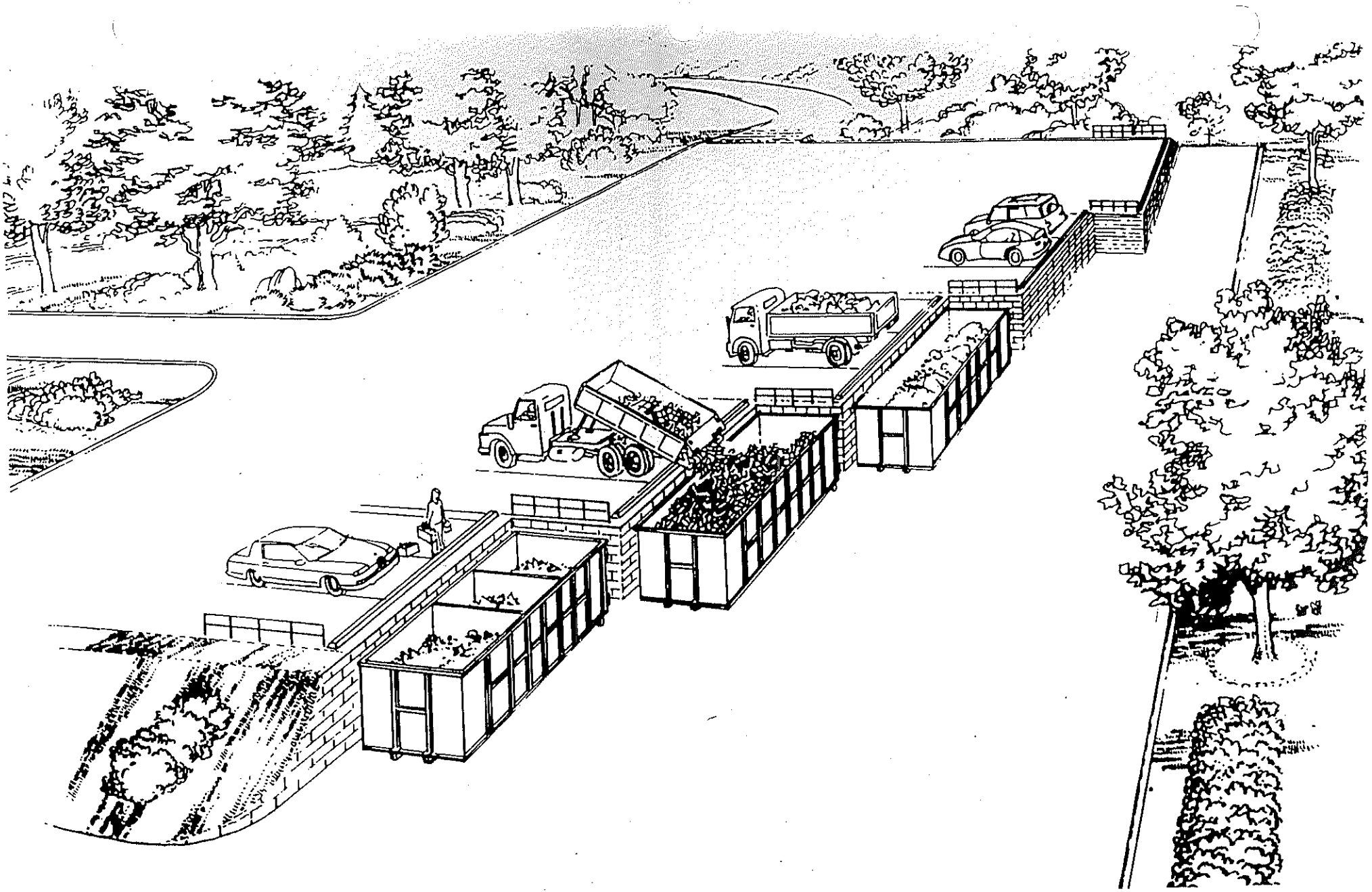
4.2 PHASE 2 IMPROVEMENTS

As the collection and handling aspects of the program are better defined, drop-off center improvements at the North Sea site will be designed and constructed. These improvements are necessary to replace the existing recycling area that will be discontinued when Cell 2 is capped, and to increase the capability to handle the larger quantities of materials that are anticipated when the full mandatory recycling program is in place.

A new site plan for North Sea will be developed to show the new recycling center location and access roads integrated with the existing disposal facilities, and will allow room for future recycling activities recommended in the SWAMP. Further, it may be desirable to review conceptual site plans for the transfer stations at some point.

The existing Town drop-off system for grass, yard wastes and other organic materials is sufficient for both the private haulers and self-haulers for 1989, but will be reorganized to provide an area for pilot composting. However, it will probably be desirable to require that all brush from private haulers and landscapers be chipped before it is accepted.

Accommodation for carter delivery of newspapers, glass, cans, corrugated cardboard and possibly office paper will be needed at the proposed new bi-level center at North Sea to make drop-off and transport to market more efficient and cost effective. Some of these materials will be collected for the first time in Southampton in 1989. The private haulers will be collecting cans and glass containers commingled or in bags and will need a separate area with containers for their own use. The present dump and load method used is inadequate for the new volume of materials and will be replaced with new facilities.



SOUTHAMPTON RECYCLING PLAN FOR 1989

GENERIC DROP-OFF SITE

CONCEPTUAL DESIGN

NOT TO SCALE

MALCOLM PIRNIE

feasible. Several other private firms will also likely be interested in this possibility. Moreover, Brookhaven is currently negitiating a MRF contract with a private firm and there are possibilities for cooperation there and/or with the other Towns on the East End. This will be explored further in the SWAMP study, but will require a concerted evaluation to assure a workable long term arrangement that is cost effective. Alternatively, the Town's Sanitation Department could sort the materials, particularly for the short-term, although this option may not be cost effective. All of these options will be taken into consideration as the program is implemented.

5.0 ROLES AND RESPONSIBILITIES

The success of the expanded recycling program depends on the contributing efforts of various parties. These roles can be classified under three general headings: program coordination, promotion and education, and operations. This section provides a general outline the responsibilities of each.

5.1 PROGRAM COORDINATION

Program coordination involves the integration of program planning, promotion, education, collection, processing and marketing activities into one, working program. The primary coordination responsibilities are; initiating new activities by gaining the active participation and cooperation of various parties including the public and private haulers; promoting the program; and serving as a central source for information that all participants can draw on.

The Town Board has at this time appropriately assumed this role, as it has direct responsibility for meeting the requirements of the Consent Order. Activities recently undertaken by the Town in its capacity as Program Coordinator include:

- Initiating recycling promotion by distributing "Stop and Recycle for Southampton" bumper stickers.
- Submitting two grant applications to the NYSDEC to fund recycling activities including:
  1) A Community Assistance Competitive Grant for promotional activities,
  2) A Local Resource Reuse and Recovery Program (LRRRP) Grant Application for recycling promotion costs submitted with the four other Eastern Long Island Towns.
- Acquiring the services of Malcolm Pirnie, Inc. to develop this plan and assist the Town with program implementation.
- Initiating discussions with neighboring Towns, the County, potential markets and other parties with similar interests.

High participation and capture rates are only gained by energizing the potential that already exists to make recycling happen. The East End Towns grant application, referencing a 1983 survey by the League of Women Voters, indicated that, "90% of households are willing to recycle" (LRRRP Grant Application, p. 23). This tremendous community interest should lead to good participation, but it will only develop with an organized effort and the committment of resources to promotion and education.

As indicated above, the Town Board, as part of its program coordination role, will promote the program and public education. The promotional/educational materials for the kick-off of Phase 1 are being drafted and readied for distribution. These materials include:

- A Newsletter distributed to all residential property owners. The newsletter will provide basic information regarding development of the SWAMP and will also detail the upcoming Phase 1 mandatory measures.
- An instruction brochure sent by the private haulers with their customer invoices which details how newspapers should be prepared for collection and when they will be collected.
- A similar instructional flyer will be handed out to self-haulers at the Landfill and transfer stations.

Additionally, many other promotional opportunities, such as newspaper articles and radio interviews, will arise in time. Full advantage will be taken of these opportunities as they arise.

Subsequent to Phase 1 kick-off, other promotional materials and opportunities will be developed to promote Phase 2 activities and raise awareness of and maintain participation in the ongoing Phase 1 activities.

These promotional/educational efforts will be fully defined and developed in time in coordination with the fine tuning of the program. Additional promotional/educational materials that are being considered by the Town Board at this time include:

- Promotional/educational campaigns for corrugated cardboard and office paper recycling directed at appropriate commercial establishments, businesses and institutions.

- Removing major contaminants.
- Sorting materials or other processing prior to transporting to markets (if deemed appropriate).

Determination of possible additional personnel and equipment needs, will be made as the program is implemented.

6.0 1989 SCHEDULE

The implementation schedule for the plan was shaped by the requirements of the Consent Order and logistical considerations for adapting collection and material handling to the new mandatory efforts.

The Consent Order designates that mandatory recycling of newspaper, cardboard, glass, yard wastes, grass, metals, miscellaneous paper and brush must be implemented by December 31, 1989. Logistical considerations include:

- Current recycling collection and processing practices.
- Doubling of the population during summer months.
- Considerations for changing collection practices.
- Existing drop-off center capacity and expansion potential.
- Time factors concerning construction of drop-off center improvements.
- Time needed to evaluate various options to assure cost effectiveness of new program measures.
- Time required to create and distribute various promotional information.

6.1 PHASE 1

As previously discussed, for Phase 1, mandatory recycling will be implemented in June for newspaper, bulky scrap metals, and yard wastes. The park and beach recycling programs will also start in early summer.

Phase 1 work is already underway. Discussions with the private haulers have led to the development of the plan for collection. A newsletter to be sent to all residents, and instructional brochures for participating in Phase 1, have been drafted and will be printed in time for start-up on June 12 and 15, 1989. Also, the Parks and Recreation Department has indicated that it can initiate parks and beaches recycling by the beginning of the 1989 summer season.

Phase 1	Target Completion Dates
4) Villages consider amendments to permit curbside recyclables collection (as necessary).	April/May
5) Develop and distribute newsletter and instructional flyers for Phase 1 mandatory recycling measures.	May/June
6) Ongoing public relations activities to promote the program as opportunities arise.	Ongoing
7) Prepare for increased recyclables quantities at drop-off centers.	June 15
8) Design, construct and place "Recycling Rescue Stations" at selected parks and beaches.	May/June
9) Implement pilot windrow composting of organic wastes.	June/July
10) Kick-off mandatory Phase 1 program.	June 15

Phase 2	Target Completion Dates
1) Design new bi-level drop-off center improvements at the North Sea Landfill site and develop construction approach.	May-July
2) Complete bidding procedures as necessary for the construction of the new drop-off center.	July
3) Construct new drop-off center.	August/September
4) Develop Town's promotional campaign for recycling of corrugated cardboard and office paper.	July/August
5) Market arrangements for increased quantities of corrugated cardboard, cans and glass containers.	September/October

APPENDIX A

MANDATORY RECYCLING ORDINANCE

APPENDIX A

MANDATORY RECYCLING LAW

RESOLVED, that the Town Clerk hereby is authorized to publish a Notice of Adoption as follows:

NOTICE OF ADOPTION

TAKE NOTICE that a public hearing was held by the Town Board of the Town of Southampton on April 25, 1989 at the Town Hall, 116 Hampton Road, Southampton, New York to hear any and all persons either for or against "A LOCAL LAW amending Chapter 37 (Garbage and Waste Facilities) of the Town Code of the Town of Southampton by adding new sections regarding mandatory recycling."

LOCAL LAW NO. OF 1989

A LOCAL LAW amending Chapter 37 (Garbage and Waste Facilities) of the Town Code of the Town of Southampton by adding new sections regarding mandatory recycling.

BE IT ENACTED by the Town Board of the Town of Southampton as follows:

Addition of a Legislative Findings Section

SECTION 1. LEGISLATIVE FINDINGS

Whereas the conservation of recyclable materials is now a necessity in order to conserve natural resources, and the cost of solid waste disposal is ever increasing and available landfill facilities are rapidly decreasing, it is the intent of the Town Board of the Town of Southampton to establish a resource recovery system for the mandatory separation of recyclables from garbage and rubbish within the Town. Such a program will reduce both the amount of solid waste to be disposed of and the cost of landfill disposal and extend the life of the landfill. In addition, the separation, collection and sale of recyclable materials will reduce the financial burden of solid waste disposal.

When such newspaper is prepared for disposal by anyone other than the ultimate disposer, such as a carter, it should be securely bundled and tied in packages not exceeding fifty (50) pounds with a rope or cord sufficient in strength to facilitate handling.

y. No vegetative yard waste as defined herein shall be deposited at any Town of Southampton disposal area or Town transfer station unless such vegetative yard waste is separated from any and all solid waste, trash or rubbish. Such vegetative yard waste is to be deposited only at designated areas within such Town disposal area or transfer station.

z. No white goods as defined herein shall be deposited at any Town of Southampton disposal area or Town transfer station unless such white goods are separated from any and all solid waste, trash, rubbish or vegetative yard waste. Such white goods are to be deposited only at designated areas within such Town disposal area or transfer station.

SECTION IV. VALIDITY

If any section or subsection, paragraph, clause, phrase or provisions of this law shall be adjudged invalid or held unconstitutional by any court of competent jurisdiction, any judgement made thereby shall not affect the validity of this law as a whole or any part thereof other than the part or provisions so adjudged to be invalid or unconstitutional.

SECTION V. EFFECTIVE DATE

This local law shall take effect June 12, 1989 upon filing with the Secretary of State pursuant to the Municipal Home Rule.

BY ORDER OF THE TOWN BOARD
TOWN OF SOUTHAMPTON
KENNETH H. THOMMEN, TOWN CLERK

APPENDIX B

WASTE COMPOSITION ESTIMATES

APPENDIX B
WASTE STREAM COMPOSITION ESTIMATES

A municipal solid waste stream consists of different material components which make up various percentages of the total waste stream. The particular quantity of each component in the waste stream determines the overall composition of the waste stream. Knowing the waste stream composition is necessary information for developing solid waste management plans and recycling programs. Therefore, it is important to quantify the various types of materials in the waste stream to enable proper planning.

In an effort to quantify and characterize the solid waste stream of Southampton, the Town has relied on a solid waste compostion study. In 1986, H2M was hired by the Town to conduct the solid waste characterization study. The characterization of the waste stream was based on residential waste that was received and sampled at the North Sea Landfil. Table A-1 summarizes the results of the composition study.

The component breakdown used to characterize the Town's waste stream is general and lacks the identification and quantification of many materials, especially recyclables. In particular, recoverable materials such as newspaper, glass containers, tin and aluminum cans, scrap metals, and plastic containers (PET, HDPE, etc.) are not broken out for quantification. Since the data obtained through the H2M waste composition study is very general in terms of waste component breakdown, other information was examined to characterize the waste stream.

Another data source, available through Franklin Associates, provides a breakdown of the waste stream. They have examined national waste composition data to determine national and state waste composition averages. Table B-2 summarizes both national and New York State waste composition averages. The information in Table B-2 cannot represent accurate estimates of Southampton's waste stream composition but rather serves as a guide for comparing waste stream composition. However, since the composition estimates in Table B-2 are general in nature, it is still difficult to identify the amounts of recyclables that can potentially be recovered from the waste stream.

TABLE B-1

H2M WASTE COMPOSITION STUDY RESULTS FOR SOUTHAMPTON'S 1986 WASTE STREAM[1]

Material	Catagory (Residential)
Paper	38.2%
Corrugated	(11.5)
Other Paper	(26.6)
Glass	14.0%
Metal	9.1%
Ferrous	(4.2)
Non-Ferrous	(4.9)
Plastics	8.6%
Miscellaneous	30.1%
Yard Waste	(11.8)
Food Waste	(10.9)
Wood	(4.0)
Textiles	(3.2)
Other	(0.2)
Total	100.0%

Note:
(1) Source: H2M "Town of Southampton Solid Waste Characterization Program", April 1988.

TABLE B-2

FRANKLIN ASSOCIATES, LTD.
ESTIMATES OF MUNICIPAL SOLID WASTE STREAM COMPOSITION[1]

Material	Percentage of Total Waste Stream (National Average)	Percentage of Total Waste Stream (New York State Average)
Paper and Paperboard	37.1	42.0
Glass	9.7%	9.6
Metal		9.2
Ferrous	8.3%	-
Aluminum	1.1%	-
Other Ferrous	0.2%	-
Plastics	7.2%	6.5
Yard Waste	17.9%	16.1
Food Waste	8.1%	7.3
Wood	3.8%	3.4
Rubber/Leather	2.5%	-
Textiles	2.1%	1.9
Other	0.1%	5.0
Miscellaneous Organics	1.8%	-
Total	100.0%	100%

Note:
(1) Source: Franklin Associates, Ltd. "Characterization of Municipal Solid Waste in the United States", July 1986. New York State data based on national waste stream composition data developed by Franklin Associates.

TABLE B-3

MALCOLM PIRNIE, INC.
ESTIMATE OF THE PRESENT WASTE STREAM COMPOSITION FOR SOUTHAHPTON[1]

Material	Composition Percentage of Total Waste Stream
Paper	
Newspaper	7%
Office Paper	7%
Corrugated	9%
Other Paper	15%
Glass	
Containers (all colors)	6%
Other	2%
Metal	
Cans (ferrous/aluminum)	5%
Scrap Metal	5%
Plastics	
PET/HDPE	3%
Other	4%
Yard Waste	16%
Food Waste	9%
Wood	3%
Rubber/Leather	2%
Textiles	3%
Miscellaneous Inerts	3%
Total	100.0%

Note:
(1) Developed by Malcolm Pirnie, Inc.

APPENDIX C

RECYCLABLES MARKETS SURVEY

Markets for Recyclables on Long Island

Company	Location	Telephone	Materials Accepted	Price	Materials Not Accepted
Amco Plastic Materials	Farmingdale	293-1600	polystyrene pet		plastic drink containers plastic bags
Anchor Waste Paper Corp.	Westbury	334-3132	newspapers	$.50/100 lb	
Brookhaven Recycling Corp.	Patchogue	475-4788	aluminum brass copper steel corrugated	must see must see must see must see $0	newspapers glass
DeMatteo Salvage Co., Inc.	W. Babylon	643-7940	high-grade paper corrugated aluminum aluminum cans ferrous metals	varies $0 $.35-.40/lb $.15/lb must see	newspaper glass
Ecosphere Recycling	Hicksville	935-5852	not recycling anymore		
Ed's Salvage, Inc.	Ronkonkoma	981-5522	high-grade paper	varies	
Environmental Resource Recycling	Yaphank	924-3388	aluminum cans plastic shrink wrap large plastic bags soda bottles glass bottles (sorted by color) cardboard cases	wcb	milk bottles
E.W.G. Glass Recovery/ Jamaica Paper Stock	Jamaica	718-657-0900	sorted glass high-grade paper corrugated cans (small amts)	varies varies varies varies	newspapers

1352-03-1120

Markets for Recyclabl[illegible] on Long Island
(Continued)

Company	Location	Telephone	Materials Accepted	Price	Materials Not Accepted
Harmon Associates Corp.	Westbury	997-3400	check notes		
International Recycling	Glen Cove	671-7100	wcb		
IPF Management	Great Neck	746-7575	newspapers	$0	metals
			corrugated	$10/ton	glass
			computer paper	$.30/lb	
			other paper	$.01-.02/lb	
Jet Paper Stock	Central Islip	234-7100	corrugated	$0	
			news	$0	
Lobosco	Flushing	718-358-2098	newspaper	$.25/100 lb	cardboard
			computer paper	varies	glass
			metals	varies	
			car batteries	$1	
			radiators	varies	
Long Island Recycling	W. Bablyon	643-7245	wcb		
M-B Recycling Unlimited	N. Bellmore	785-4044	newspaper	$.10/100 lb	
			cardboard	$0	
Mid Island Salvage Corp.	Deer Park	595-9819	metals		aluminum cans
					tin cans
North Shore Salvage Corp.	Freeport	623-4521	brass	$.35-.50/lb	paper
			copper	$.70-.90/lb	
			aluminum	$.38-.50/lb	
North Shore Salvage Corp.	New Hyde Park	746-8454	see above		

Markets for Recyclables on Long Island
(Continued)

Company	Location	Telephone	Materials Accepted	Price	Materials Not Accepted
Omni Technical Services* (John Cameron)	Uniondale		commingled (glass & metal)	community pays: $35/ton (delivered to Omni)	
			newspapers	depends on contract terms	
P&P Paper Recycling	Old Bethpage	249-8577	no answer		
PK Metals	Coran	732-6403	aluminum (no cans)	$.40/lb	
			brass	$.35/lb	
			copper	$.60-.90/lb	
			steel	$.005-.02/lb	
Rutigliano Paper Stock	Westbury	334-3132	newspapers	$.50/100	
Segal Enterprises	Riverhead	727-6500	no answer		
Suffolk Tab Salvage, Inc.	Bayport	654-8606	high-grade paper	varies	newspapers
Twin County Recycling	Hicksville	935-5852	concrete	varies	
			asphalt	varies	
USA Recycling	Kings Park	368-5533	collects materials municipalities can't get rid of and arranges for disposal; municipalities pay $20/ton		
Westbury Paper Stock	Westbury	333-2211	newspaper	$0	
			high-grade paper	$30-150/ton	
			corrugated		

*Omni would investigate the feasibility of opening a small, satellite processing center in eastern Long Island if there would be a sufficient supply of recyclables.

Appendix E

§ 37-11. Construction or alteration of on-site sewage disposal system.

§ 37-12. Construction standards for on-site sewage disposal systems.

§ 37-13. Inspections.

§ 37-14. Fees for scavenger waste.

§ 37-15. Penalties for offenses.

[HISTORY: Adopted by the Town Board of the Town of Southampton 7-9-85 as Local Law No. 4, 1985.[1] Amendments noted where applicable.]

GENERAL REFERENCES

Junk dealers and storage of junk — See Ch. 41.
Littering — See Ch. 43.

Be it enacted by the Town Board of the Town of Southampton as follows:

ARTICLE I
Sanitary Landfill Stations and Garbage Transfer Stations
[Amended 2-11-86 by L.L. No. 3, 1986; 4-22-86 by L.L. No. 6, 1986; 5-12-87 by L.L. No. 3, 1987[2]]

§ 37-1. Applicability.

The rules and regulations of this local law shall apply to all town disposal areas, including sanitary landfill stations and garbage transfer stations.

[1] Editor's Note: This local law also superseded former Ch. 37, Garbage Disposal Areas, adopted 5-4-71 as Ord. No. 52, as amended.

[2] Editor's Note: Section 4 of this law provided that the usage fees prescribed by § 37-4 shall not take effect until January 1, 1988.

F. It shall be unlawful for any person to deposit any waste, garbage or rubbish of any kind on land of the Town of Southampton outside the areas designated for the deposit of those materials.

G. No person shall dump, throw or place in any manner any rubbish, refuse, dirt or any material whatsoever in or upon such disposal area, nor at a time except that indicated by such sign or signs or directions.

H. Any oral directions given by any person in charge of any disposal area shall take precedence over any sign or displayed directions.

I. It shall be unlawful for any person to deposit any waste, garbage or rubbish outside the gates of any disposal area at any time, unless containers for that purpose have been provided and designated.

J. It shall be unlawful for any person other than the disposal area personnel to set fire to any material within the disposal area.

K. It shall be unlawful for any person to remove any materials from the disposal area.

L. No person shall deposit any animal carcass in or upon any transfer station, except that an animal carcass may be buried if immediately interred by the person bringing such carcass to a sanitary landfill in a ditch at least two (2) feet depth, and provided that the same is immediately covered to the level of the surrounding area with earth.

M. No person shall remove, destroy, alter, deface or otherwise injure any sign or signs placed or erected within any public disposal area except upon and by the direction of the Commissioner of Public Works.

N. All material transported to a disposal area shall be covered and secured so as not to disperse material during transportation of such material.

O. All vehicles requiring permits under § 37-3B shall meet the regulations of the Suffolk County Department of Health.

V. The disposal of land-clearing debris, construction debris or demolition debris shall be prohibited at any town disposal area.

W. The Town Board hereby delegates to the Commissioner of Public Works the authority to adopt rules to prohibit the disposal of any waste materials, in addition to those materials expressly prohibited by this local law, where the Commissioner finds that waste materials would be harmful to the public welfare or would adversely impact the remaining capacity of the sanitary landfill station. Said rules shall be published in the official newspaper of the town and posted on the Town Clerk's signboard. Said rules shall be effective upon such posting and publishing.

§ 37-3. Permits for garbage vehicles.

A. All garbage haulers, roll-off containers and all other vehicles required to pay a usage fee under § 37-4A(3) shall display a vehicle permit as herein required, which shall be affixed to the right side of the front bumper.

B. Permits will be issued by the Town Clerk's office after payment of the following fees for each vehicle:

(1) Garbage hauler and all other vehicles required to pay a usage fee under § 37-4A(3): two hundred fifty dollars ($250.) for the first vehicle and one hundred dollars ($100.) for each additional vehicle. A "garbage hauler" is a vehicle utilized in the business of collecting and transporting solid waste of any kind.

(2) Roll-off containers.

(a) Zero (0) to twenty (20) cubic yards: fifty dollars ($50.).

(b) More than twenty (20) yards to forty (40) yards: one hundred dollars ($100.).

(c) More than forty (40) yards: two hundred fifty dollars ($250.).

(f) Whether the applicant or any of the persons having a financial interest in the business has ever been convicted of a felony or misdemeanor or has ever had an operator's license revoked or suspended in this or any other state.

(g) Proof of financial responsibility in the event of injury to persons or property by reason of the negligent operation of any vehicle used in the business.

(h) The Commissioner of Public Works may require any additional information he may deem necessary from an individual applicant as is necessary to administer the regulations enumerated in § 37-2 of this chapter.

(i) The type of permit applied for.

F. Said permits shall be issued with an individual identification number which shall be assigned to each vehicle and shall not be transferable. Said permit shall be kept available within the vehicle for inspection upon demand.

G. Any permit issued hereunder may be suspended or revoked by the Town Board after notice to the applicant and a hearing, where one (1) or more of the following grounds exist:

(1) The applicant has not been found to be fit, willing and able to properly perform the service proposed and the applicant is unable to provide sufficient and suitable equipment to meet the requirements of the business.

(2) Issuance of the permit is deemed not to be in the best interests of the town or its residents.

(3) The applicant has failed and refused, without reasonable cause, to collect and dispose of material except in a situation where a contract between the applicant and his customer has been lawfully terminated.

(4) The applicant has failed to account for or pay, without reasonable cause, any fees or bills due to the town.

§ 37-4. Usage fees.[1]

A. All vehicles utilizing a town disposal area shall be responsible for the following usage fees:

(1) Passenger cars and station wagons: one dollar ($1.) per visit.

(2) Pickup trucks, vans and trailers of one-half (½) ton's capacity or less: one dollar ($1.) per visit.

(3) Garbage haulers, roll offs and all other vehicles: twenty dollars ($20.) per ton, including any part of a ton.

B. The usage fee prescribed in Subsection A(1) and (2) above shall not apply where a yearly pass is displayed on the left front bumper of the vehicle. The yearly fees are as follows:

(1) Passenger cars and station wagons: twenty dollars ($20.) per calendar year without proration.

(2) Pickup trucks, vans and trailers of one-half (½) ton's capacity or less: twenty dollars ($20.) per calendar year without proration.

C. The method and procedure for collection of the fees prescribed by this section shall be established by the Town Board by resolution.

§ 37-5. Removal of surplus fill.

A. When available, surplus fill from the grounds of the sanitary landfill areas may be removed by municipal governing bodies under the following conditions:

(1) Said fill shall consist of either sand or marl, as determined by the loading machine operator.

(2) Said material shall be dug and loaded only by the town owned loading machines operated by disposal area personnel.

[1] Editor's Note: Section 4 of L.L. No. 3, 1987 provided that the usage fees in this section shall take effect January 1, 1988.

ALTERATION — The repair, modification or replacement of any component of an on-site sewage disposal system.

EXCLUDED WASTE — The following forms of waste are considered "excluded waste":

A. Industrial waste.

(Cont'd on page 3709)

B. The discharge of excluded waste into an on-site sewage disposal system shall be prohibited in the town.

§ 37-10. Transportation of scavenger waste.

A. No person shall engage in the removal of scavenger waste from any on-site septic system in the town without a valid permit issued by the Town Clerk and the Suffolk County Department of Health Services.

B. Any applicant for a permit as required by Subsection A of this section shall file a sworn application with the Town Clerk. Said application shall be on a form provided by the Town Clerk and shall contain the name and address of the applicant, the type, model, capacity (in gallons) and registration number of all vehicles to be used. Additionally, such form shall state:

"I, _____, being duly sworn, state and depose that I am familiar with the provisions of Chapter 37, Article II, Scavenger Waste, of the Town Code of the Town of Southampton. I will report the address and exact location of all on-site sewage disposal systems pumped by me or my business within the Town of Southampton as required by Chapter 37, Article II. I will comply with all other provisions of Chapter 37, Article II. I am aware that failure to comply will result in the assessment of a civil penalty of two hundred fifty dollars ($250.) for each violation."

C. The permit fee for the permit required by Subsection A of this section shall be two hundred fifty dollars ($250.) per vehicle. This fee shall be collected by the Town Clerk before the permit is issued. A permit shall be issued for each vehicle to be utilized by the applicant.

D. Each person with a permit under the provisions of this section shall file on the last Friday of each month, on a form to be provided by the Town Clerk, a report for each vehicle with the Town Clerk, stating the address, Suffolk County Tax Map

posal Systems as then established by the Suffolk County Department of Health Services.

B. All new construction shall be located as prescribed by the Suffolk County Department of Health Services and at a location where pumping can occur without trespassing on lands of another owner unless an express easement for that purpose over another owner's premises exists.

C. All on-site sewage disposal systems shall be covered in a manner that permits inspection as provided for herein.

§ 37-13. Inspections.

A. Every five (5) years, or sooner if conditions require, on-site sewage disposal systems shall be inspected by qualified inspectors employed by the town. A copy of this inspection report shall be provided to the owner. This requirement shall not apply to on-site sewage disposal systems in use on the effective date of this local law until said systems are altered or pumped. However, nothing herein shall prevent a lawful inspection of an existing on-site sewage disposal system where an inspector has reason to believe that an existing system may be causing actual or potential pollution of groundwater or surface water, contamination of drinking water supply, nuisance problems or other public health hazards.

B. The conduct of inspections shall be subject to all applicable laws. Five (5) days' written notice is to be given to the owner that an inspection will be made.

C. No civil claim shall lie against the town for any damages resulting from any inspection as authorized herein.

D. An inspector may order whatever remedial action is necessary to abate actual or potential pollution of groundwater or surface water, contamination of drinking water supply, nuisance problems or other public health hazards. The time for compliance shall be specified. Failure to comply with an inspector's order shall be a violation of this local law.

elected to waive the usage fee for the depository of certain recyclables at the Town disposal areas.

Section 37-4 D is hereby added to Section 37-4 to read as follows:

37-4 D: The usage fee prescribed in Subsection A above shall be waived to the extent that the material brought in consists of clean white paper, newspaper or clean flattened cardboard. This exemption shall apply only when all such material is separated from non-qualifying material.

SECTION 2. Effective Date

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

656. The following resolution was introduced by Councilman Gil seconded by Councilwoman Seaman and duly adopted with the following recorded vote: All in favor.

RESOLVED, that the Town Clerk hereby is authorized and directed to publish the Notice of Adoption as follows:

NOTICE OF ADOPTION

TAKE NOTICE, that a public hearing was held by the Town Board of the Town of Southampton on July 12, 1988 at 1:00 P.M. at the Town Hall, 116 Hampton Road, Southampton,

SECTION 2. Effective Date

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

BY ORDER OF THE TOWN BOARD
TOWN OF SOUTHAMPTON, NEW YORK
KENNETH H. THOMMEN, TOWN CLERK

657. The following resolution was introduced by Councilwoman Neumann seconded by Councilwoman Seaman and duly adopted with the following recorded vote: All in favor.

RESOLVED, that the Town Clerk is hereby authorized to publish the following Notice of Public Hearing:

NOTICE OF PUBLIC HEARING

TAKE NOTICE, that a public hearing will be held by the Town Board of the Town of Southampton on August 9, 1988 at 1:00 P.M. at the Town Hall, 116 Hampton Road, Southampton New York to consider a Grant of Slope/Conservation Easement offered by Jaro Construction Corp. to the Town of Southampton, pertaining to the 120 foot wide "Slope Conservation Easement", as shown on the major subdivision map entitled Hildebrandt Estates", situate at Hampton Bays, pursuant to Section 247 of the General Municipal Law of the State of New York.

Appendix F

TOWN OF SOUTHAMPTON
SANITATION DEPARTMENT

BRIAN GILBRIDE
SANITATION SUPERVISOR

March 14, 1994

Ms Phyllis Alwater,Director
Division of Solid Waste
50 Wolf Road
Albany,New York,12233-4010

Dear Ms Alwater,

Enclosed please find a copy of the anual report for Cell 3 at the North Sea Landfill. Much of the information has been submitted in the monthly reports, each section where the data has been submitted has been noted.

Should you have any questions concerning this submission please don't hesitate to call me.

Very truly yours

Brian Gilbride
Sanitation Supervisor
Town Of Southampton

BG/bb

Recycled Paper

TOWN OF SOUTHAMPTON
SANITATION DEPARTMENT

BRIAN GILBRIDE
SANITATION SUPERVISOR

March 14, 1994

Mr Robert Mitrey
N.Y.S.D.E.C.
SUNY Building #40
Stony Brook,N.Y. 11794

Dear Mr. Mitrey,

Enclosed please find a copy of the anual report for Cell 3 at the North Sea Landfill. Much of the information has been submitted in the monthly reports, each section where the data has been submitted has been noted.

Should you have any questions concerning this submission please don't hesitate to call me.

Very truly yours

Brian Gilbride
Sanitation Supervisor
Town Of Southampton

BG/bb

Recycled Paper

☐ Quarterly Report

☒ Annual Report

Division of Solid Waste
New York State Department of Environmental Conservation

LANDFILL
(Subject to 6 NYCRR Part 360, Solid Waste Management Facilities, Effective December 31, 1988)

Quarterly/Annual Report

If this form is used only for a quarterly report, answer question A and complete Sections 1 and 9 through 15. Submit the quarterly report no later than 60 days after the last day of each calendar quarter.

If this form is used only for an annual report, answer question B and complete Sections 1 through 8 and 13 through 16. Submit the annual report no later than 60 days after January 1 of each year.

If this form is used for quarterly and annual reports, answer questions A and B and complete all Sections.

A. This report is for the following quarter (please check one and fill in year):

____ First Quarter;	January 1, 19___	to March 31, 19___
____ Second Quarter;	April 1, 19___	to June 30, 19___
____ Third Quarter;	July 1, 19___	to September 30, 19___
____ Fourth Quarter;	October 1, 19___	to December 31, 19___

B. This Annual Report is for the period between January 1, 1993 and December 31, 1993.

Instructions:

1. Entries on the report forms should be either typewritten or neatly printed in black ink.

2. Attach additional sheets if space on the forms is insufficient or supplementary information is required or appropriate.

3. The report forms must be submitted by the owner or operator.

4. Reporting of the information indicated on the report forms is required pursuant to 6 NYCRR 360-1.4(c), 360-1.8(e)(2), 360-1.14(f)(2), 360-2.11(c)(4)(iv), 360-2.11(c)(6), 360-2.17(a), 360-2.17(t), 360-6.5(d), and 360-8.1. Failure to provide the information requested on these report forms is a violation of Environmental Conservation Law.

SECTION 1
Owner/Facility Information

Facility Name North Sea Landfill DEC Facility Code # 52-S-13

DEC Region 1 Town Southampton County Suffolk

Part 360 Permit Number 1-4736-00324/ 00002-0 Date of Permit Expiration Dec 18 1995

Owner Name Town of Southampton Phone # 516-283-6000

Mailing Address 116 Hampton Road, Southampton, New York 11968

Operator Name Brian Gilbride Phone #(516)283-5210

SECTION 2
Quantity of Solid Waste Received*

Specify method of data collection (e.g. scale, truck count, estimated):
Based on Scale data

Total quantity of solid waste received:

Quarter #1:	January 1 through March 31		tons/quarter
Quarter #2:	April 1 through June 30		tons/quarter
Quarter #3:	July 1 through September 30		tons/quarter
Quarter #4:	October 1 through December 31		tons/quarter
TOTAL:	January 1 through December 31	49,073.59	tons/year

For each type of waste below, indicate the quantity disposed of for the calendar year:

Mixed Municipal Waste (Residential and Commercial)	46,784.21	tons/year
Construction and Demolition (C&D) Debris	N/A	tons/year
Ash (Coal)	N/A	tons/year
Ash (Incinerator, Energy Recovery, Wood, Sewage Sludge, Other Sludge, Other)	N/A	tons/year
Asbestos Waste	N/A	tons/year
Industrial Waste (Including Sludges)	N/A	tons/year
WTP/WWTP Sludges/Septage	N/A	tons/year
Compost	N/A	tons/year
Yard Waste	2,281.22	tons/year
Petroleum Contaminated Soil	8.16	tons/year
TOTAL	49,073.59	tons/year

*Attach, on a separate sheet, a description of the facility's service area and identify the location (Town, County, State, Country) from where the waste originates. Include, if known, the approximate percentage of each waste type received from each location. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

All waste comes from Town of Southampton and Hamlets from with in.

SECTION 3
Unauthorized Solid Waste

Has unauthorized solid waste ever been received at the Landfill?
Yes_____ No x

If yes, give information below for each incident:

Date Solid Waste Received	Type of Solid Waste Received	Date of Disposal	Disposal Method and Location

SECTION 4
Site Life

1. What is the remaining life of the existing landfill? _____years _____months
capacity? _____cu.yd.

2. What is the projected life of the entitled undeveloped landfill capacity authorized under a permit to construct? _____years _____months
capacity? _____cu.yd.

SECTION 5
Primary Leachate

Does the facility have a constructed liner and a leachate collection system?
x Yes _____No

If yes, enter the quantity of primary leachate that was collected and removed for treatment each month:

LEACHATE (gals)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL TOTAL (gals)
COLLECTED	240,000	127,500	82,500	202,500	122,500	106,500	86,500	79,000	95,500	47,500	120,000	75,000	1435,000
TREATED ON-SITE	0	0	0	0	0	0	0	0	0	0	0	0	0
TREATED OFF-SITE	All	All	All	All	All	All	All	All	All	All	All	All	All

Name of off-site leachate treatment facility(s) utilized: Suffolk County Bergen Po

Acreage of the lined area from which leachate is collected: 6.7 acre(s)

SECTION 6
Secondary Leachate

Does landfill have a double liner system with a secondary leachate collection and removal system? X Yes ____ No

If yes, enter the quantity of secondary leachate that was collected and removed for treatment each month:

LEACHATE (gals)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL TOTAL (gals)
COLLECTED	17,416	12,816	19,809	17,258	12,102	6826	6069	5393	5735	6643	6432	8081	124,620
TREATED ON-SITE	0	0	0	0	0	0	0	0	0	0	0	0	0
TREATED OFF-SITE	All	All	All	All	All	All	All	All	All	All	All	All	All

Acreage of the lined area from which secondary leachate is collected: 6.7 acre(s)

SECTION 7
Changes

Identify any changes from approved reports, plans, specifications, permit conditions and fill progression plan with a justification for each change. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

Not Applicable

SECTION 8
Summaries of "Comparing Data" and "Discussion of Results"

Submit (attached to this form) a summary of the quarterly information contained in Sections 10 and 11 below, noting any changes in water quality which have occurred throughout the year. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

All ground water monitoring are submitted to D.E.C.as soon as we get the results.

SECTION 9
Analytical Results

Submit (attached to this form) a table showing the sample collection date, the analytical results and methods [including all peaks even if below the Method Detection Limits (MDL)], designation of upgradient wells and location number for each environmental monitoring point sampled, applicable water quality standards, New York State Department of Health guidance values and statistical triggers if applicable, QA/QC notations, MDL's, Practical Quantitation Limits (PQL) and Chemical Abstracts Service (CAS) numbers on all compounds. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Sent in with monthly reports

SECTION 10
Comparing Data

Submit (attached to this form) tables or graphical representations comparing current water quality and existing water quality and upgradient water quality. These may include Piper diagrams, Stiff diagrams, tables, or other analyses. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Sent in with monthly reports.

SECTION 11
Discussion of Results

Submit (attached to this form) a summary of the contraventions of State water quality standards, a discussion of results, including elevations of parameters above background concentrations or statistical trigger values; and any proposed modifications to the sampling and analysis schedule necessary to meet the Existing, Operational and Contingency water quality monitoring requirements. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Sent in with monthly reports.

SECTION 12
Determination of Contamination Detected

Has contamination been detected by the water quality monitoring program?
_____ Yes __x__ No

If yes, submit (attached to this form) a summary indicating each determination of contamination detected. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Nothing attributed to Cell 3

SECTION 13
Surface Impoundments

Does this landfill have a surface impoundment? __x__ Yes _____ No

If yes, there are separate water quality reporting requirements for surface impoundments. Namely, for each surface impoundment, repeat Sections 9 through 12 above for quarterly reports and Section 8 above for annual reports. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Since the surface impoundment is a stormwater collection and groundwater recharge basin and is not utilized for leachate no water quality testing is required.

SECTION 14
Permit/Consent Order Reporting Requirements

Are there any additional permit/consent order reporting requirements not covered by the previous sections of this form? __x__ Yes _____ No

If yes, identify the reporting requirements with their respective responses below, attaching additional sheets as necessary. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Special permit conditions #29 gas monitoring data is supplied monthly to D.E.C.

SECTION 15
Signature and Date

Owner or Operator must sign, date, and submit one completed form with an original signature to:

New York State Department of Environmental Conservation
Division of Solid Waste
Bureau of Municipal Waste Permitting
50 Wolf Road
Albany, New York 12233-4013

and one copy with an original signature to the appropriate Regional Solid Waste Engineer (RSWE). (see attachment for Regional Office addresses)

I hereby swear or affirm that information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief.

Brian Gilbride	Brian Gilbride	March 14, 1994
Name (Print or Type)	Signature	Date
116 Hampton Road	Sanitation Supervisor	
Address	Title (Print or Type)	
Southampton, New York 11968	516-28305210	
City, State and Zip	Phone Number	

Please check one of the boxes below:

[X] Supplementary information requested under Section 16 (Page 8 of 8) is provided and is attached.

[ ] Supplementary information requested under Section 16 (Page 8 of 8) is not provided.

SECTION 16
Supplementary Information*

Tipping Fee $60.00 $/ton: For each type of waste below, indicate the tipping fee if different:

Mixed Municipal Waste (Residential and Commercial)	60.00	$/ton
Construction and Demolition (C&D) Debris	N/A	$/ton
Ash (Coal)	N/A	$/ton
Ash (Incinerator, Energy Recovery, Wood, Sewage Sludge, Other Sludge, Other)	N/A	$/ton
Asbestos Waste	N/A	$/ton
Industrial Waste (Including Sludges)	N/A	$/ton
WTP/WWTP Sludges/Septage	N/A	$/ton
Compost	N/A	$/ton
Yard Waste	60.00	$/ton
Petroleum Contaminated Soil	60.00	$/ton

Leachate: Cost (including transportation if appropriate) during the calendar year for leachate treatment: $ 34,620.00 Total quantity treated: 1,435,000 gal.

On Site Recycling: For each type of solid waste recovered, provide the following information:

TYPE OF SOLID WASTE RECOVERED	WEIGHT (tons/year)	DESTINATION
AGGREGATE & CONCRETE	N/A	N/A
WOOD & WOOD CHIPS	6.23	Residents
GLASS	835.60	E.W.G. Glass
PLASTIC	83.08	Island Recycling
PAPER	2,963.61	Jet Paper Pinnacle
METAL CONTAINERS	207.06	Gershow
BULK METAL	947.47	Gershow
OTHER (SPECIFY: Cardboard)	2478.04	Jet Sanitation
TOTAL	7,521.09	

* To be optionally provided.

TOWN OF SOUTHAMPTON
SANITATION DEPARTMENT

BRIAN GILBRIDE
SANITATION SUPERVISOR

March 31, 1993

Mr Robert Mitrey
N.Y.S.D.E.C.
Suny Building # 40
Stony Brook, New York 11794

Dear Mr Mitrey,

Enclosed please find a copy of the anual report for Cell 3 at the North Sea Landfill. Much of the information has been submitted in the monthly reports, each section where the data has been submitted has been noted. Section 4 (site life) has not been filled in as we are waiting on aerial survey.

Enclosed are the recycling reports for North Sea Landfill and Hampton Bays Transfer Station and Westhampton Transfer Station.

Should you have any question concerning this submission please don't hesitate to call me.

Very truly your

Brian Gilbride
Sanitation Supervisor
Town of Southampton

BG/bb

Recycled Paper

☐ Quarterly Report

☒ Annual Report

Division of Solid Waste
New York State Department of Environmental Conservation

LANDFILL
(Subject to 6 NYCRR Part 360, Solid Waste Management Facilities, Effective December 31, 1988)

Quarterly/Annual Report

If this form is used only for a quarterly report, answer question A and complete Sections 1 and 9 through 15. Submit the quarterly report no later than 60 days after the last day of each calendar quarter.

If this form is used only for an annual report, answer question B and complete Sections 1 through 8 and 13 through 16. Submit the annual report no later than 60 days after January 1 of each year.

If this form is used for quarterly and annual reports, answer questions A and B and complete all Sections.

A. This report is for the following quarter (please check one and fill in year):

_____ First Quarter;	January 1, 19___	to March 31, 19___
_____ Second Quarter;	April 1, 19___	to June 30, 19___
_____ Third Quarter;	July 1, 19___	to September 30, 19___
_____ Fourth Quarter;	October 1, 19___	to December 31, 19___

B. This Annual Report is for the period between January 1, 19 92 and December 31, 19 92 .

Instructions:

1. Entries on the report forms should be either typewritten or neatly printed in black ink.

2. Attach additional sheets if space on the forms is insufficient or supplementary information is required or appropriate.

3. The report forms must be submitted by the owner or operator.

4. Reporting of the information indicated on the report forms is required pursuant to 6 NYCRR 360-1.4(c), 360-1.8(e)(2), 360-1.14(f)(2), 360-2.11(c)(4)(iv), 360-2.11(c)(6), 360-2.17(a), 360-2.17(t), 360-6.5(d), and 360-8.1. Failure to provide the information requested on these report forms is a violation of Environmental Conservation Law.

SECTION 1
Owner/Facility Information

Facility Name North Sea Landfill DEC Facility Code # 52-S-13

DEC Region 1 Town Southampton County Suffolk

Part 360 Permit Number 1-4736-00324/00002-0 Date of Permit Expiration Dec 18 1995

Owner Name Town of Southampton Phone # 516-283-6000

Mailing Address 116 Hampton Road, Southampton, New York 11968

Operator Name _____ Phone # _____

SECTION 2
Quantity of Solid Waste Received*

Specify method of data collection (e.g. scale, truck count, estimated):
Based on Scale data

Total quantity of solid waste received:

Quarter #1:	January 1 through March 31		tons/quarter
Quarter #2:	April 1 through June 30		tons/quarter
Quarter #3:	July 1 through September 30		tons/quarter
Quarter #4:	October 1 through December 31		tons/quarter
TOTAL:	January 1 through December 31	56352.47	tons/year

For each type of waste below, indicate the quantity disposed of for the calendar year:

Mixed Municipal Waste (Residential and Commercial)	54112.09	tons/year
Construction and Demolition (C&D) Debris	N/A	tons/year
Ash (Coal)	N/A	tons/year
Ash (Incinerator, Energy Recovery, Wood, Sewage Sludge, Other Sludge, Other)	N/A	tons/year
Asbestos Waste	N/A	tons/year
Industrial Waste (Including Sludges)	N/A	tons/year
WTP/WWTP Sludges/Septage	N/A	tons/year
Compost	N/A	tons/year
Yard Waste	2240.38	tons/year
Petroleum Contaminated Soil	N/A	tons/year
TOTAL	56352.47	tons/year

*Attach, on a separate sheet, a description of the facility's service area and identify the location (Town, County, State, Country) from where the waste originates. Include, if known, the approximate percentage of each waste type received from each location. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

All waste comes from Town of Southampton and Hamlets from with in.

SECTION 3
Unauthorized Solid Waste

Has unauthorized solid waste ever been received at the Landfill?
Yes_____ No x

If yes, give information below for each incident:

Date Solid Waste Received	Type of Solid Waste Received	Date of Disposal	Disposal Method and Location

SECTION 4
Site Life

1. What is the remaining life of the existing landfill? _____years _____months
   capacity? _____cu.yd.

2. What is the projected life of the entitled undeveloped landfill capacity authorized under a permit to construct? _____years _____months
   capacity? _____cu.yd.

SECTION 5
Primary Leachate

Does the facility have a constructed liner and a leachate collection system?
x Yes _____No

If yes, enter the quantity of primary leachate that was collected and removed for treatment each month:

LEACHATE (gals)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL TOTAL (gals)
COLLECTED	392,500	284,000	260,900	240,700	145,000	364,099	112,800	311,200	267,900	135,100	132,100	251,200	2,948,799 gal
TREATED ON-SITE	0	0	0	0	0	0	0	0	0	0	0	0	0
TREATED OFF-SITE	All	All	All	All	All	All	All	All	All	All	All	All	All

Name of off-site leachate treatment facility(s) utilized: Suffolk County Bergen Po

Acreage of the lined area from which leachate is collected: 6.7 acre(s)

SECTION 6
Secondary Leachate

Does landfill have a double liner system with a secondary leachate collection and removal system? X Yes ____ No

If yes, enter the quantity of secondary leachate that was collected and removed for treatment each month:

LEACHATE (gals)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL TOTAL (gals)
COLLECTED	1808	1591	1661	1537	1206	1779	1564	2314	7059	7173	6392	1618	1
TREATED ON-SITE	0	0	0	0	0	0	0	0	0	0	0	0	0
TREATED OFF-SITE	All	All	All	All	All	All	All	All	All	All	All	All	All

Acreage of the lined area from which secondary leachate is collected: 6.7 acre(s)

SECTION 7
Changes

Identify any changes from approved reports, plans, specifications, permit conditions and fill progression plan with a justification for each change. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

Not Applicable

SECTION 8
Summaries of "Comparing Data" and "Discussion of Results"

Submit (attached to this form) a summary of the quarterly information contained in Sections 10 and 11 below, noting any changes in water quality which have occurred throughout the year. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

All ground water monitoring are submitted to D.E.C.as soon as we get the results.

SECTION 9
Analytical Results

Submit (attached to this form) a table showing the sample collection date, the analytical results and methods [including all peaks even if below the Method Detection Limits (MDL)], designation of upgradient wells and location number for each environmental monitoring point sampled, applicable water quality standards, New York State Department of Health guidance values and statistical triggers if applicable, QA/QC notations, MDL's, Practical Quantitation Limits (PQL) and Chemical Abstracts Service (CAS) numbers on all compounds. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Sent in with monthly reports

SECTION 10
Comparing Data

Submit (attached to this form) tables or graphical representations comparing current water quality and existing water quality and upgradient water quality. These may include Piper diagrams, Stiff diagrams, tables, or other analyses. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Sent in with monthly reports.

SECTION 11
Discussion of Results

Submit (attached to this form) a summary of the contraventions of State water quality standards, a discussion of results, including elevations of parameters above background concentrations or statistical trigger values; and any proposed modifications to the sampling and analysis schedule necessary to meet the Existing, Operational and Contingency water quality monitoring requirements. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: _____

Sent in with monthly reports.

SECTION 12
Determination of Contamination Detected

Has contamination been detected by the water quality monitoring program?
_____Yes __x__No

If yes, submit (attached to this form) a summary indicating each determination of contamination detected. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

Nothing attributed to Cell 3

SECTION 13
Surface Impoundments

Does this landfill have a surface impoundment? __x__Yes _____No

If yes, there are separate water quality reporting requirements for surface impoundments. Namely, for each surface impoundment, repeat Sections 9 through 12 above for quarterly reports and Section 8 above for annual reports. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

Since the surface impoundment is a stormwater collection and groundwater recharge basin and is not utilized for leachate no water quality testing is required.

SECTION 14
Permit/Consent Order Reporting Requirements

Are there any additional permit/consent order reporting requirements not covered by the previous sections of this form? __x__Yes _____No

If yes, identify the reporting requirements with their respective responses below, attaching additional sheets as necessary. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

Special permit conditions #29 gas monitoring data is supplied monthly to D.E.C.

SECTION 15
Signature and Date

Owner or Operator must sign, date, and submit one completed form with an original signature to:

New York State Department of Environmental Conservation
Division of Solid Waste
Bureau of Municipal Waste Permitting
50 Wolf Road
Albany, New York 12233-4013

and one copy with an original signature to the appropriate Regional Solid Waste Engineer (RSWE). (see attachment for Regional Office addresses)

I hereby swear or affirm that information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief.

Brian Gilbride		March 30, 1993
Name (Print or Type)	Signature	Date
116 Hampton Road	Sanitation Supervisor	
Address	Title (Print or Type)	
Southampton, New York 11968	516-28305210	
City, State and Zip	Phone Number	

Please check one of the boxes below:

[X] Supplementary information requested under Section 16 (Page 8 of 8) is provided and is attached.

[ ] Supplementary information requested under Section 16 (Page 8 of 8) is not provided.

SECTION 16
Supplementary Information*

Tipping Fee $60.00 $/ton: For each type of waste below, indicate the tipping fee if different:

Mixed Municipal Waste (Residential and Commercial)	60.00	$/ton
Construction and Demolition (C&D) Debris	N/A	$/ton
Ash (Coal)	N/A	$/ton
Ash (Incinerator, Energy Recovery, Wood, Sewage Sludge, Other Sludge, Other)	N/A	$/ton
Asbestos Waste	N/A	$/ton
Industrial Waste (Including Sludges)	N/A	$/ton
WTP/WWTP Sludges/Septage	N/A	$/ton
Compost	N/A	$/ton
Yard Waste	60.00	$/ton
Petroleum Contaminated Soil	60.00	$/ton

Leachate: Cost (including transportation if appropriate) during the calendar year for leachate treatment: $47,796.00. Total quantity treated: 1991,500 Gals gal.

On Site Recycling: For each type of solid waste recovered, provide the following information:

TYPE OF SOLID WASTE RECOVERED	WEIGHT (tons/year)	DESTINATION
AGGREGATE & CONCRETE	N/A	N/A
WOOD & WOOD CHIPS	30.58	Residents
GLASS	800.45 tons	E.W.G. Glass
PLASTIC	110.32 tons	Island Recycling
PAPER	3104.45 tons	Pinnacle
METAL CONTAINERS	188.85 tons	Gershow
BULK METAL	912.94 tons	Gershow
OTHER (SPECIFY: Cardboard)	1782.72 tons	Jet Sanitation
TOTAL	7,376.96 tons	Various

* To be optionally provided.

G

Appendix G

Town of Southampton
116 HAMPTON ROAD
SOUTHAMPTON, NEW YORK 11968
OFFICE OF THE SUPERVISOR

FRED W. THIELE, JR
SUPERVISOR
Telephone (516) 283-6055
Fax (516) 287-3662

OUTLINE OF TOWN SOLID WASTE MANAGEMENT PLAN

A. Solid Waste Plan

1. Town Operates Four (4) Community Drop Off Centers at Westhampton, Hampton Bays, North Sea and Sag Harbor
   a. Sag Harbor to be constructed
   b. North Sea to be reconstructed to handle trailers rather than roll offs

2. The Town establishes 2 leaf and yard waste facilities
   a. one east of canal, one west of canal
   b. size depends on possible "trash for twigs" agreement with another municipality

3. There would be no in-Town MRF or central transfer station

4. Cell 3 would be closed when it reaches capacity

5. Waste collected by Town would be disposed of at a regional facility once the landfill closes
   a. Town would continue to directly market its own source separated recyclables
   b. regional facility would have further recycling capabilities
   c. Town would truck its waste to regional facility

6. Town would implement pay-per-bag system

7. Town would provide residents with recycling containers

8. Town would provide residents with home composting kits

9. Town would negotiate the right of carters to utilize regional facility

OUTLINE FOR TOWN SOLID WASTE
MANAGEMENT PLAN (continued)

B. Waste Analysis

1. Amount of Waste (1993)

a.	Total	49,100 tons
b.	Carters	32,300 tons
	(i) waste	27,900 tons
	(ii) recyclables	4,400 tons
c.	Self Haulers	16,800 tons
	(i) waste	11,800 tons
	(ii) recyclables	5,000 tons
d.	leaf and yard waste	12,000 tons

C. Capital Costs

1. Leaf and Yard waste facilities $1 - $1.5 million

D. Tasks for SWAMP

1. No interim plan required
2. Site Analysis only for Leaf and Yard Waste
   a. Westhampton Airport
   b. Hampton Bays Transfer
   c. North Sea
   d. Eastport

H

Appendix H

Conceptual Yard Waste Processing Facility Plans

Town of Southampton, New York

December 1994

Prepared for:

Town of Southampton
116 Hampton Road
Southampton, New York 11968

Prepared by:

Camp Dresser & McKee
100 Crossways Park West
Woodbury, New York 11797

Contents

List of Figures

Section 1 Introduction 1-1

Section 2 Yard Waste Processing Facilities 2-1

2.1 Introduction 2-1
2.2 Regulations 2-1
2.3 Conceptual Design 2-2

2.3.1 Types and Quantities of Yard Waste to be Processed 2-2
2.3.2 Seasonal Pattern of Yard Waste Receipts . . 2-2
2.3.3 Structures and Equipment Required 2-3
2.3.4 Facility Layout and Space Requirements . . . 2-4
2.3.5 Materials Flow and Mass Balance 2-6

2.4 Yard Waste Processing 2-7

2.4.1 Composting of Leaves 2-9
2.4.2 Mulching of Woody Yard Waste 2-10

(m24/toc1)

List of Figures

Figures

2-1 Yard Waste Processing Facility - Site Diagram 2-5

2-2 Yard Waste Processing Facility - Materials Flow Diagram 2-8

(m24/figs)

Section 1
Introduction

This report presents conceptual plans for the yard waste processing (composting) facilities (long-term solid waste management system) identified and evaluated in the Modified SWMP/DGEIS for the Town of Southampton.

The following is a list of general assumptions used in developing the conceptual plans for the yard waste processing facilities:

- The facilities included in the Town's long-term solid waste management plan are outlined in Supervisor Thiele's plan outline of July 14, 1994.
- The conceptual facility plan layouts are not site-specific.
- The two yard waste facilities are sized to process a maximum of 15,000 tons per year each. For conceptual purposes, they are assumed to be identical facilities although continuing evaluation by the Town of its yard waste disposal plans may warrant facilities of different sizes.

The following section contains a narrative description of the facility, a conceptual plan layout of the solid waste management facility, a materials flow diagram, and an outline of the major equipment required. Additional assumptions, specific to the solid waste management system addressed, are identified in the section as appropriate.

Section 2
Yard Waste Processing Facilities

2.1 Introduction

This section presents a conceptual design as well as estimated costs for two yard waste processing facilities, each capable of processing up to 15,000 tons per year (tpy). Each facility would handle a mixture of leaves and woody yard wastes such as tree branches and shrub and vine trimmings.

Section 2.2 describes the specific regulations applicable to yard waste composting facilities in New York State. Section 2.3 presents the conceptual design for the two proposed facilities, including the following elements:

- Types and quantities of yard waste to be processed
- Seasonal pattern of yard waste receipts
- Structures and equipment required
- Facility layout and space requirements
- Materials flow and mass balance

Section 2.4 describes the processing of yard waste at the facilities, including preparation of yard waste for composting or mulching, windrow formation and management, screening of compost, and temporary storage of finished products.

2.2 Regulations

New York State regulations specifically applicable to yard waste composting facilities are found in 6 NYCRR Part 360, Subpart 360-5, entitled "Composting Facilities." A permit is required for facilities composting more than 3,000 cubic yards (approximately 600 to 700 tons) of yard waste per year (6 NYCRR 360-1.4(a)(1), 360-5.1). A permit would therefore be required for each of the two facilities identified and evaluated in the Modified SWMP/DGEIS.

Operational requirements for yard waste composting facilities include the following (6 NYCRR 360-1.14, 360-5.5):

- Drainage must be controlled to prevent leachate runoff from the site.
- Surface water drainage must be diverted away from the composting site.
- The site must be graded to minimize ponding.
- Aerobic conditions must be maintained in the composting material.
- Odors and dust must be controlled.

- Noise transmitted to residential areas must be kept within prescribed limits.
- Yard waste and compost must be kept 25 feet away from drainage swales, 50 feet away from the property line, and 200 feet away from residences and businesses.
- Minimum depth to seasonal high groundwater is 24 inches, and facilities on highly permeable soils may be required to install groundwater monitoring wells or other monitoring devices.
- Shelter must be provided for routine maintenance and repair of mobile equipment.

2.3 Conceptual Design

This section describes a design concept for the yard waste processing facilities. Operation of the facilities is described in Section 2.4.

2.3.1 Types and Quantities of Yard Waste to Be Processed

The two yard waste facilities would process two principal types of material: leaves and woody yard waste such as shrub and tree trimmings. Each facility would process 15,000 tons or less of these materials per year. In the absence of data on the composition of yard waste in Southampton, the conceptual design is based on annual receipt at each facility of 11,250 tons (75 percent) of leaves and 3,750 tons (25 percent) of woody yard waste. These conceptual quantities are based on CDM's experience in conducting four-season waste characterization studies in Cape May and Atlantic counties on the coast of southern New Jersey. The climate, vegetation, and residential land use patterns in Cape May and Atlantic counties are generally comparable to those in Southampton. Nonetheless, the actual composition of yard waste in Southampton, and potentially other towns that may send yard waste to the processing facilities, may differ substantially from the composition on which this conceptual design is based.

Woody yard waste includes not only heavy materials such as tree branches, but also lighter woody materials such as shrub and vine trimmings. Both light and heavy woody materials decompose much more slowly than leaves, and so are not suited to composting. Instead, woody yard waste should be shredded to produce wood chips or mulch.

Grass clippings tend to cause noxious odors because of their fresh condition, high moisture content, and relatively high nitrogen content, and therefore will not be accepted at the yard-waste processing facilities.

2.3.2 Seasonal Pattern of Yard Waste Receipts

The vast majority of leaves would be received from mid October through early December. A relatively small quantity of leaves would be received in early spring.

Woody yard waste would be received all year, but it is anticipated that deliveries of woody yard waste would normally be least in the winter and greatest in the spring. Special events such as hurricanes and Christmas tree mulching could alter this pattern.

2.3.3 Structures and Equipment Required

The conceptual design of the yard waste processing facilities includes the following structures:

- Trailer with office, sanitary facilities, and locker room, 10'x 50'
- Equipment storage building, 40'x 60'
- Perimeter road, 3,000 linear feet
- Receiving area pad, 40,000 square feet (approximately 1 acre)

The equipment storage building would be an unheated, prefabricated steel structure with a concrete slab floor and a rollup door at each end. The eave height (height of roof at lowest point) would be between 14 and 16 feet.

The perimeter road and receiving area would be paved with gravel. The perimeter road would be slightly elevated to prevent run on of stormwater and runoff of stormwater containing leachate. The conceptual design assumes that the volume of runoff would not be large enough to require retention basins.

Operation of each of the two yard waste processing facilities requires the following equipment:

- Two front-end loaders with 4-cubic-yard buckets, plus one grapple attachment
- One dump truck with 20-cubic-yard box
- One windrow turner
- Two windrow thermometers (digital-type units recommended)
- Two oxygen analyzers
- One compost shredding and screening system
- Two rolloff containers for rejects from screener/shredder
- One tub grinder

One additional front-end loader and one additional dump truck would be required for backup and to alternately service the two facilities at times of peak activity. The tub grinder already in operation at the Landfill would serve as backup to the two tub grinders acquired for the yard waste facilities.

Front-end loaders designed to lift gravel in 2-cubic-yard buckets could be fitted with 4-cubic-yard buckets designed for light material. The front-end loaders would be used to load the dump truck, to improve the shape of windrows, to feed the screener/shredder and the tub grinder, and to form piles of processed material. The dump truck would be used to move material from the receiving area to the windrow area, from the windrow area to the screening area or product storage area, and from the screening area to the product storage area. Windrow turners are specially designed to mix the composting leaves without changing the shape of the windrows. Windrow turners are recommended for several reasons:

- At facilities as large as those proposed by the Town, use of windrow turners is the most cost effective method for turning the windows frequently enough to minimize odor generation.
- Windrow turners perform best in breaking up wet mats and clumps of material that can cause odors.
- By breaking up the composting material during turning of the windrows, windrow turners greatly reduce the quantity of material rejected by the compost screener/shredder.

The type of windrow turner that straddles the windrows and turns them in place is recommended. This type is best suited to processing high volumes of material while minimizing downtime for maintenance and repair.

A shredding and screening system, which may be in one unit or in two separate units, is used to improve the quality of the finished compost. The shredder/screener breaks up clumps of compost and screens out contaminants and undecomposed material. This makes the compost more marketable.

A rolloff container is required for collection of the material rejected during screening of the compost. To minimize the number of trips required for disposal, a container capacity of 40 cubic yards is recommended. To minimize disruption of the screening process when a container becomes full, each facility should have two containers. As an alternative, a disposal contractor could supply a rolloff container, pick it up when full, and leave an empty container in its place.

A tub grinder is a hammermill fed through a revolving tub-shaped hopper. The tub grinder would be used to shred woody yard waste for mulching. Shredding the leaves prior to composting is not recommended because it would accelerate the initial rate of decomposition, causing rapid oxygen depletion and increasing the potential for odor problems caused by anaerobic conditions. The action of the windrow turner is sufficient to break up the leaves as they decompose.

2.3.4 Facility Layout and Space Requirements

A conceptual diagram of the layout of the yard waste processing facilities is provided in Figure 2-1. Approximate space requirements for the functions and site features shown on the diagram are as follows:

- Receiving and woody waste shredding--1.5 to 2 acres
- Active composting and mulching--10.5 to 11 acres
- Screening and finished product storage--1.5 acres
- Office trailer, parking, and equipment storage--0.2 acres
- Perimeter road and buffer (not including receiving area)--3.5 acres
- Internal roads and maneuvering space--1 acre

The total space required for each facility is approximately 18 acres.

The receiving and woody waste shredding area includes space for traffic circulation, maneuvering, and temporary storage.

The size of the active composting and mulching area is based on the following:

- Windrows with a maximum height of 7 feet, 18 feet wide at the base, and approximately 300 feet long, containing at any one time up to 50,000 cubic yards of leaves (10,000 tons at 5 cubic yards per ton) and 12,500 cubic yards of shredded woody yard waste (3,750 tons at 3.3 cubic yards per ton)

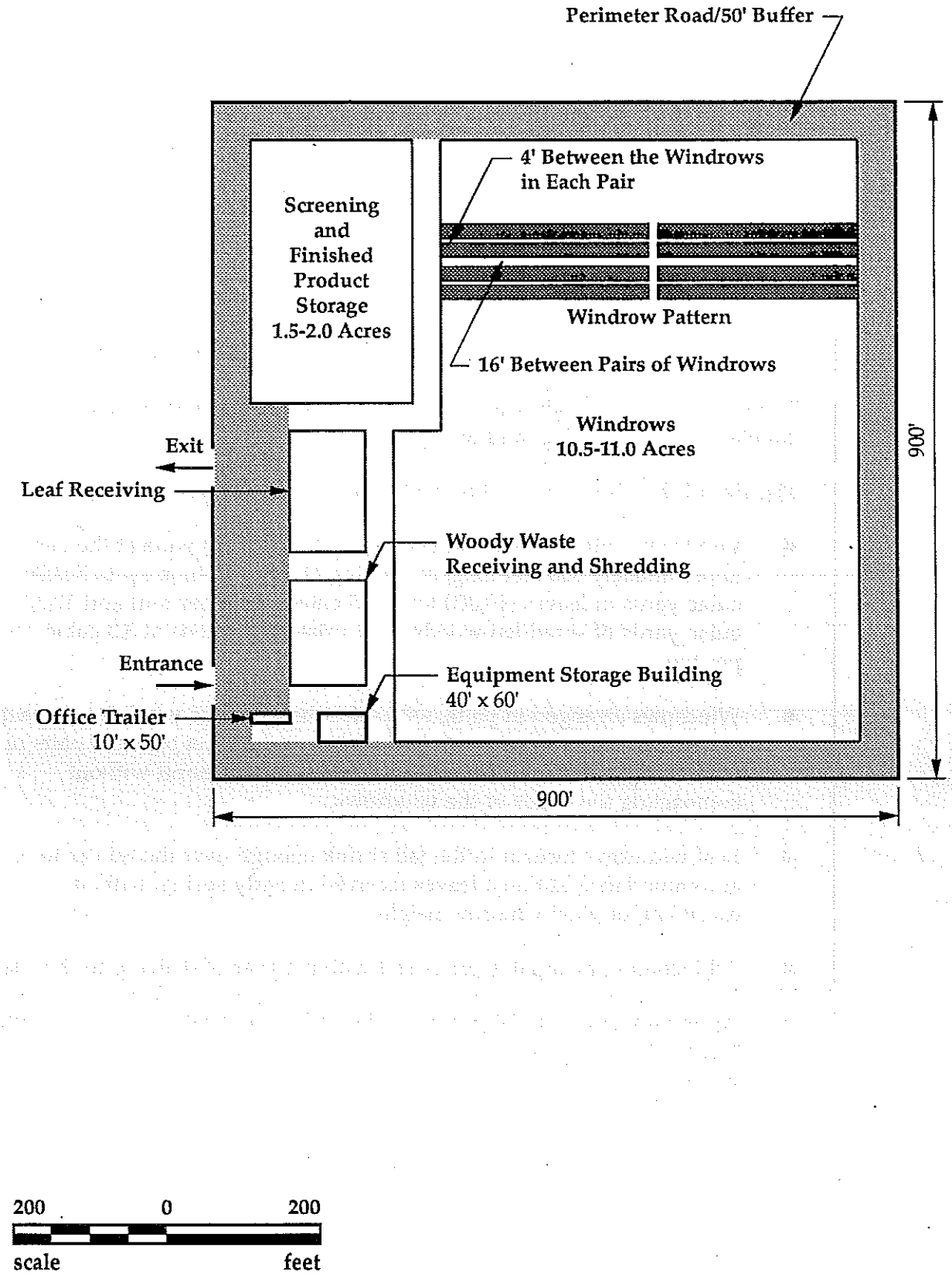
- Windrows arranged in pairs, with 4 feet between the windrows in each pair to accommodate the windrow turner and 16 feet between pairs of windrows to allow the front-end loaders to turn around without compacting the edges of the windrows.

- Leaf windrows formed in the fall shrink enough over the winter to accommodate additional leaves received in early spring, without exceeding original windrow height.

- All incoming material is processed within 1 year of delivery to the site.

- Approximately 40 to 50 percent of incoming material is marketed within 1 year of delivery to the site, and all incoming material is marketed within 2 years of delivery to the site.

Use of larger windrows saves space but invites odor problems. The potential for odor increases geometrically as windrow height increases, because (1) the distance air must travel to reach the center of the pile increases, (2) compaction caused by the increased weight of the pile reduces the number and size of the air passages, and (3) the ratio of the quantity of air in the pile to the quantity of organic matter decreases as the pile compresses under its own weight.



CDM

environmental engineers, scientists, planners & management consultants

Town Of Southampton, New York

Yard Waste Processing Facility
Site Diagram

Figure 2-1

Issued: November 23, 1994

Finished compost and mulch can be stored in larger piles. The conceptual design is based on large piles 9 feet high for both compost and mulch. Some of the compost and mulch may be mature enough for marketing by the first spring after receipt of the source material, but a substantial portion probably will not be ready for marketing until mid summer, past the period of peak demand in spring and early summer. Immature compost and mulch are more difficult to market, and immature compost can actually retard plant growth. The product storage area shown in Figure 2-1 is large enough to hold approximately 50 to 60 percent of annual production through the fall and winter, when the active composting and mulching area is full of newer material. This means that 40 to 50 percent of the material received each year would have to be marketed within 1 year of receipt, and that all material would have to be marketed within 2 years of receipt.

In the conceptual facility design, finished products are stored adjacent to the receiving area to facilitate pickup by customers. The Town may want to make the compost and mulch available at other sites for pickup by residents.

The 50-foot buffer around the perimeter of the facility is required by state regulations (see Section 2.2).

The office trailer would be located close to the entrance to facilitate monitoring and logging of vehicles entering the facility. Because tub grinders require frequent maintenance, it is probably desirable to locate the tub grinder close to the equipment storage building.

On specific sites, placement of the tub grinder and compost shredding and screening equipment may be influenced by the need to minimize noise impacts to neighboring land uses.

2.3.5 Materials Flow and Mass Balance

Figure 2-2 shows a conceptual materials flow diagram and mass balance for the yard waste processing facilities. Each facility would receive 15,000 tons of yard waste annually. All waste received would be logged in, then unloaded in the receiving area (see Figure 2-1).

The 15,000 tons of yard waste received by each facility would include approximately 10,000 tons of leaves received in the fall and 1,250 tons of leaves received in the spring. Of the total of 11,250 tons of leaves formed into windrows, approximately 35 percent would be lost during composting, leaving 7,312 tons of compost. Of the 7,312 tons of compost, 5 percent or 366 tons would be screened out and disposed of, leaving 6,946 tons of screened compost for temporary storage and marketing.

Each facility would also receive approximately 3,750 tons of woody yard waste. This waste would be shredded and formed into windrows for curing. During curing, the woody yard waste would lose approximately 15 percent of

its weight, primarily through loss of moisture. After curing, therefore, approximately 3,187 tons of mulch would be transferred to the product storage area.

2.4 Yard Waste Processing

This section provides more detail on the processing of yard waste at the two proposed facilities. All waste arriving at the facilities would be inspected and classified as leaves, woody yard waste, or unacceptable material (e.g., grassclippings, refuse). Persons with unacceptable material would be directed to take it to the appropriate disposal facility. Procedures for composting leaves and mulching woody yard waste are described in separate subsections below.

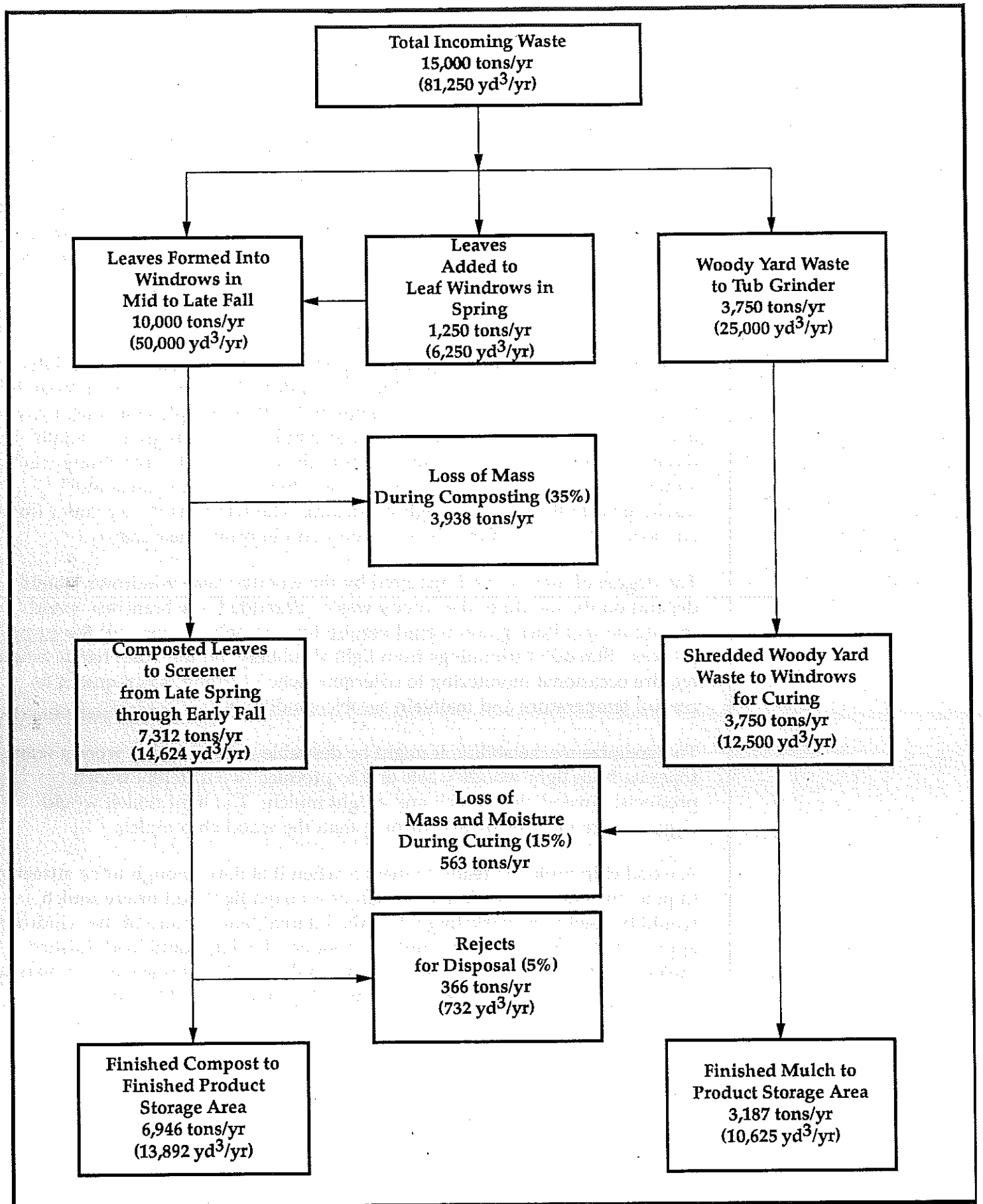
2.4.1 Composting of Leaves

Incoming leaves would be piled up in the receiving area. Leaves could remain in biodegradable brown paper bags, but any leaves delivered in plastic bags would have to be removed from the bags. A front-end loader would load the leaves into a dump truck, and the dump truck would transport the leaves to the windrow area. The leaves would be discharged from the truck so as to form rough windrows of the desired height and width. Later, a front-end loader and windrow turner would even out the windrows and improve their shape.

To minimize the potential for odor from wet, matted leaves, it is recommended that leaves be formed into windrows within 24 hours of receipt. Larger trucks bringing leaves to the facility, such as municipal collection trucks, may be directed to deposit the leaves in the windrow area rather than in the receiving area.

Because excessively wet material in the bottom layer of a windrow tends to cause odors, the windrows would be formed parallel to the direction of site drainage, so as not to obstruct drainage. Windrow formation would progress from the screening area toward the opposite side of the facility, so the newer windrows would not interfere with the hauling of material from the older windrows to the screening area. Each newly formed windrow should be given an initial turning.

The composting process must be monitored and controlled. After the initial turning, the need for turning should be determined by measurement of oxygen content and temperature in the windrows. Turning should be performed when oxygen content drops below 5 percent or temperature rises above 140 °F (60 °C). Turning could be required twice per week during the first month. When the temperature and oxygen content within the windrows approach ambient conditions, composting is complete. The front-end loaders would load the compost into the dump truck for transport to the screening area. A dump truck would deposit the compost near the feed end of the



CDM

environmental engineers, scientists, planners & management consultants

Town Of Southampton, New York

Yard Waste Processing Facility
Materials Flow Diagram

Figure 2-2

Issued: November 23, 1994.

screener/shredder. After a substantial quantity of compost had been accumulated for screening, a dump truck would position itself to receive the finished compost discharged from the screener/shredder. A rolloff container would be positioned to receive the materials rejected by the screen. A front-end loader would feed the screener/shredder. Shredding and screening would proceed until the dump truck was full. The dump truck would deposit the finished compost in the product storage area, and a front-end loader would form the finished compost into 9-foot storage piles.

2.4.2 Mulching of WoodyYard Waste

Residents and carters bringing woody yard waste to the processing facilities would unload it onto a pile near the tub grinder. At times when no waste is being delivered, a front-end loader equipped with a grapple attachment would load the waste into the hopper of the tub grinder. The tub grinder would discharge onto the ground or directly into the dump truck. The dump truck would transport the shredded woody waste to the windrow area and discharge it in the form of rough windrows. The windrow turner and a front-end loader would even out the windrows and improve their shape.

The degree of management required by the woody-waste windrows would depend on the nature of the woody waste. Shredded tree branches would require no monitoring and would require turning only to even out the aging process. Shredded trimmings from light shrubbery, on the other hand, would require occasional monitoring to determine when turning was required to control temperature and maintain aerobic conditions.

To maximize marketability, it might be desirable to keep heavy woody waste separate from light woody waste and to produce two different mulch products: a wood chip mulch and a light mulch. The light mulch would require more monitoring and turning than the wood chip mulch.

A wood chip mulch is ready to market when it is dark enough to be attractive to potential customers. A light mulch or a mixed light and heavy mulch would be ready for marketing when the internal temperature of the windrow approached ambient temperature. A front-end loader would load finished mulch into the dump truck for transport to the product storage area, where a front-end loader would arrange each mulch product in a 9-foot pile.

Appendix I

Town of Southampton
116 HAMPTON ROAD
SOUTHAMPTON, NEW YORK 11968
OFFICE OF THE SUPERVISOR

FRED W. THIELE, JR
SUPERVISOR
Telephone (516) 283-6055
Fax (516) 287-3662

September 21, 1994

VIA TELECOPIER

Mr. John D. Cameron, Jr., P.E.
East End Recycling & Composting, L.P.
1400 Old Country Road, Suite 410
Westbury, NY 11590

Re: Long-Term Solid Waste Disposal Services
Town of Southampton, New York

Dear Mr. Cameron,

As you are aware, the Town of Southampton has spent considerable effort throughout the past several months reevaluating the options available to it for long-term solid waste management. While initially the Town sought complete self-sufficiency, recent events have led the Town Board to seek disposal services for a portion of its waste stream outside the Town. Having reviewed a number of available options, the Town Board would like to express its desire to use East End Recycling & Composting, L.P.'s ("East End") composting facility to be located in Calverton, New York. This would allow the Town to maintain its original commitment to both composting and the New York State solid waste management hierarchy, while minimizing transportation impacts. Additionally, the Town hopes that such an arrangement will further promote the development of a regional solution to solid waste management.

As you are aware, however, municipalities such as Southampton are precluded from approving an action without first complying with the mandates of the State Environmental Quality Review Act ("SEQRA"). In this regard, the Town is in the process of modifying its Revised Solid Waste Action Management Plan/Final Generic Environmental Impact Statement ("Revised SWAMP/FGEIS") to reflect the Town Board's preference on solid waste management. In general, this approach includes the Town's operating four drop-off stations, along with two leaf and yard waste composting facilities. Additionally, the Town will continue to enforce its mandatory source separated recyclables program, marketing materials received at its various drop-offs directly.

With respect to the remainder of municipal solid waste ("MSW") generated within Southampton, the Town anticipates that it will be disposed of at one or more facilities outside its borders. While MSW delivered to the drop-off facilities will be transported by the Town to the selected out-of-Town disposal facility, MSW otherwise generated within the Town will be collected and disposed of by individual private haulers. The Board expects that a considerable amount of privately collected MSW will end up at the preferred facility designated by the Town. In this regard, East End will extend delivery and disposal rights to the private carters picking up waste with the Town.

Although the Board does not anticipate findings under SEQRA contrary to its stated preference, a formal written agreement can not be made until completion of the public evaluation and review process. Based on scheduling to date, we expect this process to be completed by early December 1994. In addition to SEQRA, the Town must also secure an agreement with the Town of Riverhead. While the Town has been in contact with Riverhead officials, written agreement between the Towns must also await completion of the SEQRA and public review process.

Finally, based on your correspondence to me, dated September 8, 1994, East End will accept, process and dispose of Southampton MSW at a cost to the Town of $73.00 per ton. As you have related, this price is dependent upon the Town's agreeing to deliver a minimum of 10,000 tons of MSW to East End annually.

Please contact me if you have any questions or I can provide you with any further information.

Sincerely,

Fred Thiele Jr.

Fred Thiele, Jr.
Supervisor

Jim Stark

FT:kk

EAST END RECYCLING & COMPOSTING CO., L.P.

1400 Old Country Road, Suite 410 - Westbury, NY 11590
(516) 997-5050 Fax (516) 997-8119

RECEIVED
SEP - 9 1994

September 8, 1994

Mr. Fred W. Thiele, Jr.
Supervisor
Town of Southampton
Town Hall
116 Hampton Road
Southampton, NY 11968

Dear Mr. Thiele:

East End Recycling & Composting Co., L.P. ("East End") is pleased to submit its pricing proposal to the Town of Southampton ("Town") for long-term solid waste management services.

The pricing offered is for East End accepting the Town's self-hauler waste in accordance with terms agreed upon to date. The term of the contract would be fifteen (15) years with an option to extend for an additional five (5) years upon mutual consent.

Waste Quantities	Price Per Ton (CPI Adjusted)
10,000 tpy (guaranteed)	$74.95*
10,001 - 20,000 tpy	$75.95*

*East End is prepared to offer the Town a credit which will reduce the Town's tipping fees for all Town self-hauler waste to $73.00 for years one (1) and two (2) of the contract, if the Town executes a contractual agreement with East End within forty-five (45) days of the date of this letter.

East End believes that it has offered the Town a proposal which provides long-term price stability for the Town's solid waste disposal at Long Island's state-of-the-art recycling and composting facility.

We look forward to the Town Board's acceptance of this proposal and the consummation of contractual arrangements.

Very truly yours,

John D. Cameron, Jr., P.E.
President
Omni-East End, Inc.
General Partner

JDC:dls

Appendix J

Chapter 205

LANDFILLS, TRANSFER STATIONS AND SCAVENGER WASTE

ARTICLE I
Sanitary Landfill Stations and Garbage Transfer Stations

§ 205-1. Applicability.

§ 205-2. Definitions.

§ 205-3. Regulations.

§ 205-4. Permits for garbage vehicles; permit fees.

§ 205-5. Usage fees.

§ 205-6. Removal of surplus fill.

§ 205-7. Penalties for offenses.

ARTICLE II
Scavenger Waste

§ 205-8. Definitions.

§ 205-9. On-site sewage disposal systems.

§ 205-10. Transportation permit required; fee; rules and regulations.

§ 205-11. Construction or alteration permit for on-site sewage disposal system; fee.

§ 205-12. Construction standards for on-site sewage disposal systems.

§ 205-13. Inspections.

§ 205-14. Fees for scavenger waste.

§ 205-15. Penalties for offenses.

[HISTORY: Adopted by the Town Board of the Town of Southampton 7-9-1985 as L.L. No. 4-1985. Section 205-2 added and §§ 205-3Q, 205-4B(1), 205-7, 205-10B and 205-15A amended at time of adoption of Code; see Ch. 1, General Provisions, Art. I. Other amendments noted where applicable.]

GENERAL REFERENCES

Junkyards and junk dealers — See Ch. 199.
Littering and handbills — See Ch. 211.
Protection of natural resources — See Ch. 229.

ARTICLE I
Sanitary Landfill Stations and Garbage Transfer Stations
[Amended 2-11-1986 by L.L. No. 3-1986; 4-22-1986 by L.L. No. 6-1986; 5-12-1987 by L.L. No. 3-1987]

§ 205-1. Applicability. [Amended 2-9-1993 by L.L. No. 5-1993]

The rules and regulations of this chapter shall apply to all generators of solid waste located within the Town of Southampton and to all town disposal areas, including sanitary landfill stations and garbage transfer stations.

§ 205-2. Definitions. [Added 4-25-1989 by L.L. No. 10-1989]

As used in this Article, the following terms shall have the meanings indicated:

> CANS — Containers comprised of aluminum, tin, steel or a combination thereof which contain or formerly contained only food and/or beverage substances. **[Added 12-12-1989 by L.L. No. 24-1989]**

CARDBOARD — All corrugated cardboard normally used for packing, mailing, shipping or containerizing goods, merchandise or other material, but shall not mean wax-coated or soiled cardboard. **[Added 12-12-1989 by L.L. No. 24-1989]**

(Cont'd on page 20503)

COMMERCIAL GARBAGE HAULER — A vehicle utilized in the business of collecting and transporting solid waste of any kind. **[Added 7-10-1990 by L.L. No. 19-1990; amended 6-11-1991 by L.L. No. 9-1991]**

GLASS — All clear (flint), green and brown (amber) colored glass containers. "Glass" shall not mean wired glass, crystal, ceramics and plate, window, laminated or mirrored glass. **[Added 12-12-1989 by L.L. No. 24-1989]**

HAZARDOUS WASTE **[Added 7-10-1990 by L.L. No. 19-1990]**:

A. A solid waste or a combination of solid wastes which, because of its quantity, concentration or physical, chemical or infectious characteristics, may:

(1) Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or

(2) Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.

B. Includes but is not limited to explosives, hazardous radioactive materials, toxic substances and those substances which the administrator of the Federal Environmental Protection Agency has caused to be included in the listing of hazardous waste promulgated by said Agency pursuant to 42 U.S.C.A. § 6921(b).

METAL — Any of the various opaque, fusible, ductile and typically lustrous substances that are good conductors of electricity and heat, form cations by loss of electrons and yield basic oxides and hydroxides, including any alloys or combinations thereof. **[Added 12-12-1989 by L.L. No. 24-1989]**

NEWSPAPER — Includes newsprint and all newspaper and newspaper advertisements, supplements, comics and enclosures.

NONRESIDENTIAL SELF-HAULER — A vehicle utilized in the transporting of solid waste originating from a building or parcel of land with four (4) or more dwelling units or any single business or single industrial use. **[Added 6-11-1991 by L.L. No. 9-1991]**

PAPER — All high-grade office paper, fine paper, bond paper, office paper, xerographic paper, mimeo paper, duplication paper, magazines, paperback books, school paper, catalogs, computer paper and similar cellulosic material, but shall not mean newspapers, 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. **[Added 12-12-1989 by L.L. No. 24-1989]**

PLASTICS — Containers composed of high-density polyethylenes, polyethylene terephthalate or other specific plastics as the Town Board may designate. **[Added 12-21-1990 by L.L. No. 3-1990]**

RESIDENTIAL SELF-HAULER — A vehicle utilized in the transporting of solid waste originating from a building or parcel of land having three (3) or fewer dwelling units. **[Added 6-11-1991 by L.L. No. 9-1991]**

RUBBISH — Nonputrescible solid waste consisting of both combustible and noncombustible wastes, including but not limited to nonrecyclable paper, wrappings, cigarettes, wood, wires, glass, bedding, furniture and similar materials which are not designated recyclable materials.

SOLID WASTE — All putrescible and nonputrescible 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

and rubbish, but not including designated recyclable materials or materials to be separated.

VEGETATIVE YARD WASTE — Organic yard and garden waste, leaves and brush, not including grass clippings. **[Amended 6-8-1993 by L.L. No. 14-1993]**

(Cont'd on page 20505)

WHITE GOODS — Discarded household appliances such as stoves, refrigerators, washing machines and other old metal items.

§ 205-3. Regulations.

A. Disposal areas shall be open during such hours as may be designated by resolution of the Town Board adopted from time to time.

B. The personnel in charge of each disposal area shall have full power and authority to direct the manner of deposit of material at different locations within the disposal area that are designated for the deposit of specific types of materials, and anyone using said disposal area shall obey the instructions of said personnel and shall deposit the various types of material only in the areas or containers designated for such types of materials.

C. The disposal area personnel shall designate the unloading area at disposal areas by appropriate signs at both ends of said area. No person may deposit materials other than those designated by these signs. No person other than the authorized personnel of the disposal area may go beyond the signs and enter the area reserved for the deposit of this material.

D. The personnel in charge of each disposal area shall be responsible for the directing of movements of traffic within said disposal area, and anyone operating a vehicle within said disposal area shall obey the instructions of said personnel in this regard. No person shall park a vehicle between the signs designating an unloading zone except for the purpose and time required to unload.

E. The town disposal areas are maintained by the taxpayers of the Town of Southampton and are provided for the use of the residents of the Town of Southampton only. No material of any sort that is collected or transported from outside the limits of the Town of Southampton shall be deposited in said disposal areas. **[Amended 6-11-1991 by L.L. No. 9-1991]**

F. It shall be unlawful for any person to deposit any waste, garbage or rubbish of any kind on land of the Town of Southampton outside the areas designated for the deposit of those materials.

G. No person shall dump, throw or place in any manner any rubbish, refuse, dirt or any material whatsoever in or upon such disposal area nor at a time except that indicated by such sign or signs or directions.

H. Any oral directions given by any person in charge of any disposal area shall take precedence over any sign or displayed directions.

I. It shall be unlawful for any person to deposit any waste, garbage or rubbish outside the gates of any disposal area at any time unless containers for that purpose have been provided and designated.

J. It shall be unlawful for any person other than the disposal area personnel to set fire to any material within the disposal area.

K. (Reserved)[1]

L. No person shall deposit any animal carcass in or upon any transfer station, except that an animal carcass may be buried if immediately interred by the person bringing such carcass to a sanitary landfill in a ditch at least two (2) feet in depth and provided that the same is immediately covered to the level of the surrounding area with earth.

M. No person shall remove, destroy, alter, deface or otherwise injure any sign or signs placed or erected within any public disposal area except upon and by the direction of the Sanitation Supervisor. **[Amended 6-11-1991 by L.L. No. 9-1991]**

N. All material transported to a disposal area shall be covered and secured so as not to disperse material during transportation of such material.

[1] Editor's Note: Former Subsection K, which prohibited the removal of material from disposal areas, was repealed 5-26-1992 by L.L. No. 27-1992.

O. All vehicles requiring permits under § 205-4B shall meet the regulations of the Suffolk County Department of Health.

P. No tires may be deposited at a disposal area. However, tires may be accepted for recycling at the discretion of the town upon payment of a fee of one hundred dollars ($100.) per ton. Said fee shall be prorated for any fraction or part of a ton. **[Amended 6-14-1988 by L.L. No. 9-1988; 4-14-1992 by L.L. No. 7-1992]**

Q. No hazardous wastes shall be disposed of at a disposal area. **[Amended 7-10-1990 by L.L. No. 19-1990]**

R. It shall be unlawful for any person engaged in the business of collecting garbage and waste within the Town of Southampton to make such collection before 6:00 a.m. or after 10:00 p.m. of any day.

S. All appliances shall have their doors removed before disposal at a disposal area.

T. Any material which is incompatible with use of the compactor at a transfer station shall be prohibited at such station and shall be disposed of at a sanitary landfill.

U. All vehicles required to pay a usage fee under § 205-5A and entering the sanitary landfill site must utilize the scale installed at said site and obey the instructions of the personnel in charge. A weight ticket shall be retrieved from the scale house before entering the landfill site.

V. The disposal of land-clearing debris, construction debris or demolition debris shall be prohibited at any town disposal area.

W. The Town Board hereby delegates to the Sanitation Supervisor the authority to adopt rules to prohibit the disposal of any waste materials, in addition to those materials expressly prohibited by this chapter, where the Sanitation Supervisor finds that waste materials would

be harmful to the public welfare or would adversely impact the remaining capacity of the sanitary landfill station. Said rules shall be published in the official newspaper of the town and posted on the Town Clerk's signboard. Said rules shall be effective upon such posting and publishing. **[Amended 6-11-1991 by L.L. No. 9-1991]**

X. No newspaper as defined herein shall be deposited at any Town of Southampton disposal area or town transfer station unless such newspaper is separated from any and all solid waste, trash, rubbish or vegetative yard waste. Such newspaper is to be deposited only at designated areas within such town disposal area or transfer station. When such newspaper is prepared for disposal by anyone other than the ultimate disposer, such as a carter, it should be securely bundled and tied in packages not exceeding fifty (50) pounds with a rope or cord sufficient in strength to facilitate handling. **[Added 4-25-1989 by L.L. No. 10-1989]**

Y. No vegetative yard waste, as defined herein, shall be deposited at any Town of Southampton disposal area or town transfer station unless such vegetative yard waste is separated from any and all solid waste, trash or rubbish. Such vegetative yard waste is to be deposited only at designated areas within such town disposal area or transfer station, and in no event shall vegetative yard waste include grass clippings. **[Added 4-25-1989 by L.L. No. 10-1989; amended 6-8-1993 by L.L. No. 14-1993]**

Z. No white goods as defined herein shall be deposited at any Town of Southampton disposal area or town transfer station unless such white goods are separated from any and all solid waste, trash, rubbish or vegetative yard waste. Such white goods are to be deposited only at designated areas within such town disposal area or transfer station. **[Added 4-25-1989 by L.L. No. 10-1989]**

AA. No cans as defined herein shall be deposited at any Town of Southampton disposal area or town transfer station unless such cans are separated from any and all solid waste, trash, rubbish, vegetative yard waste, cardboard, glass, metal or paper. Such cans are to be deposited only at designated areas within such town disposal area or transfer station. **[Added 12-12-1989 by L.L. No. 24-1989]**

(Cont'd on page 20509)

BB. No cardboard as defined herein shall be deposited at any Town of Southampton disposal area or town transfer station unless such cardboard is separated from any and all solid waste, trash, rubbish, vegetative yard waste, cans, glass, metal or paper. Such cardboard is to be deposited only at designated areas within such town disposal area or transfer station. **[Added 12-12-1989 by L.L. No. 24-1989]**

CC. No glass as defined herein shall be deposited at any Town of Southampton disposal area or town transfer station unless such glass is separated from any and all solid waste, trash, rubbish, vegetative yard waste, cans, cardboard, metal or paper. Such glass is to be deposited only at designated areas within such town disposal area or transfer station. **[Added 12-12-1989 by L.L. No. 24-1989]**

DD. No metal as defined herein shall be deposited at any Town of Southampton disposal area or town transfer station unless such metal is separated from any and all solid waste, trash, rubbish, vegetative yard waste, cans, cardboard, glass or paper. Such metal is to be deposited only at designated areas within such town disposal area or transfer station. **[Added 12-12-1989 by L.L. No. 24-1989]**

EE. No paper as defined herein shall be deposited at any Town of Southampton disposal area or town transfer station unless such paper is separated from any and all solid waste, trash, rubbish, vegetative yard waste, cans, cardboard, glass or metal. Such paper is to be deposited only at designated areas within such town disposal area or transfer station. **[Added 12-12-1989 by L.L. No. 24-1989]**

FF. No plastics as defined herein shall be deposited at any Town of Southampton disposal area or town transfer station unless such plastics are separated from any and all solid waste, trash, rubbish, vegetative yard waste, cardboard, glass, metal or paper. Such plastics are to be

deposited at designated areas within such town disposal area or transfer station. **[Added 12-21-1990 by L.L. No. 30-1990]**

GG. All generators of solid waste located within the Town of Southampton, which leave such waste for collection or which deliver such waste to a solid waste facility, shall separate newspaper, vegetative yard waste, white goods, cans, cardboard, glass, metal, paper and plastics from the solid waste stream at the point of waste generation. **[Added 2-9-1993 by L.L. No. 5-1993]**

§ 205-4. Permits for garbage vehicles; permit fees.

A. All vehicles required to pay a usage fee under § 205-5A shall display a vehicle permit as herein required, which shall be affixed to the left side of the front bumper. **[Amended 6-11-1991 by L.L. No. 9-1991]**

B. **[Amended 7-10-1990 by L.L. No. 19-1990; 6-11-1991 by L.L. No. 9-1991; 4-14-1992 by L.L. No. 7-1992]** Permits will be issued by the Town Clerk's office after payment of the following fees for each vehicle:

(1) Garbage haulers and all other vehicles required to pay a usage fee under § 205-5A: three hundred dollars ($300.) for the first vehicle and one hundred twenty-five dollars ($125.) for each additional vehicle.

(2) Roll-off containers:

(a) Zero (0) to twenty (20) cubic yards: seventy-five dollars ($75.).

(b) More than twenty (20) yards to forty (40) yards: one hundred fifty dollars ($150.).

(c) More than forty (40) yards: three hundred dollars ($300.).

(3) Nonresidential self-haulers depositing source-separated recyclables only and vehicles engaged in

the business of transporting source-separated recyclables only: one hundred dollars ($100.) for the first vehicle and fifty dollars ($50.) for each additional vehicle. **[Added 9-15-1992 by L.L. No. 41-1992]**

(Cont'd on page 20511)

C. All permit fees are annual for the calendar year with no proration.

D. It shall be unlawful to utilize a vehicle in the business of collecting and transporting solid waste without the proper vehicle permit, and each vehicle shall have its own separate permit which shall be issued to the registration number of the vehicle where applicable.

E. **[Amended 6-11-1991 by L.L. No. 9-1991]** All persons applying for vehicle permits under Subsection B of this section shall be required to file an application form with the Sanitation Supervisor for approval.

(1) Prior to the issuance of a permit for any vehicle pursuant to Subsection B of this section, the Sanitation Supervisor shall first approve the application for such permit and the vehicle shall be inspected.

(2) Each applicant for such permit shall provide the following information:

(a) The name and address of the applicant and of all persons having a financial interest in the business.

(b) A brief description of the vehicle, including the manufacturer, factory number, type of body (for example, tank, enclosed pickup, packer, van and so forth), weight of the vehicle unladen, maximum load to be carried and New York State registration number. All trucks must have lettering on the sides of the vehicle indicating their company name, at least six (6) inches high.

(c) All commercial garbage haulers shall provide the town with a list of all residential and nonresidential sites of collection, indicating the

street address of such sites and the days of pickup at those sites.

(d) The location where the vehicle is stored or garaged when not in use.

(e) The place or places where the applicant shall dispose of the garbage, refuse, rubbish or trash collected and the manner of disposal.

(f) Whether the applicant or any of the persons having a financial interest in the business has ever been convicted of a felony or misdemeanor or has ever had an operator's license revoked or suspended in this or any other state.

(g) Proof of financial responsibility in the event of injury to persons or property by reason of the negligent operation of any vehicle used in the business.

(h) The type of permit applied for.

(i) All nonresidential self-haulers and commercial garbage haulers must deposit with the town the sum of the lesser of five hundred dollars ($500.) or an amount equal to the largest monthly bill paid by the hauler within the preceding twelve-month period for usage fees, to be held by the town as a security deposit for faithful performance of the terms and conditions of this chapter. All deposits so made shall be placed by the town in interest-bearing accounts. The interest so earned shall be paid to each permittee on an annual basis. Upon cancellation or revocation of a permit issued pursuant to this chapter, the security deposit will be returned to the permittee with accumulated interest after deducting any outstanding usage fees. **[Amended 3-24-1992 by L.L. No. 5-1992]**

(3) The Sanitation Supervisor may require any additional information he may deem necessary from an individual applicant in order to administer the regulations enumerated in § 205-3 of this chapter.

F. Said permits shall be issued with an individual identification number which shall be assigned to each vehicle and shall not be transferable. Said permit shall be kept available within the vehicle for inspection upon demand.

G. Any permit issued hereunder may be suspended or revoked by the Town Board after notice to the applicant and a hearing, where one (1) or more of the following grounds exist:

(1) The applicant has not been found to be fit, willing and able to properly perform the service proposed and the applicant is unable to provide sufficient and suitable equipment to meet the requirements of the business.

(2) Issuance of the permit is deemed not to be in the best interests of the town or its residents.

(3) The applicant has failed and refused, without reasonable cause, to collect and dispose of material except in a situation where a contract between the applicant and his customer has been lawfully terminated.

(4) The applicant has failed to account for or pay, without reasonable cause, any fees or bills due to the town.

(5) The applicant has failed to reasonably fulfill his obligations to a customer as commercial refuse collector.

(6) The applicant is insolvent or has made a general assignment for the benefit of creditors or has been adjudged bankrupt or a money judgment has been

secured against him, upon which an execution has been returned wholly or partly unsatisfied.

(7) The applicant or permittee has failed to keep and maintain any records required by the town or has refused to allow the inspection thereof.

(8) The applicant has violated any of the provisions of this Article or has failed to comply with any of the requirements stipulated herein.

(9) The applicant ceased to operate as a commercial collector, for which a permit was previously issued.

(10) The applicant has made a false statement in his permit application.

(11) The applicant has been found to have collected material from outside the town and to have disposed of the same in a public disposal facility within the town. The suspension or revocation will be in addition to penalties provided by § 205-7. **[Amended 6-11-1991 by L.L. No. 9-1991]**

(12) The circumstances of the applicant have been altered to the extent that the applicant would not be qualified to obtain a permit if the circumstances, as altered, existed at the time the applicant had applied for the permit. Failure of the applicant to notify the town, in writing, of such an alteration in circumstances shall likewise constitute grounds for revocation or refusal to recommend.

(13) The applicant has illegally disposed of hazardous or contaminated waste at a disposal area or at any location within the town. The suspension or revocation will be in addition to penalties provided by § 205-7. **[Amended 6-11-1991 by L.L. No. 9-1991]**

(14) The applicant has been found to have violated any of the posted rules pertaining to safe operation of the

town-owned and/or –maintained public disposal facilities.

§ 205-5. Usage fees.

A. All vehicles utilizing a town disposal area shall be responsible for fees pursuant to a fee schedule[1] adopted by resolution of the Town Board after notice and a public hearing. **[Amended 12-12-1989 by L.L. No. 25-1989; 11-13-1990 by L.L. No. 29-1990; 6-11-1991 by L.L. No. 9-1991; 4-14-1992 by L.L. No. 7-1992]**

B. (Reserved)[2]

C. The method and procedure for collection of the fees prescribed by this section shall be established by the Town Board by resolution.

D. The usage fees prescribed in Subsection A above shall be waived to the extent that the material brought in consists of only source-separated recyclables. **[Added 7-12-1988 by L.L. No. 16-1988; amended 9-15-1992 by L.L. No. 41-1992]**

E. All residential self-haulers may accumulate usage receipts from the landfill attendant within a calendar year in an amount equal to the cost of a yearly permit and may apply this amount towards the purchase of a yearly pass. **[Added 2-27-1990 by L.L. No. 4-1990; amended 6-11-1991 by L.L. No. 9-1991]**

§ 205-6. Removal of surplus fill.

A. When available, surplus fill from the grounds of the sanitary landfill areas may be removed by municipal governing bodies under the following conditions:

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1 Editor's Note: Said fee schedule is on file in the Town Clerk's office.

2 Editor's Note: Former Subsection B, which dealt with yearly passes exempting certain vehicles from usage fees, as amended, was repealed 6-11-1991 by L.L. No. 9-1991.

(1) Said fill shall consist of either sand or marl, as determined by the loading machine operator.

(2) Said material shall be dug and loaded only by the town-owned loading machines, operated by disposal area personnel.

(3) Persons desiring said fill shall present to disposal area personnel a valid permit issued by the Town Board stipulating the amount of fill permitted to be removed.

(4) Said loading machine operator, upon acceptance of the permit, shall load the appropriate vehicle or vehicles provided by the permittee, unless said loading equipment is temporarily inoperative, absent or employed in need elsewhere in the disposal area; there is no guaranty of a specific loading equipment operator.

(5) Said vehicle provided by the permittee shall be loaded at the owner's risk, and the Town of Southampton shall not be responsible for any damage to said vehicle resulting from the act of loading fill into the vehicle.

B. Municipal governing bodies, such as incorporated villages, fire districts and school districts located within the Town of Southampton, may make application for specific amounts of fill without fee. Said application shall be submitted to the Town Board for approval by resolution.

(Cont'd on page 20512.5)

§ 205-7. Penalties for offenses. [Amended 7-10-1990 by L.L. No. 19-1990]

A violation of any of the provisions of this Article shall be deemed a violation and, upon conviction, shall be punishable by a fine of not more than one thousand dollars ($1,000.) or by imprisonment for not more than fifteen (15) days, or both such fine and imprisonment.

(Cont'd on page 20513)

ARTICLE II
Scavenger Waste

§ 205-8. Definitions.

As used in this Article, the following terms shall have the meanings indicated:

ALTERATION — The repair, modification or replacement of any component of an on-site sewage disposal system.

EXCLUDED WASTE — The following forms of waste are considered "excluded waste":

A. Industrial waste.

B. Automobile oil and other noncooking oil.

C. Drainage from basement floors, footings or roofs.

D. Toxic or hazardous substances and chemicals, including but not limited to presticides, acids, paints, paint thinner, herbicides, solvents, photographic chemicals and water-softening agents.

E. Cesspool-cleaning and drain-opening products which are prohibited by Article 39 of the New York Environmental Conservation Law or Suffolk County Local Law No. 12-1980.

ON-SITE SEWAGE DISPOSAL SYSTEM — A system for the disposal of untreated scavenger waste, such as a septic tank, cesspool, sewage holding tank, marine pump-out holding tank or other similar device, on or near the site of the building or buildings being served.

OWNER — A natural person, corporation, the State of New York or any authority or subdivision of the state, the United States of America or any department or agency thereof who owns, rents or leases real property.

PERSON — An individual, association, firm, syndicate, corporation, department, bureau or agency or any entity recognized by law as the subject of rights and duties.

SCAVENGER WASTE — Sanitary sewage and domestic sewage wastes which are normally disposed of in an on-site sewage disposal system. "Scavenger waste" shall not include excluded wastes as defined herein.

SCAVENGER WASTE PLANT — The joint Riverhead/ Southampton Scavenger Waste Treatment Plant situate on Riverside Drive, Riverhead.

TOWN — The Town of Southampton, including incorporated villages.

§ 205-9. On-site sewage disposal systems.

A. Only scavenger waste shall be discharged into on-site sewage disposal systems in the town.

B. The discharge of excluded waste into an on-site sewage disposal system shall be prohibited in the town.

§ 205-10. Transportation permit required; fee; rules and regulations.

A. No person shall engage in the removal of scavenger waste from any on-site septic system in the town without a valid permit issued by the Town Clerk and the Suffolk County Department of Health Services.

B.[6] Any applicant for a permit as required by Subsection A of this section shall file a sworn application with the Town Clerk. Said application shall be on a form provided by the Town Clerk and shall contain the name and address of the applicant and the type, model, capacity (in gallons) and registration number of all vehicles to be used. Additionally, such form shall state:

"I, _____, being duly sworn, state and depose that I am familiar with the provisions of Chapter 205. Article II, Scavenger Waste, of the Town Code of the Town of Southampton. I will report the address and exact location of all on-site sewage disposal systems pumped by me

[6] Editor's Note: Amended at time of adoption of Code; see Ch. 1, General Provisions, Art. I.

or my business within the Town of Southampton as required by Chapter 205, Article II. I will comply with all other provisions of Chapter 205, Article II. I am aware that failure to comply will result in the assessment of a penalty of two hundred fifty dollars ($250.) and/or fifteen (15) days' imprisonment for each violation."

C. The permit fee for the permit required by Subsection A of this section shall be two hundred fifty dollars ($250.) per vehicle. This fee shall be collected by the Town Clerk before the permit is issued. A permit shall be issued for each vehicle to be utilized by the applicant.

D. Each person with a permit under the provisions of this section shall file on the last Firday of each month, on a form to be provided by the Town Clerk, a report for each vehicle with the Town Clerk, stating the address, Suffolk County Tax Map number and exact location of each on-site sewage disposal system pumped during the month and shall certify that no excluded waste was disposed of at the joint scavenger waste facility.

E. All scavenger waste generated within the town shall be disposed of at the scavenger waste plant.

F. No excluded waste shall be disposed of at the scavenger waste plant.

G. The rules for disposal of scavenger waste at the scavenger waste plant shall be promulgated by the Town of Riverhead. The personnel in charge of said facility shall have full authority to implement said rules. Any violation of said rules by a person licensed by the Town of Southampton shall be deemed a violation of this chapter.

§ 205-11. Construction or alteration permit for on-site sewage disposal system; fee.

A. No person shall construct a new on-site sewage disposal system or alter any existing on-site disposal system in the town without first obtaining a permit from the Town Clerk. Such permit shall state the exact location of the on-site sewage

disposal system and the address and Tax Map number of the property where the work is performed in the manner and form specified by the Town Clerk.

B. The fee charged for such construction permit shall be in an amount prescribed by resolution of the Town Board.

§ 205-12. Construction standards for on-site sewage disposal systems.

A. All new construction of on-site sewage disposal systems in the town shall conform to Standards for Sewage and Waste Disposal Systems as then established by the Suffolk County Department of Health Services.

B. All new construction shall be located as prescribed by the Suffolk County Department of Health Services and at a location where pumping can occur without trespassing on lands of another owner an express easement for that purpose over another owner's premises exists.

C. All on-site sewage disposal systems shall be covered in a manner that permits inspection as provided for herein.

§ 205-13. Inspections.

A. Every five (5) years, or sooner if conditions require, on-site sewage disposal systems shall be inspected by qualified inspectors employed by the town. A copy of this inspection report shall be provided to the owner. This requirement shall not apply to on site sewage disposal systems in use on the effective date of this chapter until said systems are altered or pumped. However, nothing herein shall prevent a lawful inspection of an existing on-site sewage disposal system where an inspector has reason to believe that an existing system may be causing actual or potential pollution of groundwater or surface water, contamination of the drinking water supply, nuisance problems or other public health hazards.

B. The conduct of inspections shall be subject to all applicable laws. Five (5) days' written notice is to be given to the owner that an inspection will be made.

C. No civil claim shall lie against the town for any damages resulting from any inspection as authorized herein.

D. An inspector may order whatever remedial action is necessary to abate actual or potential pollution of groundwater or surface water, contamination of the drinking water supply, nuisance problems or other public health hazards. The time for compliance shall be specified. Failure to comply with an inspector's order shall be a violation of this Article.

§ 205-14. Fees for scavenger waste.

The Town Board shall, by resolution, set the fee for the disposing of scavenger waste at the scavenger waste plant at an amount of not less than one and five-tenths cents ($0.015) per gallon. The fee to be paid shall be calculated on full-tank capacity.[7]

§ 205-15. Penalties for offenses.

A. Any violation of this Article shall be punishable by a fine of not more than one thousand dollars ($1,000.) or by imprisonment for a term not to exceed fifteen (15) days, or both.[8]

B. In addition to any other remedy available at law, the town may seek whatever equitable remedies are available to it to enforce this Article.

[7] Editor's Note: Current fees are available at the town offices.
[8] Editor's Note: Amended at time of adoption of Code; see Ch. 1, General Provisions, Art. I.

K

Appendix K

MATERIALS MARKET SURVEY FOR OIL

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE($)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
AB Oil Service Smithtown, NY	Waste oil, transmission fluid; no thinner or non-automotive oils Anti-freeze	Charge $0.10 per gallon during summer otherwise no charge; $40.00 per drum	Pumper truck	long-term	Level of contamination affects recyclability Minimum delivery of 250 gallons May supply drums if needed
Certified Waste Oil Garden City, NY	Engine oil, transmission fluid, hydraulic oil, gear oil	No charge for high quality deliveries; free pick-up of 500 gallons; $25.00-$50.00 for smaller pick-ups	Pumper truck	short-term	Effort should be made to keep waste oil as clean as possible Minimum delivery of 500 gallons May provide pick-up
Sid Waste Oil Jamaica, NY	Waste oil, transmission fluid, hydraulic oil, lubricating oil	No charge	Pumper truck	long-term	May install tanks and provide pumping and hauling No antifreeze
General Waste Oil Wyandanch, NY	Waste oil	Charge $15.00 per drum or $0.10 per gallon if pumped	Pumper truck, load drums onto flatbed	long-term	May provide tanks and pick-up Prefer at least a pick-up of 275 gallons
Akba Waste Oil Bethpage, NY	Waste motor oil	Charge $0.10 per gallon	Pumper truck		Delivers to refinery/processor Prefer a pick-up of at least two 275 gallon tanks No cleaners or paint thinner
RD Waste Oil Long Island City, NY	Waste oil Anti-freeze	Charge $35.00-$50.00 per 550 gallon tank; no municipal charges; $50.00 per 55 gallon drum	Pumper truck	long-term	No charge for municipal deliveries over 550 gallons and for pick-ups of greater than 275 gallons
Buckner Waste Oil New Windsor, NY	Waste oil	Charge $0.20 per gallon	Pumper truck		Requires a pick-up of at least 2000 gallons

Source: Malcolm Pirnie Inc. Market Survey.

MATERIALS MARKET SURVEY FOR WOOD

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE($/CY)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
Delisa Pallet Corp. Newark, NJ	Broken pallets, clean wood	variable	Truck	short-term	May provide flatbed trailers and pick-up 150 cy minimum
Dauman Pallet Corp. Linden, NJ	Stumps, yard wood (baled or loose)	(6.00)	Truck	short-term	Approved NJDEP facility Make mulch with chipped wood May provide trailers and dumpsters and pick-up for 30 or 40 yard full containers
Star Recycling Woodside, NY	Clean (loose or packed), no yard waste	variable	N/A	long-term	May provide storage containers and transportation
Hubbard Sand and Gravel Bayshore, NY	No trees	(7.00)	Truck	short-term	Minimum charge of $25.00
BQE Services Brooklyn, NY	Clean, no yard waste	(7.50)	Truck and barge	long-term	May provide storage containers and pick-up

Source: Malcolm Pirnie Inc. Market Survey .

MATERIALS MARKET SURVEY FOR METALS

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE($/TON)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
DIMATTEO SALVAGE CO. WEST BABYLON, NY	ALUMINUM CANS, LOOSE BRASS COPPER OTHER NON-FERROUS METALS	400.00 VARIES VARIES VARIES	TRUCK	LONG-TERM	MAY PROVIDE TRANSPORTATION, EQUIPMENT AND STORAGE CONTAINERS AT A NEGOITABLE PRICE
SCHIOPPO CORP. STATEN ISLAND, NY	ALUMINUM, LOOSE BRASS-CLEAN COPPER-CLEAN MIXED STEEL GALVANIZED(LIGHT IRON)	640.00 900.00-1100.00 1300.00-1500.00 40.00-60.00 0.00	TRUCK	SHORT-TERM	MAY PROVIDE ROLL-OFF CONTAINERS AND PICK-UP FOR A NEGOITABLE PRICE
COLETTA RECYCLING CORP.	STEEL, LOOSE (PICKED-UP) STEEL, #1 PREPARED (PICKED-UP) STEEL, #2 PREPARED (PICKED-UP) CAST IRON (PICKED-UP) ALUMINUM SIDING ALONE ALUMINUM CANS, BALED ALUMINUM CANS, LOOSE BRASS COPPER	VARIES 60.00 80.00 78.00 810.00 760.00 700.00 SPOT MARKET SPOT MARKET	TRUCK	LONG-TERM	MAY PROVIDE TRANSPORTATION, AND STORAGE CONTAINERS AT A NEGOITABLE PRICE
NEW YORK CITY MRF NEW YORK, NY	ALUMINUM FOIL, BALED ALUMINUM CANS, BALED TIN CANS	200.00-400.00 900.00 62.00	N/A	NEGOITABLE	PREFER UNCONTAMINATED, CLEAN CANS MAY PROVIDE TRANSPORTATION AT A NEGOITABLE PRICE
BOULDER RESOURCES NEW YORK, NY	ALUMINUM CANS, LOOSE ALUMINUM CANS, BALED TIN CANS, LOOSE TIN CANS, 5' BALE WHITE GOODS, LOOSE, NO CAPACITORS	600.00-700.00 900.00-1000.00 20.00 62.00 30.00	TRUCK	NEGOITABLE	MAY PROVIDE TRANSPORTATION, EQUIPMENT AND STORAGE AT A NEGOITABLE PRICE

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEY .

Material Market Survey For Textiles

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE ($/Ton)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
Mill Sanitary Wiping Cloth Bronx, NY	Prefer baled; loose bags or bundled	60 - 100	Truck	short-term	Deliveries should be between 5000 and 6000 lbs.; no oil or greased cloth May provide transportation
Scott Cynaman Textiles Inc. Brooklyn, NY	Baled, loose, little contamination	40 - 60	Truck	long-term	10000 lb. minimum May provide containers in exchange for a volume guarantee
Atlantic Wool Waste Co. Brooklyn, NY	All natural fiber cut-offs, no post consumer	800	N/A	long-term	1000 lb. minimum
North Atlantic Int.,Bronx, NY	Baled second hand clothing,no stockings, handbags,shoes,belts,plastic jackets, paired socks	140 - 170	Truck	N/A	
Philadelphia Rag Co. Philadelphia, Pa.	Baled second hand clothing,no stockings, handbags,shoes,belts,plastic jackets, no statues or paintings,paired socks	160	Truck	N/A	

Source: Malcolm Pirnie Inc. Market Survey .

MATERIALS MARKET SURVEY FOR NEWSPAPER

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE($/TON)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
IMATTEO SALVAGE COMPANY,W.BABYLON, NY	BALED OR LOOSE	AS PER FIBRE MARKET NEWS	TRUCK	LONG TERM	MAY PROVIDE EQUIPMENT, TRANSPORT-ATION AND CONTAINERS FOR A COST
IARMON ASSOCIATION CORPORATION VESTBURY, NY	BALED	DEPENDS ON CONAMINANT LEVEL	TRUCK	LONG TERM	MAY PROVIDE EQUIPMENT AND TRANSPORTATION FOR A COST
ILBERTO & SONS INC.,MASPETH,NY	BALED OR LOOSE	WILL COST TO HAVE REMOVED	TRUCK	SHORT TERM	MAY PROVIDE EQUIPMENT, TRANSPORT-ATION AND CONTAINERS FOR A COST
ENEDETTO INC. IEW YORK, NY	BALED, CLEAN, 48000 lb. PER CONTAINER LOOSE, CLEAN	15 - 16 0	TRUCK, MAYBE RAIL	SHORT TERM	FEELS MARKET WILL IMPROVE
IECYCLING INDUSTRIES IAMARONECK, NY	BALED ,EXPORT DENSITY(53,000 lb PER TRAILER),GRADE 7 NEWS	22(PICKED-UP)	TRUCK	LONG TERM/ SPOT MKT.	MAY PROVIDE CONTAINERS
IECYCLING SPECIALISTS ERSEY CITY, NY	PREFERS BALED, MINIMAL CONTAMINATION	15	TRUCK	LONG TERM	MAY PROVIDE TRANSPORTATION,AND CONTAINERS FOR A COST,MAY HELP WITH EDUCATION PROGRAM
/. PONTE & SONS IEW YORK, NY	BALED ,LOW GRADES ARE LESS REVENUE	VARIES	TRUCK, RAIL	LONG TERM	WILL PROVIDE TRANSPORTATION
IET PAPER STOCK CENTRAL ISLIP,NY	LOOSE, CLEAN,GRADE 6 NEWS	5	TRUCK	LONG TERM	MAY PROVIDE TRANSPORTATION,AND CONTAINERS FOR A COST
PF RECYCLING CORP GARDEN CITY PARK,NY	BALED ,LOW GRADE NEWS BALED ,CLEAN NEWS	5 - 10 20	TRUCK	LONG TERM	MAY PROVIDE CONTAINERS

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEY.

MATERIALS MARKET SURVEY FOR PLASTICS

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE ($/TON)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
UNION CARBIDE BOUND BROOK, NJ	CLEAR PET GREEN PET MIXED COLOR PET HDPE (MILK CONTAINERS) MIXED COLOR HDPE PET/HDPE MIXED	120.00-200.00 0.00-140.00 80.00-160.00 160.00-220.00 100.00-160.00 50.00-110.00	TRUCK	LONG OR SHORT-TERM	PRICE DEPENDS UPON CONTRACT, MAY PROVIDE TRANSPORTATION AT NO CHARGE, PREFER BALED
DEBCO PLASTICS FREEPORT, NY	INDUSTRIAL WASTE ONLY NO POST CONSUMER	N/A	N/A	NEGOITABLE	MAY PROVIDE TRANSPORTATION AT ADDITIONAL CHARGE
NEW YORK CITY MRF NEW YORK, NY	PET HDPE	200.00 160.00	TRUCK	NEGOITABLE	PREFER BALED, MAY PROVIDE PICK-UP AT A NEGOITABLE PRICE
AAA POLYMER INC. BROOKLYN,NY	HDPE-SEPARATED LDPE-SEPARATED NO POST CONSUMER	CHANGES DAILY	TRUCK	N/A	MAY PROVIDE TRANSPORTATION AND CONTAINERS AT NO CHARGE
E.G. PLASTIC BROOKLYN,NY	PVC-CLEAN PET-CLEAN	20.00-300.00 20.00-300.00	TRUCK, RAIL	NEGOITABLE	MAY PROVIDE TRANSPORTATION AT AN ADDITIONAL CHARGE
IBERIA PLAST. RECYC. EAST FARMINGDALE, NY	PVC POLY-STYRENE NO POST CONSUMER	40.00-60.00 600.00	TRUCK	NEGOITABLE	MAY PROVIDE GAYLORD BOXES AND PICK-UP

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEY .

MATERIALS MARKET SURVEY FOR PLASTICS

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE ($/TON)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
NICON PLASTICS,INC. LONG ISLAND CITY, NY	POST-CONSUMER SODA BOTTLES, CLEAN AND BALED	160.00	TRUCK	LONG-TERM	MAY PROVIDE EQUIPMENT FOR BALING AND TRANSPORTATION AT A NEGOITABLE PRICE
PET POLYMERS ROOSEVELT, NY	ANY MATERIAL THAT IS CLEAN AND SEPARATED BY RESIN	VARIES	TRUCK	LONG-TERM	WILLING TO OPERATE PROCESSING FACILITY FOR A NEGOITABLE PRICE
R2B2 BRONX, NY	PET-NO CAPS HDPE PVC	100.00-200.00 120.00-200.00 40.00-100.00	TRUCK	N/A	NO SERVICES PROVIDED
PLASTIC RECYCLERS, INC. WYANDANCH, NY	ANY TYPE-SEPARATED AND BALED	VARIES	TRUCK	N/A	CURRENTLY NOT ACCEPTING MATERIALS DUE TO REDUCTION IN PLASTICS LUMBER MARKET
BROWNING-FERRIS WESTBURY, NY	ANY TYPE-BALED	VARIES	N/A	N/A	WORKED FOR NORTH HEMPSTEAD FOR PAST THREE YEARS
BOULDER RESOURCES NEW YORK, NY	HDPE PET LDPE PVC MIXED PLASTIC (for further separation)	0.00-220.00 0.00-220.00 0.00-220.00 0.00-220.00 N/A	TRUCK	NEGOITABLE	MAY PROVIDE EQUIPMENT, TRANSPORTATION AND STORAGE AT A NEGOITABLE PRICE

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEY .

MATERIALS MARKET SURVEY FOR GLASS

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE ($/TON)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
RECYCLING INDUSTRIES MAMARONECK, NY	CLEAR- NO RINGS,CAPS OR CERAMICS COLORED- NO RINGS,CAPS OR CERAMICS	SPOT MARKET	TRUCK	LONG-TERM	MAY PROVIDE TRANSPORTATION AND CONTAINERS AT NO EXTRA CHARGE
OMNI TECH. SERVICES UNIONDALE, NY	MIXED GLASS W/ PLASTICS AND METALS COLOR SEPARATED,MINIMAL PROCESSING, PARTIALLY BROKEN	(26.00) VARIES	TRUCK	LONG-TERM	MAY PROVIDE TRANSPORTATION. CHARGE WILL VARY
EWG GLASS RECYCLING JAMAICA, NY	FLINT AMBER GREEN MIXED	25.00 20.00 10.00 (20.00)	TRUCK	LONG-TERM	MAY PROVIDE TRANSPORTATION AT $5/TON MAY PROVIDE CONTAINERS AT $100/PER MONTH
NEW YORK CITY MRF NEW YORK, NY	AMBER, PROCESSED TO FURNACE READY CULLET GREEN, PROCESSED TO FURNACE READY CULLET FLINT, PROCESSED TO FURNACE READY CULLET	20.00-40.00 20.00-40.00 55.00	TRUCK	LONG OR SHORT-TERM	MAY PROVIDE PICK-UP AT A NEGOITABLE PRICE
BOULDER RESOURCES NEW YORK, NY	MIXED GLASS GREEN BROWN CLEAR	VARIES 10.00 20.00 30.00	TRUCK	NEGOITABLE	MAY PROVIDE EQUIPMENT, TRANSPORTATION, AND STORAGE AT A NEGOITABLE PRICE

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEY .

MATERIALS MARKET SURVEY FOR VARIOUS PAPER GRADES

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE($/TON)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
FILBERTO & SONS, INC., MASPETH, NY	BALED OR LOOSE VARIOUS GRADES	1 - 60	TRUCK	SHORT TERM	MAY PROVIDE EQUIPMENT, TRANSPORTATION AND CONTAINERS FOR A COST
RAPID RECYCLING PAPER CORP., BROOKLYN, NY	BOX BOARD, HAMPERS, CARTS OFFICE WASTE	(50) VARIES	TRUCK	LONG TERM	
BENEDETTO INC. NEW YORK, NY	BALED, MIXED OFFICE PAPER LOOSE, CLEAN	15 - 20 20	TRUCK, MAYBE RAIL	SHORT TERM	FEELS MARKET WILL IMPROVE
RECYCLING INDUSTRIES MAMARONECK, NY	OFFICE PAPER, LOOSE, VARIOUS GRADES	10 - 30(PICKED-UP)	TRUCK	LONG TERM/ SPOT MRKT.	
RECYCLING SPECIALISTS JERSEY CITY, NY	OFFICE PAPER, BALED, MINIMAL CONTAMINATION, VARIOUS GRADES	20 - 30	TRUCK	LONG TERM	MAY PROVIDE TRANSPORTATION, AND CONTAINERS FOR A COST, MAY HELP WITH AN EDUCATION PROGRAM
ATLAS PAPER NEW YORK, NY	OFFICE PAPER, VARIOUS HIGH QUALITY GRADES	95 - 230	TRUCK	LONG TERM	MAY PROVIDE EQUIPMENT AND TRANSPORTATION FOR A COST
V. PONTE & SONS NEW YORK, NY	BALED, LOW QUALITY IS LESS REVENUE	VARIES	TRUCK, RAIL	LONG TERM	MAY PROVIDE TRANSPORTATION
APEX WASTE PAPER NEW YORK, NY	OFFICE PAPER, VARIOUS GRADES, BALED OR LOOSE COMPUTER PAPER	70 - 120 100(APPROX.)	TRUCK	ANY TYPE	MAY PROVIDE BINS AND STORAGE CONTAINERS FREE IF MORE THAN ONE TON/WEEK

MATERIALS MARKET SURVEY FOR VARIOUS PAPER GRADES

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE($/TON)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
GAGLIANO RECYCLING CO. NEW YORK , NY	OFFICE PAPER, VARIOUS GRADES, BALED OR LOOSE	10 - 30	TRUCK	SPOT MRKT.	
PETROCO INC. NEW YORK , NY	BALED, WHITE PAPER ONLY	200(PICKED-UP)	TRUCK	ANY TYPE	MAY PROVIDE 40 ft. STORAGE CONTAINERS,MIN. OF 20 TONS
SECURITY PAPER RECYCLING JAMAICA , NY	MIXED OFFICE PAPER, LOOSE OR BALED	30 - 35	TRUCK	LONG TERM	MAY PROVIDE TRANSPORTATION AND CONTAINERS
BROOKHAVEN RECYCLING & WASTE INC. PATCHOGUE , NY	OFFICE PAPER, VARIOUS GRADES, BALED OR BUNDLED	10 - 30	TRUCK	LONG TERM	
WESTBURY PAPER CO. WESTBURY, NY	HIGH GRADES OFFICE PAPER, LOOSE OR BALED	VARIES	TRUCK	N/A	REPORTS THAT SEVERAL MIXED PAPER MILLS ARE BEING PLANNED. SUGGESTS NOT RECYCLING MIXED PAPER AT THIS TIME.
	MIXED POST-CONSUMER PAPER, LOOSE	(50)			
	CHIP BOARD ONLY(PAPER BOARD),LOOS	(40)			

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEY .

MATERIALS MARKET SURVEY FOR BATTERIES

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE($)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
MERCURY REFINING ALBANY, NY	MIXED HOUSEHOLD BATTERIES	VARIABLE	TRUCK	SHORT-TERM	REVENUE DEPENDS ON PERCENT OF MIX THAT IS RECOVERABLE
R.B. SCRAP IRON	AUTO BATTERIES ONLY ON A SKID, 3 HIGH WITH CARDBOARD IN BETWEEN EACH BATTERY. BOUND.	.04-.05/LB	TRUCK	NEGOITABLE	MAY PROVIDE CONTAINERS AND TRANSPORTATION
RSR CORPORATION DALLAS, TX	AUTO BATTERIES ONLY, LOOSE OR ON A SKID, 3 HIGH W/CARDBOARD IN BETWEEN EACH BATTERY. BOUND.	.08-.085/LB (FULL TRAILER)	TRUCK	NEGOITABLE	MAY PROVIDE TRANSPORTATION
BROOKFIELD METAL CO.	AUTO BATTERIES ONLY, LOOSE OR ON PALLETS	1.25-1.50 (PER BATTERY)	TRUCK	NEGOITABLE	MAY PROVIDE TRANSPORTATION
PASCAP CO.	AUTO BATTERIES ONLY ON A SKID, 3 HIGH WITH CARDBOARD IN BETWEEN EACH BATTERY. BOUND. AUTO BATTERIES ONLY, LOOSE	.08/LB (FULL TRAILER) .06/LB (FULL TRAILER)	TRUCK	NEGOITABLE	MAY PROVIDE TRANSPORTATION
A. SCRAP DEALERS INC.	AUTO BATTERIES ONLY ON A SKID, 3 HIGH WITH CARDBOARD IN BETWEEN EACH BATTERY. BOUND. AUTO BATTERIES ONLY, LOOSE	2.50 (PER BATTERY) OR .07/LB 2.00 (PER BATTERY)	TRUCK	NEGOITABLE	MAY PROVIDE TRANSPORTATION
SCHIOPPO CORP. STATEN ISLAND, NY	AUTO BATTERIES ONLY ON A SKID, 3 HIGH WITH CARDBOARD IN BETWEEN EACH BATTERY. BOUND.	1.15 EACH OR 3.25/LB (FULL TRAILER)	TRUCK	SHORT-TERM	MAY PROVIDE TRANSPORTATION AND ROLL-OFF CONTAINERS

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEY .

MATERIALS MARKET SURVEY FOR C & D DEBRIS
AND BULKY ITEMS

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE ($)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
VIGLIOTTI RECYCLING	MIXED C&D WASTE	-30 / TON	TRUCK	N/A	INTERESTED IN SERVING TOWN
STAR RECYCLING	MIXED C&D WASTE	-15 TO -30 PER CY	TRUCK	MAYBE	MAY PROVIDE CONTAINERS AND TRANSPORTATION
COUSINS METAL INDUSTRY	MIXED C&D WASTE (NO RUBBLE)	VARIABLE	TRUCK	N/A	
	WHITE GOODS	N/A			
	FURNITURE, RUGS ETC.	N/A			

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEY .

MATERIALS MARKET SURVEY FOR OCC

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE($/TON)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
DIMATTEO SALVAGE COMPANY, W.BABYLON,NY	BALED OR LOOSE	AS PER FIBRE MARKET NEWS	TRUCK	LONG TERM	MAY PROVIDE EQUIPMENT, TRANSPORT-ATION AND CONTAINERS FOR A COST
HARMON ASSOCIATION CORPORATION WESTBURY , NY	BALED	DEPENDS ON CONAMINANT LEVEL	TRUCK	LONG TERM	MAY PROVIDE EQUIPMENT AND TRANSPORTATION FOR A COST
R.B. FIBERS INC.	BALED, NO WAX PAPER OR GARBAGE	35(PICKED-UP)	TRUCK	LONG/SHORT TERM	MAY PROVIDE EQUIPMENT, AND CON--TAINERS FOR A COST
FILBERTO & SONS INC.,MASPETH, NY	BALED OR LOOSE	N/A	TRUCK	SHORT TERM	MAY PROVIDE EQUIPMENT, TRANSPORT-ATION AND CONTAINERS FOR A COST
BENEDETTO INC. NEW YORK , NY	BALED, CLEAN, 48000 lb. PER CONTAINER LOOSE, CLEAN	40 20	TRUCK, MAYBE RAIL	SHORT TERM	FEELS MARKET WILL IMPROVE
RECYCLING INDUSTRIES MAMARONECK , NY	BALED ,EXPORT DENSITY(53,000 lb - PER TRAILER),GRADE 7 NEWS	38(PICKED-UP)	TRUCK	LONG TERM/ SPOT MKT.	
RECYCLING SPECIALISTS JERSEY CITY , NY	PREFERS BALED, MINIMAL CONTAMINATION	0	TRUCK	LONG TERM	MAY PROVIDE TRANSPORTATION,AND CONTAINERS FOR A COST,MAY HELP WITH AN EDUCATION PROGRAM
ATLAS PAPER NEW YORK , NY	N/A	N/A	TRUCK	LONG TERM	MAY PROVIDE EQUIPMENT AND TRANSPORTATION FOR A COST
V. PONTE & SONS NEW YORK , NY	BALED ,LOW QUALITY IS LESS REVENUE	VARIES	TRUCK, RAIL	LONG TERM	MAY PROVIDE TRANSPORTATION
JET PAPER STOCK CENTRAL ISLIP, NY	LOOSE, CLEAN	10	TRUCK	LONG TERM	MAY PROVIDE TRANSPORTATION,AND CONTAINERS FOR A COST,WILL TAKE BALED OCC ALSO
IPF RECYCLING CORP GARDEN CITY PARK, NY	LOOSE	20	TRUCK	LONG TERM	MAY PROVIDE CONTAINERS, WILL TAKE BALED OCC ALSO

SOURCE : MALCOLM PIRNIE INC. MARKET SURVEYS .

MATERIAL MARKET SURVEY FOR TIRES

NAME	MATERIAL QUALITY REQUIREMENTS	PRICE ($)	TRANSPORTATION	CONTRACT PREFERENCE	OTHER
The Tire Pond North Haven, CT	Whole tires (w/rims),tubes, truck tire flaps, other rubber tires	17.50 per cy 80.00 per ton	truck	short-term	Adding shredding system to produce granulated rubber; Provide containers at no charge
Pol-X Inc. Hopelawn, NJ	Passenger tires only, good inner casings, no punctures, rejects up to 90 % of tires	varies	truck	N/A	Grind off old rubber to remold new tires Very high standards
Metropilitan Rubber Products New York, NY	Passenger tires (w\ or w\out rim), truck tires (w\out rims)	1.10 per tire	truck	short-term	Reprocessed into rubber products; Grind rubber into half-inch product; Provide containers at a nominal cost
New York Tire Recycling Kings Park, NY	Passenger tires (w\ or w\out rim), inner tubes, truck tires	10.00 per cy 95.00 per ton	truck or rail	short-term	Chip material to a one-inch product
Coletta Recycling Corp. Far Rockaway, NY	Passenger tires only (no rims)	76.00 per ton	truck	long-term	Tires are processed upon delivery; Reports that facility is exempt from DEC permit Can provide containers if needed Less than 500 tires at one time and only by appointment

Source: Malcolm Pirnie Inc. Market Survey .

OIL REREFINERS/REPROCESSORS

Oil--NYC/LI
Akba Waste Oil
3836 Hahn Ave.
Bethpage, NY 11714
(516)731-3924
Contact: Lucy Duffy
Accept 55 gal drums for charge.

JK Waste Oil Service
280 Grand Blvd.
Deer Park, NY 11729
(516)666-7615

Chemical Mgmt Inc.
340 Eastern Pkwy
Farmingdale, NY 11735
(516)454-7677
Contact: George Keil
Handles small amounts and recommends you use General Waste.

General Waste Oil
9 Garrison Ave
Wyandanch, NY 11798
(516)491-1444
Contact: Glen Bonelli
Accepts for processing.

A B Oil Service
29 Florence Ave.
Smithtown, NY 11787
(516)361-9757
Contact: Catherine

Certified Waste Oil
171 Brompton Rd
Garden City, NY 11530
(516)481-1354
Contact: Jim
Pick up from stations only, not a processor.

Manhattan Oil Service
21-11-A 46th
LI City, NY 11105
(718)728-7119

Aquanetics Inc
111 Milbar Blvd
Farmingdale, NY 11735
(516)454-7600
Contact: Haig Hachadoorina
Manufactures oil processing equipment only. For, recycling info., contact them to find out who their clients are.

Breslube, USA Inc. (a division of Safety-Kleen)
PO Box 637
Floral Park, NY 11002
(516)775-2867
Contact: Mike Sommer

Sid Waste Oil
91 South Liberty
Jamaica, NY 11417
(718)738-2744
Contact: Frank LaRusso
Accepts oil and will pick up from service stations.

J B Waste Oil
18-18 41st
LI City, NY 11105
(718)726-0135 or
(718)-626-4161
Contact: Don
Processor.

Joseph Fontana
Dunrite Oil Service
10 Dare Rd.
Seldon, NY 11784

Buckner Waste Oil Service
PO Box 4053
New Windsor, NY 12553
(914)534-4259
Contact: Ronald Buckner
Rerefiner. Handles all kinds of waste oil. Will contract and pick up at least a truckload of drums or storage tanks.

Environmental Recycling Assoc.
16 Wilson Rd.
Monroe, NY 10965
(800)526-5335
Contact: Sal (dispatcher) or Frank Capano (driver).

Liberty Ash, Inc.
112 Phylis Ct.
Elmont, NY 11003
(718)526-1465
Contact: Michael Bellino
Will contract. Will pick up non-hazardous materials. Reused as boiler fuel, for rubber and wood.

MRF-Town of Brookhaven, NY
3233 Route 112
Medford, NY 11763
(516)451-6211
Contact: Elaine McKibbon
Collector. Will contract with municipalities and pick up.

NJ:
Loeffels Waste Oil Service
2 Camden Pl.
West Milford, NJ 07480
(201)728-3441
Contact: Richard Loeffel
Will pick up and contract with communities in the NE for used oil without water, no PCBs or hazardous contaminants. Must be in drums.

MA:
Clean Harbor Inc.
325 Wood Rd.
Braintree, MA
617-849-1800
1-800-422-8998
Contact: Customer Service: John Sullivan or Marty Kokler
(617)849-1800 ext. 4414; or
Contact: Mark Brennan, Director of Oil Recycling

COMMERCIAL COMPOSTING OPERATIONS

Compost--NYS
OMNI Technical Services, Inc.
50 Charles Lindbergh Boulevard
Uniondale, NY 11553
(516)222-0708
Contact: John D. Cameron, Jr., PE, President

Gerster Farms
PO Box 109
White Plains, NY 10603
(914)948-2330
Contact: Fred Feit
Processor/Manufacturer. Accepts small wood pieces, paper, food waste and other biodegradables for a compost operation. The farm's in Delaware Co.

Productive Recycling
1870 Pond Road
Ronkonkoma, NY 11779
(516)467-2229
Contact: Ronald Edgar

Compost--Other States
International Process Systems, Inc.
Salmon Brook Corporate Park
655 Winding Brook Dr.
Glastonbury, CT 06033
(203)657-3447
Contact: Geoffrey A. Kuter, Ph.D., Senior VP

ALLGRO INC.
655 Winding Brook Dr.
Glastonbury, CT 06033
(203)657-3447
Contact: Peter Mezitt

Earth Gro
Box 143
Lebanon, CT 06249
(203)642-7591
Contact: Chris Field

Bedminster Bioconversion Corp.
52 Haddonfield-Berlin Rd. Suite 400
Cherry Hill, NJ 08034
(609)795-5767
Contact: Paul T. Hoyle, VP for Marketing & Sales

American Soil Inc.
3141 Brodentown Ave.
Parlin, NJ 08859
(201)525-1103

COMPOSTS

As of 10/90, there were 42 composting facilities operating in NYS: 28 yard waste composting sites, three composted animal manure, nine sludge composting facilities, one pharmaceutical waste composting plant and one for composting brewery wastes.

Local Information:

For municipal governments that compost, the money saved from not having to purchase compost/fill for projects and the avoided costs of landfilling are compelling incentives. Therefore, local Depts. of Public Works, Transportation, and Parks and Recreation may be able to use compost locally-generated composts. However, it is unlikely that they will pay for it.

You can also speak with Joseph Stockbridge, Town of Colonie. The Town's compost project has been successful and the material is made available to area residents who want it. Apparently, there are lots of takers. His most recent accomplishment has been to attract many of the local, large supermarkets to deliver their food wastes. Stockbridge can be reached at (518)783-2827.

You should also check with local nurseries, particularly if you have wood chips, to see if they are interested in the material you generate. The executive director of the NYS Nursery and Landscape Association is Dan Barnhart. He may be reached at PO Box 115, Saratoga Springs, NY 12866 (518)583-3827. Also, the NYS Turfgrass Association is at PO Box 612, Latham, NY 12210 (518)783-1229 Contact: Elizabeth Seme.

State Level Information:

To talk to representatives at the State level, contact Charlie Nagel, landscape architect at the NYS Dept. of Transportation, (518)457-4460, or Tom Lyons, director of Environmental Management for Office of Parks, Recreation and Historic Preservation at (518)474-0409.

On 11/15/91, NYS DOT issued Engineering Instruction (#91-27) for revised topsoil specifications with information and guidance on recycled and/or composted organic materials. DOT is also revising sections on wood chips, humus/peat, rotten manure and peat moss to accomodate recycled and/or composted materials. Contact Mark Woods, Landscape Architect, at (518)457-4460.

The Landscape Specialist for the NYS Thruway Authority is Bernie Williams. He can be reached at (518)436-2946.

Judy Jarnefeld of the New York State Energy Research and Development Authority (NYSERDA) has been overseeing several projects concerning composting, mulching and soil amendments:

* Two studies related to the use of septage, in composing in the Town of Thompson and in the Town of Lloyd.

* The City of Plattsburgh looked at the use of alternative bulking agents for composting.

* Tompkins County is co-composting with yard waste and using the resultant material to produce sod.

* SUNY College of Environmental Science and Forestry, Syracuse, NY is experimenting with verma composting and conversion of sludge.

The City of Potsdam looked at the implications of composting used animal bedding made from old newsprint as part of a NYSERDA project supervised by Tom Feisinger. Feisinger also analyzed, with Barry Commoner of Queens College, the compostable portion of waste from a 100-household recycling study in East Hampton, LI.

Early in 1992, Protor & Gamble announced with National Audubon that they would work together on a study of the amount of compostable materials generated in the average CT home. Call Christine Indoe at National Audubon, (212)546-9200 or Kelly Lewis from P&G, (513)983-1118, for more information.

Feel free to contact ORMD with questions about composting operations and technologies in the Northeast. For NYC/LI, call (516)349-1266.

Publications:

* Guide to Recycling and Composting Projects in New York State, by the NYS Conference of Mayors and Other Municipal Officials, 119 Washington Ave., Albany, NY 12210 (518)463-1185. This publication describes composting operations in Ithaca, Scarsdale, Oneida, Hamburg, Potsdam, and Mineola. You may wish to speak with representatives of these municipalities to find out what they do with the product.

* The well-known journal, Biocycle, publishes The Biocycle Guide to Composting Municipal Wastes. Biocycle is published by JG Press, Inc., Box 351, Emmaus, PA. (215) 967-4135.

* Composting News is published monthly by Ken McEntee at 13727 Holland Road, Cleveland, OH 44142 (216)362-7979.

* Yard Waste Management: A Planning Guide for NYS became available in June 1990, by Richard L. Thomas of the Dept. of Agricultural and Biological Engineering at Cornell University; Nancy M. Dickson of Tellus Institute, Boston, MA; and Sally J. Rowland, PE of the Division of Solid Waste at the NYS Department of Environmental Conservation. It is a key planning guide for local officials and planners and has a terrific biography of other references on yard waste and composting. Contact Peter O'Toole at NYS DEC, 50 Wolf Rd., Albany, NY 12233-4013 with questions about or comments.

Research:

Research regarding composting is also available from the following sources:

Woods End Research Laboratory, Inc.
Old Rome Road Route 2, Box 1850
Mt. Vernon, ME 04352
(207) 293-2457
William Brinton, President

Cornell Cooperative Extension
Agriculture and Engineering
207 Rile Robb
Cornell University
Ithaca, NY 14853
(607) 255-2488
Thomas L. Richard, Ph.D.

NYS Energy Research & Development Authority
Two Rockefeller Plaza
Albany, NY 12223
(518) 465-6251, (X 293)
Judy Jarnefeld

Illinois Department of Energy and Natural Resources
325 W. Adams, Room 300
Springfield, IL 62704-9950
Contact: Terry Miller for compost project information
(217) 524-5454 (IL State University) Dept. of Agriculture

WOOD

Wood--LI/NYC
BQE Services, Inc.
75 Thomas St.
Brooklyn, NY 11222
(718)387-2794; (914)963-4445
Processor. Accepts all wood. BQE has a steady market, but primarily for rdf. Wood chips go to a RDF facility in Scranton, PA. (Joe Ciuello deals solely with chips, (717)925-2101).

Hubbard Sand and Gravel
1612 5th Avenue
Bayshore, NY 11706
(516)665-1005
Contact: Mark Kennedy
Processor. Clean wood only.

Star Recycling Inc.
50-19 69 Place
Woodside, NY 11377
(718)779-4650
Contact: Charles Gusmano
Processor. Contracts for and pick up clean wood in NE: No dirt, paint, or hazardous materials. It can be loose or packed.

Environmental Services Group, Inc.
310 East 46th Street
New York, NY 10017
(212)286-1722
Contact: Donna Murray or Peter Bronner
Processor. Accepts up to 15,000 telephone poles/mo. Also takes 150,000 railroad ties/mo. Will pick up, or will spot a 40', open top container.

Bronx 2000
Bronx, NY
(212)731-3931
Contact: David Muchnick
Recycler/Manufacturer. Uses wooden pallets to make "Environmental Classics," a line of furniture that includes folding charis, slat-back chairs and clocks for under $100.

Recycling Industries Corp.
524 Waverly Ave.
Mamaroneck, NY 10543
(914)698-0404
Contact: Carl Lacavalla
Processor. Will contract for and pick up, wood waste.

Gerster Farms
PO Box 109
White Plains, NY 10603
(914)948-2330
Contact: Fred Feit

Processor/Manufacturer. Accepts small wood pieces, paper, food waste and other biodegradables for a compost operation. The farm's in Delaware Co.

Industrial Recycling Systems
PO Box K
Croton-on-Hudson, NY 10520
(914)271-2175
Contact: Robert Liguori
Processor. Will contract for and pick up whole wood pallet crates from within a 75 mile radius.

NJ:
Rosetto Recycling, Inc.
1301 Route 37 West
Toms River, NJ 08755
(201)341-3333
Contact: Robert Dixon
Processor. Will contract for and transport all wood waste.

Dauman Pallet Corp
PO Box 385
Linden, NJ 07036
(201)862-3232
Contact: E. Lionel Ludmer
Processor/Manufacturer. Contracts for and picks up truck loads of wood for making chips, mulch and energy from up to 50 miles from NYC.

D & L Wood Products Inc.
US HWY 322
Swedesboro, NJ 08085
(609)467-5222
Contact: David Lepuerton
Processor. Will pick up wooden pallets for reuse.

Recycling Specialists
375 Routes 1 & 9
Jersey City, NJ 07306
(201)547-4100
Contact: John Chialia
Recycler/Broker. Contracts for and picks up in the NE all wood waste. Can have nails, but no lead paint, creosote, or other haz materials. Accepts it loose, in containers, or by truck load.

Delisa Pallet Corp.
91 Blanchard St.
Newark, NJ 07105
(201)344-8600
Contact: John Delisa
Processor. Will contract for and pick up wood waste in the NE which they make into chips/pallets. Can include nails. No hazardous contaminants/chemicals.

Appendix L

New York State Department of Economic Development

Office of Recycling Market Development

One Commerce Plaza
Albany, New York 12245 518 486-6291
FAX: 518 474-1512

Notice to All Readers:

The following are lists of recycling markets for the materials that you specified. "Markets" include materials brokers, intermediate processors/recyclers and end-users, who are usually manufacturers.

The following lists are not intended to be all-inclusive and other companies may exist which we are not aware of.

Please note that the enclosed lists do not constitute a New York State Department of Economic Development or Office of Recycling Market Development endorsement of any firm or its particular business activities. These lists are provided for information purposes only.

Furthermore, the firms listed may be required to obtain permits from the NYS Department of Environmental Conservation (DEC). For permit status or other regulatory information, contact the appropriate regional DEC office.

Neither the State of New York, nor the Department of Economic Development shall be liable, financially or otherwise, to persons or firms for any losses, including loss of profit, indirect, special or consequential damages, or costs or expenses incurred in connection with the use of, or reliance upon, any information contained in, or derived from, this list of recycling markets.

The information in this market listing is neither an offer to sell, nor a solicitation of an offer to buy, recyclable materials. The Department of Economic Development makes no guarantee that the information is correct, nor can it be held liable for any incorrect information presented.

Inquiries and changes may be directed to the attention of Brenda Oettinger, Market Information Specialist, Office of Recycling Market Development, NYS DED, One Commerce Plaza, Room 950, Albany, NY 12245 (518)486-6291.

If you have any comments on the information and services you have received through our office, we'd like to hear from you. Please write to us at the above address to the attention of William Ferretti, Director.

Recycled Paper

PAPER

"Markets" include materials brokers, processors and end-users, who are often manfacturers of recycled products. For your information, **ONP** is old newspapers, **OCC** is old corrugated cardboard, **OMG** is old magazines, and **CPO** is computer print-out paper. Kraft paper and bags, ONP, OCC, OMG and mixed papers, are "low grades" of paper. "High grades" include all office papers, like ledger papers, CPO, and xerographic.

Projects:

To discuss these and other potential outlets, contact Outreach Specialists Ed Campbell or Robin Fitzpatrick at (516)349-1266.

* Kruger Recycling Inc., Albany, was built to process paper for Kruger's parent mills in Canada. The processing facility is sourcing ONP, OCC, office waste paper and OMG for de-inking.

* A joint venture for Waste Management Inc. and Stone Container Co. called Paper Recycling International will take all grades of waste paper from any municipal and commercial customer to sell to mills in the US and throughout the world. Call William Moore at (404)621-6759 or Dick Gordon at (716)891-6300.

* Southern Container Corp., the nation's largest independent corrugated converter, will build a greenfield mill in Camillus, NY, to produce 100,000 tpy of recycled linerboard, corrugating medium and recycled bag stock from 100% OCC.

* Westfield Containerboard is moving ahead on its plans top build a 250,000 - 300,000 ton per year recycled linerboard mill in Westfield, NY (Chatauqua Co.)

* Ponderosa Fibres of America, Inc. is moving ahead with plans to locate a mini-newsprint de-inking mill in the Harlem River Yard Section of the Bronx. For further info about the project, contact Charlie Donnelly of Castagne Communications, (212)730-1266, the company's PR firm; or Robin Fitzpatrick, ORMD Outreach Specialist, at (516)349-1266.

Publications/Reference:

* American Recycling Market Directory/Reference Manual provides market lists. It is available for a fee from Recoup Publishing Ltd, PO Box 577, Ogdensburg, NY 13669 (800) 267-0707.
* Lockwood-Post's Directory of the Pulp, Paper and Allied Trades is a good resource on wastepaper dealers and papermills using wastepaper and is available in many public libraries.

Trade Associations:

* Institute of Scrap Recycling Industries, Inc. (ISRI), 1325 G St., NW, Washington, DC 20005 (202)466-4050.
* American Paper Institute (API), 260 Madison Ave., New York, NY 10016 (212)340-0600. Contact Peter Bunten.
* Magazine Publishers of America (212)752-0050. Contact Judy Jorgnsen.

PAPER

Paper--NYC/LI
Perry H. Koplik and Sons
505 Park Ave.
New York, NY
(212)752-2288
Contact: Bernie Cornick
Broker. Paperstock and OCC. Call for specifics.

Apex Waste Paper Recycling
218 E. Third St.
New York, NY 10009
(212)966-0955
Contact: Joseph Verzi

Atlas Paper Co.
589 Washington
New York, NY 10014
(212)925-3280
Contact: John Ormasa
Processor. Takes OCC and other paper grades. Prefers materials baled or at least bundled. Will arrange for transport.

Benedetto Inc.
420 Lexington Ave.
New York, NY 10017
(212)867-8484; (212)370-0878
Contact: Peter Benedetto or Charles Rotanta
Broker/Packer/Dealer. All grades of paper, including OCC. Will arrange to pick up. No minimum, however, whether or not you are paid depends on the grade of material and the amount you supply.

F & N Wastepaper Inc.
304 W. 39th Street
New York, NY 10018
(212)947-4810
Contact: Nick Mormando
Broker/Packer/Dealer. Take OCC and other paper. Will pick up, no minimum needed, but will charge for service. Call for details.

R2B2
1809 Carter Ave.
Bronx, NY 10457
(212)731-3921
Contact: Mike Schedler
Processor. Takes all grades from anyone, delivered.

V. Ponte & Sons
511 Canal St.
New York, NY 10013
(212)966-5420
Contact: Jose Vegerano, Purchasing Manager or, Anthony Ponte
Processor/Broker. Will pick up and contract for high grades,

book stock, ONP, and baled OCC. Minimum 1/2 ton. Will take all grades of source separated paper. Will take mixed high grades. They prepare the paper for use at their chipboard mill in Clifton, NJ.

Gagliano Recycling Co.
357 West 16th Street
New York, NY 10011
(212)242-2013
Contact: Ralph Gagliano or Jo DeLuca
Processor. Will take all high grade paper and OCC. It should have no contaminants. They will contract, but they will not pickup. All paper must be delivered, and somehow bundled.

V. Monteleone & Co.
770 Barry Street
Bronx, NY 10474
(212)589-3880
Broker/Dealer/Packer of all grades. Specialize in CPO.

Petroco Inc.
One Penn Plaza, Suite 3424
New York, NY 11019
(212)629-4500
Contact: Jeff Davis
Broker/Exporter. Will contract and pick up a minimum of 100 tons/wk of CPO (per PS-86) within 500 miles of east or west coasts. Takes baled low grade paper, ie OMG, but must meet spec from PS-86.

A and R Lobosco Inc.
31-33 Farrington Street
Flushing, NY 11354
(718)358-2098
Contact: Michael
Processor/Broker/Packer. Only baled OCC. Will contact.

All County Recycling Corp.
438 Livingston Ave.
Babylon, NY
(516)321-1496
Contact: Richie Velocci
Processor. Only OCC. Must deliver it loose, bundled or baled.

Brookhaven Recycling & Waste, Inc.
36 Potter Ave.
Patchogue, NY 11772
(516)475-4788
Contact: Mario Savino
Processor/broker/packer. Accepts all grades of paper, loose, baled or bundled. Will contract, will transport. Is flexible, however prefers to pickup at least a trailer load from the LI/NYC region. Will provide containers. Leases/sells processing equipment and will provide free recycling service to equipment customers. No carbon paper, garbage or plastics mixed in. (It is also called Olympic Fibers, (516)736-5600)

Canterbury Industries of America
40 Glen Street
Glen Cove, NY 11542
(516)671-7100
Contact: Spencer Sharwell, Owner
Processor. Handles high grades and OCC.

DeMatteo Salvage Co., Inc.
90 Gleam Street
West Babylon, NY 11704
(516)643-7940
Contact: Domenick DeMatteo
Recycler/Exporter. Will contract for and pick up all grades.

East End Recycling Assoc.
116b Hampton Rd.
South Hampton, NY 11968
(516)283-6000 Ext. 293
Processor/MRF. Contract for paper and OCC. Will not pick up.

Harmon Associates Corp.
86 Garden Street
Westbury, NY 11590
(516)997-3400
Contact: Bill Eisenreich
Processor. High grades and OCC.

IPF Recycling Corp.
151 Fulton Ave.
Garden City Park, NY 11040
(516)746-7575
Contact: Purchase Mgr.
Processor. Will contract for and pick up at least 2 tons/wk of baled boxboard, linerboard, and OCC that is sold to paper mills.

Star Recycling
50-19 69 Place
Woodside, NY 11377
(718)779-4650
Contact: Charles Gusmano
Processor. They will contract for and pick up a minimum of a truckload of OCC, loose or baled.

Jet Paper Stock
228 Blydenburg Road
Central Islip, NY 11722
(516)234-7100
Contact: Fred
Processor. Contract for and pick up in Suffolk Co. all high grades, no coated stock or directories. Will take OCC and ONP. OCC must be baled, no wax. All paper must be separated by grade. It can be loose, bundled or baled. Hampers/bins are provided. Prefer at least 2 containers/week. (Jet Paper Stock and Westbury Paper Stock are the same. Westbury covers Nassau, Brooklyn and Queens.)

Liberty Ash
112 Phylis Ct.
Elmont, NY 11003
(718)526-1465
Contact: Michael Bellino
Processor. Contract for and pick up OCC. Also take whole directories for use as boiler fuel or for sale to manufacturers.

All State Paper Recycling Inc.
137 Rockville Ave.
Staten Island, NY 10314
(718)720-8484
Contact: Frank Giasi
Processor. Contract for truck loads; loose or baled and delivered. They take all grades of paper and OCC, except for ONP.

Omni Recycling
50 Charles Lindberg Blvd.
Uniondale, NY 11553
(516)222-0709; (516)333-5741 (plant)

Security Paper Recycling Co.
17307 Liberty Avenue
Jamaica, NY 11433
(516)352-6361 or (718)739-6893
Contact: Ed or John or Tommy
Processor. Will pick up on LI, in Queens and Brooklyn, and contract for high grade office paper, CPO, tab cards and baled OCC. For pickup, they require at least 1 ton. They provide containers.

USA Recycling
PO Box 348 Lawrence Ave.
Kings Park, NY 11754
(516)368-5533
Contact: Dan McDonald
Processor.

S. Durante & Son
260 42nd Street
Brooklyn, NY 11232
(718)768-1155
Processor. Paper stock dealer.

Apple Fibers Inc.
444 Greenwich St.
New York, NY 10013
(212)226-7150
Contact: Anthony Vitale Jr.
Processor. Will contract for and pick up a minimum of 5 tons of clean, baled: ONP #6, OCC, white and colored ledger and CPO.

Rutigliano Paper Stock, Inc.
854 Shepherd Ave.
Brooklyn, NY 11208

(718)257-0244

Bollag & Co. Inc.
212-75 Whitehall Terrace, PO Box 28123
Queens Village, NY 11427
(718)523-7900
Processor. Paper stock dealer.

Giove Co. Inc.
108-20 180th Street
Jamaica, NY 11433
(718)657-5200
Processor. Paper stock, packaging--all grades.

Jamaica Paper Stock Corp.
172-33 Douglas Ave.
Jamaica, NY 11433
(718)526-4648

SISCO Traders Inc.
150 Nassau Street
New York, NY 10038
(212)732-3585
Brokers. All grades paper, CPO & telephone books.

R.B. Fibers, Inc.
401 Woodmere Ave.
Woodmere, NY 11598
(718)849-7500
Processor. Paper mill suppliers.

Paper--Hudson Valley
American Independent Paper Mills Supply Co.
155 South Depot Plaza
Tarrytown, NY 10591
(914)631-8285
Contact: Louis Quintano, VP or Paul Baselica, VP
Processor. ONP, OCC, and high grades.

Recycle Material Co.
70 Don Bosco Pl., PO Box 1588
Port Chester, NY 10573
(914)939-3813
Contact: Michael Martinelli.

NJ:
Garden State Paper Mill
River Drive Center 2,
Elmwood Park, NJ 07407
(201)796-0060
Contact: C.C. Millett
Manufacturer. The mill is always looking for sources of clean, No. 6 ONP in the NE. It is prefered loose, but will discuss baling.

Bruno & D'Elia, Inc.
Paper Recycling Centers (supply GSP):
109 McKinley St., Hackensack, NJ 07601 (201)487-0050
209 Division St., Hackensack, NJ 07601 (201)487-0050
355 Meadow Rd, Edison, NJ 08817 (201)985-7432
246 Ridgedale Ave., Cedar Knolls, NJ 07927 (201)540-8886
845 Towbin Ave., Lakewood, NJ 08701 (201)364-5055
244 E. Union Tpke., Wharton, NJ 07885 (201)328-7080
Iron Mtn. Rd., Mine Hill, NJ 07801 (201)366-0340
1000 Port Carteret Dr., Carteret, NJ 07008 (201)541-4456

Marcal Paper Mills, Inc.
Market Street
Elmwood Park, NJ 07470
(201)796-4000
Contact: Nadine Mariconda
Manufacturer. Will contract for and pick up OMG and mixed paper. Will spot a trailer at locations with large volumes.

VIC-BARRICK Paper
140 Logan Ave.
Jersey City, NJ 07306
(201)434-3340
Broker/Processor. Will contract for and and pick up OMG on the east coast. Can be bundled, loose or baled.

Caraustar Industries, Inc.
267 Jefferson Ave.
Camden, NJ 08104
Manufacturer. Takes mixed paper, ONP, and OCC.

US Gypsum Co.
1255 Raritan Rd.
Clark, NJ 07066
Manufacturer. Mixed paper, ONP, OCC and pulp substitutes.

Mafcote Industries
93 North Ave.
Garwood, NJ 07027
Manufacturer. Takes ONP, OCC and mixed.

Davey Co.
164 Laidlaw Ave.
Jersey City, NJ 07308
Manufacturer. Takes mixed papers.

Newark Boxboard Co.
60 Lockwood St.
Newark, NJ 07105
Manufacturer. ONP, OCC and mixed.

Celotex Corp.
PO Box 289 Keasby
Perth Amboy, NJ 08332

Manufacturer. Makes roof products with mixed papers.

Lowe Paper Co. (Simkins)
River St., PO Box 239
Ridgefield, NJ 07657-0239
Manufacturer. ONP, OCC and pulp subs.

Homasote Co.
PO Box 7240
W. Trenton, NJ 08628-0240
Manufacturer. Use ONP for cellulose insulation.

Chesterfield Paper Co.
2 Forest Ave.
Paramus, NJ 07652
(201)843-1234
Processor. Buyers for mill direct shipment. Takes bales, skids or rolls of OCC and high grade papers.

Masotina (NY Office: Intermark Fibers Corp.)
580 Sylvan Ave.
Englewood Cliffs, NJ 07632
(201)568-4886
Exporter. Sell all grades of paper stock to Italy and Europe.

Prins Recycling Corp.
Ft. Lee, NJ
(201)886-1600
Processor. ONP & OCC.

The Alamo Paper Co.
930 Woodland Ave.
Plainfield, NJ 07060
(201)668-1444
Processor/Recycler. All grades of waste paper.

Atlantic Coast Fibers
(201)614-9600
All grades of waste paper.

CT:
Hellman Trading Co., Inc.
PO Box 156, 420 East Main Street
Branford, CT 06405-0156
(203)481-7286
Broker. Handles all wastepaper.

Hershman Recycling Inc.
Baybrook Station, PO Box 16251
West Haven, CT 05616
(203)933-9879
Paper stock dealer.

Schneider Coal & Trucking, Co., Inc.
Miller Place Rd.
Middle Island, NY 11953
(516)924-4414
Contact: Dave Shneider
Processor. Accepts delivered glass.

B J Toughy & Son
24 James Pl.
Staten Island, NY 10305
(718)720-8594
Contact: Bernard Toughy
Broker/processor. Accepts whole bottles of all colors from the northeast, loose or in gaylord boxes.

Ursula Products, Inc.
636 Brooklyn Ave.
Brooklyn, NY 11203
(718)363-1007
Contact: A.B. Heron
Broker. Accepts all kinds of recyclables, including glass.

Glass--Hudson Valley
J. Bass & Son, Inc.
9-11 Carleton Ave.
Mount Vernon, NY 10550
(914)667-1442
Contact: Michael Bass.
Processor.

Recycling Industries Corp.
524 Waverly Ave.
Mamaroneck, NY 10543
(914)698-0404
Contact: Carl Lacavalla, VP
Processor. Will contract and pick up.

King Road Materials
145 Cordell Rd.
PO Box 12699
Albany, NY 12212
(518)382-5353
Contact: Phillip Groff
Manufacturer. Contract for supplies of glass for road paving applications. Minimum duration is one year. Container glass must be clean of food residues. May be whole or crushed. Color separation not necessary. Window pane glass is also accepted, provided it is not mixed with container glass and does not include frames.

Central New York Bottle Co., Division of Miller Brewing
RD#6 County House Rd.
Auburn, NY 13021
(315)255-5203
Contact: Joe Runkle

GLASS

For more market listings, you may want to obtain a copy of the American Recycling Market Directory/Reference Manual from Recoup Publishing Ltd, PO Box 577, Ogdensburg, NY 13669 or (800) 267-0707.

Mixed Cullet:

* The NYC Office of Recycling at the Department of Sanitation is using mixed-colored cullet in its asphalt. Call Gene Moore at the NYC Office of Recycling at (212) 837-8179.
* The National Standard Plumbing Code Office has included mixed cullet pieces smaller than 3/4" as acceptable aggregate in storm drains.
* Stoneware Tile Co., Richmond, IN, uses plate glass and windshields to make commercial ceramic tiles with 70% recyc content. They're marketed by New Age Carpets, Englewood, CO.

Trade Associations:

* Institute of Scrap Recycling Industries, Inc. (ISRI), 1627 K Street, NW, Washington, DC 20006 (202) 466-4050.
* Glass Packaging Institute (GPI), 1801 K St., NW, Suite 1105L, Washington, DC 20006 (202) 887-4850. Contact Sylvia Swanson.
* National Soft Drink Association, Solid Waste Management Dept., is at 101 16th St., NW, Washington, DC 20036 (202) 463-6700.

GLASS

Glass--NYC/LI

EWG Glass Recovery and Recycling
173-07 Liberty Ave.
Jamaica, NY 11433
(718)739-7270
Contact: Ed Golebiewski
Processor. Provides 30-yd container for monthly, color-sorted loads. Need guarantee to provide transport up to 200 miles.

All State Paper Recycling, Inc.
137 Rockville Ave.
Staten Island, NY 10314
(718)720-8484
Contact: Frank Giasi
Processor. Will contract for color-sorted, green and clear glass (no brown). Minimum is 300 lbs. Must be ground or whole.

Tri County Recycling or Ecosphere of LI
(516)935-5800
Contact: Dick Petrarca
or, Chesner Engineering, Inc., (516)449-1085
Processor. System that allows mixed-color cullet to be removed from post-consumer mixed waste and used in glasphalt and concrete.

R2B2 (Recoverable Resources/Boro Bronx 2000)
1809 Carter Ave.
Bronx, NY 10457
(212)731-8666
Contact: Mike Schedler
Processor. Must be color sorted and contaminant free.

Boro Recycling. Inc.
54-35 48th St.
Maspeth, NY 11378
(718)482-7180
Contact: Joseph Luzzi
Processor. Take color-sorted glass. Will negotiate on transport.

Omni Technical Service, Inc.
50 Charles Lindbergh Blvd.
Uniondale, NY 11553
(516)222-0708
Contact: Tom Bolton
Processor. Accepts glass at the plant is in Westbury. Color separation of glass is not necessary; they separate it.

New York City, MRF
44 Beaver St., 6th floor
New York, NY 10004
(212)837-8179
Contact: Gene Moore
Processor. Accepts color-sorted, clean glass. Won't pick up.

Manufacturer. Will contract for 1 year for clean, color-sorted container glass, delivered. As of 5/15/91, CNY Bottle was still taking green glass and paying for it. Use glass to make bottles.

Anchor Glass Container Corp.
1901 Grand Central Ave.
Elmira, NY 14902
(607)737-3531
Contact: Duane Nielsen

Manufacturer. Color-separated clear and brown glass (no longer taking green glass as of 1991). Uses glass to manufacture bottles.

Owens/Brockway Glass
RD#5, Great Bear Rd.
Fulton, NY 13069
(315)598-0931
Contact: Bill Anton
Or, contact: Brian Houger (315)598-0900).

Manufacturer. Takes glass for their manufacturing process. Must be color separated and clean, with metal rings, closures, or other contaminants removed. Negotiations can be arranged with the local Owens' recycling coordinator.

NJ

Pace Glass Co.
73-75 Cornelison Ave.
Jersey City, NJ 07728
(201)432-7983
Contact: Vincent Pace/Ginny Collorec

Anchor Glass
PO Box 557
Clifford, NJ 07721
(201)566-4000
Contact: Louise Abbrizzese

Manufacturer. Contract for and pick up color-sorted glass containers, loose or crushed. No ceramic, plate or other glass.

Ball-Incon Glass Package Corp.
1 Minue St.
Carteret, NJ 07008
(201)969-1400
Contact: Kevin Shipley

Manufacturer. Make soft drink bottles. Will contract and pick up color-sorted flint glass only.

PLASTIC

For more market listings, you may want to obtain a copy of the American Recycling Market Directory/Reference Manual. The 1991 edition cost $125, and is obtainable from Recoup Publishing Ltd, PO Box 577, Ogdensburg, NY 13669 1-800-267-0707.

Trade Associations:

* The Partnership for Plastics Progress (formerly Council for Solid Waste Solutions) 1275 K St., NW, 3rd fl., Washington, DC 20005 (202)371-5319 Contact: Jeri Huntley; or (800)243-5790. Call Kimberly Vollbrecht in Albany, (518)432-7835.

* National Assoc. for Plastic Container Recovery, 5024 Parkway Plaza, Suite 200, Charlotte, NC 28217 (704)523-8543.

* Plastic Bottle Information Bureau, (202)371-5244. Contact Deanne Dillingham.

* Institute of Scrap Recycling Industries (ISRI), (202)466-4050. Contact Robert Garino.

* Vinyl Siding Institute (Vinyl siding is made from rigid PVC), (212)351-5400. Contact Annette.

* The National Polystyrene Recycling Co. has a toll-free hotline for questions on PS recycling: (800)696-6965.

* Canadian Polystyrene Recycling Association, 415 Yonge St., 10th fl., Toronto, Ontario M5B 2E7.

* Polystyrene Packaging Council, 1025 Connecticut Ave., NE, Washington, DC 20036 (202)822-6424.

* Assoc. of Foam Packaging Recyclers (AFPR), 1025 Connecticut Ave, NW, Suite 515, Washngton, DC 20036 (800)944-8448.

* Plastic Loose-Fill Producers Council: (800)828-2214.

* Council on Plastics and Packaging in the Environment (COPPE), 1001 Connecticut Ave., NW, Suite 401, Washington, DC 20036 (202)331-0099.

Companies:

* Browning-Ferris, Inc.'s recycling Hotline: (800)542-7780.

* Union Carbide, (201)563-6080.

* Goodyear's Public Relations Office, (216)796-2572.

Regarding the recycling of polystyrene, the Plastics Again Company, formerly in MA, no longer exists. However, its NYS contact was Damon Georgia of Genpak Corp., Glens Falls. Call him with questions at (518)798-9511.

PLASTICS

Plastic--NYC/LI

A A A Polymer Inc.
68 Freeman
Brooklyn, NY 11222
(718)389-2498
Contact: Rich Kralstein
Processor. Takes low density polyethylene (LDPE) used bags.

AJS Systems Inc.
170 Express Street
Plainview, NY 11803
(516)349-9400
Contact: Bernie Taylor
Processor/Exporter. AJS accepts HDPE, LDPE film and bags, and PP in repro, regrin, rolls and bales. They need samples in advance to determine acceptable contamination levels.

All State Paper Recycling Inc.
137 Rockville Ave.
Staten Island, NY 10314
(718)720-8484
Contact: Frank Giasi
Processor. Will contract for truckloads of loose or baled HDPE and PET, colored or clear, delivered.

Amco Plastic Materials
595 Broadhollow Rd.
Farmingdale, NY 11735
(516)293-1600
Contact: Gary Metzger
Processor/Broker. Accepts most plastics: styrofoam, PET, HDPE and LDPE, poly propylene, PVC, etc.

Boulder Resources Ltd.
507 West 27th Street
New York, NY 10001
(212)565-0222
Contact: Anthony Veziano or Leonard Formato
Processor. Will contract for and pick up truckloads of HDPE: loose, baled, shredded, etc.

Brooklyn Union Gas/Utility Plastics
195 Montague St.
Brooklyn, NY 11201
(718)403-2000
Contact: Bill Howell
Manufacturer. Make traffic barriers and safety devices. Use HDPE, PET, PVC and PP. May take them mixed. Call for details.

Browning-Ferris Industries
600 Avenue C at Stewart Ave.
Westbury, NY 11590
(516)222-1050

Den Enterprises, Inc.
857 Lincoln Ave.
Bohemia, NY 11716
(516)567-7303
Contact: George Victor
Processor/Broker. Will not contract but will pick up a minimum of 1 ton of ABS to be used for extrusion and molding.

Debco Plastics, Inc.
14 Maple Pl.
Freeport, NY 11520
(516)379-2470
Contact: Dave Garfinkel
Processor/Exporter. Will contract for and pick up a minimum of 10,000 lbs. of most plastic resins, including ABS, acrylics, PET, HDPE, LDPE, PS, etc. They must be baled, boxed or in gaylord boxes, either unground or regrind.

E.G. Plastics Corp.
116 39th Street
Brooklyn, NY 11232
(718)788-3733
Contact: Sol Strimber, Controller
Manufacturer/Processor/Exporter. Will contract for and pick up PET, LDPE and PVC to make poly pellets. Only pre-consumer.

Goldmark Plastic Compounds, Inc.
Nassau Terminal Rd.
New Hyde Park, NY 11040
(516)352-4373
Contact: David Weir
Broker/Exporter. Accepts all processed plastic flake, pellets or regrind. Call for details.

H. Heller and Co.
707 Westchester Ave.
White Plains, NY 10604
(914)682-0010
Broker/Processor. All resin types.

Kaiser International Inc.
One World Trade Ctr., Suite 7967
New York, NY 10048
(212)466-6000
Contact: Vijay Vora
Exporters. Will contract for and pick up a minimum of one ton of clean ABS, HDPE, nylon and most other plastics: either film, regrind, pellets or parts, in the NE.

Kenny Plastics Corp.
41-40 Union St., Suite 15C
Flushing, NY 11355
(718)762-4681
Contact: Kenny Cha, President

POLYDEX, Inc.
PO Box 398
Lakewood, NJ 08701
(201)905-9335
Contact: Bert Albert
Recycler. Will contract for and pick up, east of the Mississippi, a minimum of five tons of ABS, acetal, acrylic, HDPE, LDPE, nylon and most plastics: either ground, shredded or in parts for resale.

Chemicals and Plastics Company, Inc.
1 River Road
Piscataway, NJ 08854
(201)563-6080
Processor. HDPE & PET.

Slamahs Enterprises
206 Main Street
Hackettstown, NJ
(201)852-2112
Contact: Linda Stadtler
Processor. Sourcing hard plastics (HDPE, PET, PVC) and storing them for a new facility in PA.

WPAR
PO Box 2140
West Paterson, NJ 07424
(201)256-7519
Contact: Don Sling, Purchasing Mgr.
Processor. Will contract for and pick up loose HDPE, PET and other bottle plastics. Also takes LDPE baled.

PA Plastics and Trading
1118 North Ave.
Plainfield, NJ 07062
(201)561-1919
Contact: Paul Frino
Processor. Will contract for and pick up HDPE dairy bottles, PET and other rigid containers, baled. Need 12-ton truckloads.

Lion Extruding Corp.
106 Rutherford St.
Newark, NJ 07105
(201)344-4648
Contact: Gary DeMarco
Exporter. Will contract for and pick up acetal, acrylic plastics in gaylord boxes or drums.

Materials for Recycling
225-239 Ridgewood Ave.
Newark, NJ 07108
(201)242-1731
Contact: Michael Riotto
Processor. Contract for and pick up bottles from in the NE.

Kravitz Enterprises, Inc.
57 Glen Street
Glen Cove, NY 11542
(516)676-6190
Contact: Dave or Ava Kravitz
Processor/Broker/Exporter. Will contract for and pick up a minimum of 700 lbs of regrind, pellets or clean resin-separated, color-separated plastics of any type in bags or gaylords. The co. is particularly interested in engineering resins.

M.G. Chemical Co.
PO Box 304, Bowling Green Station
New York, NY 10274
(212)269-5533
Contact: Aswhin G. Kirshna
Processor/Broker/Exporter. Will contract for and pick up truckloads of clean, compressed baled resins.

National Waste Technologies
934 Easton Street
Ronkonkoma, NY 11779
(516)588-4545
Contact: Carl Lanza
Manufacturer. Makes plastic lumber products from patented Syntol in all colors from HDPE and LDPE.

Nicon Plastics, Inc.
4-11 47th Ave.
Long Island City, NY 11101
(718)392-1177
Contact: Leslie Miller
Processor. Will contract for and pick up truckloads of clean, baled plastic soda bottles.

Omni Technical Services, Inc.
50 Charles Lindbergh Blvd.
Uniondale, NY 11553
(516)222-0709
Processor.

G.Y. Group, Inc.
3 Roundtree Dr.
Melville, NY 11747
(516)491-7240
Contact: George Zong Yao, President
Exporter. Sending recyclable, post-industrial plastic films to China and bringing recycled resins back to the US. Will sign long-term contracts for 2000 mt/mo (will expand to 3000 mt/mo).

Sabre Recycling Corp./Sterns Plastic Products
206 Babylon Turnpike
Roosevelt, NY 11575
(516)379-5124

Plastics Recovery Corp.
PO Box 7080
New Haven, CT 06519
(203)785-0458
Recycler. Defvelops recycling programs for commercial, industrial and municipal sites.

NJ:

Nicon International Corp
A-11 Dayton Square
Dayton, NJ 08810
(201)329-6342
Contact: Michael Saggese
Broker/Exporter. Will contract for and pick up truckloads of clean, uncontaminated PVC.

American National Can
135 National Rd.
Edison, NJ 08817
(908)287-6691
Contact: Bob Meyers
Broker/Manufacturer. Will negotiate pick up of at least a truckload of HDPE or PET bottles, ground, shredded or flaked.

Wellman Plastics
1040 Broad, Suite 302
Shrewsbury, NJ 07702
(201)542-7300
Contact: Caroline
Processor/Manufacturer. Looking for sources of PET, HDPE and more. Will negotiate transport.

Union Carbide Chemicals and Plastic Co., Inc.
Plastics Recycling Center
PO Box 670
Bound Brook, NJ 08805
(201)563-6080
Contact: Diane Mensinger
Manufacturer. Will contract for and negotiate transport for baled PET and HDPE bottles. They may also be taking films and blow-molded products.

M.A. Polymers Div.
410 Spruce Ave.
Garwood, NJ 07027
(201)789-1772
Contact: Gene Triano
Recycler. HDPE, PET and PP.

CRInc. Recycling
Bridgeport, NJ
Recycler. A National Polystyrene Recycling Co./CRInc. Recycling facility that can handle 13 million lbs of ps from throughout the eastern seaboard (opened 11/13/91).

Plascal Corp.
361 Eastern Parkway
Farmingdale, NY 11735
(516)249-2200
Contact: Gerald Zimand, President
Manufacturer. Uses PVC plastic.

R2B2 (Bronx 2000)
1809 Carter Ave.
Bronx, NY 10457
office (212)731-3931; plant (212)731-3921
Contact: Mike Schedler
Processor. Accept PET and HDPE containers, delivered.

Star Recycling, Inc.
50-15 69th Place
Woodside, NY 11377
(718)779-4650
Processor.

TRIMAX of LI
2076 Fifth Ave.
Ronkonkoma, NY 11779
(516)471-7777
Contact: Tony Noto, President
Manufacturer. Makes plastic lumber.

Ursula Products, Inc.
636 Brooklyn Ave.
Brooklyn, NY 11203
(718)363-1007
Broker/Exporter.

USA Recycling, Inc.
110 Old Northport Rd.
Kings Park, NY 11754
(516)368-5533
Processor.

Suzanne Transport
PO Box 668, Rte. 94
Florida, NY 10921
(914)651-3055
Contact: Bob Wierzbicki
Processor. Was the ps collection point for southern NY.

CT:
Hafner Industries
Box 3925 Amity Stn.
New Haven, CT 06525
(203)397-1562
Contact: Edwin Hafner
Broker. Will pick up a minimum of a truckload of HDPE, PET, PVC, or any resin, baled, loose or ground, in North America.

Source Metals, Inc.
PO Box 237
South Orange, NJ 07079
(201)763-6021
Contact: Jerome Glasser
Recycler. Takes primarily PVC plastic, but also PET and HDPE. Also takes non ferrous metals.

Full Circle Plastics
PO Box 988
Lodi, NJ 07644
(201)473-9656
Contact: Mark Loeffelman
Processor. Will pick up LDPE and LLDPE film, bottles, shreds or flakes in the NE. Can be packaged almost any way.

Bar Industries
PO Box 396
Brick, NJ 08723
(201)905-8966
Contact: Bert Albert
Recycler. Will contract for and pick up a minimum of 5 tons of HDPE and LDPE parts, shredded, or ground in the Eastern US and SE Canada. Materials must be either in gaylords, drums or bales.

CVM, Inc.
261 Bellwood Rd.
Asbury, NJ 08802
(201)479-6655

TIRES/RUBBER

Publications:

* Scrap Tire News is a useful reference on tire recycling, and other market outlets for used tires. Contact Mary Sikora at (203)668-5422 for additional information.
* Rubber and Plastics News is a newsletter published by Crain Communications. Each December, they also publish, the Rubbicana, a listing of rubber product manufacturers. Call 1-800-992-9970 for subscription info.

Trade Associations:

* The National Tire Dealers and Retreaders Association, 1250 I St., NW, Suite 400, Washington, DC 20005 (202) 789-2300. Contact Harvey Brodsky, manager of the Tire Retread Information Bureau.
* Scrap Tire Management Council, 1400 K St., N.W., Washington, D.C. 20005 (202) 682-4842. Call Mike Blumenthal.
* Rubber Manufacturers Association, RMA, at 1400 K Street, NW, Washington, DC 20005. The general information number is (202)682-4800. John Serumgard is the trade association's vice president related to tire recycling.

Recycling Projects:

* The NYS DOT is now mandated by State Executive Order to determine what it would take to use recycled glass and rubber in roadways. At DOT's Material's Bureau, contact Wayne Brule, (518)457-3240.
* Also, DOT hired ARE Inc., Riverdale, MD, to complete an assessment of the use of scrap tires in asphalt. They subsequently published the following two reports:
  Shook, J.F. Experimental Construction of Rubber-Modified Asphalt Mixtures for Asphalt Pavements in New York State, Final Report, ARE Inc. Engineering Consultants for the NYS DOT, Contract #D005072, Riverdale, MD 5/16/90.
  Shook, J.F., H.B. Takallou, and E. Oshinski. Evaluation of the Use of Rubber-Modified Asphalt Mixtures for Asphalt Pavements in New York State, Final Report, ARE Inc. Engineering Consultants for the NYS DOT, Contract #D005072, Riverdale, MD 12/89.
* Tires processed on LI at the NY Tire Recycling Co. were used in a 3,000-foot section of 2 lanes of the William Floyd Pkwy. Call Don Middleton at (516)462-2222 with questions.

Tire incineration/resource recovery:

* ORMD does very little work related to resource recovery. For information about facilities that use t-d-f, call IPPNY, the Independent Power Producers of NY (IPPNY), at (518)436-3749. Also, the State Department of Environmental Conservation's Resource Recovery Bureau may also have information that will help you. Call Jeffrey Schmitt at (518)457-7337.
* Oxford Tire, a division of Oxford Energy, Route 169 Pomfrit Center, CT 06259 (203)928-1905, uses processed tires for fuel. For collection, contact Oxford Tire Supply, 40 East

Dudley Town Rd., Bloomfield, CT 06002 (800)873-8473. Oxford recently received financing for a 49.5 megawatt tire-to-energy project in Moapa, NV.

* Oxford Energy Co., eastern regional office, 114 State St., Boston, MA 02109 (617)732-9443. Oxford Tire Recycling of Massachusetts, 1809 Main St., Walpole, MA 02081 (617)769-4760.

* New York State Electric and Gas Co. will chip tires for use as a fuel supplement at its Jennison Station electric generating facility in Chenango County.

Markets:

* Asphalt Rubber; Athletic & Recreational Surfaces; Export; Fuel; Mats/Molded Rubber Products; Flooring & Roofing products; Irrigation/Water Systems; Railroad Crossings; and Tubes.

TIRES

Tires--NYC/LI
Coletta Recycling Corp.
1629 Redfern Ave.
Far Rockaway, NY 11691
(718)327-4740
Contact: Mike Coletta
Processor. Shreds tires into 1/2" chips and sells them to companies for molding and regrind. Also working with Baker Rubber to produce crumb for product manufacture. Takes about 100,000/mo.

Refuse Management Systems, Inc.
99 Tulip Ave., Suite 303
Floral Park, NY 11001
(516)354-1212
Contact: Harvey Podolsky
Exporter. Exclusive US broker to solicit whole or baled passenger or truck tires for tdf at a new plant in Pakistan. Will contract. Has a transfer station in Brooklyn. Charges a fee.

Environmental Services Group, Inc.
310 East 46th Street
New York, NY 10017
(212)286-1772
Contact: Donna Murray or Peter Bronner
Processor. They can pick up assorted tires, or will spot a 40', open top container. Accepts up to 100,000 tires per month.

Transinternational Tire Recycling and Energy
2940 Ocean Avenue
Brooklyn, NY 11235
(718)615-1708
Broker. Occasionally markets tires overseas.

Ursula Products, Inc.
636 Brooklyn Ave.
Brooklyn, NY 11203
(718)363-1007
Broker. Occasionally buy tires and sell them overseas.

Waste Transfer Systems (subsidiary of Waste Management)
(516)756-5670
Contact: Paul Schubert
Transfer. Send tires to their NJ plant. Some are chipped and used for landfill leachate drainage systems in place of stone.

JP Tire
Flower Field Industrial Park, Bldg. 2, Suite 20
St. James, NY 11780
(516)696-7255
Contact: Patricia Libardi
Broker/Transporter. Sends bias tires to F&B Enterprises, New Bedford, MA for processing and product manufacture.

Recoverers of Manufactured Products
RD#8, 49 Maple Drive
Middleton, NY 10940
(914)361-5972
Contact: Frank Rezac
Transporter. Monthly pickup service to four NY counties. Transports tires to Oxford in Sterling, CT.

NJ:

Recycling Specialists
375 Routes 1 and 9
Jersey City, NJ 07306
(201)547-4100
Contact: John Chiala
Recycler/Broker. Will contract with municipalities and pick up whole tires in the northeast. Scrap tires are used for various, non-burning purposes.

Integrated Tire of Newark, NJ
182 Calcutta St.
Port Newark, NJ 07114
(201)578-8733
Processor. Shreds tires and sells tires primarily to Greece for use as tire-derived fuel.

TIREC Systems, Inc.
PO Box 6867
Polhemus, NJ 08807
(201)826-7597
Processor. Shreds and buries whole passenger and truck tires them for future use when new technologies are developed.

Institute Sales
RD#3, Box 552
Lafayette, NJ 07848
(201)579-5959
Manufacturer. Use walls and treads from biasply tires to manufacture floor mats. Currently recycles 25,000/yr.

Wade Salvage Inc.
293 Jackson Rd.
Atco, NJ 08004
(609)767-2760
Contact: Andrew Wade
Processor/Exporter. Will contract for and pick up rubber inner tubes for processing and export. No hazardous contaminants. Can be boxed, loose, baled or on skids.

CT:

Tire Salvage DBA/The Tire Pond
PO Box 825
North Haven, CT 06473
(203)288-5604
Contact: Jim Rizzo

Recycler. Will deal with municipalities and pick up whole tires (with rims). Sells for use in the manufacture of floor mats, and erosion control devices.

American Rubber Mat
North Haven, CT
(203)230-8875

Recycler. Located adjacent to the Tire Pond and produces crumb rubber to manufacture a range of products, including mats, truck flaps, bed liners, etc.

Tire Recycling
40 E. Dudley Town Rd.
Bloomfield, CT
(203)242-6241

Oxford Tire Supply, Inc.
1414 Norwich Rd.
Plainfield, CT 06374-1931
(203)564-7800
Contact: Bill Delaney

Recycler/Manufacturer. Will contract and pick up whole tires for use in asphalt or for energy. Accepts a minimum of 1.5 tons for pick up. Accept them loose or in trailer loads.

METALS

Additional Market Listings:

* American Recycling Market Directory/Reference Manual, Recoup Publishing Ltd, PO Box 577, Ogdensburg, NY 13669 (800)267-0707. The 1991 edition cost $125.
* For additional markets downstate, contact the NYC Office of Recycling at the Department of Sanitation at (212)240-4812.
* The Suffolk County Dept. of General Service's Recycling Unit published A Directory of Companies that Handle Recyclables in 4/90 that may be useful for identifying markets. Contact the County Executive's Office, (516)360-4000.

Trade Associations:

* Institute of Scrap Recycling Industries, Inc. (ISRI), is affiliated with all ferrous, non-ferrous, paper and plastics recyclers. Contact Robert Garino at Suite 1000, 1325 G St., NW, Washington, DC 20005 (202)466-4050 to request Scrap Specifications Circular 1990--Guidelines for Ferrous Scrap, Nonferrous Scrap and Paper Stock.
* NYADD, the New York State Assoc. of Automobile Dismantlers, RD #6, Box 112, Binghamton, NY 13904 (607)775-1751. Although the dimantlers are not shredders, is treasurer, Gary Beagell, may have info on auto shredders at (607)775-1900.

Steel Cans and White Goods

* Steel Can Recycling Institute, Foster Plaza X, 680 Anderson Drive, Pittsburgh, PA 15220 (800) 876-7274. Contact Greg Crawford, director of recycling. Or, contact Paula Thompson, northeastern regional representative, SCRI, 97 Lowell Rd., Suite 1000, Concord, MA 01742 (508)371-2878.
* Steel Manufacturers Assoc. Contact Peter at (202)331-7027.
* Appliance Recycling Ctrs of America (ARCA) in St. Paul, MN.

Lead

* Lead Industries Association, Inc., 295 Madison Ave., New York, NY 10017 (212)578-4750.

Aluminum

* Aluminum Recyclers Association (primarily smelters), 1000 16th St., NW, Washington, DC 20036 (202)785-0951. Contact Sanford Moskowitz, technical director.
* Aluminum Association (manufacturers), 900 19th Street, N.W., Washington, DC 20006 (202) 862-5100. Contact Frank Rathbun.
* Aluminum Foil Container Manufacturers Assoc., Contact: Julia Meretta, Paula Filipello, or Sally Adelstein, (312)337-7400.

Beverage Containers

* National Soft Drink Assoc., Solid Waste Management Dept., 1101 16th St., NW, Washington, DC 20036 (202) 463-6700.
* Niagara Mohawk subsidiary, Planergy, Inc., is running a "Refrigerator Roundup" in Central NY and in the Mohawk Valley. Call (800)836-1010 to schedule a pick up of your old refrigerator. If it qualifies, they will pay you $50.

METALS

Metals--NYC/LI:
American Nature International Inc.
120 West 45th St., Suite 303
New York, NY 10036
(212)642-3549
Contact: Dr. Peter Lu.
Exporter/Broker. Looking for large quantities of scrap aluminum to ship overseas.

Ameropan Oil Corp.
6500 Jericho Tpke
Syosset, NY 11791
Contact: Peter Wittich
Processor. Will contract for and pick up non-ferrous metals.

Refuse Management Systems, Inc.
99 Tulip Ave., Suite 303
Floral Park, NY 11001
(516)354-1212
Contact: Harvey Podolsky
Exporter. US broker to solicit auto shredder residue for use as a fuel at a new plant in Pakistan. Will contract. Has a transfer station in Brooklyn. Charges a fee.

Boulder Resources, Ltd.
507 West 27th St.
New York, NY 10001
(212)563-0222
Contact: Anthony Veziano or Leonard Formato
Processor/Broker. Will contract for and pick up truckloads of ferrous, non-ferrous, tin cans and white goods for processing. Can be loose, baled, shredded, etc.

Bronx 2000 (R2B2)
1809 Carter Ave.
Bronx, NY 10457
(212)
Contact: David Hurd
Processor. Accepts tin cans and aluminum UBCs, delivered.

Bronx Iron & Metals
850 Edgewater Rd.
Bronx, NY 10474
(212)-542-2300
Contact: Peter Manzi
Recycler. Accepts all ferrous metals and non-ferrous metals.

Brookhaven Recycling
36 Potter Ave.
Patchogue, NY 11772
(516)475-4788
Contact: Michael Savino

Broker/Processor. Will contract for and pick up large loads of non-ferrous metals.

Brookhaven Town MRF
3233 Route 112
Medford, NY 11763
Contact: Elaine McKibbon
(516)451-6211
Processor/MRF. Takes ferrous metals, including white goods and tin cans, and non-ferrous metals. Will pick up.

DeMatteo Salvage
90 Gleam Street
West Babylon, NY 11704
(516)643-7940
Contact: Domenick DeMatteo
Processor. Will contract for and pick up ferrous and non-ferrous metals, white goods and all grades of paper.

Dobrofsky & Co. Inc.
1145 Webster Ave.
Bronx, NY 10456
(212)590-4330
Contact: Martyn Wolf
Processor. Will contract for and pick up non-ferrous metals.

East End Recycling Assoc.
116 Hampton Rd.
South Hampton, NY 11968
(516)283-6000 Ext. 293
Processor/MRF. Will contract for white goods, ferrous and non-ferrous metals, delivered.

Gershow Recycling Corp.
PO Box 526, 71 Peconic Ave.
Medford, NY 11763
(516)289-6188
Processor. Will contract for and pick up non-ferrous metals.

Glantz Iron and Metal Inc.
44 South 8th Street
Brooklyn, NY 11211
(718)782-3358
Processor. Will contract for and pick up non-ferrous metals for sale to mills and refineries.

Hunter Douglas Metals
98 Cutter Mill Rd.
Great Neck, NY 11021
(516)487-7428
Contact: Gil Waltzler
Manufacturer/Broker/Exporter. Will contract for and pick up 18-20 tons of clean, crushed or shredded, non-ferrous metals, baled, in briquettes or bisquits or loose.

Liberty Ash
112 Phylis Ct.
Elmont, NY 11003
(718)526-1465
Contact: Michael Bellino
Broker. Will contract for and pick up ferrous metals, including white goods and tin cans, and non-ferrous. Can take no more than 1,000 tpd. No capacitors.

NYC Dept. of Sanitation MRF
44 Beaver St., 6th floor
New York, NY 10004
(212)837-8179
Contact: Gene Moore
Processor/MRF. Takes tin/steel cans and UBCs, delivered.

WE CAN
(212)262-222
Contact: Guy

Overseas Development Corp.
380 Lexington Ave.
New York, NY 10017
(212)682-7975
Contact: Larry Grudman
Exporter/Broker. Contract for truckloads of ferrous between 4-10 feet. They can be loose, delivered in RR Cars. Will contract for truckloads of non-ferrous in drums or gaylords, delivered.

Aruvil International Inc.
185 Madison Ave., Suite 1001
New York, NY 10016
(212)685-0555
Contact: Vilas Kulkarni
Broker/Exporter. Looking for large supplies of UBCs, baled for shipment in a 20-ton container.

Pascap Co. Inc.
4250 Boston Rd.
Bronx, NY 10475
(914)725-3300
Contact: Ralph, Pat or Frank Capasso
Processor.

Rush Recycling Inc.
24 Gaymor Lane
Commack, NY 11725
(516)543-4535
Contact: David Rush
Processor. Will contract for and pick up ferrous metals

Schiavone Bonomo Corp.
850 Edgewater Rd.
Bronx, NY 10474

(212)542-2300
Contact: Peter Manzi
Processor. Will contract for and pick up ferrous and non-ferrous metals.

Schioppo Corp.
197 Grandview Ave.
Staten Island, NY 10303
(718)448-1444
Contact: Catherine Schioppo
Processor. Will contract for and pick up loose cast iron in the NY/NJ/CT area. Also will contract for and pick up whole turn aluminum in the same areas.

Victory Scrap Metal Co.
166 East 34 St.
New York, NY 10016
(212)481-5444
Contact: Jeffrey Baskin
Processor/Broker. Will contract for and pick up at least 5 tons of ferrous metals in the NE. Must be in drums, roll-offs or some container. Sells to mills and smelters. Also will contract for and pick up at least 1 ton of non-ferrous solids, turnings, stampings in the NE, either in drums, bales or gaylords.

Star Recycling Inc.
50-19 69th Place
Woodside, NY 11377
(718)779-4650
Contact: Charles Gushmano
Processor. Will contract for and pick up non-ferrous metals in the NE for shipment overseas or to mills.

Sumitomo Corp. of America
345 Park Ave., 14th floor
New York, NY 10154
(212)207-0619
Contact: Craig Tuckman
Exporter/Manufacturer. Will contract for and pick up truckloads of non-ferrous aluminum on the East or West coasts of the US. Can be in gaylords, baled or loose.

County Recycling
Lincoln Place
Mt. Kisco, NY 10549
(914)241-3990
Processor.

Elcan Corp.
59 Plain Ave.
New Rochelle, NY 10801
(914)236-1061
Contact: Werner Oppenheimer

Newark, NJ 07105
Ferrous. Car shredder.

Borough Auto Salvage
2271 Hamilton Blvd.
South Plainfield, NJ 07080
(201)756-3585
Contact: Kelly Errickson
Recycler/Processor. Will contract for and pick up white goods in bales or containers.

Green Acres Recycling Center
23 Double Trouble Rd.
Bayville, NJ 08721
(201)349-0112
Contact: Joseph Zaccaro
Processor. Contract for and pick up white goods on the NE seaboard.

Shoemaker & Lynch, Inc.
Box 195A, Route 519
Belvidere, NJ 07823
(201)475-1155
Contact: Howard Shoemaker
Will contract for and pick up whitegoods and bi-metal cans.

Pace Glass, Inc.
73-75 Cornelison Ave.
Jersey City, NJ 07304
(201)432-7983
Contact: Vincent Pace
Takes aluminum cans and glass.

CT:
MAC Industries
1320 Kings Highway Cutoff
Fairfield, CT 06430
(203)259-9776
Contact: Paul Uhrynowski
Scrap metals.

Northeast Utilities/ARCA
Hartford, CT
(203)525-2722
Contact: Bob Kowalchik, Manager of ARCA Hartford, with questions about ARCA.
Contact: Bruno Ranniello, NE Utilities, (203)665-5746, with questions about NE Utilities role.
Recycler. Accepted 12,000 refrigerators (white goods) as part of the Appliance Recycling Centers of America's recycling network with area utilities. Although they subcontract to area utilities, and will only accept old appliances from within those areas, they are beginning to work with New York State utilities.

Karta Container
1011 Lower South Street
Peekskill, NY 10586
(914)739-5094
Contact: Kenneth Cartalemi (914)737-9017
Processor. Will contract for and pick up truckloads of ferrous and non-ferrous metals.

J. Bass and Son, Inc.
9-11 Carleton Ave.
Mount Vernon, NY 10550
(914)667-1442 (-1443)
Contact: Michael J. Bass
Processor. Pick up truckloads of tin cans, white goods and aluminum UBCs within 100 miles; loose, baled, or crushed. Also accepts non-ferrous aluminum for remanufacture, loose or baled.

Recycling Industries Corp.
524 Waverly Ave.
Mamaroneck, NY 10543
(914)698-0404
Contact: Carl Lacavalla
Processor. Will contract for and pick up ferrous and non-ferrous metals.

NJ:
ALCOA Recycling Co.
Raritan Center, 100 Clover Place
Edison, NJ 08837
(201)225-9550
Contact: Beth Lanning
Manufacturer/Processor. Wants UBCs to recycle. Price depends on volume, processing and transportation. ALCOA will spot a flattener/blower and trailer at supplier sites if 5,000 lbs/month is guaranteed. For communitities generating 800-1000 lbs/mo., ALCOA will spot a wagon for storage. Contamination, including glass, plastic, paper, dirt, etc., is unacceptable. UBCs must be dry (if cans contain >4% moisture a deduction off gross weight is taken. ALCOA prefers municipal suppliers leave UBCs loose and flattened or whole. When quantity is guaranteed, ALCOA accepts UBCs densified (preapproval required). Baled UBCs are accepted for new programs only. ALCOA accepts UBCs delivered, or will provide transport. There's a 48-hour scheduling policy for the pick-up and delivery.

Schiabo Corp.
8-18 Noble St.
Newark, NJ 07114
Contact: Frank Claps
Recycler. Ferrous. Car shredder.

NIMCO Shredding
PO Box 5152
252 Doremus Ave.

BATTERIES

Battery recycling markets include brokers, processors and end-users. The following list is not all-inclusive. Please refer to the "Yellow Pages" of the phone directory under "Scrap dealers - Non-ferrous" for more listings.

The Battery Council International, is the trade association representing about 95% of the US' lead battery manufacturers and recyclers. BCI is at 401 North Michigan Ave., Chicago, IL 60611-4267 (312)644-6610.

Chapter 152 of New York's Laws of 1990 established a system of collection and recycling for lead-acid batteries. It prohibits the disposal of such batteries in mixed municipal solid waste or otherwise, except by delivery to a retailer, distributor, collector or recycling facility. As a last resort, they can go to a hazardous waste facility authorized to take batteries.

Consumers who do not return used batteries to the retailer at the time a new battery is purchased must pay the retailer a return incentive payment of $5/battery sold. If consumers return a used battery within 30 days of a purchase, $5 shall be refunded. If no return is made the retailer keeps the the $5. The Law requires lead-acid battery retailers and distributors to accept up to two used batteries per month free of charge from any individual.

In general, lead-acid batteries will accepted back by garages (i.e. Sears, K-Mart) that change and sell batteries. Or, you can try scrap dealers who handle non-ferrous metals, including lead. They would be listed in your local telephone directory. For more information, contact your nearest Dept. of Environmental Conservation regional office.

Household batteries (mercury, nickel cadmium, etc) are not the easiest recyclable to find an outlet for. As far as is known to ORMD staff, there is one outlet in the NE: Mercury Refining.

The Environmental Action Coalition has set up a network in Manhattan, NYC for collecting "button cell" and rechargeable nickel cadmium household batteries for recycling. The following camera and hearing aid retailers will accept button and nickel cadmium rechargables:

* Advance Camera Corp., 15 West 46th Street;
* B and H Photo, 119 West 17th Street;
* Bi-Rite Photo Electric Co., 15 East 30th Street;
* Empire State Hearing Aids, 25 West 43rd Street;
* Kahgan Hearing Center, 318 East 70th Street;
* Professional Hearing Aid Labs, 501 Fifth Ave., #704;

EAC is also organizing collection at local schools and non-profit organizations. They hope to serve 50 sites by the end of 1991. EAC donates the batteries to the R2B2 battery recycling project in the Bronx.

BATTERIES

NYS: Household:
Mercury Refining
790 Watervliet-Shaker Rd.
Latham, NY 12110

Plant:
26 Railroad Ave.
Albany, NY 12205
Contact: Vicki Hart/David Cohen
(800)833-3505; (518)785-1703
Processor. Will contract for, but will not pick up household batteries (no lead acid) in lined, steel pails or drums. The recycle them for mercury recovery.

Lead Acid-NYC/LI:
ASARCO, Inc.
New York, NY
(212)510-2215

DeMatteo Salvage Co., Inc.
90 Gleam Ave.
West Babylon, NY 11704
(516)643-7940
Contact: Dominick DeMatteo
Exporter/Processor. Will contract and pick up lead acid batteries for recycling.

Liberty Ash
112 Phylis Ct.
Elmont, NY 11803
(718)562-1465
Contact: Michael Bellino
Processor. Contract for and pick up lead acid batteries.

MRF-Town of Brookhaven
3233 Route 112
Medford, NY 11763
(516)451-6211
Contact: Elaine McKibbon
Processor/MRF. Pick up lead acid batteries to be recycled.

East End Recycling Assoc.
116 Hampton Rd.
South Hampton, NY 11968
(516)283-6000 (ext. 293)
Processor/MRF. Contract for but not pick up, lead acid batteries.

Star Recycling
50-19 69 Place
Woodside, NY 11377
(718)779-4650

Contact: Charles Gushmano
Processor. Will contract for and pick up lead acid batteries to be sold to mills or exported. Batteries must be intact. They can be loose (not in containers).

Schioppo Corp.
197 Grandview Ave.
Staten Island, NY 10303
(718)448-1444
Contact: Catherine Schioppo
Processor. Will contract for and pick up in NY/NJ/CT, lead acid batteries to process for scrap metals. Need whole batteries.

J Bass & Son Inc.
9-11 Carlton Ave.
Mt. Vernon, NY 10558
(914)667-1442
Contact: Robert Bass
Processors. Will pick up truckloads of loose, whole lead acid batteries to be remanufactured that are within 100 miles.

NJ:

A&M Batteries
414 Spring Street
Elizabeth, NJ
(201)352-7222
Processor. Lead-acid batteries.

Allstate Battery
2140 Route 37 East
Toms River, NJ 08753
(201)270-1201

Bergen Metals
10 Hill Pl.
Bergenfield, NJ 07621
(201)384-9494
Contact: E. Monte
Processor/Broker. Will contract for and pick up lead acid batteries for their scrap value.

Green Acres Recycling Center
23 Double Trouble Rd.
Dayville, NJ 08721
(201)349-0112
Contact: Joseph Zaccaro
Processor. Contract for and pick up lead acid batteries.

Borough Auto Salvage
2271 Hamilton Blvd.
South Plainfield, NJ 07080
(201)756-3585
Contact: Kelly Errickson
Processor. Will contract for and pick up lead acid batteries to be sold to processors. They need them on pallets with binding.

Broker/Exporter. Will contract for and pick up all natural and synthetic fibers, and rags.

Reliable Industries, Inc.
194 Greenfield Rd.
Lancaster, PA 17601
(717)397-7695
Contact: Stanley Miller
Processor. Will contract for and pick up at least 1/2 truckload of Fabri-roll goods in cartons.

Sarlo, Inc.
15 Jenny Lane
Coraopolis, PA 15108
(412)771-2121
Contact: Robert Esposito
Processor/Exporter. Will contract and pick up in the east and mid-west any materials loose, in gaylords, or in bales.

Red Hill Corp.
PO Box 4234 122 Baltimore St.
Gettysburg, PA 17325
(800)822-4003
Contact: Arturo Ottolenohi
Broker/Exporter. Will contract for and pick up less than a truckload of baled cotton/nylon/pp fabric or fiber that will be reprocessed east of the Mississippi.

S. Levine & Sons
Old Route 22 Farm Bur Rd. Box 148
Allentown, PA 18105
(215)398-1437
Contact: Harris Malkousky
Processor. Will pick up trailer loads of cut materials and textiles in the NE, bagged or baled.

United Shredding Inc.
5102 Woodland Ave.
Philadelphia, PA 19143
(215)729-4300
Processor. Wants old foam rubber mattresses, cushions, and auto seats. They must be stripped of cloth, dry and baled.

Rivlin Brothers Inc.
PO Box 477,
Pottstown, PA 19464
(215)323-4422
Exporter/Processor. Sells used work uniforms.

Philadelphia Rag Co.
1937 South 3rd St.
Philadelphia, PA 19148
215-271-7474; 7475
Processor. Wants institution rags and scrap burlap.

RAGS/CLOTHES/FIBER

Fiber--New York State
SISCO Traders Inc.
150 Nassau St.
New York, NY 10038
(212)732-3585
Contact: Jack Finkel
Broker. Want new white all cotton or cotton/synthetic cuttings, knitted or woven colored polyester, and orlon cuttings, solid colored knitted cotton/synthetic cuttings

Atlantic Wool Waste Co.
19 Rockwell Place
Brooklyn, NY 11217
(718)875-0088
Contact: Louis Piller
Exporter/Processor. Will contract for and pick up wool, cashmere, mohair, and acrylic for reprocessing.

Scott Cynamon Textiles Inc.
102 Luquer Street
Brooklyn, NY 11231
(718)858-3065
Contact: Scott Cynamon
Broker. Will contract for and pick up used clothing and fabrics of all kinds for export.

North Atlantic International Ltd.
1320 Ave
Bronx, NY 10474
(212)991-1200
Broker/Exporter. Institution and residential mixed rags.

Mill Sanitary Wiping Cloth
40 Bruckner Blvd.
Bronx, NY 10454
(212)585-7300
Contact: David Pasquale
(212)585-7300
Processor/Manufacturer. Contract for and pick up at least 1000 lbs. of all fiber in NE. It must be baled, boxed or in bags.

Other States:

Marchisell Brothers, Inc.
319 Pine St.
Camden, NJ 08103
(609)963-2040
Want institutional rags.

Hercules Fibres Corp.
10 Presidential Blvd. N
Bala-Cynwyd, PA 19004
(215)664-6300
Contact: Marvin Schwartz

CONSTRUCTION & DEMOLITION DEBRIS

Construction and Demolition debris include: Wood Waste, Paper Products, Concrete Products, Plastic, Metals, Roofing Materials, Earth (dirt), and miscellaneious materials. Some C&D wastes are unacceptable for recycling.

Recycling markets for C&D debris in and around New York are primarily intermediate processors. For recyclers looking for end-use markets it may be useful to talk to other processors to find out where they sell or recycle the materials they accept.

Trade Associations:

* Institute of Scrap Recycling Industries (ISRI), (202)466-4050. Contact Robert Garino.

* National Association of Demolition Contractors, (312) 449-5959. Contact William Baker, executive director.

* NYS Concrete Masonry Association, 6 Airline Drive, Albany, NY 12205 (518)869-3953 Contact: Gene Abbate, President.

CONSTRUCTION & DEMOLITION DEBRIS

C&D--LI/NYC
Twin Co. Recycling
Engel Street
Hicksville, NY 11801
(516)935-5800
Contact: Doug
Processor. They take road construction-related materials, i.e. asphalt, concrete. No wood or steel.

George's East End Recycling
PO Box 1529
Quoque, NY 11959
(516)653-6666
Contact: George Mathys
Processor. Take most construction debris, as well as wood. Call in advance.

BQE Services, Inc.
75 Thomas Street
Brooklyn, NY 11222
(718)963-4445
Contact: Joe Ciulla
Processor. Takes wood and C&D debris.

All Island Demolition Recycling
Old Dock Road
Yaphank, NY 11980
(516)924-2426
Processor.

Atlas Roll Off, Inc.
95-11 147th Place
Jamaica, NY 11435
(718)523-3000
Contact: Tom Polsinelli
Processor/Transfer station. Accepts brick, concrete, dirt, metals, paper, plastic and wood.

DeMateo Salvage, Inc.
90 Gleam Ave.
West Babylon, NY 11704
(516)643-7940
Contact: Domenick Dematteo
Processor/Exporter. Contract for and pick up C&D debris.

Duffy Thompson, Inc.
266 Route 109
Farmingdale, NY 11735
(516)293-6552

Jet Sanitation Service Corp./Island Recycling Corp.
228 Blydenburgh Road

Central Islip, NY 11722
(516)234-7100

Liberty Ash
112 Phylis Ct.
Elmont, NY 11003
(718)526-1465
Contact: Michael Bellino
Processor/Broker. Will contract for and pick up no more than 100 tons/day of C&D. No hazardous materials.

National Demolition Corp.
290 Old Northport Road
Kings Park, NY 11754
(516)269-6700

North Shore Express Excavation and Roll-Off Service, Corp.
84 Rocky Point Road
Sound Beach, NY 11789
(516)744-6518

Rapid Demolition Recycling, Inc.
153 Peconic Ave.
Medford, NY 11763
(516)654-8844

Red Hook Recycling
640 Columbia St.
Brooklyn, NY 11231
(718)935-9565
Contact: Michael Cosola

Star Recycling, Inc.
50-15 69th Place
Woodside, NY 11433
(718)779-4650
Contact: Charles Gusmano
Processor. Contract for and pick up mixed and crushed dirt/concrete, wood and metals in the NE. Loose or baled.

USA Recycling, Inc.
110 Old Northport Road
Kings Park, NY 11754
(516)368-1007

Goodman Bros. Steel Drum, Inc.
18-20 Division Place
Brooklyn, NY 11222
(718)782-3056; 3057
Contact: Irving Goodman
Processor. Accepts steel drums for recycling.

Municipal Recycling Assoc.
3 West Main Street

Elmsford, NY 10523
(914)347-3360
Contact: Angelo Rubbo

Industrial Recycling Systems
PO Box K
Croton-on-Hudson, NY 10520
(914)271-2175
Processor. Will contract and pick up uncrushed, whole, or short-size C&D debris, uncontaminated railroad ties and telephone poles. Min.: 10 tons; Max.: 100 tons.

JM Assoc.
225 Railroad Ave.
Bedford Hills, NY 10507
(914)241-1540
Contact: John Manfredi
Transfer station for C&D. Will arrange for transport.

Karta Recycling
1011 Lower South Street
Peekskill, NY 10566
(914)737-9211
Contact: Pat or Kenneth Cartalemi
Processor/MRF. Takes all C&D, white goods, and metals.

Recycling Industries Corp.
524 Waverly Ave.
Mamaroneck, NY 10543
(914)698-0404
Contact: Carl Lacavala
Processor. Will contract for and pick up C&D debris.

NJ:

Bergen Metals
10 Hill Place
Bergenfield, NJ 07621
(201)384-9494
Contact: E. Monte
Processor/Broker. Will contract for and pickup C&D debris.

A.E. Stone, Inc.
PO Box 101
Pleasantville, NJ 08832
(609)641-2781
Contact: Bob Frank
Processor. Will contract for gravel, wood, concrete, ripped asphalt, and building rubble, delivered. No treated wood, fuel contaminants, or putrecibles. Access to hwy., rail and water.

Clayton Recycling Center
1025 US Highway 1
Edison, NJ 08817
(201)549-1234
Contact: John Barr

Processor. Will contract for concrete waste, delivered. Access to highway and rail.

Recycling Specialists
375 Routes 1 & 9
Jersey City, NJ 07306
(201)547-4100
Contact: John Chialia
Processor. Will contract for and will pick up in the NE. No food waste. Access to rail, highway and water.

Winzinger Recycling Systems
1704 Marne Hwy.
Hainesport, NJ 08036
(609)267-8600
Contact: Heidi Winzinger
Processor/Manufacturer. Will contract for clean concrete (no soil), asphalt, bricks, tree stumps, delivered in dumpsters.

CT:
Stapleton Recycling
83 Quarry Rd.
Trumball, CT 06611
(203)374-4741
Contact: Christopher Stapleton, President
Processor/Manufacturer. Accepts waste concrete, masonry block, brick and asphalt, for a tipping fee. Prefers asphalt separate from other materials. Makes into aggregate.

M

Appendix M

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 1A: COMBINED IN-TOWN MSW/LEAF&YARD/FOOD WASTE COMPOSTING
WITH SUCCESSFUL COMPOST MARKETING

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (11)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143
Leaf/Yard/Food Waste (Tons)	11,955	13,946	15,956	16,949	17,617	18,318	18,824
Mixed Solid Waste/Other Recycling (Tons)	44,649	41,943	39,194	38,436	38,108	37,763	37,760
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727
DEBT SERVICE (2)							
Combined MSW,Leaf,Yard,&Food Waste Composting and Recycling Facility	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100
OPERATING COST (3)							
MSW Compost & Recyclables Extraction Operations	$1,415,100	$1,467,100	$1,520,100	$1,602,900	$1,693,400	$1,789,400	$1,895,700
Source Separated Recycling Operations	$384,600	$419,700	$457,900	$493,800	$529,000	$566,300	$607,800
Total Operating Cost	$1,799,700	$1,886,800	$1,978,000	$2,096,700	$2,222,400	$2,355,700	$2,503,500
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$189,600	$195,400	$201,500	$207,500	$212,900	$218,300	$224,700
Total Revenues	$189,600	$195,400	$201,500	$207,500	$212,900	$218,300	$224,700
IN-TOWN SYSTEM COST (5)	$2,837,200	$2,918,500	$3,003,600	$3,116,300	$3,236,600	$3,364,500	$3,505,900
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	39.40	40.60	41.90	43.00	44.30	45.60	46.90
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Rejects and Residuals (Tons)	16,070	15,100	14,110	13,840	13,720	13,590	13,590
Downtime Waste (Tons)	3,570	3,360	3,140	3,070	3,050	3,020	3,020
Unmarketed Compost (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	19,640	18,460	17,250	16,910	16,770	16,610	16,610
LANDFILL DISPOSAL COSTS (8)	$1,374,800	$1,324,500	$1,268,600	$1,274,700	$1,295,800	$1,315,500	$1,348,400
TOTAL COST OF ENTIRE SYSTEM (9)	$4,212,000	$4,243,000	$4,272,200	$4,391,000	$4,532,400	$4,680,000	$4,854,300
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	58.50	59.00	59.50	60.60	62.00	63.40	65.00

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 1A: COMBINED IN-TOWN MSW/LEAF&YARD/FOOD WASTE COMPOSTING
WITH SUCCESSFUL COMPOST MARKETING

IN-TOWN PROCESSING REQUIREMENTS	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	18,544	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf/Yard/Food Waste (Tons)	19,346	19,740	20,141	20,544	20,938	21,341	21,752	22,171
Mixed Solid Waste/Other Recycling (Tons)	37,739	37,850	37,965	38,060	38,120	38,183	38,237	38,283
Total Incoming Waste	75,629	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)								
Combined MSW,Leaf,Yard,&Food Waste Composting and Recycling Facility	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100
OPERATING COST (3)								
MSW Compost & Recyclables Extraction Operations	$2,008,100	$2,127,200	$2,253,500	$2,386,500	$2,525,200	$2,672,400	$2,828,000	$2,992,400
Source Separated Recycling Operations	$652,300	$700,100	$751,000	$805,300	$862,900	$924,400	$990,200	$1,060,700
Total Operating Cost	$2,660,400	$2,827,300	$3,004,500	$3,191,800	$3,388,100	$3,596,800	$3,818,200	$4,053,100
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$231,200	$238,000	$245,000	$252,100	$259,200	$266,400	$273,900	$281,500
Total Revenues	$231,200	$238,000	$245,000	$252,100	$259,200	$266,400	$273,900	$281,500
IN-TOWN SYSTEM COST (5)	$3,656,300	$3,816,400	$3,986,600	$4,166,800	$4,356,000	$4,557,500	$4,771,400	$4,998,700
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	48.30	49.90	51.50	53.20	55.00	56.90	58.90	61.00
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Rejects and Residuals (Tons)	13,590	13,630	13,670	13,700	13,720	13,750	13,770	13,780
Downtime Waste (Tons)	3,020	3,030	3,040	3,040	3,050	3,050	3,060	3,060
Unmarketed Compost (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	16,610	16,660	16,710	16,740	16,770	16,800	16,830	16,840
LANDFILL DISPOSAL COSTS (8)	$1,382,100	$1,420,900	$1,460,800	$1,500,000	$1,540,300	$1,581,600	$1,624,000	$1,665,600
TOTAL COST OF ENTIRE SYSTEM (9)	$5,038,400	$5,237,300	$5,447,400	$5,666,800	$5,896,300	$6,139,100	$6,395,400	$6,664,300
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	66.60	68.40	70.30	72.30	74.40	76.60	79.00	81.40

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 1B: COMBINED IN-TOWN MSW/LEAF&YARD/FOOD WASTE COMPOSTING
WITH LOW GRADE COMPOST MARKET FAILURE

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (11)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143
Leaf/Yard/Food Waste (Tons)	11,955	13,946	15,956	16,949	17,617	18,318	18,824
Mixed Solid Waste/Other Recycling (Tons)	44,649	41,943	39,194	38,436	38,108	37,763	37,760
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727
DEBT SERVICE (2)							
Combined MSW,Leaf,Yard,&Food Waste Composting and Recycling Facility	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100
OPERATING COST (3)							
MSW Compost & Recyclables Extraction Operations	$1,415,100	$1,467,100	$1,520,100	$1,602,900	$1,693,400	$1,789,400	$1,895,700
Source Separated Recycling Operations	$384,600	$419,700	$457,900	$493,800	$529,000	$566,300	$607,800
Total Operating Cost	$1,799,700	$1,886,800	$1,978,000	$2,096,700	$2,222,400	$2,355,700	$2,503,500
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$189,600	$195,400	$201,500	$207,500	$212,900	$218,300	$224,700
Total Revenues	$189,600	$195,400	$201,500	$207,500	$212,900	$218,300	$224,700
IN-TOWN SYSTEM COST (5)	$2,837,200	$2,918,500	$3,003,600	$3,116,300	$3,236,600	$3,364,500	$3,505,900
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	39.40	40.60	41.90	43.00	44.30	45.60	46.90
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Rejects and Residuals (Tons)	16,070	15,100	14,110	13,840	13,720	13,590	13,590
Downtime Waste (Tons)	3,570	3,360	3,140	3,070	3,050	3,020	3,020
Unmarketed Compost (Tons)	19,650	18,450	17,250	16,910	16,770	16,620	16,610
Total Material Landfilled	39,290	36,910	34,500	33,820	33,540	33,230	33,220
LANDFILL DISPOSAL COSTS (8)	$2,750,300	$2,648,300	$2,537,300	$2,549,400	$2,591,500	$2,631,800	$2,696,800
TOTAL COST OF ENTIRE SYSTEM (9)	$5,587,500	$5,566,800	$5,540,900	$5,665,700	$5,828,100	$5,996,300	$6,202,700
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	77.60	77.40	77.20	78.20	79.70	81.20	83.00

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 1B: COMBINED IN-TOWN MSW/LEAF&YARD/FOOD WASTE COMPOSTING
WITH LOW GRADE COMPOST MARKET FAILURE

IN-TOWN PROCESSING REQUIREMENTS	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	18,544	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf/Yard/Food Waste (Tons)	19,346	19,740	20,141	20,544	20,938	21,341	21,752	22,171
Mixed Solid Waste/Other Recycling (Tons)	37,739	37,850	37,965	38,060	38,120	38,183	38,237	38,283
Total Incoming Waste	75,629	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)								
Combined MSW,Leaf,Yard,&Food Waste Composting and Recycling Facility	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100	$1,227,100
OPERATING COST (3)								
MSW Compost & Recyclables Extraction Operations	$2,008,100	$2,127,200	$2,253,500	$2,386,500	$2,525,200	$2,672,400	$2,828,000	$2,992,400
Source Separated Recycling Operations	$652,300	$700,100	$751,000	$805,300	$862,900	$924,400	$990,200	$1,060,700
Total Operating Cost	$2,660,400	$2,827,300	$3,004,500	$3,191,800	$3,388,100	$3,596,800	$3,818,200	$4,053,100
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$231,200	$238,000	$245,000	$252,100	$259,200	$266,400	$273,900	$281,500
Total Revenues	$231,200	$238,000	$245,000	$252,100	$259,200	$266,400	$273,900	$281,500
IN-TOWN SYSTEM COST (5)	$3,656,300	$3,816,400	$3,986,600	$4,166,800	$4,356,000	$4,557,500	$4,771,400	$4,998,700
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	48.30	49.90	51.50	53.20	55.00	56.90	58.90	61.00
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Rejects and Realduals (Tons)	13,590	13,630	13,670	13,700	13,720	13,750	13,770	13,780
Downtime Waste (Tons)	3,020	3,030	3,040	3,040	3,050	3,050	3,060	3,060
Unmarketed Compost (Tons)	16,610	16,650	16,700	16,750	16,770	16,800	16,820	16,840
Total Material Landfilled	33,220	33,310	33,410	33,490	33,540	33,600	33,650	33,680
LANDFILL DISPOSAL COSTS (8)	$2,764,200	$2,841,000	$2,920,700	$3,000,900	$3,080,500	$3,163,200	$3,247,100	$3,331,200
TOTAL COST OF ENTIRE SYSTEM (9)	$6,420,500	$6,657,400	$6,907,300	$7,167,700	$7,436,500	$7,720,700	$8,018,500	$8,329,900
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	84.90	87.00	89.20	91.40	93.80	96.40	99.00	101.70

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 1C: COMBINED IN-TOWN MSW/LEAF&YARD/FOOD WASTE COMPOSTING REDUCED COST WITH LOW GRADE COMPOST MARKET FAILURE

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (11)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143
Leaf/Yard/Food Waste (Tons)	11,955	13,946	15,956	16,949	17,617	18,318	18,824
Mixed Solid Waste/Other Recyclables (Tons)	44,649	41,943	39,194	38,436	38,108	37,763	37,760
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727
DEBT SERVICE (2)							
Combined MSW,Leaf,Yard,&Food Waste Composting and Recycling Facility	$1,019,400	$1,019,400	$1,019,400	$1,019,400	$1,019,400	$1,019,400	$1,019,400
OPERATING COST (3)							
MSW Compost & Recyclables Extraction Operations	$1,301,900	$1,349,700	$1,398,500	$1,474,600	$1,557,900	$1,646,200	$1,744,000
Source Separated Recycling Operations	$353,800	$386,200	$421,300	$454,300	$486,700	$521,000	$559,200
Total Operating Cost	$1,655,700	$1,735,900	$1,819,800	$1,928,900	$2,044,600	$2,167,200	$2,303,200
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$189,600	$195,400	$201,500	$207,500	$212,900	$218,300	$224,700
Total Revenues	$189,600	$195,400	$201,500	$207,500	$212,900	$218,300	$224,700
IN-TOWN SYSTEM COST (5)	$2,485,500	$2,559,900	$2,637,700	$2,740,800	$2,851,100	$2,968,300	$3,097,900
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	34.50	35.60	36.80	37.80	39.00	40.20	41.50
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Rejects and Residuals (Tons)	16,070	15,100	14,110	13,840	13,720	13,590	13,590
Downtime Waste (Tons)	3,570	3,360	3,140	3,070	3,050	3,020	3,020
Unmarketed Compost (Tons)	19,650	18,450	17,250	16,910	16,770	16,620	16,610
Total Material Landfilled	39,290	36,910	34,500	33,820	33,540	33,230	33,220
LANDFILL DISPOSAL COSTS (8)	$2,750,300	$2,648,300	$2,537,300	$2,549,400	$2,591,500	$2,631,800	$2,696,800
TOTAL COST OF ENTIRE SYSTEM (9)	$5,235,800	$5,208,200	$5,175,000	$5,290,200	$5,442,600	$5,600,100	$5,794,700
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	72.70	72.50	72.10	73.00	74.40	75.90	77.50

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 1C: COMBINED IN-TOWN MSW/LEAF&YARD/FOOD WASTE COMPOSTING REDUCED COST WITH LOW GRADE COMPOST MARKET FAILURE

IN-TOWN PROCESSING REQUIREMENTS	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	18,544	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf/Yard/Food Waste (Tons)	19,346	19,740	20,141	20,544	20,938	21,341	21,752	22,171
Mixed Solid Waste/Other Recyclables (Tons)	37,739	37,850	37,965	38,060	38,120	38,183	38,237	38,283
Total Incoming Waste	75,629	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)								
Combined MSW,Leaf,Yard,&Food Waste Composting and Recycling Facility	$1,019,400	$1,019,400	$1,019,400	$1,019,400	$1,019,400	$1,019,400	$1,019,400	$1,019,400
OPERATING COST (3)								
MSW Compost & Recyclables Extraction Operations	$1,847,500	$1,957,000	$2,073,300	$2,195,600	$2,323,200	$2,458,600	$2,601,700	$2,753,000
Source Separated Recycling Operations	$600,100	$644,100	$691,000	$740,900	$793,900	$850,400	$911,000	$975,800
Total Operating Cost	$2,447,600	$2,601,100	$2,764,300	$2,936,500	$3,117,100	$3,309,000	$3,512,700	$3,728,800
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$231,200	$238,000	$245,000	$252,100	$259,200	$266,400	$273,900	$281,500
Total Revenues	$231,200	$238,000	$245,000	$252,100	$259,200	$266,400	$273,900	$281,500
IN-TOWN SYSTEM COST (5)	$3,235,800	$3,382,500	$3,538,700	$3,703,800	$3,877,300	$4,062,000	$4,258,200	$4,466,700
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	42.80	44.20	45.70	47.30	48.90	50.70	52.60	54.50
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Rejects and Residuals (Tons)	13,590	13,630	13,670	13,700	13,720	13,750	13,770	13,780
Downtime Waste (Tons)	3,020	3,030	3,040	3,040	3,050	3,050	3,060	3,060
Unmarketed Compost (Tons)	16,610	16,650	16,700	16,750	16,770	16,800	16,820	16,840
Total Material Landfilled	33,220	33,310	33,410	33,490	33,540	33,600	33,650	33,680
LANDFILL DISPOSAL COSTS (8)	$2,764,200	$2,841,000	$2,920,700	$3,000,900	$3,080,500	$3,163,200	$3,247,100	$3,331,200
TOTAL COST OF ENTIRE SYSTEM (9)	$6,000,000	$6,223,500	$6,459,400	$6,704,700	$6,957,800	$7,225,200	$7,505,300	$7,797,900
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	79.30	81.30	83.40	85.50	87.80	90.20	92.70	95.20

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 2: RECYCLING,COMPOSTING AND TRANSFER WITH REGIONAL WASTE-TO-ENERGY

RESOURCE RECOVERY SYSTEM REQUIREMENTS	YEAR 1 (12)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143
Leaf/Yard/Food Waste (Tons)	11,955	13,946	15,956	16,949	17,617	18,318	18,824
Mixed Solid Waste/Other Recycling (Tons)	44,649	41,943	39,194	38,436	38,108	37,763	37,760
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727
DEBT SERVICE (2)							
Transfer/S.Sep. Recycling Facility with Leaf/Yard/Food Waste Composting	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400
Total Debt Service	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400
OPERATING COST (3)							
Transfer and S.Sep. Recycling Operations	$1,500,800	$1,520,700	$1,538,200	$1,606,100	$1,687,000	$1,771,300	$1,872,900
Leaf/Yard/Food Waste Composting	$143,500	$169,000	$195,300	$209,600	$220,000	$231,000	$239,800
Total Operating Cost	$1,644,300	$1,689,700	$1,733,500	$1,815,700	$1,907,000	$2,002,300	$2,112,700
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$189,600	$195,400	$201,500	$207,500	$212,900	$218,300	$224,700
Total Revenues	$189,600	$195,400	$201,500	$207,500	$212,900	$218,300	$224,700
RESOURCE RECOVERY SYSTEM COST (5)	$2,021,100	$2,060,700	$2,098,400	$2,174,600	$2,260,500	$2,350,400	$2,454,400
RESOURCE RECOVERY SYSTEM UNIT COST ($/TON) (6)	28.10	28.70	29.20	30.00	30.90	31.80	32.80
DISPOSAL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Rejects and Residuals (Tons)	4,460	4,190	3,920	3,840	3,810	3,780	3,780
Downtime Waste (Tons)	4,460	4,190	3,920	3,840	3,810	3,780	3,780
Unmarketed Recyclables (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	8,920	8,380	7,840	7,680	7,620	7,560	7,560
LANDFILL DISPOSAL COSTS (8)	$624,400	$601,300	$576,600	$578,900	$588,800	$598,700	$613,700
MATERIALS DISPOSED BY W-T-E (Tons)	32,160	30,210	28,220	27,680	27,440	27,180	27,180
WASTE-TO-ENERGY DISPOSAL COSTS (9)	$2,733,600	$2,696,295	$2,644,567	$2,723,660	$2,835,047	$2,948,593	$3,096,023
TOTAL COST OF INTEGRATED SYSTEM (10)	$5,379,100	$5,358,295	$5,319,567	$5,477,160	$5,684,347	$5,897,693	$6,164,123
TOTAL UNIT COST OF INTEGRATED SYSTEM ($/TON) (11)	74.70	74.50	74.10	75.60	77.70	79.90	82.50

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 2: RECYCLING,COMPOSTING AND TRANSFER WITH REGIONAL WASTE-TO-ENERGY

RESOURCE RECOVERY SYSTEM REQUIREMENTS	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	18,544	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf/Yard/Food Waste (Tons)	19,346	19,740	20,141	20,544	20,938	21,341	21,752	22,171
Mixed Solid Waste/Other Recycling (Tons)	37,739	37,850	37,965	38,060	38,120	38,183	38,237	38,283
Total Incoming Waste	75,629	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)								
Transfer/S.Sep. Recycling Facility with Leaf/Yard/Food Waste Composting	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400
Total Debt Service	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400	$566,400
OPERATING COST (3)								
Transfer and S.Sep. Recycling Operations	$1,979,900	$2,098,200	$2,223,400	$2,355,200	$2,492,900	$2,638,700	$2,792,700	$2,955,600
Leaf/Yard/Food Waste Composting	$248,900	$256,500	$264,300	$272,300	$280,300	$288,600	$297,100	$305,800
Total Operating Cost	$2,228,800	$2,354,700	$2,487,700	$2,627,500	$2,773,200	$2,927,300	$3,089,800	$3,261,400
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$231,200	$238,000	$245,000	$252,100	$259,200	$266,400	$273,900	$281,500
Total Revenues	$231,200	$238,000	$245,000	$252,100	$259,200	$266,400	$273,900	$281,500
RESOURCE RECOVERY SYSTEM COST (5)	$2,564,000	$2,683,100	$2,809,100	$2,941,800	$3,080,400	$3,227,300	$3,382,300	$3,546,300
RESOURCE RECOVERY SYSTEM UNIT COST ($/TON) (6	33.90	35.10	36.30	37.50	38.90	40.30	41.80	43.30
DISPOSAL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Rejects and Residuals (Tons)	3,770	3,790	3,800	3,810	3,810	3,820	3,820	3,830
Downtime Waste (Tons)	3,770	3,790	3,800	3,810	3,810	3,820	3,820	3,830
Unmarketed Recyclables (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	7,540	7,580	7,600	7,620	7,620	7,640	7,640	7,660
LANDFILL DISPOSAL COSTS (8)	$627,400	$646,500	$664,400	$682,800	$699,900	$719,200	$737,200	$757,600
MATERIALS DISPOSED BY W-T-E (Tons)	27,180	27,240	27,330	27,400	27,450	27,490	27,540	27,560
WASTE-TO-ENERGY DISPOSAL COSTS (9)	$3,250,824	$3,420,900	$3,603,891	$3,793,696	$3,990,735	$4,196,377	$4,414,116	$4,638,188
TOTAL COST OF INTEGRATED SYSTEM (10)	$6,442,224	$6,750,500	$7,077,391	$7,418,296	$7,771,035	$8,142,877	$8,533,616	$8,942,088
TOTAL UNIT COST OF INTEGRATED SYSTEM ($/TON) (1	85.20	88.20	91.40	94.60	98.10	101.60	105.40	109.20

OWN OF SOUTHAMPTON

20-YEAR LIFE CYCLE ANALYSIS

CASE 3A: IN-TOWN L&Y WASTE COMPOSTING AND TRANSFER FACILITY WITH REGIONAL MSW COMPOSTING AND MATERIALS RECOVERY

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (13)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143
Leaf/Yard Waste (Tons)	8,334	8,405	8,475	8,641	8,811	8,984	9,184
Mixed Solid Waste/Other Recycling (Tons)	48,270	47,484	46,675	46,744	46,914	47,097	47,400
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727
DEBT SERVICE (2)							
Transfer Station/Leaf/Yard Compost Facility	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000
OPERATING COST (3)	$3,962,000	$4,096,900	[illegible]	[illegible]	$4,551,000	[illegible]	[illegible]
Transfer Station/Composting Operations	$1,799,700	$1,886,800	$1,978,000	$2,098,600	$2,212,400	$2,395,700	$2,503,500
Transportation Costs	$191,000	$199,900	$209,300	$221,600	$234,600	$248,300	$263,500
OUT-OF-TOWN Total Operating Costs	$1,990,700	$2,086,700	$2,187,300	$2,318,200	$2,457,000	$2,604,000	$2,767,000
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$41,500	$43,600	$45,800	$47,500	$48,900	$50,400	$52,000
Total Revenues	$41,500	$43,600	$45,800	$47,500	$48,900	$50,400	$52,000
IN-TOWN SYSTEM COST (5)	$2,421,200	$2,515,100	$2,613,500	$2,742,700	$2,880,100	$3,025,600	$3,187,000
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	33.60	35.00	36.40	37.90	39.40	41.00	42.60
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Residuals (Tons)	54,800	55,300	55,900	56,400	57,000	57,500	58,100
Downtime Waste (Tons)	1,800	1,800	1,900	1,900	1,900	1,900	1,900
Unmarketed Compost (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	56,600	57,100	57,800	58,300	58,900	59,400	60,000
LANDFILL DISPOSAL COSTS (8)	$3,962,000	$4,096,900	$4,250,800	$4,394,800	$4,551,000	$4,704,400	$4,870,700
LANDFILL DISPOSAL REVENUES (9)	$3,011,300	$3,193,400	$3,386,600	$3,591,500	$3,808,800	$4,039,200	$4,283,600
OUT-OF-TOWN RECYCLING AND MSW COMPOSTING							
Source Separated Recyclables (10)	$181,500	$198,100	$216,100	$233,100	$249,700	$267,300	$286,900
Mixed Solid Waste (10)	$3,378,900	$3,490,100	$3,602,100	$3,787,800	$3,991,700	$4,207,600	$4,446,400
Total Disposal Fee	$3,560,400	$3,688,200	$3,818,200	$4,020,900	$4,241,400	$4,474,900	$4,733,300
TOTAL COST OF ENTIRE SYSTEM (11)	$6,932,300	$7,106,800	$7,295,900	$7,566,900	$7,863,700	$8,165,700	$8,507,400
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (12)	96.30	98.90	101.70	104.40	107.50	110.60	113.80

17,061 17,409 17,750 18,143
8,334 8,405 8,475 8,641 8,811 8,984 9,184
Page 2

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 3A: IN-TOWN L&Y WASTE COMPOSTING AND TRANSFER FACILITY
WITH REGIONAL MSW COMPOSTING AND MATERIALS RECOVERY

IN-TOWN PROCESSING REQUIREMENTS	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	18,544	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf/Yard Waste (Tons)	9,387	9,598	9,809	10,024	10,235	10,451	10,672	10,897
Mixed Solid Waste/Other Recycling (Tons)	47,698	47,994	48,297	48,580	48,823	49,073	49,317	49,557
Total Incoming Waste	75,629	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)								
Transfer Station/Leaf&Yard Compost Facility	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000
OPERATING COST (3)								
Transfer Station/Composting Operations	$2,660,400	$2,827,300	$3,004,600	$3,191,800	$3,388,100	$3,596,800	$3,818,200	$4,053,100
Transportation Costs	$279,600	$296,700	$314,900	$334,000	$354,100	$375,300	$397,800	$421,600
Total Operating Costs	$2,940,000	$3,124,000	$3,319,500	$3,525,800	$3,742,200	$3,972,100	$4,216,000	$4,474,700
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$53,700	$55,400	$57,200	$59,000	$60,800	$62,600	$64,500	$66,500
Total Revenues	$53,700	$55,400	$57,200	$59,000	$60,800	$62,600	$64,500	$66,500
IN-TOWN SYSTEM COST (5)	$3,358,300	$3,540,600	$3,734,300	$3,938,800	$4,153,400	$4,381,500	$4,623,500	$4,880,200
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	44.40	46.30	48.20	50.30	52.40	54.70	57.10	59.60
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Residuals (Tons)	58,700	59,300	59,900	60,500	61,100	61,700	62,300	62,900
Downtime Waste (Tons)	2,000	2,000	2,000	2,000	2,000	2,100	2,100	2,100
Unmarketed Compost (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	60,700	61,300	61,900	62,500	63,100	63,800	64,400	65,000
LANDFILL DISPOSAL COSTS (8)	$5,050,700	$5,228,200	$5,411,300	$5,600,400	$5,795,500	$6,006,300	$6,214,300	$6,429,000
LANDFILL DISPOSAL REVENUES (9)	$4,542,800	$4,817,600	$5,109,100	$5,418,200	$5,746,000	$6,093,600	$6,462,300	$6,853,200
OUT-OF-TOWN RECYCLING AND MSW COMPOSTING								
Source Separated Recyclables (10)	$307,900	$330,500	$354,500	$380,100	$407,300	$436,300	$467,400	$500,600
Mixed Solid Waste (10)	$4,698,100	$4,963,600	$5,244,700	$5,539,200	$5,845,300	$6,169,000	$6,509,600	$6,868,400
DEP Toll Disposal Fee	$5,006,000	$5,294,100	$5,599,200	$5,919,300	$6,252,600	$6,605,300	$6,977,000	$7,369,000
TOTAL COST OF ENTIRE SYSTEM (11)	$8,872,200	$9,245,300	$9,635,700	$10,040,800	$10,455,500	$10,899,500	$11,352,500	$11,825,000
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (12)	117.30	120.80	124.40	128.10	131.60	136.10	140.20	144.40

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 3B: IN-TOWN MSW PRE-PROCESSING,L&Y WASTE COMPOSTING,
AND SOURCE-SEPARATED MATERIALS RECOVERY
WITH REGIONAL MSW COMPOSTING

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (13)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143
Leaf & Yard Waste (Tons)	8,334	8,405	8,475	8,641	8,811	8,984	9,184
Mixed Solid Waste/Other Recycling (Tons)	48,270	47,484	46,675	46,744	46,914	47,097	47,400
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727
DEBT SERVICE (2)							
Transfer Station/Leaf&Yard Compost Facility	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000
Preprocessing System	$179,300	$179,300	$179,300	$179,300	$179,300	$179,300	$179,300
Total Debt Service	$651,300	$651,300	$651,300	$651,300	$651,300	$651,300	$651,300
OPERATING COST (3)							
Combined Transfer Station/MSW Pre-Processing and L&YW Composting	$1,799,700	$1,886,800	$1,978,000	$2,096,600	$2,222,400	$2,355,700	$2,503,500
Transportation Costs	$158,100	$164,100	$170,000	$179,200	$189,600	$200,200	$212,300
Total Operating Cost	$1,957,800	$2,050,900	$2,148,000	$2,275,800	$2,412,000	$2,555,900	$2,715,800
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$192,500	$199,900	$207,600	$214,300	$220,200	$226,200	$232,800
Total Revenues	$192,500	$199,900	$207,600	$214,300	$220,200	$226,200	$232,800
IN-TOWN SYSTEM COST (5)	$2,416,600	$2,502,300	$2,591,700	$2,712,800	$2,843,100	$2,981,000	$3,134,300
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	33.60	34.80	36.10	37.40	38.90	40.40	41.90
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Residuals (Tons)	54,750	55,300	55,850	56,410	56,970	57,540	58,120
Downtime Waste (Tons)	1,830	1,840	1,860	1,880	1,900	1,920	1,940
Unmarketed Compost (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	56,580	57,140	57,710	58,290	58,870	59,460	60,060
LANDFILL DISPOSAL COSTS (8)	$3,960,600	$4,099,800	$4,244,200	$4,394,000	$4,548,700	$4,709,100	$4,875,600
LANDFILL DISPOSAL REVENUES (9)	$3,695,600	$3,919,400	$4,156,300	$4,407,900	$4,674,200	$4,957,000	$5,257,300
OUT-OF-TOWN MSW COMPOSTING REQ'TS							
MATERIALS DISPOSED BY MSW COMPOSTING (Tons)	52700	52100	51400	51600	52000	52300	52800
MSW COMPOSTING DISPOSAL COSTS (10)	$2,977,600	$3,091,100	$3,202,200	$3,375,700	$3,571,900	$3,771,900	$3,998,500
MSW COMPOSTING DISPOSAL COST PER TON	56.50	59.33	62.3	65.42	68.69	72.12	75.73
TOTAL COST OF ENTIRE SYSTEM (11)	$5,659,200	$5,773,800	$5,881,800	$6,074,600	$6,289,500	$6,505,000	$6,751,100
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (12)	78.60	80.30	82.00	83.90	86.00	88.10	90.30

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 3B: IN-TOWN MSW PRE-PROCESSING,L&Y WASTE COMPOSTING,
AND SOURCE-SEPARATED MATERIALS RECOVERY
WITH REGIONAL MSW COMPOSTING

IN-TOWN PROCESSING REQUIREMENTS	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	18,544	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf & Yard Waste (Tons)	9,387	9,596	9,809	10,024	10,235	10,451	10,672	10,897
Mixed Solid Waste/Other Recycling (Tons)	47,698	47,994	48,297	48,580	48,823	49,073	49,317	49,557
Total Incoming Waste	75,629	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)								
Transfer Station/Leaf&Yard Compost Facility	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000	$472,000
Preprocessing System	$179,300	$179,300	$179,300	$179,300	$179,300	$179,300	$179,300	$179,300
Total Debt Service	$651,300	$651,300	$651,300	$651,300	$651,300	$651,300	$651,300	$651,300
OPERATING COST (3)								
Combined Transfer Station/MSW Pre-Processing and L&YW Composting	$2,660,400	$2,827,300	$3,004,600	$3,191,800	$3,388,100	$3,596,800	$3,818,200	$4,053,100
Transportation Costs	$225,000	$238,500	$252,200	$267,300	$283,200	$299,500	$316,800	$335,600
Total Operating Cost	$2,885,400	$3,065,800	$3,256,800	$3,459,100	$3,671,300	$3,896,300	$4,135,000	$4,388,700
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$239,700	$246,800	$254,000	$261,400	$268,700	$276,200	$284,000	$291,900
Total Revenues	$239,700	$246,800	$254,000	$261,400	$268,700	$276,200	$284,000	$291,900
IN-TOWN SYSTEM COST (5)	$3,297,000	$3,470,300	$3,654,100	$3,849,000	$4,053,900	$4,271,400	$4,502,300	$4,748,100
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	43.60	45.30	47.20	49.10	51.20	53.30	55.60	58.00
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Residuals (Tons)	58,700	59,290	59,880	60,480	61,080	61,690	62,310	62,930
Downtime Waste (Tons)	1,960	1,980	2,000	2,020	2,040	2,060	2,080	2,100
Unmarketed Compost (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	60,660	61,270	61,880	62,500	63,120	63,750	64,390	65,030
LANDFILL DISPOSAL COSTS (8)	$5,047,400	$5,225,600	$5,409,600	$5,600,400	$5,797,300	$6,001,600	$6,213,400	$6,432,000
LANDFILL DISPOSAL REVENUES (9)	$5,575,300	$5,912,900	$6,270,300	$6,649,800	$7,051,600	$7,478,100	$7,930,900	$8,410,300
OUT-OF-TOWN MSW COMPOSTING REQ'TS								
MATERIALS DISPOSED BY MSW COMPOSTING (Tons)	53300	53800	54200	54700	55200	55600	56000	56500
MSW COMPOSTING DISPOSAL COSTS (10)	$4,238,400	$4,492,300	$4,752,300	$5,035,700	$5,335,600	$5,642,800	$5,967,400	$6,321,800
MSW COMPOSTING DISPOSAL COST PER TON	79.52	83.5	87.68	92.06	96.66	101.49	106.56	111.89
TOTAL COST OF ENTIRE SYSTEM (11)	$7,007,500	$7,275,300	$7,545,700	$7,835,300	$8,135,200	$8,437,700	$8,752,200	$9,091,600
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (12)	92.70	95.00	97.40	100.00	102.70	105.30	108.10	111.00

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4A: IN-TOWN MRF, LEAF & YARD AND ORGANICS WASTE COMPOSTING
SUCCESSFUL LEAF COMPOST MARKETING

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (11)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143	18,544
Leaf & Yard Waste (Tons)	8,334	8,405	8,475	8,641	8,811	8,984	9,184	9,387
Organic Waste (Tons)	3,621	5,541	7,481	8,308	8,806	9,334	9,640	9,959
Other Waste Recycling/Private Sector (Tons)	8,939	9,648	9,992	10,212	10,389	10,566	10,775	10,987
Mixed Solid Waste/White Goods/Tires (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727	75,629
DEBT SERVICE (2)								
MRF, Leaf & Yard and Organic Waste Composting Facilities	$727,100	$727,100	$727,100	$727,100	$727,100	$727,100	$727,100	$727,100
OPERATING COST (3)								
Source Separated Recycling Operations	$307,700	$335,800	$366,300	$395,000	$423,200	$453,100	$486,300	$521,900
Leaf & Yard Waste Operations	$166,700	$176,500	$186,900	$200,100	$214,200	$229,300	$246,100	$264,200
Organic Waste Operations	$72,400	$116,400	$165,000	$192,400	$214,100	$238,300	$258,400	$280,300
Other Waste Recycling/Private Sector Operations	$178,800	$202,600	$220,300	$236,400	$252,600	$269,700	$288,800	$309,200
Mixed Solid Waste/White Goods/Tires Operations	$535,700	$508,600	$482,900	$490,100	$505,400	$520,700	$542,400	$564,600
Total Operating Cost	$1,261,300	$1,339,900	$1,421,400	$1,514,000	$1,609,500	$1,711,100	$1,822,000	$1,940,200
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$153,800	$161,500	$169,500	$175,800	$181,200	$186,600	$192,600	$198,800
Total Revenues	$153,800	$161,500	$169,500	$175,800	$181,200	$186,600	$192,600	$198,800
IN-TOWN SYSTEM COST (5)	$1,834,600	$1,905,500	$1,979,000	$2,065,300	$2,155,400	$2,251,600	$2,356,500	$2,468,500
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	25.50	26.50	27.60	28.50	29.50	30.50	31.50	32.60
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Unmarketed Compost (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
LANDFILL DISPOSAL COSTS (8)	$2,499,700	$2,317,200	$2,147,600	$2,127,600	$2,141,800	$2,154,000	$2,190,600	$2,226,000
TOTAL COST OF ENTIRE SYSTEM (9)	$4,334,300	$4,222,700	$4,126,600	$4,192,900	$4,297,200	$4,405,600	$4,547,100	$4,694,500
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	60.20	58.70	57.50	57.90	58.80	59.70	60.80	62.10

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4A: IN-TOWN MRF, LEAF & YARD AND ORGANICS WASTE COMPOSTING
SUCCESSFUL LEAF COMPOST MARKETING

IN-TOWN PROCESSING REQUIREMENTS	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf & Yard Waste (Tons)	9,596	9,809	10,024	10,235	10,451	10,672	10,897
Organic Waste (Tons)	10,144	10,332	10,520	10,703	10,890	11,080	11,274
Other Waste Recycling/Private Sector (Tons)	11,203	11,424	11,616	11,802	11,992	12,184	12,379
Mixed Solid Waste/White Goods/Tires (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Total Incoming Waste	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)							
MRF, Leaf & Yard and Organic Waste Composting Facilities	$727,100	$727,100	$727,100	$727,100	$727,100	$727,100	$727,100
OPERATING COST (3)							
Source Separated Recycling Operations	$560,100	$600,800	$644,300	$690,300	$739,500	$792,200	$848,600
Leaf & Yard Waste Operations	$283,600	$304,300	$326,600	$350,100	$375,400	$402,500	$431,500
Organic Waste Operations	$299,700	$320,600	$342,700	$366,100	$391,100	$417,900	$446,400
Other Waste Recycling/Private Sector Operations	$331,000	$354,400	$378,400	$403,700	$430,700	$459,500	$490,200
Mixed Solid Waste/White Goods/Tires Operations	$590,500	$617,600	$646,100	$675,200	$705,500	$736,900	$769,300
Total Operating Cost	$2,064,900	$2,197,700	$2,338,100	$2,485,400	$2,642,200	$2,809,000	$2,986,000
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$205,300	$211,800	$218,500	$225,200	$232,000	$239,100	$246,300
Total Revenues	$205,300	$211,800	$218,500	$225,200	$232,000	$239,100	$246,300
IN-TOWN SYSTEM COST (5)	$2,586,700	$2,713,000	$2,846,700	$2,987,300	$3,137,300	$3,297,000	$3,466,800
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	33.80	35.00	36.30	37.70	39.20	40.70	42.30
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Unmarketed Compost (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	26,647	26,541	26,444	26,318	26,191	26,053	25,904
LANDFILL DISPOSAL COSTS (8)	$2,272,700	$2,320,200	$2,369,500	$2,417,200	$2,465,700	$2,514,000	$2,562,100
TOTAL COST OF ENTIRE SYSTEM (9)	$4,859,400	$5,033,200	$5,216,200	$5,404,500	$5,603,000	$5,811,000	$6,028,900
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	63.50	65.00	66.60	68.20	69.90	71.70	73.60

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4B: IN-TOWN MRF/TRANSFER FACILTIY, ORGANICS WASTE COMPOSTING FACILITY, AND LEAF & YARD COMPOSTING BY PRIVATE SECTOR

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (11)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143	18,544
Leaf & Yard Waste (Tons)	8,334	8,405	8,475	8,641	8,811	8,984	9,184	9,387
Organic Waste (Tons)	3,621	5,541	7,481	8,308	8,806	9,334	9,640	9,959
Other Waste Recycling/Private Sector (Tons)	8,939	9,648	9,992	10,212	10,389	10,566	10,775	10,987
Mixed Solid Waste/White Goods/Tires (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727	75,629
DEBT SERVICE (2)								
MRF, Organic Waste Composting Facility and Transfer Facilities	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300
OPERATING COST (3)								
Export of Source Separated Recyclables	$676,900	$738,700	$805,900	$869,000	$931,100	$996,800	$1,069,800	$1,148,100
Leaf & Yard Waste Composting/Private Sector Operations	$108,600	$114,100	$183,300	$259,800	$303,000	$337,200	$375,300	$406,900
Organic Waste Operations	$72,400	$116,400	$165,000	$192,400	$214,100	$238,300	$258,400	$280,300
Other Waste Recycling/Private Sector Operations	$178,800	$202,600	$220,300	$236,400	$252,600	$269,700	$288,800	$309,200
Mixed Solid Waste/White Goods/Tires Operations	$535,700	$508,600	$482,900	$490,100	$505,400	$520,700	$542,400	$564,600
Total Operating Cost	$1,572,400	$1,680,400	$1,857,400	$2,047,700	$2,206,200	$2,362,700	$2,534,700	$2,709,100
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$0	$0	$0	$0	$0	$0	$0	$0
Total Revenues	$0	$0	$0	$0	$0	$0	$0	$0
SYSTEM COST (5)	$1,955,700	$2,063,700	$2,240,700	$2,431,000	$2,589,500	$2,746,000	$2,918,000	$3,092,400
SYSTEM UNIT COST ($/TON) (6)	27.20	28.70	31.20	33.60	35.40	37.20	39.00	40.90
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Unmarketed Compost (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
LANDFILL DISPOSAL COSTS (8)	$2,499,700	$2,317,200	$2,147,600	$2,127,600	$2,141,800	$2,154,000	$2,190,600	$2,226,000
TOTAL COST OF ENTIRE SYSTEM (9)	$4,455,400	$4,380,900	$4,388,300	$4,558,600	$4,731,300	$4,900,000	$5,108,600	$5,318,400
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	61.90	60.90	61.10	62.90	64.70	66.40	68.40	70.30

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4B: IN-TOWN MRF/TRANSFER FACILTIY, ORGANICS WASTE COMPOSTING FACILITY, AND LEAF & YARD COMPOSTING BY PRIVATE SECTOR

IN-TOWN PROCESSING REQUIREMENTS	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf & Yard Waste (Tons)	9,596	9,809	10,024	10,235	10,451	10,672	10,897
Organic Waste (Tons)	10,144	10,332	10,520	10,703	10,890	11,080	11,274
Other Waste Recycling/Private Sector (Tons)	11,203	11,424	11,616	11,802	11,992	12,184	12,379
Mixed Solid Waste/White Goods/Tires (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Total Incoming Waste	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)							
MRF, Organic Waste Composting Facility and Transfer Facilities	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300
OPERATING COST (3)							
Export of Source Separated Recyclables	$1,232,200	$1,321,800	$1,417,400	$1,518,700	$1,626,900	$1,742,800	$1,866,800
Leaf & Yard Waste Composting/Private Sector Operations	$441,400	$472,100	$504,900	$539,800	$576,600	$616,000	$658,100
Organic Waste Operations	$299,700	$320,600	$342,700	$366,100	$391,100	$417,900	$446,400
Other Waste Recycling/Private Sector Operations	$331,000	$354,400	$378,400	$403,700	$430,700	$459,500	$490,200
Mixed Solid Waste/White Goods/Tires Operations	$590,500	$617,600	$646,100	$675,200	$705,500	$736,900	$769,300
Total Operating Cost	$2,894,800	$3,086,500	$3,289,500	$3,503,500	$3,730,800	$3,973,100	$4,230,800
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$0	$0	$0	$0	$0	$0	$0
Total Revenues	$0	$0	$0	$0	$0	$0	$0
SYSTEM COST (5)	$3,278,100	$3,469,800	$3,672,800	$3,886,800	$4,114,100	$4,356,400	$4,614,100
SYSTEM UNIT COST ($/TON) (6)	42.80	44.80	46.90	49.10	51.40	53.80	56.30
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Unmarketed Compost (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	26,647	26,541	26,444	26,318	26,191	26,053	25,904
LANDFILL DISPOSAL COSTS (8)	$2,272,700	$2,320,200	$2,369,500	$2,417,200	$2,465,700	$2,514,000	$2,562,100
TOTAL COST OF ENTIRE SYSTEM (9)	$5,550,800	$5,790,000	$6,042,300	$6,304,000	$6,579,800	$6,870,400	$7,176,200
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	72.50	74.70	77.10	79.60	82.10	84.80	87.60

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4C: IN-TOWN MRF/TRANSFER FACILTIY, ORGANICS WASTE COMPOSTING, NO LEAF & YARD WASTE COLLECTION

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (11)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143	18,544
Leaf & Yard Waste (Tons)	0	0	0	0	0	0	0	0
Organic Waste (Tons)	3,621	5,541	7,481	8,308	8,806	9,334	9,640	9,959
Other Waste Recycling/Private Sector (Tons)	8,939	9,648	9,992	10,212	10,389	10,566	10,775	10,987
Mixed Solid Waste/White Goods/Tires (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Total Incoming Waste	63,654	63,474	63,288	63,805	64,323	64,847	65,543	66,242
DEBT SERVICE (2)								
MRF, Organic Waste Composting Facility and Transfer Facilities	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300
OPERATING COST (3)								
Export of Source Separated Recyclables	$676,900	$738,700	$805,900	$869,000	$931,100	$996,800	$1,069,800	$1,148,100
Organic Waste Operations	$72,400	$116,400	$165,000	$192,400	$214,100	$238,300	$258,400	$280,300
Other Waste Recycling/Private Sector Operations	$178,800	$202,600	$220,300	$236,400	$252,600	$269,700	$288,800	$309,200
Mixed Solid Waste/White Goods/Tires Operations	$535,700	$508,600	$482,900	$490,100	$505,400	$520,700	$542,400	$564,600
Total Operating Cost	$1,463,800	$1,566,300	$1,674,100	$1,787,900	$1,903,200	$2,025,500	$2,159,400	$2,302,200
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$0	$0	$0	$0	$0	$0	$0	$0
Total Revenues	$0	$0	$0	$0	$0	$0	$0	$0
SYSTEM COST (5)	$1,847,100	$1,949,600	$2,057,400	$2,171,200	$2,286,500	$2,408,800	$2,542,700	$2,685,500
SYSTEM UNIT COST ($/TON) (6)	29.00	30.70	32.50	34.00	35.50	37.10	38.80	40.50
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Unmarketed Compost (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
LANDFILL DISPOSAL COSTS (8)	$2,499,700	$2,317,200	$2,147,600	$2,127,600	$2,141,800	$2,154,000	$2,190,600	$2,226,000
TOTAL COST OF ENTIRE SYSTEM (9)	$4,346,800	$4,266,800	$4,205,000	$4,298,800	$4,428,300	$4,562,800	$4,733,300	$4,911,500
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	68.30	67.20	66.40	67.40	68.80	70.40	72.20	74.10

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4C: IN-TOWN MRF/TRANSFER FACILTIY, ORGANICS WASTE COMPOSTING, NO LEAF & YARD WASTE COLLECTION

IN-TOWN PROCESSING REQUIREMENTS	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf & Yard Waste (Tons)	0	0	0	0	0	0	0
Organic Waste (Tons)	10,144	10,332	10,520	10,703	10,890	11,080	11,274
Other Waste Recycling/Private Sector (Tons)	11,203	11,424	11,616	11,802	11,992	12,184	12,379
Mixed Solid Waste/White Goods/Tires (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Total Incoming Waste	66,949	67,662	68,356	69,004	69,662	70,322	70,986
DEBT SERVICE (2)							
MRF, Organic Waste Composting Facility and Transfer Facilities	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300	$383,300
OPERATING COST (3)							
Export of Source Separated Recyclables	$1,232,200	$1,321,800	$1,417,400	$1,518,700	$1,626,900	$1,742,800	$1,866,800
Organic Waste Operations	$299,700	$320,600	$342,700	$366,100	$391,100	$417,900	$446,400
Other Waste Recycling/Private Sector Operations	$331,000	$354,400	$378,400	$403,700	$430,700	$459,500	$490,200
Mixed Solid Waste/White Goods/Tires Operations	$590,500	$617,600	$646,100	$675,200	$705,500	$736,900	$769,300
Total Operating Cost	$2,453,400	$2,614,400	$2,784,600	$2,963,700	$3,154,200	$3,357,100	$3,572,700
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$0	$0	$0	$0	$0	$0	$0
Total Revenues	$0	$0	$0	$0	$0	$0	$0
SYSTEM COST (5)	$2,836,700	$2,997,700	$3,167,900	$3,347,000	$3,537,500	$3,740,400	$3,956,000
SYSTEM UNIT COST ($/TON) (6)	42.40	44.30	46.30	48.50	50.80	53.20	55.70
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Unmarketed Compost (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	26,647	26,541	26,444	26,318	26,191	26,053	25,904
LANDFILL DISPOSAL COSTS (8)	$2,272,700	$2,320,200	$2,369,500	$2,417,200	$2,465,700	$2,514,000	$2,562,100
TOTAL COST OF ENTIRE SYSTEM (9)	$5,109,400	$5,317,900	$5,537,400	$5,764,200	$6,003,200	$6,254,400	$6,518,100
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	76.30	78.60	81.00	83.50	86.20	88.90	91.80

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4D: IN-TOWN MRF, AND ORGANICS WASTE COMPOSTING
NO LEAF & YARD WASTE COLLECTION

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (11)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143	18,544
Leaf & Yard Waste (Tons)	0	0	0	0	0	0	0	0
Organic Waste (Tons)	3,621	5,541	7,481	8,308	8,806	9,334	9,640	9,959
Other Waste Recycling/Private Sector (Tons)	8,939	9,648	9,992	10,212	10,389	10,566	10,775	10,987
Mixed Solid Waste/White Goods/Tires (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Total Incoming Waste	63,654	63,474	63,288	63,805	64,323	64,847	65,543	66,242
DEBT SERVICE (2)								
Combined MRF, and Organic Waste Composting and Recycling Facility	$608,200	$608,200	$608,200	$608,200	$608,200	$608,200	$608,200	$608,200
OPERATING COST (3)								
Source Separated Recycling Operations	$307,700	$335,800	$366,300	$395,000	$423,200	$453,100	$486,300	$521,900
Leaf & Yard Waste Operations	$0	$0	$0	$0	$0	$0	$0	$0
Organic Waste Operations	$72,400	$116,400	$165,000	$192,400	$214,100	$238,300	$258,400	$280,300
Other Waste Recycling/Private Sector Operations	$178,800	$202,600	$220,300	$236,400	$252,600	$269,700	$288,800	$309,200
Mixed Solid Waste/White Goods/Tires Operations	$535,700	$508,600	$482,900	$490,100	$505,400	$520,700	$542,400	$564,600
Total Operating Cost	$1,094,600	$1,163,400	$1,234,500	$1,313,900	$1,395,300	$1,481,800	$1,575,900	$1,676,000
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$153,800	$161,500	$169,500	$175,800	$181,200	$186,600	$192,600	$198,800
Total Revenues	$153,800	$161,500	$169,500	$175,800	$181,200	$186,600	$192,600	$198,800
IN-TOWN SYSTEM COST (5)	$1,549,000	$1,610,100	$1,673,200	$1,746,300	$1,822,300	$1,903,400	$1,991,500	$2,085,400
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	24.30	25.40	26.40	27.40	28.30	29.40	30.40	31.50
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Unmarketed Compost (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
LANDFILL DISPOSAL COSTS (8)	$2,499,700	$2,317,200	$2,147,600	$2,127,600	$2,141,800	$2,154,000	$2,190,600	$2,226,000
TOTAL COST OF ENTIRE SYSTEM (9)	$4,048,700	$3,927,300	$3,820,800	$3,873,900	$3,964,100	$4,057,400	$4,182,100	$4,311,400
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	63.60	61.90	60.40	60.70	61.60	62.60	63.80	65.10

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4D: IN-TOWN MRF, AND ORGANICS WASTE COMPOSTING
NO LEAF & YARD WASTE COLLECTION

IN-TOWN PROCESSING REQUIREMENTS	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf & Yard Waste (Tons)	0	0	0	0	0	0	0
Organic Waste (Tons)	10,144	10,332	10,520	10,703	10,890	11,080	11,274
Other Waste Recycling/Private Sector (Tons)	11,203	11,424	11,616	11,802	11,992	12,184	12,379
Mixed Solid Waste/White Goods/Tires (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Total Incoming Waste	66,949	67,662	68,356	69,004	69,662	70,322	70,986
DEBT SERVICE (2)							
Combined MRF, and Organic Waste Composting and Recycling Facility	$608,200	$608,200	$608,200	$608,200	$608,200	$608,200	$608,200
OPERATING COST (3)							
Source Separated Recycling Operations	$560,100	$600,800	$644,300	$690,300	$739,500	$792,200	$848,600
Leaf & Yard Waste Operations	$0	$0	$0	$0	$0	$0	$0
Organic Waste Operations	$299,700	$320,600	$342,700	$366,100	$391,100	$417,900	$446,400
Other Waste Recycling/Private Sector Operations	$331,000	$354,400	$378,400	$403,700	$430,700	$459,500	$490,200
Mixed Solid Waste/White Goods/Tires Operations	$590,500	$617,600	$646,100	$675,200	$705,500	$736,900	$769,300
Total Operating Cost	$1,781,300	$1,893,400	$2,011,500	$2,135,300	$2,266,800	$2,406,500	$2,554,500
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$205,300	$211,800	$218,500	$225,200	$232,000	$239,100	$246,300
Total Revenues	$205,300	$211,800	$218,500	$225,200	$232,000	$239,100	$246,300
IN-TOWN SYSTEM COST (5)	$2,184,200	$2,289,800	$2,401,200	$2,518,300	$2,643,000	$2,775,600	$2,916,400
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	32.60	33.80	35.10	36.50	37.90	39.50	41.10
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Unmarketed Compost (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	26,647	26,541	26,444	26,318	26,191	26,053	25,904
LANDFILL DISPOSAL COSTS (8)	$2,272,700	$2,320,200	$2,369,500	$2,417,200	$2,465,700	$2,514,000	$2,562,100
TOTAL COST OF ENTIRE SYSTEM (9)	$4,456,900	$4,610,000	$4,770,700	$4,935,500	$5,108,700	$5,289,600	$5,478,500
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	66.60	68.10	69.80	71.50	73.30	75.20	77.20

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4E: MRF/TRANSFER FACILITY, LEAF & YARD AND ORGANICS WASTE COMPOSTING
SUCCESSFUL LEAF COMPOSTING MARKETING

IN-TOWN PROCESSING REQUIREMENTS	YEAR 1 (11)	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8
INCOMING WASTE (1)								
Source Separated Recyclables (Tons)	15,384	15,990	16,613	17,061	17,409	17,750	18,143	18,544
Leaf & Yard Waste (Tons)	8,334	8,405	8,475	8,641	8,811	8,984	9,184	9,387
Organic Waste (Tons)	3,621	5,541	7,481	8,308	8,806	9,334	9,640	9,959
Other Waste Recycling/Private Sector (Tons)	8,939	9,648	9,992	10,212	10,389	10,566	10,775	10,987
Mixed Solid Waste/White Goods/Tires (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Total Incoming Waste	71,988	71,879	71,763	72,446	73,134	73,831	74,727	75,629
DEBT SERVICE (2)								
MRF/Transfer Facility, Leaf & Yard and Organic Waste Composting Facility	$502,200	$502,200	$502,200	$502,200	$502,200	$502,200	$502,200	$502,200
OPERATING COST (3)								
Export of Source Separated Recyclables	$676,900	$738,700	$805,900	$869,000	$931,100	$996,800	$1,069,800	$1,148,100
Leaf & Yard Waste Operations	$166,700	$176,500	$186,900	$200,100	$214,200	$229,300	$246,100	$264,200
Organic Waste Operations	$72,400	$116,400	$165,000	$192,400	$214,100	$238,300	$258,400	$280,300
Other Waste Recycling/Private Sector Operations	$178,800	$202,600	$220,300	$236,400	$252,600	$269,700	$288,800	$309,200
Mixed Solid Waste/White Goods/Tires Operations	$535,700	$508,600	$482,900	$490,100	$505,400	$520,700	$542,400	$564,600
Total Operating Cost	$1,630,500	$1,742,800	$1,861,000	$1,988,000	$2,117,400	$2,254,800	$2,405,500	$2,566,400
REVENUES (4)								
High Grade Compost	$0	$0	$0	$0	$0	$0	$0	$0
Recyclables	$0	$0	$0	$0	$0	$0	$0	$0
Total Revenues	$0	$0	$0	$0	$0	$0	$0	$0
IN-TOWN SYSTEM COST (5)	$2,132,700	$2,245,000	$2,363,200	$2,490,200	$2,619,600	$2,757,000	$2,907,700	$3,068,600
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	29.60	31.20	32.90	34.40	35.80	37.30	38.90	40.60
LANDFILL REQUIREMENTS								
MATERIALS LANDFILLED (7)								
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
Unmarketed Compost (Tons)	0	0	0	0	0	0	0	0
Total Material Landfilled	35,710	32,295	29,202	28,224	27,719	27,197	26,985	26,752
LANDFILL DISPOSAL COSTS (8)	$2,499,700	$2,317,200	$2,147,600	$2,127,600	$2,141,800	$2,154,000	$2,190,600	$2,226,000
TOTAL COST OF ENTIRE SYSTEM (9)	$4,632,400	$4,562,200	$4,510,800	$4,617,800	$4,761,400	$4,911,000	$5,098,300	$5,294,600
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	64.30	63.50	62.90	63.70	65.10	66.50	68.20	70.00

TOWN OF SOUTHAMPTON
20-YEAR LIFE CYCLE ANALYSIS
CASE 4E: MRF/TRANSFER FACILITY, LEAF & YARD AND ORGANICS WASTE COMPOSTING
SUCCESSFUL LEAF COMPOSTING MARKETING

IN-TOWN PROCESSING REQUIREMENTS	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
INCOMING WASTE (1)							
Source Separated Recyclables (Tons)	18,955	19,365	19,776	20,181	20,589	21,005	21,429
Leaf & Yard Waste (Tons)	9,596	9,809	10,024	10,235	10,451	10,672	10,897
Organic Waste (Tons)	10,144	10,332	10,520	10,703	10,890	11,080	11,274
Other Waste Recycling/Private Sector (Tons)	11,203	11,424	11,616	11,802	11,992	12,184	12,379
Mixed Solid Waste/White Goods/Tires (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Total Incoming Waste	76,545	77,471	78,380	79,239	80,113	80,994	81,883
DEBT SERVICE (2)							
MRF/Transfer Facility, Leaf & Yard and Organic Waste Composting Facility	$502,200	$502,200	$502,200	$502,200	$502,200	$502,200	$502,200
OPERATING COST (3)							
Export of Source Separated Recyclables	$1,232,200	$1,321,800	$1,417,400	$1,518,700	$1,626,900	$1,742,800	$1,866,800
Leaf & Yard Waste Operations	$283,600	$304,300	$326,600	$350,100	$375,400	$402,500	$431,500
Organic Waste Operations	$299,700	$320,600	$342,700	$366,100	$391,100	$417,900	$446,400
Other Waste Recycling/Private Sector Operations	$331,000	$354,400	$378,400	$403,700	$430,700	$459,500	$490,200
Mixed Solid Waste/White Goods/Tires Operations	$590,500	$617,600	$646,100	$675,200	$705,500	$736,900	$769,300
Total Operating Cost	$2,737,000	$2,918,700	$3,111,200	$3,313,800	$3,529,600	$3,759,600	$4,004,200
REVENUES (4)							
High Grade Compost	$0	$0	$0	$0	$0	$0	$0
Recyclables	$0	$0	$0	$0	$0	$0	$0
Total Revenues	$0	$0	$0	$0	$0	$0	$0
IN-TOWN SYSTEM COST (5)	$3,239,200	$3,420,900	$3,613,400	$3,816,000	$4,031,800	$4,261,800	$4,506,400
IN-TOWN SYSTEM UNIT COST ($/TON) (6)	42.30	44.20	46.10	48.20	50.30	52.60	55.00
LANDFILL REQUIREMENTS							
MATERIALS LANDFILLED (7)							
Mixed Solid Waste and Other Recycled Mixed Waste (Tons)	26,647	26,541	26,444	26,318	26,191	26,053	25,904
Unmarketed Compost (Tons)	0	0	0	0	0	0	0
Total Material Landfilled	26,647	26,541	26,444	26,318	26,191	26,053	25,904
LANDFILL DISPOSAL COSTS (8)	$2,272,700	$2,320,200	$2,369,500	$2,417,200	$2,465,700	$2,514,000	$2,562,100
TOTAL COST OF ENTIRE SYSTEM (9)	$5,511,900	$5,741,100	$5,982,900	$6,233,200	$6,497,500	$6,775,800	$7,068,500
TOTAL UNIT COST OF ENTIRE SYSTEM ($/TON) (10)	72.00	74.10	76.30	78.70	81.10	83.70	86.30

TOWN OF SOUTHAMPTON
NOTES TO 20-YEAR LIFE CYCLE ANALYSIS
CASES 1A, 1B & 1C, COMPLETE IN-TOWN RECYCLING & COMPOSTING SYSTEM

(1) Annual Incoming Waste quantities are based on the estimated material recovery projections presented in Table 3R7 - "Town of Southampton Estimate of Material Recovery Projections".

(2) For Cases 1A and 1B, Annual Debt Service is based on a capital cost of $13,000,000 for the recycling/composting facility at an annual interest rate of seven percent over 20 years. For Case 1C, Annual Debt Service is based on a capital cost of $10,800,000 at an annual interest rate of seven percent over 20 years. See Attachment 1 for details of the capital cost estimate.

(3) Annual operating costs for the MSW Composting/Recyclables Extraction operations is calculated by multiplying the incoming Mixed Solid Waste and Leaf/Yard/Food Waste by a unit operating cost of $25.00/ton, escalated annually by five percent. Annual operating costs for the Source Separated Recycling operations is calculated by multiplying the incoming Source Separated Recyclable quantities by a unit operating cost of $25.00/ton, escalated annually by five percent.

(4) At this time, no revenues are expected from marketing High Grade Compost, since this material will be available at no cost to the user. Source Separated Recyclable Revenues are based on marketing 100 percent of the Source Separated Recyclables and eight percent by weight of the Mixed Solid Waste/Other Recycling at $10.00/ton, escalated annually by one percent.

(5) In-Town System Cost is based on the sum of the Debt Service and Total Operating Cost, less the Total Revenues.

(6) In-Town System Unit Cost is based on the In-Town System Cost divided by the Total Annual Incoming Waste.

(7) Annual quantities for Rejects/Residuals are assumed to be approximately 36 percent by weight of the Mixed Solid Waste/Other Recycling Waste stream. Annual quantities for Downtime Wastes are assumed to be approximately five percent by weight of the Total Incoming Waste Stream. Case 1A assumes that there is no unmarketable compost. Case 1B assumes that 44 percent by weight of the incoming Mixed Solid Waste/Other Recycling waste stream produces compost that could not be marketed and is therefore landfilled.

(8) Annual Disposal Costs are calculated based on the Total Material Landfilled multiplied by a unit disposal cost of $70.00/ton escalated annually at 2.5 percent.

(9) Total Cost of Entire System is based on the sum of the In-Town System Cost and the Landfill Disposal Costs.

(10) Total Unit Cost of Entire System is based on the Total Cost of Entire System divided by the Total Incoming Waste.

(11) Year 1 represents 1995 when the In-Town processing facilities become operational.

TOWN OF SOUTHAMPTON
NOTES TO 20-YEAR LIFE CYCLE ANALYSIS
CASE 2, IN-TOWN RECYCLING WITH REGIONAL WASTE-TO-ENERGY

(1) Annual Incoming Waste quantities are based on the estimated material recovery projections presented in Table 3R7 - "Town of Southampton Estimate of Material Recovery Projections".

(2) Annual Debt Service is based on a capital cost of $5,000,000 for the transfer/recycling/leaf and yard waste composting facility. The debt service is calculated using an annual interest rate of seven percent over 20 years. See Attachment 2 for details of the capital cost estimate.

(3) Annual Operating Costs for the Transfer and Source Separated Recycling operations is calculated by multiplying the sum of the incoming Mixed Solid Waste and Source Separated Waste by a unit operating cost of $25.00/ton, escalated annually by five percent. Annual Operating Costs for the Leaf/Yard Waste Composting operations is calculated by multiplying the incoming Leaf/Yard Waste quantities by a unit operating cost of $25.00/ton, escalated annually by five percent.

(4) At this time, no revenues are expected from marketing High Grade Compost, since this material will be available at no cost to the user. Source Separated Recyclable Revenues are based on marketing 100 percent of the Source Separated Recyclables at $10.00/ton, escalated annually by one percent.

(5) Resource Recovery System Cost is based on the sum of the Debt Service and Total Operating Cost, less the Total Revenues.

(6) Resource Recovery System Unit Cost is based on the Resource Recovery System Cost divided by the Total Annual Incoming Waste.

(7) Annual quantities for Rejects/Residuals are assumed to be approximately 10 percent by weight of the Mixed Solid Waste/Other Recycling Waste Stream. Annual quantities for Downtime Wastes are also assumed to be approximately 10 percent by weight of the Mixed Solid Waste/Other Recycling Waste Stream. This Case 2 assumes that there is no unmarketable Compost.

(8) Landfill Disposal Costs are calculated based on the Total Material Landfilled multiplied by a unit disposal cost of $70.00/ton, escalated annually at 2.5 percent.

(9) Waste-to-Energy Disposal Costs are based on the disposal of 30 percent by weight of the Mixed Solid Waste/Other Recycling Waste Stream. It is assumed that the unit cost of disposal at the Waste-to-Energy facility will be $75.00/ton in Year 1, and escalated annually at five percent.

(10) Total Cost of Integrated System is based on the sum of the Resource Recovery System Costs, Landfill Disposal Costs and the Waste-to-Energy Disposal Costs.

(11) Total Unit Cost of Integrated System is based on the Total Cost of Integrated System divided by the Total Incoming Waste.

(12) Year 1 represents 1995.

TOWN OF SOUTHAMPTON
NOTES TO 20-YEAR LIFE CYCLE ANALYSIS
CASE 3A, IN-TOWN TRANSFER STATION & LEAF/YARD/COMPOSTING FACILITY

(1) Annual Incoming Waste quantities are based on the estimated material recovery projections presented in Table 3R7 - "Town of Southampton Estimate of Material Recovery Projections".

(2) Annual Debt Service is based on a capital cost of $5,000,000 for the transfer station and leaf/yard waste composting facility. The Debt Service is calculated using an annual interest rate of seven percent over 20 years. See Attachment 2 for details of the capital cost estimate.

(3) Annual Operating Costs for the Transfer Station/Composting operations is calculated by multiplying the Total Incoming Waste quantities by a unit operating cost of $25.00/ton, escalated annually by five percent. Annual Transportation Costs are calculated by multiplying the sum of the incoming Mixed Solid Waste/Other Recycling and Source Separated Recyclables quantities by a unit operating cost of 3/ton, escalated annually by five percent.

(4) Annual high grade compost revenues are based on marketing approximately 21 percent by weight of the incoming Leaf/Yard Waste, at a unit cost of $5.00/ton, escalated annually by one percent. Recyclable Revenues are based on marketing newspaper and cardboard (approximately 60 percent by weight of the incoming Source Separated Recyclables) at $4.50/ton, escalated annually by one percent.

(5) In-Town System Cost is based on the sum of the Debt Service and Total Operating Cost, less the Total Revenues.

(6) In-Town System Unit Cost is based on the In-Town System Cost divided by the Total Annual Incoming Waste.

(7) Annual quantities for Residuals from Out-of-Town Compost Facility are assumed to be approximately 150 tons per day, escalated annually at 1 percent. Annual quantities for Downtime Wastes are assumed to be approximately 5 tons per day, escalated annually at 1 percent. This Case assumes that there is no unmarketable Compost.

(8) Landfill Disposal Costs are calculated based on the Total Material Landfilled multiplied by a unit disposal cost of $70.00/ton escalated annually at 2.5 percent.

(9) Annual Disposal Revenues are based on receiving a revenue of $75.00/ton, escalated annually at five percent, for the Non-Town fraction of residue from the Out-of-Town Compost facility. The Non-Town fraction of residue is equal to the Total Material Landfilled, less 30 percent of the Mixed Solid Waste/Other Recycling Waste Stream (the Town's fraction of residue).

(10) Out-of-Town disposal fees are based on the Town paying $29.50/ton, escalated annually at five percent, for the annual quantities of commingled recyclables (assumes approximately 40 percent by weight of the Source Separated Recyclables) and $70.00/ton, escalated annually at five percent, for the annual quantities of Mixed Solid Waste/Other Recycling Waste Stream.

(11) Total Cost of Entire System is based on the sum of the In-Town System Cost, the Landfill Disposal Cost, and the Out-of-Town Recycling/MSW Composting Disposal Fee, less the Landfill Disposal Revenues.

(12) Total Unit Cost of Entire System is based on the Total Cost of Entire System divided by the Total Incoming Waste.

(13) Year 1 represents 1995.

TOWN OF SOUTHAMPTON
NOTES TO 20-YEAR LIFE CYCLE ANALYSIS
CASE 3B, IN-TOWN TRANSFER STATION, RECYCLING AND
LEAF/YARD/COMPOSTING FACILITIES

(1) Annual Incoming Waste quantities are based on the estimated material recovery projections presented in Table 3R7 - "Town of Southampton Estimate of Material Recovery Projections".

(2) Annual Debt Service is based on a capital cost of $5,000,000 for the Transfer Station and Leaf/Yard Waste composting facility, and $1,900,000 for the Preprocessing System. The Debt Service is calculated using an annual interest rate of seven percent over 20 years. See Attachment 2 and 3 for details of the capital cost estimate.

(3) Annual Operating Costs for the Transfer Station/Composting operations is calculated by multiplying the Total Incoming Waste by a unit operating cost of $25.00/ton, escalated annually by five percent. Annual Transportation Costs are calculated by multiplying the quantity of Materials Disposed by MSW Composting by a unit operating cost of $3/ton, escalated annually by five percent.

(4) At this time, no revenues are expected from marketing High Grade Compost, since this material will be available at no cost to the user. Recyclable Revenues are based on marketing 100 percent of the Source Separated Recyclables and eight percent of the Mixed Solid Waste/Other Recycling Waste Stream, at $10.00/ton, escalated annually by one percent.

(5) In-Town System Cost is based on the sum of the Debt Service and Total Operating Cost, less the Total Revenues.

(6) In-Town System Unit Cost is based on the In-Town System Cost divided by the Total Annual Incoming Waste.

(7) Annual quantities for Residuals from Out-of-Town Compost Facility are assumed to be approximately 150 tons per day, escalated annually at 1 percent. Annual quantities for Downtime Wastes are assumed to be approximately 5 tons per day, escalated annually at 1 percent. This Case assumes that there is no unmarketable Compost.

(8) Landfill Disposal Costs are calculated based on the Total Material Landfilled multiplied by a unit disposal cost of $70.00/ton escalated annually at 2.5 percent.

(9) Annual Landfill Disposal Revenues are based on receiving a revenue of $75.00/ton, escalated annually at five percent, for 90 percent of the Residuals being disposed of from the Out-of-Town Compost facility (e.g. it is estimated that 10 percent of the Residuals disposed of originated from In-Town waste).

(10) Annual MSW Composting Disposal Cost is calculated by multiplying the Materials Disposed of by MSW Composting by a unit disposal cost of $56.50/ton, escalated annually at five percent. The $56.50/ton unit disposal cost is estimated based on the assumption that the Town will realize a $13.50/ton preprocessing discount from the standard $70.00/ton disposal fee.

(11) Total Cost of Entire System is based on the sum of the In-Town System Cost, the Landfill Disposal Cost, and the Out-of-Town MSW Composting Disposal Cost, less the Landfill Disposal Revenues.

(12) Total Unit Cost of Entire System is based on the Total Cost of Entire System divided by the Total Incoming Waste.

(13) Year 1 represents 1995.

4.	Project Development, Permitting, Engineering, Legal (~15%)	$ 1,500,000
5.	Contingency (~10%)	$ 1,000,000
	TOTAL PROJECT CAPITAL COST	$12,970,000

ATTACHMENT 2

TOWN OF SOUTHAMPTON
TRANSFER STATION W/MRF FOR SOURCE SEPARATED MATERIALS, AND LEAF AND YARD WASTE COMPSTING
CAPITAL AND O&M COST ESTIMATE

Capital Costs

		Cost per ft²	Size (ft²)	Cost $
A.	Buildings			
	Administration	60.00	2,000	120,000
	Receiving	45.00	35,000	1,575,000
	Maintenance	45.00	5,000	225,000
	SUBTOTAL			1,920,000

* including structures, HVAC, plumbing, electrical, miscellaneous personnel facilities, equipment supports and recovered material storage.

B.	Equipment			
	MSW (front-end loader, three transfer trailers)			355,000
	SSR (front-end loader, two recyclable trailers)			160,000
	LY (window turner, front-end loader)			200,000
	SUBTOTAL			715,000
C.	Site Work			
	General	10 acres at $30,000/acre		300,000
	Compost Pad/Asphalt	$500/cy	280'x200'x1' 56,000 ft² (2,100 cy)	1,050,000
	SUBTOTAL			1,350,000
D.	Engineering/Legal/Administration			598,000
	~ 15 percent			
E.	Contingency			399,000
	~ 10 percent			
F.	TOTAL PROJECT CAPITAL COST			$ 4,982,000

ATTACHMENT 3

TOWN OF SOUTHAMPTON
INCREMENTAL ADDITIONAL COST FOR MATERIALS RECOVERY FROM MIXED WASTE

(applicable to Task 3b)

		CAPITAL COSTS
Addition of MSW pre-processing		
A. Building (processing/sorting)		
$ 50.00/ft²		$ 500,000
including structures, HVAC, plumbing, electrical, miscellaneous personnel facilities, equipment supports and recovered material storage.		
B. Equipment		
Material separators	200,000	
Conveyors	100,000	
Screening trommel	280,000	
		$ 880,000
C. Site Work		
General: 5 acres at $30,000/acre		$ 150,000
D. Engineering/Legal/Administration (~15%)		$ 229,500
E. Contingency (~10%)		$ 153,000
F. TOTAL ADDITION CAPITAL COST		$1,912,500