

# CHAPTER 16

## INFRASTRUCTURE SOLID AND LIQUID WASTE Endorsed by STM – 27 Nov 01 – Article 3

Prepared For  
Local Planning Committee  
And  
Growth Policy Advisory Council  
By  
Weston & Sampson, Engineers  
And  
Planning Staff

# YARMOUTH COMPREHENSIVE PLAN

## CHAPTER 16 - INFRASTRUCTURE SOLID AND LIQUID WASTE PORTIONS EXECUTIVE SUMMARY

- **PURPOSE** - Yarmouth's Infrastructure Chapter of the Plan was developed in cooperation with the Town's Department of Public Works, and its Engineering, Sanitation, Transfer Station, and Septage Plant Divisions, as well as the Community Development Dept. and its Planning and Conservation Divisions. It includes a simple, and expandable document that can give guidance to decision-making about a wide range of infrastructure issues. It may also serve as a reference document to the general public, describing the substantial activities already undertaken on the subject, and the logical options available to the Town to respond to future needs.
- **COORDINATION WITH THE COMPREHENSIVE PLAN AND REGIONAL POLICY PLAN.** - The Infrastructure Chapter serves as Chapter 16 of the Town's Comprehensive Plan, now in progress. As such it will not only be a part of the Plan, and will help to guide planning and growth decisions for the Town, but will also serve as the Town's response to the Regional Policy Plan of the County, especially when dealing with Developments of Regional Impact (DRI). Its inventory, analysis, needs, options, and plans are tailored to the Yarmouth existing situation and as such are sensitive to them.
- **WHAT IS MEANT BY INFRASTRUCTURE?** - "Infrastructure" as used here is such a broad term in local government matters that the Infrastructure Steering Sub-Committee which is made up of representatives of Planning Board, Recycling and Solid Waste Advisory Committee, Route 28 Task Force, as well as the DPW Director, Town Engineer, Conservation Administrator, and Town Planner, decided in order to zero in on the study five categories would be included - Solid Waste, Liquid Waste, Stormwater, Telecommunications, and Energy. The first two are covered by this report, the second two will be covered by future studies, and Energy will be a portion of a new Chapter on Community Facilities and Services. Water Resources and Transportation are already covered by separate chapters.
- **HOW ARE THE LAST THREE CHAPTERS OF THE PLAN BEING ORGANIZED?**  
The final three chapters of the 18 in the basic Comprehensive Plan work program, Infrastructure, Inter-governmental Coordination, and Implementation and Capital Improvements, look more at needs and options relating to their individual subjects, with many detailed action items left for follow up studies. They will and do contain a number of "soft" proposals, many relating to communications, implementation, and further studies. Given the timing and scope of the Comprehensive Plan studies this is deemed the best way to develop detailed plans and their important subjects over time..
- **GOALS AND POLICIES FOR INFRASTRUCTURE**  
**Goal #1** - To provide adequate community and regional facilities to meet community and regional needs consistent with the goals and policies established in the Yarmouth Comprehensive Plan and the Regional Policy Plan.
- **DEVELOPMENT POLICY #1** - Public investments, including construction or expansion of infrastructure and facilities, including, but not limited to municipal buildings, waste supply and distribution, septage collection and treatment, roads, stormwater, telecommunication, roads and related facilities should help reinforce the traditional character of the Town and its developing activity centers.

**INFRASTRUCTURE - CHAPTER 16**  
**LIQUID WASTE PORTION**

**SETTING THE SCENE**

The Towns of Dennis and Yarmouth have entered into an "Inter-municipal Agreement" to operate a regional septage treatment plant. Representatives of both communities serve on its Board of Management for the septage treatment plant. The Town of Yarmouth has been appointed the "lead agent" for the Board. Interestingly the Inter-municipal Agreement also requires the operation of an inspection and maintenance program for individual septic systems in both towns.

The Yarmouth/Dennis Septage Treatment Plan was built through this Inter-municipal Agreement with substantial state and federal financial aid. It began operations in June of 1992. Its plant was designed to handle 22,000,000 gallons per year of septage and grease. From FY-93 to FY-98 flows increased from 7.0 million gal. to 11.5 million gals. By calendar 2001 this number was up to 16 million gals. per year of septage and grease.

Approximately 16 million gals. of waste were expected in the first year of operation during plant design. Although the towns have the right to require pumping of septic tanks, private companies doing business within them may choose to transport the wastes to other facilities. As a result septage quantities were lower than expected, and the Board of Management had to establish disposal fees that were consistent with market prices. At present the operating costs of the facility are paid solely from revenues derived from disposal fees.

Under the current facility operations the treated effluent is pumped approximately 3 miles to the Buck Island Road land application site for irrigation/disposal. That site was selected because it is outside the Town of Yarmouth's water supply aquifer protection district of its zoning by-law. A majority of effluent (12mg) is used to water the Links at Bayberry Hills Course.

The Board has received Department Environmental Protection approval to use Septage Treatment Plant effluent to irrigate 7 holes of the Town's Bayberry Hills golf course. The re-use of effluent has required the addition of disinfection equipment to improve effluent quality 12,000,000 gallons were applied in the summer of 2001.

**INVENTORY**

**A. Background** - The Town of Yarmouth currently does not have a sanitary sewer and treatment system. The septage from private septic systems is pumped, and shipped via tanker trucks to the Yarmouth/Dennis Septage Treatment Facility. Both Yarmouth and Dennis own the facility jointly and the tipping fees charged to septage haulers that discharge at the facility cover operating expenses.

Private Septage Treatment Plant (PSTP)- Currently, there are five (5) privately owned and operated wastewater collection treatment facilities in Town. These facilities serve the following developments: 1. Buck Island Village Condominiums; 2. Mayflower Place Condominiums; 3. Stop 'n Shop supermarket; 4. King's Way Condo Village; 5. Condominiums at the Yarmouth/Barnstable town line. These treatment facilities must be operated in accordance with Department of Environmental Protection (DEP) permit limitations. Five PSTF's is more than in any other town in the state.

**B. Yarmouth/Dennis Septage Treatment Facility Inventory**

**1. Facility Design Flow:**

- Original Design Flow = 70,000 GPD
- Revised Design Flow (following Oxidation Unit Installation) = 80,000 GPD
- Average Daily Flow (2000) = 44,000 GPD

**2. Total Gallons Received**

- Total for calendar year 2000 = 15,996,316 gallons
- Town of Yarmouth = 6,648,439 gallons (42%)
- Town of Dennis = 4,094,297 gallons (26%)
- Other Towns = 5,253,580 gallons (32%)

## ANALYSIS

- A. The existing facility is currently meeting the present demand. The highest monthly volume in 2000 was 1,881,828 gallons, which occurred in August. This equates to 60,704 gallons per day (GPD), which is less than the 80,000 GPD design capacity.
- B. The Town of Yarmouth population could increase as much as 20% by the year 2015. If this projection is applied to the present population of Yarmouth and Dennis and the current ratio of projected percentages is maintained at 42 and 26 percent, respectively, an average daily flow can be calculated for the Yarmouth Dennis area. This calculation results in a projected daily flow of 35,318 GPD. A similar increase in the August peak flow gives 72,845 GPD. Both these flows are below the treatment design capacity of 80,000 GPD. If the average daily flow exceeds the design capacity, the Towns of Yarmouth and Dennis would need to consider restricting use of the facility to residents only.
- C. Water Quality and Conservation: Until (and if) municipal sewer systems are installed, existing septic systems need to be serviced and maintained to adequately treat wastewater discharge to meet effluent standards set by the state and the Cape Cod Commission. Other ways to reduce the potential of contaminating groundwater, are by using organic fertilizers instead of chemical fertilizers, and to better treat stormwater runoff.
- D. Treatment Capacity: The Town of Yarmouth currently provides septage treatment to a variety of communities and haulers. To provide additional capacity as residential and commercial populations increase, the Town may need to consider limiting outside access to the septage facility.
- E. Municipal Sewer: The town may consider installing a municipal sewer system in the future, at least in certain areas, such as Hyannis Park and western Route 28. A nutrient loading study is currently being conducted by DEP. If the study indicates that nutrient levels are posing a risk, a sewer assessment study may be performed.
- F. Treatment Costs: The septage facility is currently charging approximately \$0.08 per gallon for Yarmouth and Dennis residents, all non-residents pay \$0.09 per gallon. Yarmouth sees a loss of business in the winter months because of the reduced prices for discharge of septage at the Barnstable facility (\$0.05 per gallon).
- G. Peak Usage: Peak flow at the facility regularly occurs in July and August. August of 2000 had the highest septage flow of any year dating back to 1996. August 2001 then surpassed August 2000.
- H. Septic system inspection program: The current residential septic system inspection program consists of notices sent to owners every 4 years with instructions to pump their system or to have it inspected. This inspection program is performed by the Treatment Plant operating contractor. The Board of Health maintains records of system servicing.

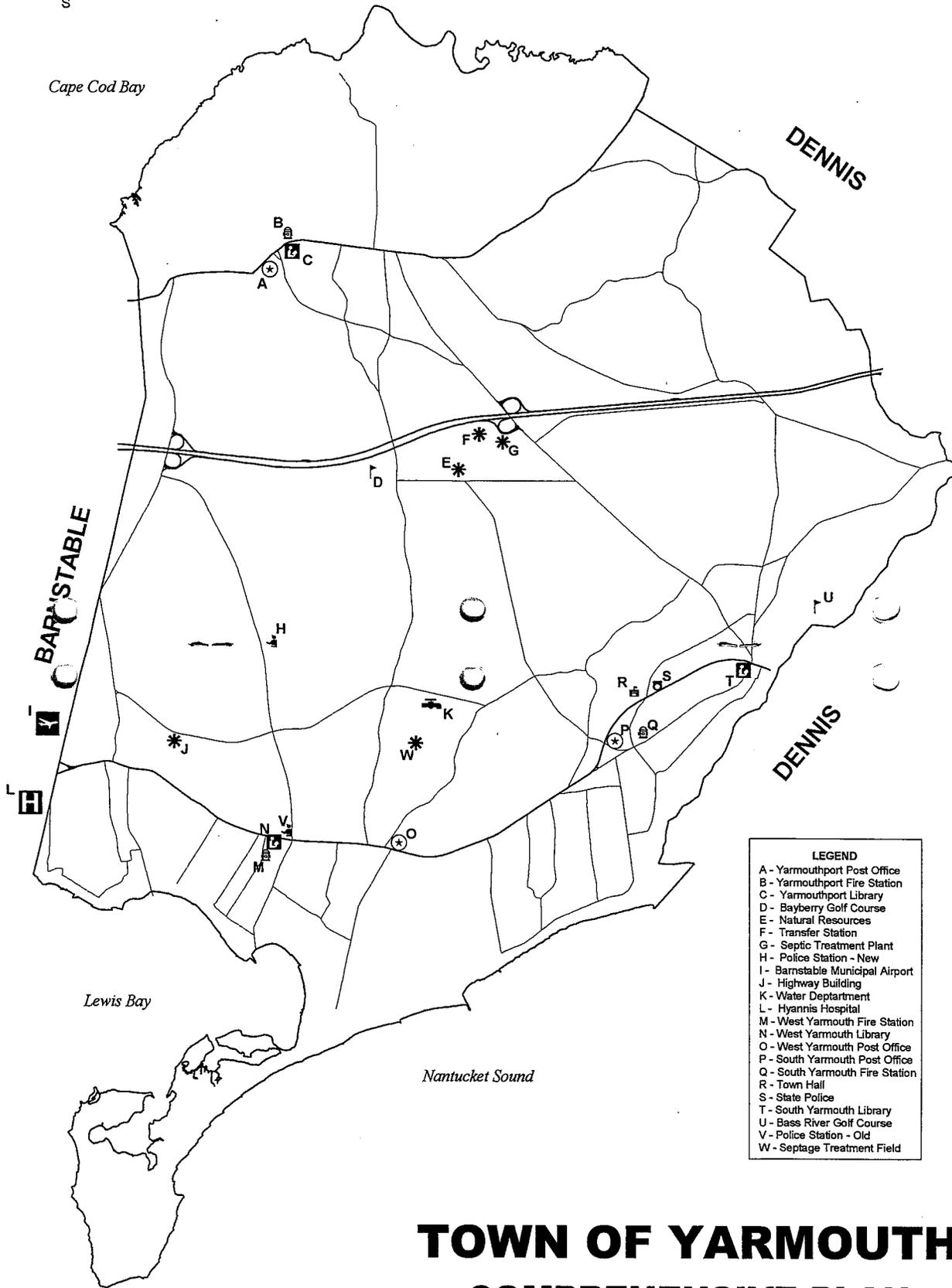
## IMPLEMENTATION STRATEGY AND ACTIONS

- A. Continue to monitor the groundwater discharge from the septage treatment facility to ensure the effluent meets DEP permit limitations. If the discharge fails to meet permit limitations, prepare and implement a plan to bring the facility into compliance.
- B. Continue to work with state and regional regulating and planning agencies to monitor nutrient levels in both groundwater and surface waters. If trends show increasing nutrient levels, a plan for evaluating the feasibility of non-centralized wastewater treatment in certain areas of the Town may be warranted.
- C. Maintain the current septic system inspection program to prevent failing septic systems and unnecessary groundwater contamination.

## **INFRASTRUCTURE - CHAPTER 16** **SOLID WASTE PORTION**

## INTRODUCTION

The closing of municipal landfills and the recycling goals set forth by the Department of Environmental Protection (DEP) Beyond 2000 Solid Waste Master Plan (SWMP) are making solid waste increasingly difficult and costly to manage. Cape Cod communities, such as Yarmouth, have the additional goals and policies of the Cape Cod Commission's Regional Policy Plan to meet. The Commission's 1996 Final Regional Policy Plan established the framework for an integrated solid



LEGEND	
A	- Yarmouthport Post Office
B	- Yarmouthport Fire Station
C	- Yarmouthport Library
D	- Bayberry Golf Course
E	- Natural Resources
F	- Transfer Station
G	- Septic Treatment Plant
H	- Police Station - New
I	- Barnstable Municipal Airport
J	- Highway Building
K	- Water Department
L	- Hyannis Hospital
M	- West Yarmouth Fire Station
N	- West Yarmouth Library
O	- West Yarmouth Post Office
P	- South Yarmouth Post Office
Q	- South Yarmouth Fire Station
R	- Town Hall
S	- State Police
T	- South Yarmouth Library
U	- Bass River Golf Course
V	- Police Station - Old
W	- Septage Treatment Field

# TOWN OF YARMOUTH COMPREHENSIVE PLAN

## INFRASTRUCTURE CHAPTER 2001



Note: Water tank and wellhead locations are not shown for security reasons.

waste management system, and set waste diversion goals of 30% by 2000 and 40% by 2010. With a measured increase in population of over 30% since 1980, and an increasing number of seasonal guests, an integrated waste management plan is required to meet state and local goals. The purpose of this section of the Infrastructure Chapter of the Comprehensive Plan is to assist Yarmouth in developing a viable solid waste management plan to meet the demands of a growing community.

### SETTING THE SCENE

\* In the Spring of 1991 the Yarmouth/Barnstable - Solid Waste Transfer Station commenced operating. From there trash is shipped to the SEMASS waste to energy plant in Rochester, MA. via Bay Colony Railroad. This was a major accomplishment of volunteers in the community. Largely through the efforts of the Solid Waste Advisory Council (now RASWAC) the project was completed on time and under budget.

\* Yarmouth has been active in searching for regional solutions to common problems. The septage treatment plant was the result of a "partnership" with Town of Dennis, and the transfer station is a "partnership" with the Town of Barnstable. Both facilities are located in Yarmouth. We have the capability to share these resources with other communities to further lower the cost to the Town of Yarmouth.

\* In the first six months to Dec. 31, 1991, 10,036 tons of waste from Yarmouth and 10,544 tons of solid waste from Barnstable were shipped by rail to SEMASS. By 1992 the tonnage had increased to 19,000 and 34,500 tons respectively.

\* Effective on June 1, 1992 all towns in Mass. were no longer able to landfill yard waste. Any one bringing them in must put them in the compost area. Yarmouth has been composting leaves since 1989.

### SOLID WASTE - GOALS AND POLICIES

GOAL #1 - To manage solid waste using an integrated solid waste management system that includes waste reduction, recycling, composting, incineration, and re-use, and to divert 30% of municipal solid waste from incinerator and landfilling activities to re-cycling and composting programs by 2002, and 40% by 2005.

GOAL #2 - Hazardous wastes generated by Yarmouth households and businesses shall be disposed of in an environmentally sound manner.

### INVENTORY

#### A. Yarmouth/Barnstable Transfer Station

##### 1. Transfer Station Capacity

- The Regional Transfer Station has a permit limit of 525 tons per day (TPD), a maximum of 163,800 tons per year (TPY).
- The transfer facility accepts waste predominantly from Yarmouth, Barnstable and Orleans. Waste from other towns in the region is accepted at times from commercial haulers.
- The transfer station received 88,109 tons in fiscal year (FY) 2001 (July 2000 through June 2001). Barnstable contributed 49,688 tons, Yarmouth provided 25,370 tons, Orleans provided 2,239 tons, and commercial haulers provided 10,812 tons. The waste is then transported by rail cars, which hold approximately 48-50 tons per car, to the SEMASS Waste to Energy Facility in Rochester, Massachusetts.
- The facility currently accepts an average of 385 TPD during the summer months and 270 TPD throughout the rest of the year.

##### 2. Transfer Station Permit and Operations

- The permit for the transfer facility is valid until 2015 and is issued by State DEP.
- The facility is staffed by two loading operators, one foreman, one assistant foreman, and one superintendent, who also oversee the Yarmouth Disposal Area.

#### B. YARMOUTH Disposal Area

##### 1. The Disposal Area

The recycling center accepts municipal solid waste, recyclable materials and yard waste from Yarmouth residents. Municipal Solid Waste accepted at the recycling center is transported to the Regional Yarmouth/Barnstable Transfer Station. The facility operates seven days a week excluding the fourth of July (open for ½ day), Thanksgiving, Christmas, and New Year's Day.

- Materials Recycled/Accepted at the Recycling Area. - A partial list include:
  - Newspaper
  - Yard Waste
  - Glass
  - Christmas Trees

Co-mingled plastics, bottles, and cans  
 Scrap Metal  
 Brush/Woodchips  
 Clothing  
 Tires  
 Flourescent Bulbs

Motor Oil  
 Antifreeze  
 Milk/Water Jugs  
 Cardboard  
 Cathode Ray Tubes  
 Batteries (nicad and car)

- The Recycling area accepts yard waste from Yarmouth residents at no charge, and from non-residents for a fee. Approximately 1,400 tons of yard waste were accepted in FY2001. The yard waste is composted on site and is provided to residents for free.
- The facility accepts construction and demolition material (C&D) for a fee. The C&D material is shipped to the Bourne Landfill; approximately 10,000 tons of C&D material was accepted in FY2001.
- Approximately 2,000 vehicles per day (VPD) use the facility during the week and 3,000 VPD on the weekend.

**2. Recycling Data**

- The current recycling rate for Yarmouth on record with the Cape Cod Commission is 30%.

**Additional Information**

<u>Year</u>	<u>Tons Recycled</u>
FY1999	4,800
FY2000	4,900
FY2001	4,980

**C. YARMOUTH Safety and Health Facilities (Fold Out Map)**

**1. Safety Facilities**

Police Station	Fire Station 1	Fire Station 2	Fire Station 3
One Brad Erickson Memorial Dr. West Yarmouth, MA 02673 (508) 775-0445	96 Old Main Street S. Yarmouth, MA 02664 (508) 398-2212	340 Rt. 6A Yarmouthport, MA 02675	14 Lewis Rd. W. Yarmouth

**2. Health Facilities**

**Cape Cod Hospital**  
 27 Park Street  
 Hyannis, MA 02601  
 (508) 771-1800 (Note: this is the only hospital in the vicinity of Yarmouth)

**ANALYSIS**

**A. Solid Waste Issues:**

1. The existing transfer station is capable of meeting existing demands. The facility currently accepts an average of 385 TPD during the summer months and 270 TPD throughout the rest of the year.
2. The amount of waste accepted at the facility increased approximately 16% from FY 1996 through Fy2001. The population of Yarmouth only has been projected to increase as much as 20% by 2015, in accordance with population forecasts (High Projection). Applying a 25% increase to the average amount of solid waste accepted at the transfer station for all towns would give 481 TPD in the summer months and 338 TPD throughout the rest of the year. Given the transfer station's current permitted capacity of 525 TPD, and based on the assumptions outlined, there should be no need to increase the permitted capacity until some time after 2015.
3. Costs of disposing of municipal solid waste (MSW) and handling recyclable will increase in the future. For Municipal Solid Waste. The Town is under contract with the SEMASS Waste to Energy Facility. This contract is up for renewal in 2015. The tipping fees under the new contract will most likely be significantly higher than current rates. The Town will need programs to defray the increased costs of waste disposal.
4. In addition, according to the Massachusetts Beyond 2000 Solid Waste Master Plan, in 2003, the State plans on banning the disposal of unprocessed (unsorted) construction and demolition debris material (C&D). The Bourne landfill currently accepts unprocessed C&D from the Town of Yarmouth. After 2003, the Bourne facility will not be able to landfill raw C&D materials, and is considering the addition of a C&D processing facility. Therefore after 2003 the Bourne facility will only accept C&D residuals or will need to charge users a processing fee for sorting the recyclable materials from the C&D waste. The Town of Yarmouth is currently planning on paying the additional fee to Bourne for sorting the C&D material.
5. The question of how to offset the expected increase in solid waste disposal costs was posed in a questionnaire sent out

to Yarmouth residents. Out of a total of 1,179 responses only 323 preferred a "pay as you throw" system where each bag of waste is charged a standard fee.

### **RECYCLING ISSUES:**

1. The current recycling rate for Yarmouth on record is 30%, which just meets the current Cape Cod Commission goal of 30%. The recycling goal for the year 2010 set by the Cape Cod Commission is 40%, and the State has set a waste reduction goal of 60% by the same time. The strategies to meet the 2010 goal of 40% recycling should be reviewed and determined prior to year 2010.

Some options are:

- Implement a curbside pickup system for recyclables
  - Place additional recyclable drop off areas throughout the town
  - Implement a pay as you throw program for solid wastes
  - Increase public awareness
  - Mandate recycling.
2. The town will face a new problem of handling the additional recyclable materials generated under increased recycling rates. Specifically, the hauling of recyclable materials will need to be increased to meet future demands.
  3. Recycling materials and yard waste are currently accepted at no fee to residents. The question of how to meet the rising costs of handling recyclable materials was posed to residents in a questionnaire. Out of 1,146 responses:
    - 437 said to add costs to the disposal area sticker
    - 439 said to create a separate recycling sticker
    - 193 said to add cost to taxes
    - 77 proposed an alternative method, some of which are listed below.
      - Charge for compost
      - "Pay as you use" type system
      - Cut operation costs by reducing the number of hours the dump is open

### **IMPLEMENTATION STRATEGY AND ACTIONS**

#### **A. Solid waste**

1. Based on results from the residential questionnaire the preferred method of handling increased disposal costs is to increase the cost of the disposal area dump sticker.
2. The implementation of this strategy should be easier and less costly than a "pay as you throw" type system, or increasing taxes.

#### **B. Recycling**

1. Increasing recycling rates
    - An inexpensive way to increase recycling rates would be to increase public awareness of the merits of the program.
    - Town mandatory recycling can be implemented, but the town must be prepared to manage and monitor the program, which adds operating cost.
    - Curbside pickup or the addition of more drop-off stations would increase costs, as both of these would require the management of additional programs.
  2. Handling the additional recyclable materials and increasing costs
    - The two most popular options identified by the questionnaire were to add costs to the disposal area sticker, and to create a separate recycling sticker.
    - Consideration should also be given to:
      - Converting the disposal area operation into an "Enterprise Fund", using revenues generated, from accepting waste paid to be disposed to defray, the costs of recycling
- 

### **CREDITS**

We wish to thank our consulting engineers, Weston and Sampson, Engineers, of Peabody, MA for their assistance with the Questionnaire as well as the solid and liquid waste sections of the Plan. We could not have done this without their engineering and planning knowledge, and practical approach to a far-ranging subject.

The Infrastructure Steering Sub-Committee has done yeoman-like work, not only with a complicated questionnaire, but with sorting out the various facets of "infrastructure", and organizing their study into useful present and future segments.

Should you have questions about the Infrastructure Chapter, please contact the Planning Division at 508 398-2231 ext. 277.

# **YARMOUTH COMPREHENSIVE PLAN**

## **CHAPTER 16 INFRASTRUCTURE**

### **LONG SUMMARY REPORT (CONSISTING OF SEVERAL PARTS)**

- |                               |                           |
|-------------------------------|---------------------------|
| <b>A. Solid Waste</b>         | <b>- Included Here-In</b> |
| <b>B. Liquid Waste</b>        | <b>- Included Here-In</b> |
| <b>C. Stormwater Planning</b> | <b>- Future Study</b>     |
| <b>D. Telecommunications</b>  | <b>- Future Study</b>     |

#### **ALSO SEE CHAPTERS**

- |  |                                   |
|--|-----------------------------------|
| <b>9 - Transportation</b>  | <b>Endorsed April 11, 2000</b>    |
| <b>12 - Water Resources</b>  | <b>Endorsed November 27, 2001</b> |
| <b>19 - Community Facilities &amp; Services Chapter<br/>Energy Portion</b> | <b>Endorsed November 27, 2001</b> |

#### **Prepared In Part By:**

- Weston & Sampson, Five Centennial Drive Peabody, MA 01960  
and the staffs of the
- Community Development Dept.
- Yarmouth Local Planning Committee (Planning Board)
- Growth Policy Advisory Council (GPAC)

## TABLE OF CONTENTS

<u>Page No.</u>	<u>Section and Title</u>
3	Lists of Maps, Photographs, Tables
5	Introduction
6	Consultants' Credit
7	Setting the Scene Regional Facilities Town Facilities Definition of Infrastructure in the Yarmouth Comprehensive Plan
11	Goals, Policies, Performance Standards, and Actions
13	Liquid Waste Portion I. Setting the Scene II. Inventory III Analysis IV. Implementation Strategy and Action V. Photographs
24	Solid Waste Portion I. Introduction II. Setting the Scene III. Inventory IV. Analysis V. Implementation Strategies and Action VI. Photographs
36	Solid Waste Management - Goals, Policies, Standards and Actions
38	Infrastructure Questionnaire - Results Survey Analysis Cover Page of Questionnaire Questionnaire with Tabulations

**LIST OF TABLES**

<b>PAGE NO.</b>	<b>TABLE NO.</b>	<b>DESCRIPTION</b>
9	16-1	Regional Location Map
10	16-2	Southeastern Massachusetts Map
44	16-3	Infrastructure Facilities - 2001

**LIST OF PHOTOGRAPHS**

<b>PAGE NO.</b>	<b>DESCRIPTION</b>
19-23	Yarmouth Septage Treatment Facility
33-35	Yarmouth Transfer Station

**LIST OF TABLES**

<b>PAGE NO.</b>	<b>DESCRIPTION</b>
4	Yarmouth Comprehensive Plan Schedule of Plan Endorsement
40-43	Tabulation of Infrastructure Questionnaire Totals - 2001

## Yarmouth Comprehensive Plan Schedule of Plan Endorsements

CHAPTER NO.	TITLE	TYPE OF ARTICLE	TOWN MTG. TYPE-DATE	ARTICLE NO.	ACTION
	Vision Statement	Policy <i>Amendment</i>	ATM- 27 Apr 94 ATM- 10 Apr 01	Art. 24 Art. 16	Endorsed Endorsed
1	Introduction to Comp Plan	Research			Not Presented
2	Outreach Program	Research			Not Presented
3	Population Study and Forecasts, 1995-2015	Research			Not Presented
4	Economic Development - Inventory	Research			Not Presented
5	Intergovernmental Coordination and Resources of Regional Importance	Research			Not Presented
6	Recreation and Open Space	Policy <i>Replacement</i>	ATM- 10 Apr 97 STM- 27 Nov 01	Art. 26 Art. 2	Endorsed Endorsed
7	Coastal Resources	Policy	ATM- 10Apr 97	Art. 27	Endorsed
8	Land Use/Growth Management	Policy	STM-1 Dec 98	Art. 1	Endorsed
9	Transportation Plan	Policy	ATM- 11 Apr 00	Art. 15	Endorsed
10	Economic Development, Analysis and Plan	Policy	STM- 11 Jan 00	Art. 7	Endorsed
11	Wetlands	Policy	ATM- 14 Apr 98	Art. 14	Endorsed
12	Water Resources Plan	Policy <i>Replacement</i>	STM- 29 Jul 97 STM- 27 Nov 01	Art. 2 Art. 2	Endorsed Endorsed
13	Wildlife and Plant Habitat	Policy	ATM- 14 Apr 99	Art. 14	Endorsed
14	Affordable Housing	Policy	STM- 10 Feb 98	Art. 2	Endorsed
15	Community Character Chapter - Scenic Vistas - Historic Preservation Portion	Policy Policy	ATM- 10 Apr 01 ATM- 10 Apr 01	Art. 15 Art. 15	Endorsed Endorsed
16	Infrastructure Chapter -Solid & Liquid Waste Portion	Policy	STM- 27 Nov 01	Art. 3	Endorsed
17	Intergovernmental Coordination and Resources of Regional Importance	Policy <i>Supercedes Chapter 5</i>	ATM- 10 Apr 01	Art. 16	Endorsed
18	Implementation, Financial Information, and Capital Programming	Policy	STM- 27 Nov 01	Art. 3	Endorsed
19	Community Facilities and Services - Energy Portion	Policy	STM- 27 Nov 01	Art. 4	Endorsed

**CHAPTER 16  
INFRASTRUCTURE  
YARMOUTH COMPREHENSIVE PLAN**

**INTRODUCTION**

**ORGANIZATION OF THE COMPREHENSIVE PLAN**

The Yarmouth Comprehensive Plan is organized so that it will be done by individual chapters about each pertinent subject. There are 18 of these in our work program, and 16 have been complete, with 11 endorsed by Town Meeting and the 5 others used as reference documents. We are the only Cape Town using this incremental approach. It has been slower, but surer for us! This particular chapter, numbered 16 in the work program, contains the "Infrastructure" element, and this document is its "long summary" form. It is one of the basic skeleton chapters of the plan, along with Land Use/Growth Management, Economic Development, and Recreation & Open Space.

**WHO IS PREPARING THE PLAN?**

Primary guidance for the comprehensive planning program is being given by the "Local Planning committee", which is made up of the Planning Board, with the assistance of the Growth Policy Advisory Council. Much of the technical work is being done by the planning staff and with advice recommendations and analysis from various consultants. Weston & Sampson, Engineers, Inc. of Peabody, MA. have prepared much of the professional material for this element and have been assisted by the staff and committees. For this subject, "Infrastructure", we have also used a steering sub-committee with one representative from each of five committees, Planning Board, Growth Policy Advisory Council, R A S W A C and the Route 28 Task Force and four staff members, Town Planner, Town Engineer, Conservation Administrator and Superintendent of Public Works to help gain consensus.

**PRESENTATION OF THE PLAN ELEMENTS**

You may have noticed the terms "executive summary", and "long summary" in the title pages and in the text. One of the problems in presenting any town's comprehensive plans that it is written usually for three different groupings of people. Most want only the basics and not a lot of detail, thus we prepare "executive summaries". A second level of interest includes those looking for more basic technical and planning information, such as in this document, the "long summary". Finally, a few want to see our detailed and research materials or consultants reports. Thus we have prepared all three levels of reports for the Comprehensive Plan Chapters.

**PRESENTING THE COMPREHENSIVE PLAN**

In preparing such a far-reaching and complicated plan as this, we realize there must be an extensive and continuous outreach program. In addition to the required hearings, we are continuing to use television and radio whenever possible, as well as specially prepared handouts for meetings and "executive summaries" for Town Meeting action. Each of the Comprehensive Plan's Chapters is also a "stand alone" document in itself, so that it can be used separately, or as part of the overall program.

## **USE OF THE 'LONG SUMMARY' APPROACH**

The middle level of detail described previously, or the so-called "long summary" is the support document we have used the most. These are sufficient in detail to satisfy most interested persons, are also incorporated by reference into the Town Meeting votes on each chapter. This document is a "long summary" concerning the subject of Infrastructure

The "long summaries" are bound in looseleaf notebook form so that they may be added to, or amended, or even deleted, fairly easily. They are intended to be used for interested and concerned citizens and committees, and updated on a regular basis. As far as we know we are the only Cape town using this incremental approach.

## **CONSULTANT'S CREDIT**

For the preparation of the Liquid and Solid Waste portions of the Infrastructure Chapter, No. 16, we retained Weston and Sampson, Inc. Engineers, of Peabody, MA. after the publication of our RFP for the program.

In the early stages of the work program Darrell Thompson, P.E. and Christopher Perkins, P.E. provided excellent assistance on the inventory for the two subjects. Brad Hall, Conservation Administrator and in later stages Jamie Fair, P.E. replacing Mr. Thompson helped provide and guide preparation of the Infrastructure Questionnaire, as well as, the planning and implementation proposals for the two portions of the Chapter.

These engineers proved most helpful to the Infrastructure Steering Sub- Committee, and staff in preparing the questionnaire and analyzing the trust of results, as well as developing plan proposals.

It has been our pleasure to work with them.

**YARMOUTH COMPREHENSIVE PLAN**  
**CHAPTER 16**  
**INFRASTRUCTURE**

**“SETTING THE SCENE”**

The availability of capital improvements and infrastructure plays a major role in determining the rate and location of development on Cape Cod, and in Yarmouth as well. In turn, new residents and businesses place increased demands on a community's infrastructure and its services. Therefore planning for infrastructure must be an integral part of the planning efforts of the Local Planning Committee in Yarmouth, as well as the Cape Cod Commission at the regional level.

“Infrastructure” includes facilities and services needed to sustain residential, commercial, and industrial development, such as water supply and distribution facilities, septage collection and treatment facilities, streets and roads, communication facilities, utilities, and public facilities such as libraries and town buildings, as well as public safety facilities and services. Depending upon the facility or service, infrastructure can be provided by a variety of entities, including towns, special districts, private utility companies, regional agencies, as well as federal or state agencies.

In some areas of the Cape infrastructure and public services are inadequate to handle existing development, and projected development is likely to further increase the demand on these services and facilities. Some roads are at an unacceptable level-of-service even during the off-seasons. Infrastructure limitations in activity centers can and have led to land-consumption, sprawling development outside such centers. Towns are increasingly unable to expand facilities and services to meet existing needs due to severe fiscal constraints.

This community has had an active Capital Budget Program for over 15 years which has helped provide for planned expansion of infrastructure. But only 1/3 of the needed funds are regularly available to match needs, at least here in Yarmouth. Sometimes public investment in infrastructure and services is inconsistent with existing community plans. Location of infrastructure may remedy an existing problem, but its installation may lead to further development in inappropriate area. The Yarmouth Capital Budget has proven a good help in forestalling such pressures, however.

**REGIONAL FACILITIES**

- With a limited fiscal capacity, Barnstable County has not been a primary provider of needed infrastructure and services. Due to local opposition it has proven difficult in the past to develop regionally needed, but locally unwanted facilities, such as waste disposal facilities, special needs housing, and hospital facilities. The County has a key role to play in planning for such infrastructure. They can help to coordinate the siting of such facilities as well.
- Because of the fiscal constraints within the towns, the development of cost-effective regional infrastructure should be strongly encouraged.
- Barnstable County does have and maintain several regional facilities, however, including the Court and Office complexes in Barnstable and Orleans, and the County Farm in Cummaquid. The County recently closed its hospital site in Bourne, and is considering other potential uses. The County is also beginning construction of a new County jail. The Mass Military

Reservation is also being considered as a site for other regional facilities including drinking water supply.

### **TOWN FACILITIES**

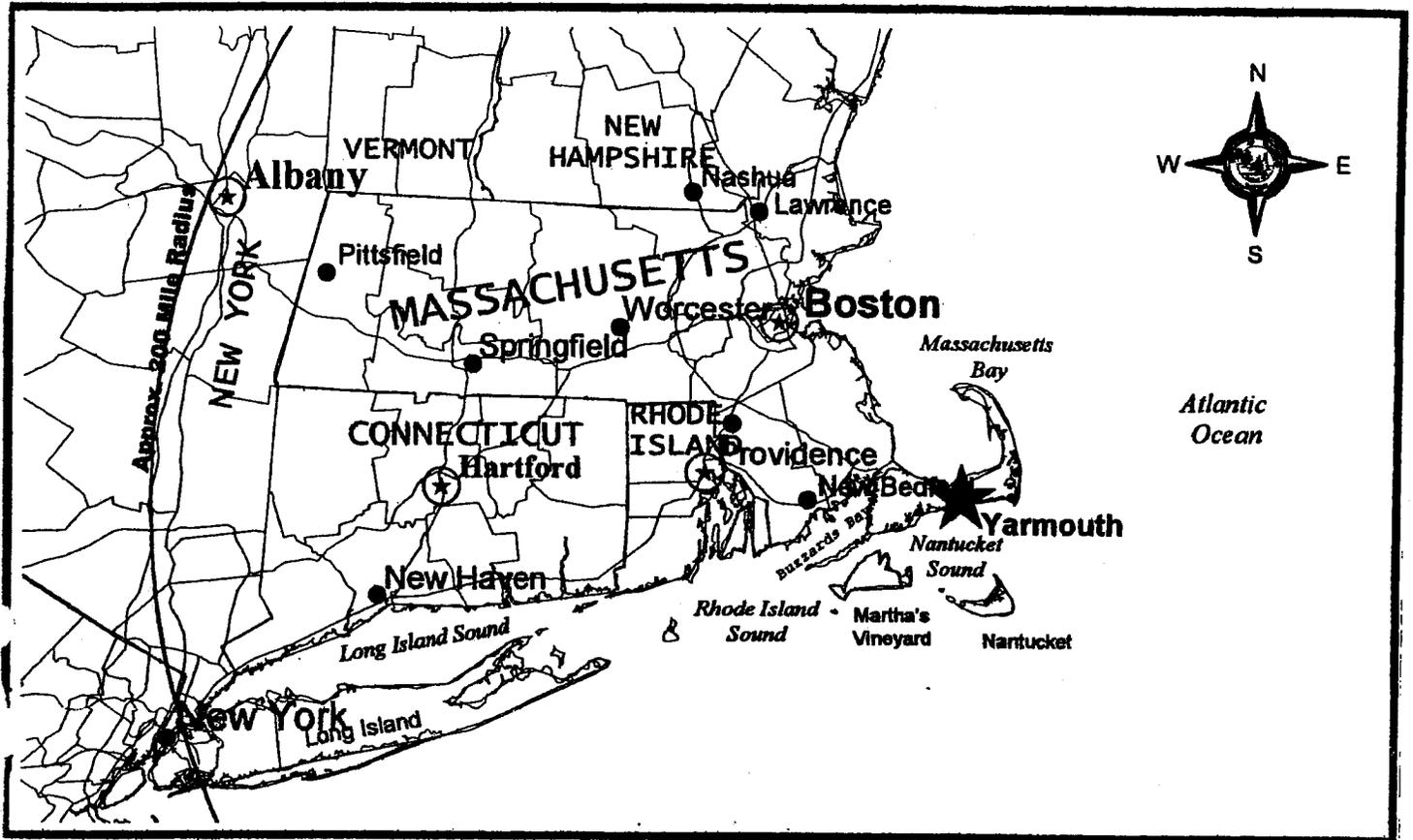
- Capital facilities and infrastructure planning help to provide a long-term guide for developing and locating needed services. Its purpose is to establish how much, when, and ultimately where new infrastructure facilities will be provided. The Infrastructure Plan will look at existing conditions, analyze needs and options for specific uses. And finally it will provide information on potential location and financing of such uses. It will provide a detailed survey of existing facilities, how they were financed and current levels of service. Ultimately the Town should establish such levels in order to have a firm basis for dealing with the impact of future development.
- The Town of Yarmouth has taken a lead in the establishment of inter-municipal agreements with surrounding mid-Cape towns for the provision of septage treatment and waste transfer services. There is an agreement with the Town of Dennis for the collection and treatment of septage, together with contracts with several other towns, using a state-of-the-art facility here.

A regional waste transfer station is run jointly with the Town of Barnstable. Both facilities are located in South Yarmouth.

### **DEFINITION OF INFRASTRUCTURE IN THE YARMOUTH COMPREHENSIVE PLAN**

- An Infrastructure Steering Sub-Committee was formed for the over-seeing of this Chapter of the Comprehensive Plan. It has representation from the Town Engineer, Town Planner, Conservation Administrator, Superintendent of Public Works, and three committees, Planning Board, Route 28 Task Force, and Recycling And Solid Waste Advisory Committee. This is a similar inter-locking organization that used with other subject chapters.
- One of the first discussions of the Steering Sub-Committee was to define the limits of "infrastructure". It was noted that other infrastructure items were covered in other chapters, such as Water Resources, and Transportation. So it was decided to concentrate on Solid Waste, Liquid Waste, Stormwater, Telecommunications, and Energy. This latter item is now being prepared as one of the sections of a new Community Facilities and Services Chapter. This current version of Infrastructure will cover Solid and Liquid Waste.
- Other subjects that may ultimately be covered by Infrastructure may include Town Administration, Emergency Services, and perhaps even Coastal Resources.
- It has been assumed that these rambling subjects all making up the "community's infrastructure" will need to be updated, expanded, corrected, and even portions deleted as time goes on. Therefore it is expected this chapter will be updated regularly, at least in part, using the incremental approach used with other portions of the chapter.

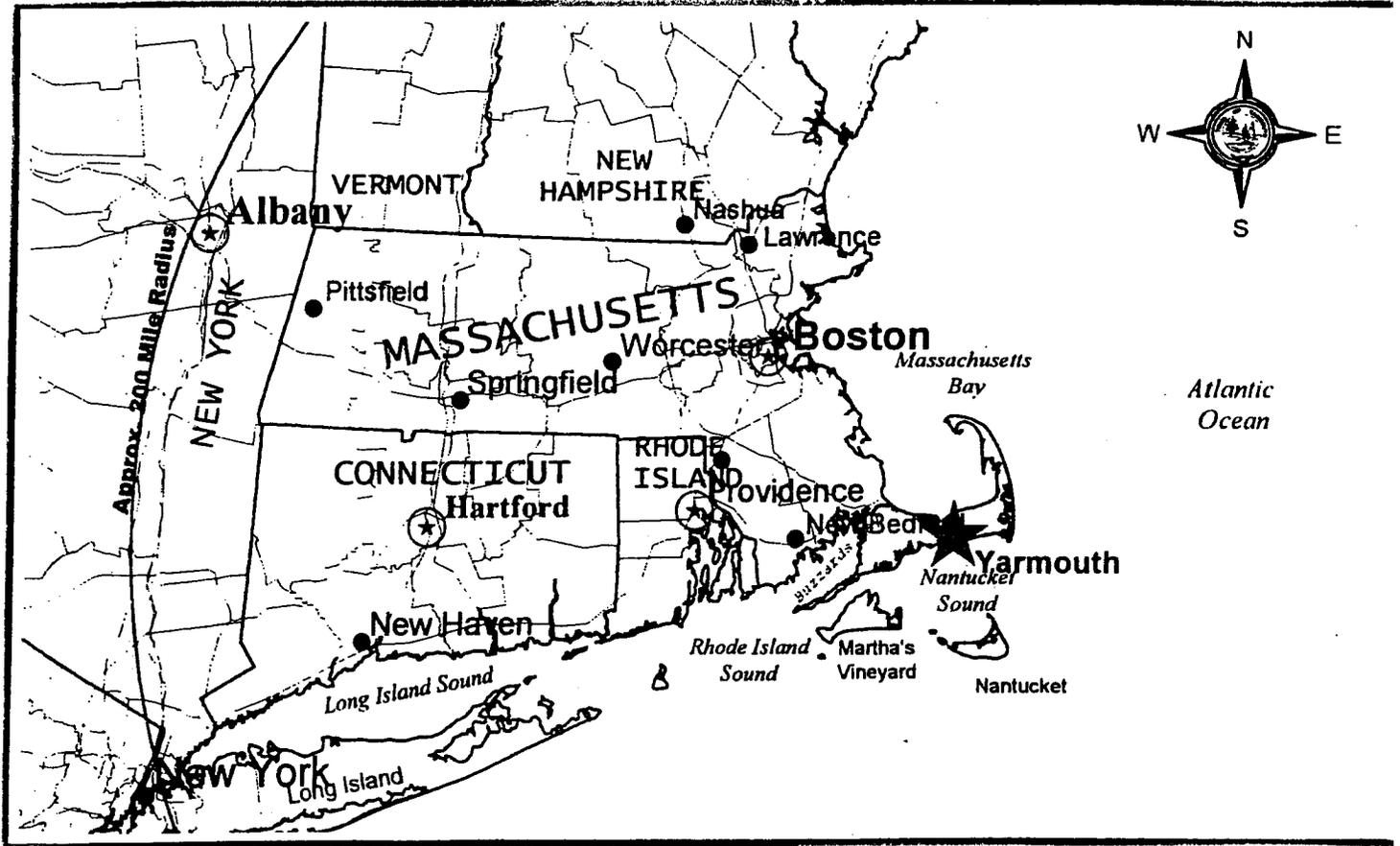
## REGIONAL LOCATION MAP



16.1 Map from Here to New York City /Albany and Portland, Maine

The importance of the Cape Cod location cannot be over-emphasized. Yarmouth lies on the Cape Cod neck some 22 miles out into the Atlantic Ocean on a spit of sand pushed up by the last glaciation approximately 50,000 years ago. It is both the best and worst of locations. On the one hand it is remote for some things and yet very accessible for others. Improved telecommunications have made it just that much more accessible.

## SOUTHEASTERN MASSACHUSETTS MAP



16-2 Map of Yarmouth - in a southeastern New England location

While the Cape was indeed an off-beat site for years, first the construction of the two bridges over the Canal in the early 1930's, and then the construction of the inter-state highway system in the mid-1950's made it highly accessible for tourists and retirees.

The Cape has boomed as a result. But it is a boom that has been achieved at a price - traffic jams, pollution, over-crowding, noise, etc. Still this is a location that attracts high-tech trained business persons, especially in telecommunications and related businesses. However, that kind of businesses or industry, although dependent on rapid communication, will cause further growth and stress.

One of the main purposes of the Comprehensive Plan is to try to help deal with the dislocations related to this change.

**CHAPTER 16**  
**INFRASTRUCTURE**  
**GOALS AND POLICIES, STANDARDS AND ACTIONS**

**GOAL 1**

**To provide adequate community and regional infrastructure to meet municipal, community and regional needs consistent with the goals and policies established in the Yarmouth Comprehensive Plan and the Regional Policy Plan.**

**MINIMUM PERFORMANCE STANDARDS**

1. Approval of development and redevelopment which increases the intensity of use should be based on existing infrastructure and system capability or on a development's ability to provide for, or contribute to, the infrastructure and services necessary to support it.
  - a. Provisions of infrastructure and services should be consistent with the minimum performance standards in the Regional Policy Plan, and also consistent with the Comprehensive Plan and Capital Improvements Program of Yarmouth.
  - b. Installation of necessary infrastructure shall be timed to meet the need generated by the development, or a contribution of funds toward the necessary improvement should be provided.
  
2. Development of new infrastructure should occur only after an analysis of the impacts of this infrastructure with regard to land use, traffic, water quality, natural resources, historic preservation, and community character, as well as other applicable issue areas noted in the Regional Policy Plan, and should be consistent with the Town's Comprehensive Plan and Capital Improvement Program.
  
3. Privately provided infrastructure to service development and redevelopment should be consistent with the Yarmouth Comprehensive Plan, and when constructed off-site, should receive formal approval from the Town prior to construction.

**OTHER DEVELOPMENT REVIEW POLICIES**

Public investments, including construction or expansion of infrastructure and facilities, including, but not limited to municipal buildings, water supply, septage collection and treatment, roads, telecommunications, and related facilities, should reinforce the traditional character and village development patterns of the Town.

**IMPLEMENTATION - COMMISSION ACTIONS**

1. The Commission should identify needed regional facilities, including but not limited to:

Water Supply	Recycling Facilities	Sludge Treatment
Septage Disposal	Hazardous Waste	Mass transit
Water & Wastewater Treatment	Landfills	Health Care
	Transfer Station	Special Needs Hous.

The Commission might identify possible sites, coordinate with appropriate agencies, and solicit host communities to accommodate their facilities.

2. The Commission should help the Town agencies charged with the preparation of the local Capital Budget and the Capital Improvement Program with the preparation of that element for this Comprehensive Plan.

### **IMPLEMENTATION - TOWN ACTIONS**

1. The Town should review its zoning by-law and maps in order to plan for land in appropriate locations to serve community needs, given the existing extensively built-up portions of the Town. Included in those locations might be areas for economic development, affordable housing, libraries, health and social-services, recreation, and community centers, among others, as well as a continuing “fair share” of necessary regional facilities.
2. The Town should identify and plan for the provision of appropriate infrastructure improvements where needed, such as waste water and septage treatment facilities, stormwater management facilities, telecommunications, solid waste management facilities, telecommunications, and solid waste management facilities, in activity centers and business areas, to support concentrated development, and should limit infrastructure improvements in areas where development is not encouraged as established by the Yarmouth Comprehensive Plan.

# **LIQUID WASTE PORTION**

# **INFRASTRUCTURE - CHAPTER 16**

## **LIQUID WASTE PORTION**

### **I. SETTING THE SCENE**

All of Cape Cod's waters are linked by groundwater. Groundwater on Cape Cod is the only source of drinking water. Wastewater that ultimately flows to groundwater contains nitrogen and other contaminants that can contaminate our groundwater supply and be toxic to our ecology. As the Town of Yarmouth's population grows, groundwater usage increases and more wastewater is generated. Preserving drinking water resources becomes increasingly difficult with increased usage and contaminant loadings. The goals of the Town of Yarmouth are to maintain adequate treatment capacity with infrastructure, preserve our drinking water supplies, and preserve the ecology of both marine and fresh water bodies. Monitoring the Town's wastewater generation and existing wastewater treatment infrastructure can greatly affect the quality of our water supplies and ecology. The purpose of this section of the Infrastructure Chapter of the Comprehensive Plan is to assist the Town of Yarmouth in developing a viable liquid waste management plan, to meet the demands of a growing community.

The Towns of Dennis and Yarmouth have entered into an "Inter-municipal Agreement" to operate a regional septage treatment plant. Representatives of both communities serve on its Board of Management for the septage treatment plant. The Town of Yarmouth has been appointed the "lead agent" for the Board. Interestingly the Inter-Municipal Agreement also requires the operation of an inspection and maintenance program for individual septic systems in both towns.

The Yarmouth/Dennis Septage Treatment Plan was built through this Inter-municipal Agreement with substantial state and federal financial aid. It began operations in June of 1992. Its plant was designed to handle 22,000,000 gallons per year of septage and grease. From FY-93 to FY-98 flows increased from 7.0 million gal. to 11.5 million gals. By calendar 2001 this number was up to 16 million gals. per year of septage and grease.

Approximately 16 million gals. of waste were expected in the first year of operation during plant design. Although the towns have the right to require pumping of septic tanks, private companies doing business within them may choose to transport the wastes to other facilities. As a result septage quantities were lower than expected, and the Board of Management had to establish disposal fees that were consistent with market prices. At present the operating costs of the facility are paid solely from revenues derived from disposal fees.

Under the current facility operations the treated effluent is pumped approximately 3 miles to the Buck Island Road land application site for irrigation/disposal. That site was selected because it is outside the Town of Yarmouth's water supply aquifer protection district of its zoning by-law. A majority of effluent (12mg) is used to water the Links at Bayberry Hills Course.

The Board has received Department Environmental Protection approval to use Septage Treatment Plant effluent to irrigate 7 holes of the Town's Bayberry Hills golf course. The re-use of effluent has required the addition of disinfection equipment to improve effluent quality 12,000,000 gallons were applied in the summer of 2001.

## **II. Inventory**

### **A. Background**

The Town of Yarmouth currently does not have a municipal wastewater collection and treatment system. The majority of wastewater is handled through residential septic treatment systems. The septage from these systems is pumped and shipped via tanker trucks to the Yarmouth/Dennis Septage Treatment Facility. Both Yarmouth and Dennis own the facility jointly and the tipping fees charged to septage haulers that discharge at the facility cover most operating expenses.

Currently, there are five (5) privately owned and operated wastewater treatment facilities in Town. These facilities serve the following developments:

1. Buck Island Village Condominiums
2. Mayflower Place Condominiums
3. Stop 'n Shop supermarket
4. King's Way Condo Village
5. Condominiums at the Yarmouth/Barnstable town line

These treatment facilities must be operated in accordance with Department of Environmental Protection (DEP) permit limitations.

Five PSTF's is more than in any other town in the state.

### **B. Yarmouth/Dennis Septage Treatment Facility Inventory**

#### **1. Pretreatment:**

- Septage is discharged from hauler trucks and flows to a screw conveyor
- An aerated grit chamber removes grit and grease prior to flowing to the equalization tanks.
- The equalization tanks reduce peak flows to the treatment system and have a design detention time of 2.5 days.
- Pictures of the facility are in the Attachment, the location of the facility is shown in Figure No. 1.

#### **2. Clarifiers and Oxidation Ditches:**

- Septage is pumped from the equalization tanks to the primary clarifiers, which provide primary sedimentation.
- The primary clarifier effluent is treated biologically in oxidation ditches, which have a design detention time of greater than 5 days.
- The oxidation ditch effluent is then directed to secondary clarifiers for secondary sedimentation.

#### **3. Tertiary Treatment:**

- The secondary clarifiers discharge to the ozone system and high-rate sand filters.
- Following filtration, which removes the fine solid particulate from the wastewater, the wastewater flows to the ultraviolet disinfection system.

**4. Spray Irrigation:**

- Following disinfection, wastewater effluent is either discharged to the Bayberry Links Golf Course as a water reuse or to the backup canary reed grass field located off of Buck Island Road.
- The effluent permit requirements include a total nitrogen limitation of 10 mg/l at the discharge site property line. Total nitrogen is monitored by taking regularly scheduled groundwater samples.
- The discharge sites are utilized from April 1 to November 30. Storage tanks adjacent to the septage treatment facility are used to hold effluent for the remainder of the year.

**5. Sludge Dewatering and Composting:**

- Sludge storage tanks, which collect sludge removed in the primary and secondary clarifiers, flow to belt filter presses for dewatering.

**6. Grease Handling:**

- Grease trap pumpings are discharged to 2 grease holding tanks. The pumpings are thickened in a scum concentrator for incorporation with belt filter press solids for direct disposal at off-site landfills.

**7. Odor Control:**

- The entire treatment facility is enclosed and connected to a central odor control system. The system provides humidification and temperature control of the air stream entering the odor control system.
- Separate misting systems are used for the main treatment building and the dewatering building to accommodate the different odorous compounds that can be generated.

**8. Facility Design Flow**

- Original Design Flow = 70,000 GPD
- Revised Design Flow (following O<sub>2</sub> Unit Installation) = 80,000 GPD
- Average Daily Flow (2000) = 44,000 GPD

**9. Total Gallons Received**

- Total for calendar year 2000 = 15,996,316 gallons
- Town of Yarmouth = 6,648,439 gallons (42%)
- Town of Dennis = 4,094,297 gallons (26%)
- Other Towns = 5,253,580 gallons (32%)

### **C. Regional Survey**

1. Dennis septage is treated at the Yarmouth/Dennis Septage Treatment Facility
5. Barnstable wastewater is treated at the Municipal Wastewater Treatment Plant located on 617 Bearses Way, Barnstable MA.

### **III. Analysis**

- A. The existing facility is currently meeting the present demand, as can be seen in the average daily flows listed in section III. The highest monthly volume in 2000 was 1,881,828 gallons, which occurred in August. This equates to 60,704 gallons per day (GPD), which is less than the 80,000 GPD design capacity.
- B. The Town of Yarmouth population could increase as much as 20% by the year 2015. If this projection is applied to the present population of Yarmouth and Dennis and the current ratio of projected percentages is maintained at 42 and 26 percent, respectively, a average daily flow can be calculated for the Yarmouth-Dennis area. This calculation results in a projected daily flow of 35,318 GPD. A similar increase in the August peak flow gives 72,845 GPD. Both these flows are below the treatment design capacity of 80,000 GPD. If the average daily flow exceeds the design capacity the towns of Yarmouth and Dennis would need to consider restricting use of the facility to residents only. Use could be restricted through the application of a higher fee for non-resident generated septage.
- C. Water Quality and Conservation: Until (and if) municipal sewer systems are installed, existing septic systems need to be serviced and maintained to adequately treat wastewater discharge to meet effluent standards set by the state and the Cape Cod Commission. Other ways to reduce the potential of contaminating groundwater, are by using organic fertilizers instead of chemical fertilizers, and to better treat stormwater runoff.

Increasing public awareness and a potential public groundwater monitoring program should be considered. Methods to consider for conserving water are low-flow toilets, faucets, showerheads, and increasing public awareness.

- D. Treatment Capacity: The Town of Yarmouth currently provides septage treatment to a variety of communities and haulers. To provide additional capacity as residential and commercial populations increase, the Town may need to consider limiting outside access to the septage facility. The facility will need to be maintained/upgraded to ensure proper operation if daily loadings increase significantly.

- E. Municipal Sewer: The town may consider installing a municipal sewer in the future. A nutrient loading study is currently being conducted, if the study indicates that nutrient levels are posing a risk, a sewer assessment study may be performed. Items for consideration are payment options, and whether or not the sewer service would be limited to commercial business.
- F. Treatment Costs: The septage facility is currently charging approximately \$0.08 per gallon for Yarmouth and Dennis residents, all non-residents pay \$0.09 per gallon. Yarmouth sees a loss of business in the winter months because of the reduced prices for discharge of septage at the Barnstable facility (\$0.05 per gallon).
- G. Peak Usage: Peak flow at the facility regularly occurs in July and August. August of 2000 had the highest septage flow of any year dating back to 1996.
- H. Septic system inspection program: The current residential septic system inspection program consists of notices sent to owners with instructions to pump their system or to have it inspected. This inspection program is performed by the Treatment Plant operating contractor. The Board of Health maintains records of system servicing.
- I. Public wells: There are 24 public wells currently. Two of the 24 are not in service. Demand from these wells averages 3.5 million gallons per day and peak usage averages 11 million gallons per day. Total aquifer drawdown is approximately 1 foot per year. The town owns most of the property surrounding the wells. The nitrate limit of 5 mg/l has not been exceeded in town wells.

#### **IV Implementation Strategy and Actions**

- A. Continue to monitor the groundwater discharge from the septage treatment facility to ensure the effluent meets DEP permit limitations. If the discharge fails to meet permit limitations, prepare and implement a plan to bring the facility into compliance.
- B. Work with state and regional regulating and planning agencies to monitor nutrient levels in both groundwater and surface waters. If trends show increasing nutrient levels, a plan for evaluating the feasibility of non-centralized wastewater treatment in certain areas of the Town may be warranted.
- C. Maintain the current septic system inspection program to prevent failing septic systems and unnecessary groundwater contamination.

Yarmouth Septage Treatment Facility  
Yarmouth, Massachusetts

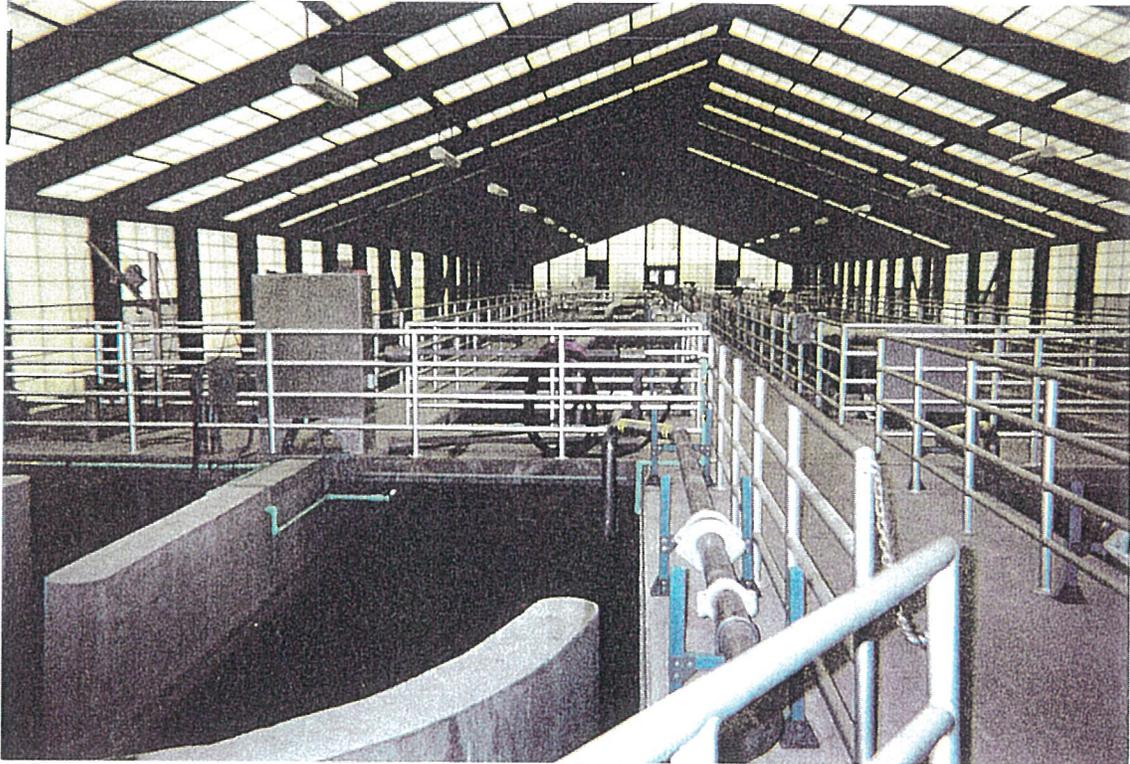


Yarmouth Septage Treatment Facility



Belt Filter Press, Grease Concentrate Room, and Sludge Composting Building (not in use)

Yarmouth Septage Treatment Facility  
Yarmouth, Massachusetts



Oxidation Ditches

Yarmouth Septage Treatment Facility  
Yarmouth, Massachusetts



Pump Truck Entry

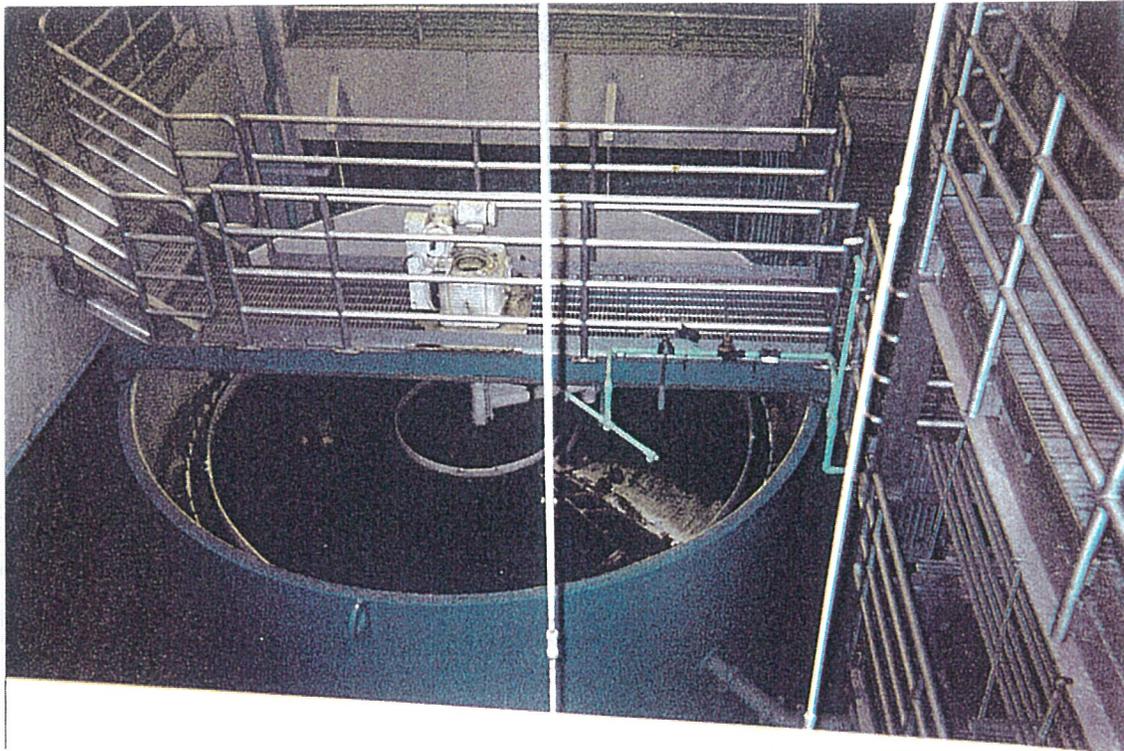


Effluent Pumps and Force Main

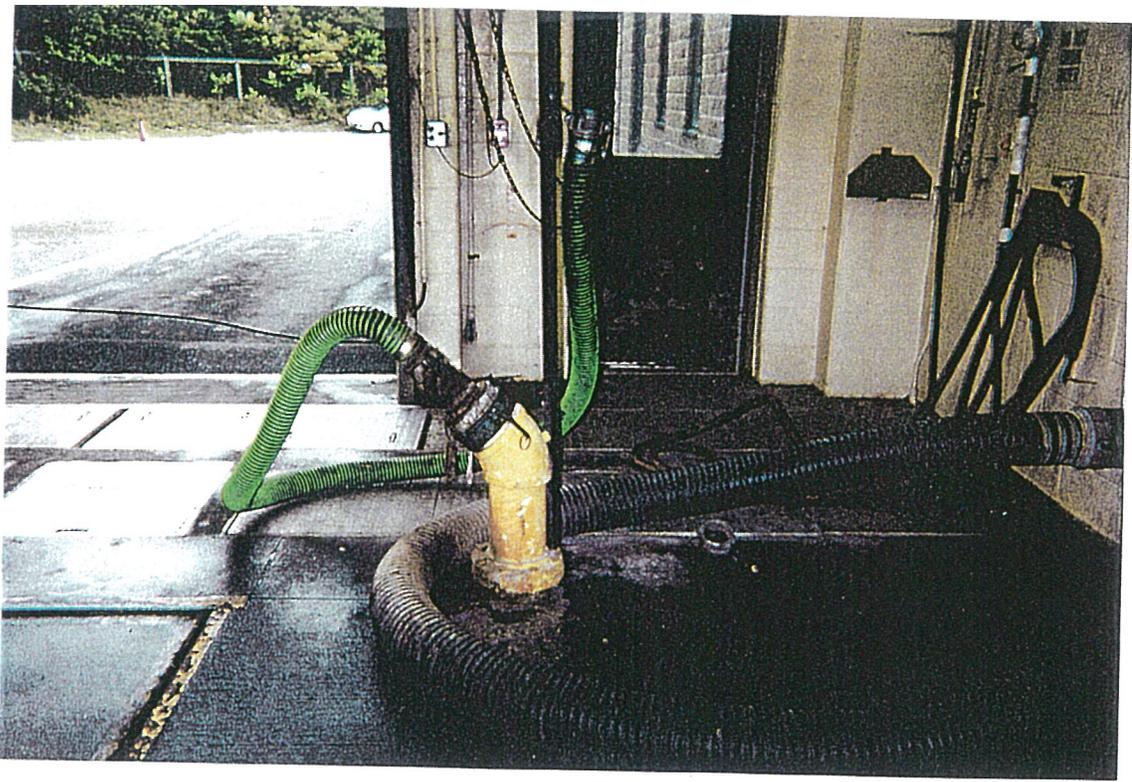
G:\Solidwaste\Yarmouth\200375\Liquid Waste\SeptageTreatPhotos

WESTON & SAMPSON ENGINEERS, INC.

Yarmouth Septage Treatment Facility  
Yarmouth, Massachusetts



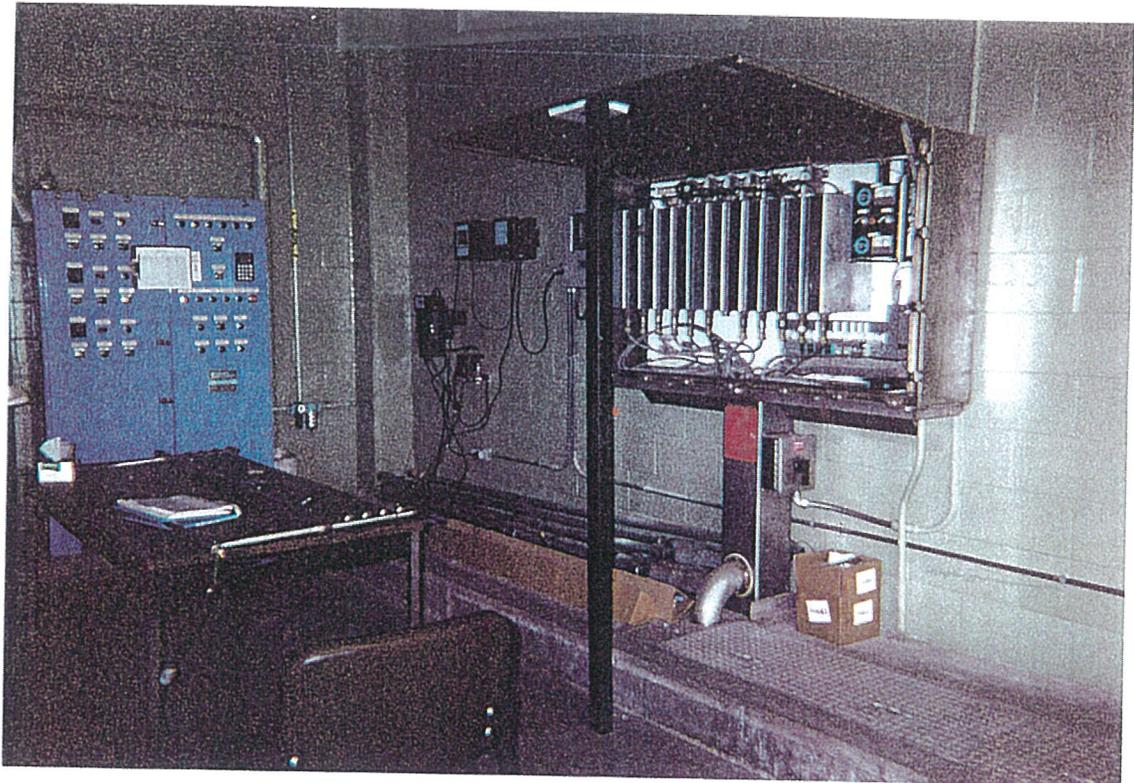
Primary Clarifier



Hook-up for Pump Truck

G:\Solidwaste\Yarmouth\200375\Liquid Waste\SeptageTreatPhotos

WESTON & SAMPSON ENGINEERS, INC.



Ozonation Units and Control Panel

G:\Solidwaste\Yarmouth\200375\Liquid Waste\SeptageTreatPhotos

WESTON & SAMPSON ENGINEERS, INC.

Yarmouth Septage Treatment Facility  
Yarmouth, Massachusetts



Septage Treatment Plant Control Panel



Aeration Building

# **SOLID WASTE PORTION**

**Yarmouth Comprehensive Plan  
Chapter 16: Infrastructure  
Solid Waste Section**

**I Introduction**

The closing of municipal landfills and the recycling goals set forth by the Department of Environmental Protection (DEP) beyond the 2000 Solid Waste Master Plan (SWMP) are making solid waste increasingly difficult and costly to manage. Cape Cod communities, such as Yarmouth, have the additional goals and policies of the Cape Cod Commission's Regional Policy Plan to meet as well. The Commission's 1996 Final Regional Policy Plan established the framework for an integrated solid waste management system, and set waste diversion goals of 30% by 2000 and 40% by 2010. With a measured increase in population of over 30% since 1980, and an increasing number of seasonal guests, an integrated waste management plan is required to meet state and local goals. The purpose of this section of the Infrastructure Chapter of the Comprehensive Plan is to assist Yarmouth in developing a viable solid waste management plan, to meet the demands of a growing community.

**II. SETTING THE SCENE**

- \* In the Spring of 1991 the Yarmouth/Barnstable - Solid Waste Transfer Station in South Yarmouth commenced operating in South Yarmouth. From there trash is shipped to the SEMASS waste to energy plant in Rochester, MA. via Bay Colony Railroad. This was a major accomplishment of volunteers in the community. Largely through the efforts of the Solid Waste Advisory Council (now RASWAC) the project was completed on time and under budget.
- \* Yarmouth has been active in searching for regional solutions to common problems. The septage treatment plant was the result of a "partnership" with Town of Dennis, and the transfer station is a "partnership" with the Town of Barnstable. Both facilities are located in South Yarmouth. We have the capability to share these resources with other communities to further lower the cost to the Town of Yarmouth.
- \* In the first six months operating, to Dec. 31, 1991, 10,036 tons of waste from Yarmouth and 10,544 tons of solid waste from Barnstable were shipped by rail to SEMASS. By 1992 the tonnage had increased to 19,000 and 34,500 tons respectively.
- \* Effective on June 1, 1992 all towns in Mass. were no longer able to landfill yard waste. Any one bringing them in must put them in the compost area. Yarmouth has been composting leaves since 1989.

**III. Inventory**

**A. Yarmouth/Barnstable Transfer Station**

**1. Transfer Station Capacity**

- The Regional Transfer Station has a permit capacity of 525 tons per day (TPD), a maximum of 163,800 tons per year (TPY).

- The transfer facility accepts waste predominantly from Yarmouth, Barnstable and Orleans. Waste from other towns in the region is accepted at times from commercial haulers.
- The transfer station received 88,009 tons in FY 2001 (July 2000 through June 2001). Barnstable contributed 49,688 tons, Yarmouth provided 25,270 tons, Orleans provided 2,239 tons, and commercial haulers provided 10,812 tons. The waste is then transported by rail cars, which hold approximately 48-50 tons per car, to the SEAMASS Waste to Energy Facility in Rochester, Massachusetts. Photos of the facility are in the Attachment.
- The facility currently accepts an average of 385 TPD during the summer months and 270 TPD throughout the rest of the year.
- The facility accepts construction and demolition material (C&D) for a fee. The C&D material is shipped to the Bourne Landfill. Approximately 10,000 tons of C&D material was accepted in FY2001.

**2. Transfer Station Permit and Operations**

- The permit for the transfer facility is valid until 2015.
- The facility is staffed by two loading operators, one foreman, one assistant foreman, and one superintendent.

**B. Yarmouth Recycling Center**

**1. Recycling Center**

The recycling center accepts recyclable materials and yard waste from Yarmouth residents. Recyclable materials accepted at the recycling center is transported to the Regional Yarmouth/Barnstable Transfer Station. Light ballasts are not currently accepted. The facility operates seven days a week excluding the fourth of July (open for ½ day), Thanksgiving, Christmas, and New Year's Day.

**Materials Recycled/Accepted:**

Newspaper	Motor Oil
Yard Waste	Antifreeze
Co-mingled plastics, bottles, and cans	
Scrap Metal	Milk/Water Jugs
Brush/Woodchips	Cardboard
Clothing	Cathode Ray Tubes
Tires	Flourescent Bulbs
Christmas Trees	Batteries

- The recycling center accepts yard waste from Yarmouth residents at no charge, and from non-residents for a fee. Approximately 1,400 tons of yard waste were accepted in FY2001. The yard waste is composted on site and is provided to residents for free.
- Approximately 2,000 vehicles per day (VPD) use the facility during the week and 3,000 VPD on the weekend.
- The Board of Health has two household “Hazardous Waste Days”, which occur on the last Saturday of June and in Mid-September. The hazardous waste collection is held at Town Hall.

**2. Recycling Data**

- The current recycling rate for Yarmouth on record with the Cape Cod Commission is 30%.

**Additional Information**

<u>Year</u>	<u>Tons Recycled</u>
FY1999	4,800
FY2000	4,900
FY2001	4,980

**C. YARMOUTH Safety and Health Facilities (See Map 16-3 on page 44)**

**1. Safety Facilities**

- Police Station  
340 Higgins Crowell Road  
(1 Brad Erickson Way)  
W. Yarmouth, MA 02673  
(508)-775-0445
- Fire Station 1  
96 Old Main Street  
S. Yarmouth, MA 02664  
(508)-398-2212
- Fire Station 2:  
40 Rt. 6A  
Yarmouthport, MA 02664
- Fire Station 3:  
14 Lewis Road  
W. Yarmouth, MA 02664

**2. Health Facilities**

- Cape Cod Hospital  
27 Park Street  
Hyannis MA 02601  
(508)-771-1800  
(Note: this is only hospital in the vicinity of Yarmouth)

**D. DENNIS Solid Waste and Safety Facilities**

**1. Solid Waste Facilities**

- Dennis Landfill, Gages Way/Theo Smith Road
- S&J Exco Stump Landfill, 200 Great Western Road
- Dennis Transfer Station, Gages Way/Theo Smith Road
- Dennis Compost Site, 100 Theo Smith Road

**2. Safety Facilities**

- Police Station  
685 Rt. 134  
S. Dennis MA 02660  
(508)-394-1313
  
- Fire Station1  
883 Main St  
W. Dennis, MA 02670  
(508)-398-2241
  
- Fire Station 2  
113 Old Bass River Rd  
Dennis, MA 02670

**E. BARNSTABLE Solid Waste and Safety Facilities**

**1. Solid Waste Facilities**

- Barnstable Landfill, 45 Flint Street
- Barnstable Compost Site, 45 Flint Street
- Barnstable Transfer Station, 45 Flint Street
- Cape Resources Stump Dump, 280 Old Barnstable-Falmouth Road
- Cape Resources Compost Site, 280 Old Falmouth Road
- Aalto Stump Dump, Old Barnstable-Falmouth Road
- Furtado Landscape Compost Site, 291 Flint Street

**2. Safety Facilities**

- Police Station  
200 Phinney's Ln.  
Barnstable MA 02630  
508)-775-0812
  
- Fire Station  
3249 Main St  
Barnstable MA 02630  
(508)-362-3340

**IV. Analysis**

**A. Solid Waste Issues:**

- A. The existing transfer station is capable of meeting existing demands. The transfer station has a permit limit of 525 tons per day (TPD), and a maximum of 163,800 tons per year (TPY). The facility currently accepts an average of 385 TPD during the summer months and 270 TPD throughout the rest of the year.
  
- B. Records from 1996 through 2001 indicate that the percent increase in the amount of waste accepted at the facility was greater than the percent increase in the Barnstable, Orleans, and Yarmouth population. The population increase from FY1996 through FY2001 of towns contributing waste to the facility was very conservatively estimated by the consultants as:
  - Barnstable population increased 5%
  - Orleans population increased 6%
  - Yarmouth population increased 12%

The amount of waste accepted at the facility increased approximately 16% from FY1996 through FY2001.

The population of Yarmouth has been projected to increase as much as 20% by 2015, in accordance with population forecasts. Applying a 25% increase to the average solid waste accepted at the transfer station for all towns would give 481 TPD in the summer months and 338 TPD throughout the rest of the year. Given the transfer station's current permitted capacity of 525 TPD, and based on the assumptions outlined, there should be no need to increase the permitted capacity until some time after 2015.

- C. Costs of disposing of municipal solid waste (MSW) and handling recyclable materials are increasing. For MSW, the town is under contract with the SEMASS

Waste to Energy Facility. This contract is up for renewal in 2015. The tipping fees under the new contract will most likely be significantly higher than current rates. The town will need programs to defray the increased costs of waste disposal.

- D. In addition, according to the Massachusetts Beyond 2000 Solid Waste Master Plan, in 2003, the State plans on banning the disposal of unprocessed (unsorted) construction and demolition debris material (C&D). The Bourne landfill currently accepts unprocessed C&D from the Town of Yarmouth. After 2003, the Bourne facility will not be able to landfill raw C&D materials, and is considering the addition of a C&D processing facility. Therefore after 2003 the Bourne facility will only accept C&D residuals or will need to charge users a processing fee for sorting the recyclable materials from the C&D waste. According to the DPW Director, the Town of Yarmouth is currently planning on paying the additional fee to Bourne for sorting the C&D material.
- E. The question of how to offset the expected increase in solid waste disposal costs was posed in a questionnaire sent out to Yarmouth residents. Out of a total of 1,179 responses:
- 323 preferred a “pay as you throw” system where each bag of waste is charged a standard fee
  - 669 preferred to increase the cost of the disposal area dump sticker
  - 187 preferred to add the cost to taxes (may require any override of proposition 2 ½)

## **B. Recycling Issues:**

- A. The current recycling rate for Yarmouth on record is 30%, which just meets the current Cape Cod Commission goal of 30%. The recycling goal for the year 2010 set by the Cape Cod Commission is 40%, and the State has set a waste reduction goal of 60% by that same time. The strategies to meet the 2010 goal of 40% recycling should be reviewed and determined prior to year 2010, if this goal is to be met. Some options are:
- Implement a curbside pickup system for recyclables
  - Place additional recyclable drop off areas throughout the town
  - Implement a pay as you throw program for solid wastes
  - Increase public awareness
  - Mandate recycling
- B. The Town of Yarmouth will face a new problem of handling the additional recyclable materials generated under increased recycling rates. The existing recycling facility has the capacity to meet current demands, but is limited in its

capacity in handling more recyclable materials, according to Department of Public Works representatives. Specifically, the hauling of recyclable materials will need to be increased to meet future demands.

C. Recycling materials and yard waste are currently accepted at no fee to residents. The question of how to meet the rising costs of handling recyclable materials was posed to residents in a questionnaire. Out of 1,146 responses:

- 437 said to add costs to the disposal area sticker
- 439 said to create a separate recycling sticker
- 193 said to add cost to taxes
- 77 proposed an alternative method, some of which are listed below:
  - Charge for compost
  - “Pay as you use” type system
  - Cut operation costs by reducing the number of hours the dump is open

D. The DPW Director made two recommendations to offset the increasing costs of recycling:

- Use funds generated from accepting C&D materials to pay for recycling costs. To do this the C&D operation would need to be converted from a tax based program to an “Enterprise Fund” type program, which would allow funds generated from C&D to pay for recycling costs.
- Have the state build a regional recycling center, as was done in Springfield.

## **V. Implementation Strategy and Actions**

### **Solid Waste**

1. Based on results from the residential questionnaire the preferred method of handling increased disposal costs is to increase the cost of the disposal area dump sticker.
2. The implementation of this strategy should be easier and less costly than a “pay as you throw” type system, or increasing taxes. The “pay as you throw” type system would require the implementation of an entirely new type of program. Increasing taxes could possibly require a proposition 2 ½ override.

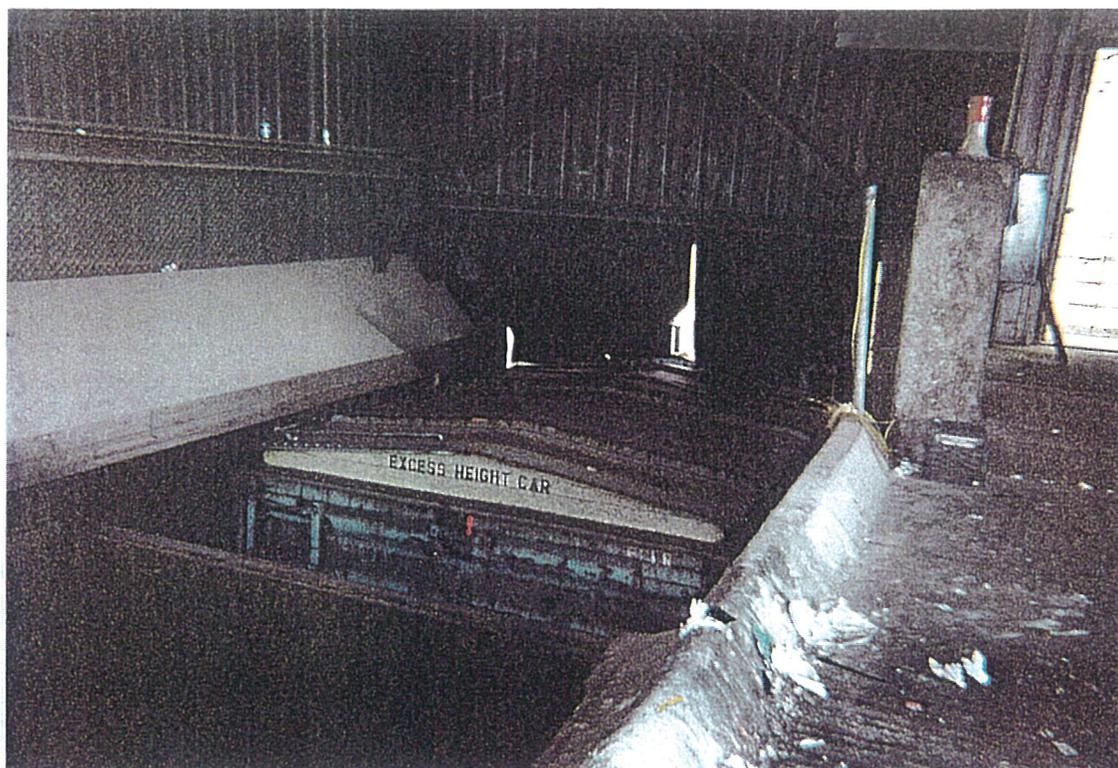
## Recycling

1. Increasing recycling rates
  - An inexpensive way to increase recycling rates would be to increase public awareness. This is usually done through a public educational program that informs the residents about the Town's recycling program, and the recycling goals of the Cape Cod Commission and the State. The program could increase public awareness through the use of bulletins and advertising.
  - Town mandatory recycling can be implemented, but the town must be prepared to manage and monitor the program, which adds operating costs.
  - The implementation of a "pay as you throw" type system would require the start up of a new program, which is more costly.
  - Curbside pickup or the addition of more drop-off stations would increase costs, as both of these would require the management of additional programs.
  
2. Handling the additional recyclable materials and increasing costs
  - The two most popular options identified by the questionnaire were to add costs to the disposal area sticker, and to create a separate recycling sticker. Increasing the cost of the disposal area sticker would likely be the best approach, as creating a separate recycling sticker may inhibit people from recycling.
  - Consideration should also be given to:
    - Converting the C&D operation into an "Enterprise Fund", using revenues generated from accepting C&D to defray the costs of recycling
    - Having the state build a regional recycling center
    - Charging for compost

Yarmouth/Barnstable Transfer Station  
Yarmouth, Massachusetts



Yarmouth/Barnstable Transfer Station



Loaded Rail Car

Yarmouth/Barnstable Transfer Station  
Yarmouth, Massachusetts



Tipping Floor. Lid of Rail Car Removed for Loading.



Rail Car Headed for SEMASS



Loading Rail Car

G:\Solidwaste\Yarmouth\200375\Solid Waste\TransferStPhotos

WESTON & SAMPSON ENGINEERS, INC.



Transfer Station Scales

G:\Solidwaste\Yarmouth\200375\Solid Waste\TransferStPhotos

WESTON & SAMPSON ENGINEERS, INC.

**CHAPTER 16 - INFRASTRUCTURE  
SOLID WASTE MANAGEMENT  
GOALS, POLICIES, STANDARDS, AND ACTIONS**

**GOAL 1**

**To manage solid waste using an integrated solid waste management system that includes waste reduction, recycling, composting, incineration and landfilling, and to direct 30% of municipal solid waste from incinerator and landfill facilities, through recycling and composting programs by 2005, and 40% by 2007.**

**MINIMUM PERFORMANCE STANDARDS**

1. D.R.I.'s should address how the quantities and types of solid waste to be generated should be handled using the following integrated solid waste management system:
  - A. The highest priority, and thus the most preferred method of waste management, is to reduce as much as possible the amount of solid waste created.
  - B. The second priority is to recycle or compost waste which cannot be avoided.
  - C. The third priority is to incinerate waste that cannot be re-cycled, composted, or burned.
  - D. Finally, to landfill only those wastes that cannot be re-cycled, composted, or burned.
2. Development and redevelopment should allocate adequate storage space for interim storage of materials to be recycled.
3. Construction and demolition debris from development and redevelopment should be removed from construction sites, and disposed of in accordance with the solid waste management system desired above in sub-section 1.

**GOAL 2**

**Hazardous waste generated by Yarmouth households and businesses should be disposed of in an environmentally sound manner.**

**MINIMUM PERFORMANCE STANDARDS**

1. Development and redevelopment should make reasonable efforts to minimize their hazardous waste generation through source reduction, re-use, material substitution, employee education and recycling.
2. Development and redevelopment should be in compliance with Massachusetts Hazardous Waste Regulations in 310 CMR 30.00.
3. Commercial and industrial development that involves the use, treatment, generation, storage, or disposal of hazardous waste or hazardous materials, with the exception of house lot sized quantities, should not be allowed within wellhead protection districts.

**OTHER DEVELOPMENT REVIEW POLICIES**

Development and redevelopment using or storing hazardous materials or waste should propose and maintain an emergency response plan which identifies potential environmental and health risks and recommends ways to reduce those risks. Such plans should be provided to local officials responsible for hazardous waste collection.

## **IMPLEMENTATION**

### **COMMISSION ACTIONS:**

- The Commission should assist towns to adopt full-cost accounting methods in solid waste management.
- The Commission should promote the development of regional recycling efforts including inter-municipal processing and hauling arrangements.
- The Commission should publish a bi-annual report on recycling markets used by Cape Cod Towns to assist them in locating the best markets.
- The Commission should seek to educate and assist residents, businesses, institutions and governments on source reduction of solid and hazardous wastes and the identification of products posing fewer disposal difficulties.
- The Commission should encourage government, businesses, institutions and individuals to purchase goods made from recycled materials in order to increase the marketability of the recyclable materials they generate.
- The Commission should publish an annual report of the quantities of solid waste that are recycled, composted, incinerated and landfilled by each town.
- The Commission should work with realtors, chambers of commerce, and tourism-related businesses to encourage recycling by vacationers and seasonal residents.
- The Commission should work with towns to explore regional alternatives for the recycling or disposal of non-recyclable and non-combustible wastes such as construction and demolition material.
- The Commission should promote composting of yard wastes and household food wastes by homeowners, and should help disseminate information on composting in conjunction with the County Extension or DEP.
- The Commission should research potential problems and possible improvements to the methods currently used for disposing of commercial food wastes and bio-solids.
- The Commission should assist towns with bidding, coordination, data collection and development of educational materials for household hazardous waste collection events.
- The Commission should publish an annual report summarizing household hazardous waste collection events held by Cape Cod towns and recognize outstanding municipal performance in this area.

### **RECOMMENDED TOWN ACTION**

- The Town should adopt accounting methods which reflect all capital costs and operational expenses of municipal recycling and waste disposal services, and make it known to taxpayers what they are paying for these services.
- The Town should develop an integrated system of waste management that involves recycling, composting, incineration, and landfilling for dealing with municipal solid waste, bio-solids, and construction and demolition materials.
- The Town should adopt a toxic and hazardous material bylaw or regulation, utilizing the County's model or similar regulations
- The Town should continue to hold household hazardous waste collection events for solvents, pesticides and other hazardous wastes and establish other programs at transfer stations for paint wastes and oil.
- The Town should develop and maintain an emergency response plan for spills of hazardous materials during transit.

# INFRASTRUCTURE QUESTIONNAIRE

## RESULTS

## INFRASTRUCTURE SURVEY ANALYSIS

A questionnaire was developed by the Infrastructure steering sub-committee to poll Yarmouth residents in regard to several issue areas. The issue areas were "General Information", "Solid Waste", "Liquid Waste", "Town Facilities and Structures" and "Miscellaneous".

Approximately 10,000 surveys were mailed to a majority of Yarmouth households. The steering sub-committee received 2,523 surveys back to tabulate. Tabulation was accomplished over a 3 month period beginning in September of 2001. The results are summarized as follows:

The General Information section revealed that there are approximately 2.06 people living in each household with a clear majority over the age of 50, (69%). 92% were year round residents and 98.5% owned their homes rather than rent. 4% reported that they have a business within the household.

The Solid Waste section revealed that almost 60% of the responses were against the "pay as you throw" method of payment for dump fees. Future increases for recycling fees should be handled by a separate recycling sticker, so said 40% while 39% said raise the cost of the existing disposal sticker. 17% wanted the cost added to property tax bills. 64% of the respondents have participated in the Hazardous Waste collections at the town hall and 60% take more trips to the dump in the summer months. Only 4% stated that they do not recycle any items at all. 80% prefer to go to the dump themselves rather than hire a professional rubbish service and 98% are household users rather than commercial. Only 15% knew that compost was available for free at the Disposal Area.

The Liquid Waste section indicated that 76% of respondents would approve of a multi-million dollar sewer collection system to mitigate existing water resource pollution. Only 6% preferred to pay for such a system with a proposition 2 ½ override at town meeting. While 55% preferred actual facility users charged and 39% preferred a municipal bond. Approximately 20% of the respondents have not ever had their septic system pumped and 93% report not ever having a problem with their septic system. 77% indicate that they know what a Title 5 system consists of but 70% had no idea of the lifespan of such a system. 80% of respondents do not own a garbage disposal and 62% report using some sort of water saving device. Respondents that operate a business would prefer a centralized sewer collection system by a 57% to 43% margin. If such a system were available, only 20% would expand their business. 75% of the respondents use fertilizer on their lawns and gardens. Interestingly, almost 90% would use an organic type fertilizer rather than chemical. Pesticide use occurs in only 40% of the households and the respondents report that approximately 85% of them "clearly" understand application instruction for pesticides. 61% use a professional lawn care company such as landscapers or Lawn Company Inc. type operation.

The Town Facilities and Structures section clearly indicates that the respondents would prefer expanding the existing town hall rather than building a new one elsewhere. 93% would expand existing, 7% preferred a new building elsewhere. 40% indicated paying for such a facility by municipal bonding, 19% taxes, 15% fees and 25% preferred a combination of each.

Miscellaneous questions revealed that 82% of respondents are happy with the existing public access channel on cablevision channel 18. The respondents also indicate they would like to see more public transportation with the town and county picking up the tab jointly. 41% would like the county to do more, 15% for the town and 44% jointly.

The final and most controversial question indicated that 80% of the respondents have a favorable opinion on offshore wind power facilities. It is also interesting to note that this questionnaire was prepared and responded to prior to any knowledge of the proposed Nantucket Sound Wind Farm.

**(COVER PAGE OF INFRASTRUCTURE QUESTIONNAIRE)**

*The Town of Yarmouth Growth Policy Advisory Committee is nearing completion of the Town's Comprehensive Planning process. The Town's existing and future Infrastructure system are integral to the overall comprehensive planning process. The answers to the following survey questions will significantly assist the town in assessing its current and future infrastructure need. Please take a few minutes to study and complete the survey.*

**INTRODUCTION**

Managing your daily solid waste, (rubbish), construction and demolition (C&D) debris, yard waste, household hazardous waste, and recyclable materials in an environmentally sound manner is an important part of the Town of Yarmouth's infrastructure and services. Currently, if you do not contract with a private hauler, you must purchase a disposal area (dump), sticker to dispose of your rubbish and C & D materials. There are additional charges for handling hard to manage wastes but there are no fees for handling your recyclable materials. In the year 2000, the Town of Yarmouth paid a net amount of \$137,390 or \$81.22 per ton for handling all recyclable materials brought to the disposal area. In other words, the costs of recycling are rising and must be recovered by taxes. The survey will examine a more fair way of solid waste disposal in the "pay as you throw" system that may be proposed in the future. The system incorporates a "dispose less, pay less" perspective.

In the year 2000, the town paid \$78.56 per ton to dispose of your waste, which was recovered by the cost of disposal area (dump), stickers. This is a low tonnage fee because the present contract was signed by the town several years ago with an off-Cape disposal facility. This will rise and is anticipated in excess of \$85,000 per ton by the year 2015. In order to keep disposal area stickers and taxes from skyrocketing, the town needs to reduce the amount of waste disposed. This can only be accomplished by recycling, waste reduction and conservation.

The State has set a recycling waste reduction goal of 70% and a recycling only goal of 60% by the year 2010. The Cape Cod Commission has set a recycling goal of 40% for all of Cape Cod by 2010.

All of the Cape's waters are linked by groundwater. Groundwater on Cape Cod is the only source of drinking water. Your dwelling or business's septic system discharges wastewater to our groundwater. Wastewater contains nitrogen and other contaminants that pollute our groundwater in many ways. As Yarmouth's population grows, groundwater consumption increases and more wastewater is generated. Preserving clean drinking water becomes increasingly difficult with accelerated pollutant loads. Yarmouth's goals are to maintain adequate wastewater treatment capacity with infrastructure and maintain a safe drinking water supply as well as preserving both marine and fresh water quality. Your wastewater practices and treatment system can greatly affect the overall quality of groundwater and marine surface waters. Please consider the impact of every individual septic system discharge when filling out the following survey. Also, please consider the solid waste infrastructure and recycling issues discussed previously. Please return completed survey to the Planning Dept. and the Yarmouth Town Offices. The mailing address is as follows: Thank you!

The Yarmouth Planning Department  
1146 Route 28  
South Yarmouth, MA 02664

**General Information**

1. How many people live in your household? 4654  
How many in each age group 1-5 125, 6-12 162, 13-20 177, 21-40 472, 41-50 384, 51-65 1066.
  2. Are you a year round resident? Y 2299 N 199.  
1\_\_ 2\_\_ 3\_\_ 4\_\_ 5\_\_ 6\_\_ 7\_\_ 8\_\_ 9\_\_ more
  3. Do you own or rent your residence? Own 2,457 Rent 40.
  4. Are you a residential or business entity? Residential 2,262 Business 26 Both 79.
- 

**Solid Waste Section**

1. Which of the following options do you prefer in order to handle the expected cost increases for the disposal of solid waste.
  - A. A "pay as you throw" system where each bag of waste is charged a standard fee 627
  - B. Increase the cost of the disposal area, (dump), sticker to cover the increased costs. 1,338
  - C. Add cost to taxes (Could possibly require a Prop. 2 ½ override) 348
2. Recycling of materials and yard waste is currently provided for all residents at no cost to the resident. Disposal Area stickers are not needed for recycling. However, the cost to the town for handling these items is rising constantly. How would you prefer to handle these costs.
  - A. Add costs to Disposal Area Sticker 847
  - B. Create a separate recycling sticker 869
  - C. Add costs to taxes 366
  - D. Describe another method if you can 114
3. Have you participated in the town's Hazardous Waste collections at the Town Hall?  
Y 863 N 1556 If so, what materials have you brought for disposal?
4. How many day trips to the Disposal Area do you take per month? 4.52 Average  
Do you take more trips in summer? Y 811 N 1225
5. What items do you recycle None 333, Newspapers 1,861 Cardboard 1,495, Aluminum Cans 1,484, Plastic Bottles 1,634, Milk Jugs 1,409, Office Paper 127,
6. Do you use a private rubbish pick-up service? Y 531 N 1965
7. Are you a commercial user of the Disposal Area Facility? Y 43 N 2399
8. If you answered yes to question 7, what items do you dispose of at the facility? Please list.
9. What additional service(s) would you like to see at the Disposal Area facility?
10. Do you use the free compost available at the Disposal Area facility? Y 183 N 1,034

**Liquid Waste Section**

1. Would you support hooking up portions of Yarmouth that are now polluting our water resources to a "new" multi-million dollar municipal sewer collection and treatment system? Y 847 N 274
2. How would you prefer to finance such a system? Please circle.
  - A. Municipal Bond 418
  - B. 2 ½ Override at Town Meeting 62
  - C. Paid for by facility users 581

3. What is the age of your septic system, (if known) Ave. 14-34 years
4. How often do you have your system pumped? Yearly 662, twice of year 35, three or more time per year 172, never 217.
5. Do you have; or have ever had an operational problem with your septic system? Y 81 N 1,131.
6. Are you aware of what a Title 5 septic system consists of? Y 943 N 281
7. Are you aware of the average life span of a Title 5 septic system. Y 364 N 847
8. If you are a resident:  
 Would you expand your dwelling if your septic system were larger or connected to a municipal sewer? Y 136 N 1,052  
 Do you currently have any plans to expand your dwelling? Y 64 N 1,117  
 Do you have a garbage disposal? Y 250 N 971 Do you use it? Y 149 N 265
9. If you are a business:  
 Would you prefer to have a centralized town sewer system? Y 65 N 50  
 If a sewer system were available, would you consider expanding your business? Y 14 N 54
10. Does your household or business utilize water -saving devices? Y 676 N 422  
 If yes, what type?
11. Do you use fertilizer for your lawn, trees and outside plants? Y 910 N 300  
 If yes, do you, or would you use organic fertilizer in place of chemical fertilizer? Y 770 N 99
12. Do you use any types of pesticides? Y 465 N 670 If yes to 11. And 12., do you clearly understand all application instruction? Y 487 N 109 (Be honest!!) (Its important that we gain an accurate perspective.)
13. Do you hire a professional lawn care company to handle fertilizer and pesticide applications? Y 480 N 764

**Town Facilities and Structures**

1. Yarmouth has again outgrown its Town Hall. Would you prefer expanding the existing building or building a new structure in another portion of town.  
 Expand existing: Y 1,105 N 81  
 New Building elsewhere: Y 55 N 445  
 If new building, where would you suggest it be located?
  2. What facilities do you feel Yarmouth needs in addition to what is already in place?  
 Please list:
  3. How should future facilities be paid for?  
 Bonding 365 Fees 142 Taxes 178 Other \_\_\_\_\_ Combination 234  
 (Please describe)
- 

**Miscellaneous Question.....**

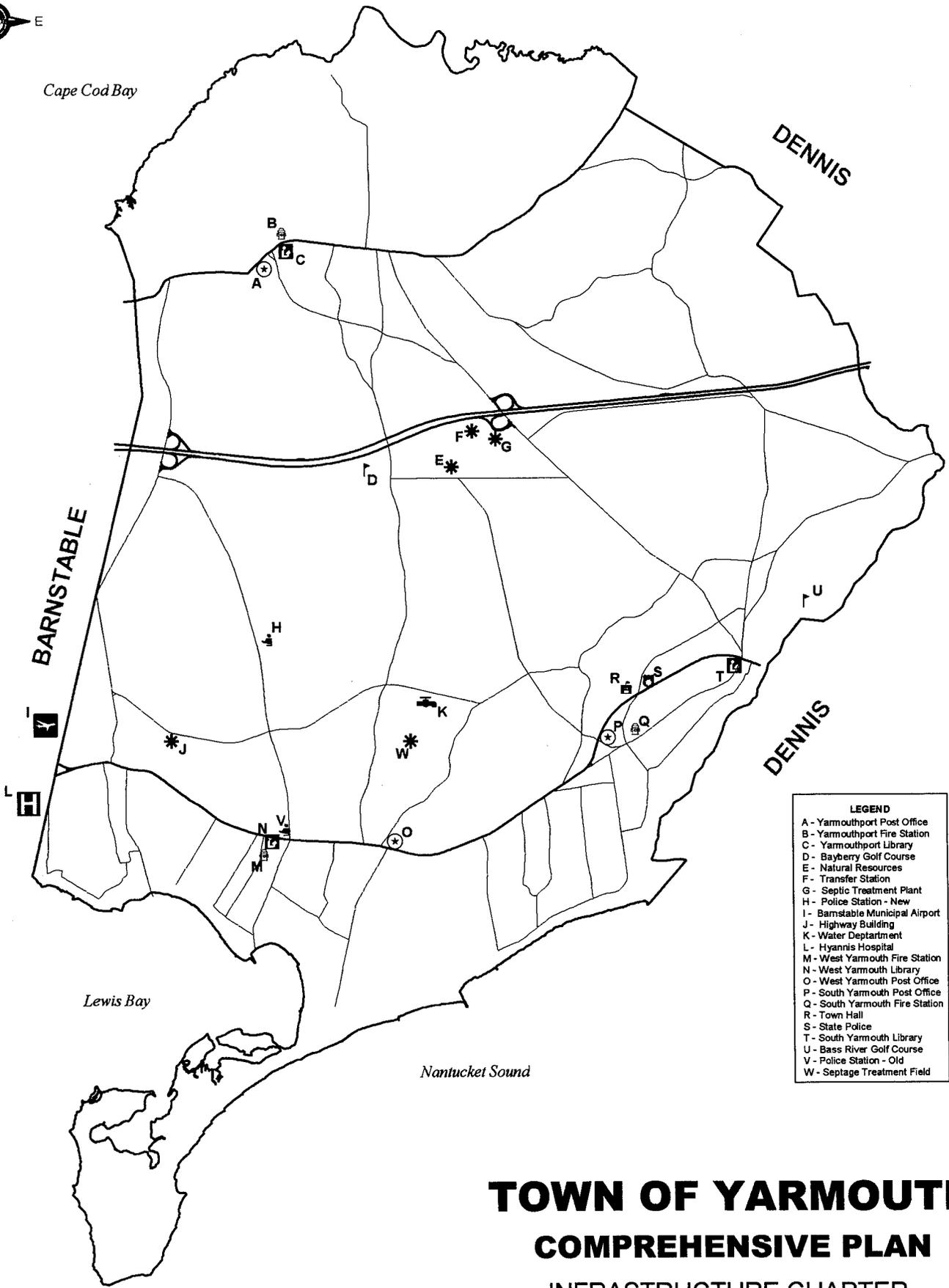
1. Are you satisfied with Yarmouth's current public Television stations such as C3TV and the town's public access station on channel 18? Y 857 N 183
2. Should the town invest in more public transportation or rely on the present County system or a combination?  
 Town Do More 165 Rely on County 435 Combination 474

3. Do you have an opinion on offshore wind generating power facilities?

A. Favor 798

B. Do not favor 210

4. Other Comments, feel free to discuss any issue in this survey.



LEGEND	
A	- Yarmouthport Post Office
B	- Yarmouthport Fire Station
C	- Yarmouthport Library
D	- Bayberry Golf Course
E	- Natural Resources
F	- Transfer Station
G	- Septic Treatment Plant
H	- Police Station - New
I	- Barnstable Municipal Airport
J	- Highway Building
K	- Water Department
L	- Hyannis Hospital
M	- West Yarmouth Fire Station
N	- West Yarmouth Library
O	- West Yarmouth Post Office
P	- South Yarmouth Post Office
Q	- South Yarmouth Fire Station
R	- Town Hall
S	- State Police
T	- South Yarmouth Library
U	- Bass River Golf Course
V	- Police Station - Old
W	- Septage Treatment Field

# TOWN OF YARMOUTH COMPREHENSIVE PLAN INFRASTRUCTURE CHAPTER

2001  
MAP 16 - 3



Note: Water tank and wellhead locations are not shown for security reasons.