

# **Chapter 1**

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## **Introduction**

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## INTRODUCTION

### 1.1 PROJECT IDENTIFICATION AND PURPOSE

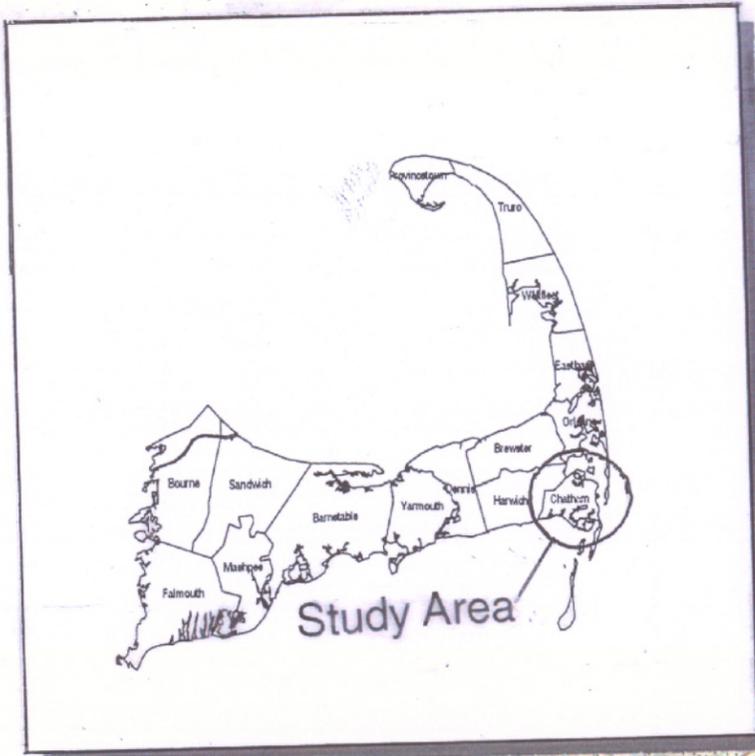
The purpose of the Comprehensive Wastewater Management Planning Study (Study) is to provide an environmentally and economically sound plan for wastewater treatment and disposal in Chatham for the next 20 years. The Project will evaluate the Town's existing wastewater treatment facility and collection system, address nitrogen loading impacts to the Town's coastal embayments, identify water supply demand and supply constraints, and identify and evaluate wastewater problems for all areas of the Town.

The Town of Chatham is located at the elbow of Cape Cod (southeastern corner) as shown in Figure 1-1.

### 1.2 PROJECT BACKGROUND, AND ISSUES

The Town of Chatham faces unique challenges in wastewater treatment and disposal. The Town is surrounded on three sides by water and possesses natural beauty that attracts thousands of vacationers each year. The vacationers visit mainly in the summer season at which time the population swells from approximately 7,000 residents to as many as 25,000 people. This population increase places a severe strain on the individual on-site wastewater disposal systems, which are used for most of Chatham.

Nitrogen discharged into the groundwater system from on-site septic systems and from other sources is believed to be impacting water quality in the Town's many coastal embayments. State and Federal regulations protect public health by limiting nitrogen levels in drinking water; however, recent studies have shown that these limits are not sufficient to protect sensitive coastal waters and especially smaller embayments. Septic



**FIGURE 1-1**  
**SITE LOCATION MAP**  
 Comprehensive Wastewater Management Planning Study  
 Town of Chatham, MA  
 Stearns & Wheler, LLC  
 Environmental Engineers and Scientists  
 Source: Chatham and Harwich Quadrangles  
 USGS : 7.5 Minute Series, 1974

systems, even those meeting the current Title 5 regulations, provide minimal nitrogen removal. Over fertilization (eutrophication) of the coastal embayments will occur if excessive nitrogen is discharged to the watershed of an embayment. The evaluation of nitrogen loadings to the Town's embayments is a main focus of this project.

A wastewater management plan was last completed for Chatham in June 1982 focusing on unsewered areas with wastewater problems and problems at the Chatham Water Pollution Control Facility (WPCF). The plan recommended upgrade of portions of the Chatham WPCF, expansion of the existing wastewater collection system, expansion of the public water supply system, improved on-site septic systems, and development of cluster treatment and disposal systems. Additional studies were performed after 1982 to find alternative effluent disposal sites for the Chatham WPCF. The final management plan never gained approval at Town Meeting, but many of the recommendations have been implemented.

On November 1987, Massachusetts Department of Environmental Protection (DEP) issued an Administrative Consent Order to the Town requiring that the effluent flow from the Chatham WPCF be limited to 100,000 gallons per day or less to minimize the risk of treated effluent migrating to public water supply wells. It also required that the Town begin efforts to upgrade the WPCF. On October 1996, the Town completed modifications at the WPCF to remove nitrogen from the treated effluent to meet the Class I groundwater standard of 10 mg/l nitrate nitrogen. Recently (September 1998) the Administrative Consent Order was modified to allow expansion of effluent flow to 150,000 gallons per day, and to modify the Consent Order schedule. The submittal of a Draft Comprehensive Wastewater Management Plan and Draft Environmental Impact Report is now planned for April 2000.

### 1.3 PROJECT SCOPE

The Chatham Comprehensive Wastewater Management Planning Study has been divided into five phases. A brief listing of the tasks associated with the these phases follows:

- Phase 100: Project Administration and Support.
  - Provide project administration throughout the project.
  - Coordinate wastewater planning activities with other Town planning activities.
  - Provide public participation support.
- Phase 200: Project Scoping and Environmental Documents Preparation and Filing.
  - Collect and review available data pertinent to the project.
  - Develop the Detailed Scope of Services and involve the necessary regional, State and national regulatory agencies in the scoping and review process.
  - Prepare and file the Environmental Notification Form and the Development of Regional Impact documents.
- Phase 300: Needs Assessment.
  - Review and evaluate the existing conditions in Chatham including land use, population growth patterns, wastewater collection and disposal, groundwater conditions, nitrogen loading in water supply and coastal embayment zones of contribution, environmentally sensitive areas, water supplies, regulatory issues, Chatham WPCF, and the existing centralized wastewater collection system.

- Develop and describe future conditions in the Town including projected population, water consumption and wastewater disposal volumes.
- Identify areas of Town that experience problems related to wastewater treatment and disposal.
- Identify the No Action Alternative
- Summarize Phase 300 work in a Needs Assessment Report.
- Phase 4: Development and Screening of Alternatives.
  - Identify and develop alternative technologies (both conventional and innovative), solutions, and plans to meet the Town's wastewater needs.
  - Identify and develop decentralized treatment and disposal alternatives.
  - Identify and develop centralized treatment and disposal alternatives.
  - Identify and develop collection system alternatives.
  - Identify and develop residual management and disposal alternatives.
  - Identify and develop flow and loading reduction alternatives including water and wastewater pricing policies, low flush and composting toilets, and water reuse.
  - Identify potential sites for potential wastewater facilities.
  - Screen the alternative technologies, solutions, and plans to select up to ten alternatives that will receive a detailed evaluation.

- Summarize the Phase 400 work in the Screening Analysis Report.
- Phase 5: Detailed Evaluation of Recommended Plan.
  - Further develop the alternative solutions and plans for detailed evaluation.
  - Perform a cost effectiveness analysis to find the lowest cost solutions.
  - Perform an evaluation of non-monetary factors and an environmental impact evaluation.
  - Prepare a recommended plan and a schedule for its implementation.
  - Summarize Phase 500 work in a Comprehensive Wastewater Management Plan, and Draft and Final Environmental Impact Reports.

The full Project Scope was included in the Environmental Notification Form and Development of Regional Impact documents, which are available at the Town Library.

The following documents will be prepared as part of the project.

- Environmental Notification Form and Development of Regional Impact documents. These documents have been prepared as described in Phase 200, and were submitted for environmental review on March 2, 1998. The full environmental review process is described in the following section of this chapter.
- Needs Assessment Report. This report will be prepared as described in Phase 300.
- Alternatives Screening Analysis Report. This report will be prepared as described in Phase 400.

- Recommended Plan and Draft Environmental Impact Report (DEIR). This report will be prepared as described in Phase 500.
- Recommended Plan and Final Environmental Impact Report. This report will finalize the recommended plan as described in Phase 500 and as part of the environmental review process.

#### **1.4 ENVIRONMENTAL REVIEW PROCESS**

A joint review process with the Massachusetts Executive Office of Environmental Affairs MEPA Unit and the Cape Cod Commission has been initiated for the project. An Environmental Notification Form and a Development of Regional Impact document were prepared and submitted to these two regulatory agencies for their review and comment. A public hearing was held at the Chatham Town Hall on March 19, 1998 to discuss the project and receive public comment on these two documents. This review resulted in the April 10, 1998 Certificate of the Secretary of Environmental Affairs, which accepted the project scope with few comments. The Secretary's Certificate is attached as Appendix A.

The project has been authorized to follow special procedures for the environmental review process, which allows public review and comment after each phase of the project.

#### **1.5 PLANNING PERIOD**

The Final Comprehensive Wastewater Management Plan and Environmental Impact Report will provide a Recommended Plan for wastewater facilities in the Town of Chatham for the 20-year planning period of 2000 to 2020.

## **1.6 PURPOSE AND ORGANIZATION OF THE NEEDS ASSESSMENT REPORT**

The Needs Assessment Report is written to summarize the tasks identified in Phase 300 of the Project Scope. This work includes the research and description of existing and future conditions in Chatham related to wastewater treatment and disposal.

This Needs Assessment Report is divided into nine chapters. Chapter One presents general introductory information about the Comprehensive Wastewater Management Planning Study. Chapter Two describes the technical documents reviewed along with Town and regional data. Chapter Three identifies the regulatory issues (local, regional, state, and federal) that must be considered during the Study. Chapter Four describes the Town's existing conditions related to environmental resources and demographics. Chapter Five describes the existing centralized wastewater collection, treatment, and discharge facilities, as well as the Town's public water supply facilities. Chapter Six identifies the Town's future conditions. Chapter Seven identifies the areas of wastewater concern in Chatham. Chapter Eight provides a summary of the wastewater needs in Chatham and describes the results of the No Action Alternative, which is the expected outcome in Chatham if no changes are made to the existing facilities. Chapter Nine describes the extensive public participation process used by this study, and the Town Citizens Advisory Committee and Technical Advisory Committee review of this report.