

## CHAPTER 8

### CASE STUDY -- FALMOUTH

#### INTRODUCTION

In Falmouth, enhanced wastewater treatment systems (either individual or cluster) are addressed in various ways by the bylaws, regulations and policies of the following boards, departments and commissions: the Planning Board, the Board of Health, the Conservation Commission, and the Wastewater Department. Enhanced wastewater treatment systems may be required under several explicit provisions of code, or by the policies used by the various boards in setting conditions of approval or in granting variances and exemptions. The purpose of this case study is to review existing regulations, bylaws and policies and recommend a procedure by which the Town can coordinate and optimize its actions related to enhanced treatment systems.

#### EXISTING BYLAWS AND REGULATIONS

Summarized below are the principal provisions of applicable bylaws, regulations and policies, categorized by the responsible board, department or commission.

##### Planning Board

**Water Resource Protection District Bylaw (Chapter 240, Sections 71 and 72).** This bylaw establishes overlay districts that are geographic areas shown on a December 23, 1999 town map and made part of the Zoning Bylaw. The bylaw applies to all new construction, reconstruction or expansion of existing buildings and to new or expanded uses. Uses that are prohibited in the underlying zone are not permitted in the WRPD, and the bylaw extends the list of prohibited uses to those activities that pose a threat to water quality including wastewater treatment works requiring a DEP groundwater discharge permit. Exceptions to the latter prohibition include replacement or repair of an existing treatment plant and replacement of an existing subsurface sewage disposal system with a new treatment plant. The repair or replacement must not provide any more treatment capacity than already exists.

The Zoning Board of Appeals may grant special permits under this bylaw. A special permit is required for the enlargement or alteration of an existing use that is not otherwise prohibited in this overlay district. In considering a special permit application, the Zoning Board of Appeals must seek written recommendations from the Board of Health, the Conservation Commission, the Public Works/Engineering Departments, the Planning Board and the Town Administrator. The applicant must show that the proposed use will not exceed a nitrogen loading standard of 5 mg/l or such more stringent limit that could be determined by a cumulative impact analysis. If an applicant seeks to make alterations to an existing permitted use, without increasing the wastewater flow, this special permit provision could push the applicant toward providing an enhanced treatment system to replace an existing Title 5 system.

**Coastal Pond Overlay District Bylaw (Chapter 240, Sections 97 through 102).** This bylaw establishes overlay districts that represent the recharge areas of all coastal ponds in Falmouth, as shown on an August 1, 2001 map on file with the Town Clerk. The bylaw applies to: subdivisions of greater than 5 acres or involving more than 5 lots; commercial development requiring site plan review; and projects located within 2,000 feet of listed coastal ponds and that require a special permit from the Zoning Board of Appeals. Applicants are required to file an "analysis of development impact" as defined in Section 113C of the Zoning Bylaw.

This bylaw sets standards in three tiers. Certain coastal ponds are deemed "high quality areas" others are termed "stabilization areas", and the remainder are defined as "intensive water use areas". Critical trophic levels are set for each category, ranging from 0.32 mg/l to 0.75 mg/l total nitrogen. The applicant must show that the project's nitrogen load will be controlled so as not to cause the critical trophic levels to be exceeded. In high quality areas, applicants that cannot meet the standard must restrict the property to fewer bedrooms, less square footage or fewer subdivision lots. Applicants can receive an exemption if it can be shown that the nutrients from the development will not reach the designated water body, or that there will be no increase in nutrient load. Applicants can receive an exemption from the requirement to complete an analysis of development impact if the applicant agrees with conditions set by the Planning Board.

It is the written policy of the Planning Board to grant exemptions from the requirement to prepare an analysis of development impact if the applicant agrees to reduce bedrooms by a factor of two, or to provide enhanced wastewater treatment.

**Senior Care Retirement District Bylaw (Chapter 240, Section 65).** This bylaw allows Senior Care Retirement Communities by special permit. Each community must be located on a tract of no less than 35 acres, at least 65% of which must be set aside as open space. The cumulative impact of the community must be no more than that associated with permitted uses in the single-family and agricultural zones. The bylaw restricts the Planning Board from approving a community unless tertiary treatment of wastewater is provided.

**Site Design Bylaw (Chapter 240, Sections 111 to 113).** This bylaw requires that any new building construction or site alteration provide for adequate sewage disposal. For any new structure requiring a special permit that lies within a zoned water recharge area, as shown on the zoning map, the applicant must show that the project will not cause critical trophic levels to be exceeded in receiving waters. The critical trophic level for freshwater ponds is defined as 0.02 mg/l of phosphorus. The critical trophic levels for nitrogen are as defined in the Coastal Pond Overlay District Bylaw, or as 5 mg/l in the case of well recharge areas. Applicants must complete an "analysis of development impact", using the loading factors stipulated in the bylaw.

**Subdivision Bylaw (Chapter 305, Sections 1 through 19).** For definitive subdivision plans, Section 13 of this bylaw requires that applicants file the plan with the Board of Health with information on soil percolation rates, and that the Board of Health report to the Planning Board on its findings. The Board of Health sometimes uses this opportunity to make recommendations about enhanced treatment. Section 14 of the bylaw requires the applicant to submit an "environmental and economic impact statement", which includes a determination of nutrient loading. The applicant must propose measures to reduce nutrient loading if critical loading rates

are exceeded. Critical levels are the same as noted above in the Site Design bylaw for surface waters, coastal ponds and groundwater.

### **Board of Health**

**Falmouth Health Regulations.** These regulations were adopted in 1991 as supplement to Title 5. They contain no specific provisions with respect to enhanced treatment. In Section 15.2.1, the regulations prohibit the construction of a leaching system within 100 feet of a watercourse, water body, or bordering vegetated wetland, or on a coastal bank, barrier beach or dune. Section 15.1.3 specifies that variances may be granted only if the applicant has proved that the same degree of environmental protection is provided that would be achieved with strict conformance with these regulations. It has been the Board's unwritten policy that applicant must install enhanced treatment systems to provide the same degree of protection against virus transport as would be provided by the 100-foot setback otherwise required from watercourses, water bodies and bordering vegetated wetlands. For system repairs, the Board generally allows conventional Title 5 systems if the leaching system is between 75 and 100 feet from the resource. It generally requires pressure dosing of the leaching system where the setback is 50 to 75 feet, and enhanced treatment where the setback is less than 50 feet.

**Oversight of Enhanced Treatment Systems by Barnstable County Department of Health and Environment.** The Falmouth Board of Health relies on the County to compile operational data on enhanced treatment systems in Falmouth, to monitor the status of operational contracts, and to suggest modifications to improve performance.

**Sewer Connections.** When the Board of Health is consulted on applications for sewer connections, it generally recommends against connection if the property can accommodate a Title 5 system with reasonable variances.

### **Conservation Commission**

**Falmouth Wetlands Regulations.** These regulations were adopted by the Conservation Commission in 1998 as supplements to the Massachusetts Wetlands Protection Act. The regulations presume that resource areas are adequately protected if no component of a septic system is located within a resource area and if the leaching facility is set back at least 100 feet from the edge of a resource area. It is presumed that significant or cumulative adverse impact will result if these conditions are not met. That presumption may be overcome by credible evidence including a hydrogeologic study. It is the unwritten policy of the Conservation Commission that an applicant may install an enhanced treatment system as an alternative to the hydrogeologic study.

It is an unwritten policy of the Conservation Commission to consider, and sometime require, enhanced treatment systems in the Areas of Critical Environmental Concern and Districts of Critical Planning Concern in Falmouth, where water pollution control, fishing and shell fishing are critical interests under the Wetland Protection Act and the Falmouth Wetland Regulation.

## Public Works Department

**Sewer Use Bylaw (Chapter 180, Sections 1 through 33).** This bylaw is a traditional set of rules for use of the public sewer. In Section 180-6, it requires connection to the public sewer within 90 days of notification to do so, provided that the sewer is within 100 feet of the property line. This bylaw is administered by the "Superintendent of Sewage Works".

**Comprehensive Wastewater and Nutrient Management Planning.** It is the Town's unwritten policy that the Wastewater Department within the Department of Public Works will oversee the ongoing wastewater and nutrient management planning activities.

**Sewer Connections.** In accordance with Section 180-7 of the Sewer use Bylaw, the Wastewater Superintendent approves connections to the public sewer.

## Board of Selectmen

**New Silver Beach Sewer Service Area Bylaw (Chapter 180, Sections 37 to 50).** This bylaw was enacted in April 1997 to deal with a public health emergency. It establishes the New Silver Beach Sewer Service Area that is to be served by a new satellite treatment plant currently designed but not constructed. The bylaw mandates that all properties in the service area connect to the public sewer within 90 days of it becoming available. The bylaw prohibits connections to properties outside the service area. The design capacity of the system is based on the number of bedrooms in existing single-family residences or three bedrooms, whichever is less. Single-family residences with fewer than three bedrooms are allowed to add bedrooms up to three in total. New residences of up to three bedrooms can be built on vacant lots after obtaining a variance from the Board of Selectmen. Multi-family and non-residential properties are not allowed to increase their level of activity beyond that in existence on January 1, 1999, as measured by water use. Variances to this bylaw can be granted by the Board of Selectmen provided sufficient capacity exists in the sewerage system.

**Sewer Extensions.** The Board of Selectmen, acting as the Board of Public Works, approves minor extensions of the public sewer (flows under 2,000 gpd and extensions of less than 1,000 feet).

## Nutrient Management Working Group

The Town formed the Nutrient Management Working Group to ensure proper coordination of Town activities related to wastewater and nutrient management, including the activities related to the preparation of the Comprehensive Wastewater Management Plan. The Wastewater Superintendent is the chair of this working group.

## RECOMMENDATIONS FOR IMPROVED COORDINATION AMONG BOARDS, DEPARTMENTS AND COMMISSIONS

A concerted long-term plan for effective use of enhanced treatment systems will evolve from comprehensive wastewater management planning. In the interim, the Town should modify its policies and procedures to more consistently and selectively apply these systems. The following actions are recommended:

1. The Town should develop and implement a written policy for the requirement and management of enhanced treatment systems. This policy must be flexible to allow it to adjust to new information as it becomes available through comprehensive wastewater management planning. We recommend that the Board of Selectmen direct the Nutrient Management Working Group to develop this policy and make it consistent with other nutrient management activities and policies.
2. The Wastewater Superintendent should propose, for the purpose of discussion with the Nutrient Management Working Group, a map segmenting the Town into three general areas: a) areas where public sewer service is expected to be provided in the near or medium term (say 5 to 15 years); b) areas where nitrogen loading is not likely to be a concern even at build-out; and c) all other parts of town. Requirement of enhanced treatment systems would then be considered only in the third area, in which public sewers are not expected to be installed in the next 15 years, but in which nitrogen loading is expected to be a concern. However, the Nutrient Management Working Group should also discuss means of addressing concerns about "interim" nutrient management between now and the time when public sewers can be installed (see Item 6 below for one option).
3. All Town boards, departments and commissions should seek written recommendations from the Board of Health whenever enhanced treatment is proposed for individual or cluster systems under any Town bylaw or regulation. The Board of Health should review applications according to standard conditions (see Item 4 below), and should be authorized to veto applications of enhanced treatment systems that it deems inappropriate.
4. The Nutrient Management Working Group, with significant input from the Board of Health, should develop standard conditions of approval for enhanced treatment systems. These conditions could include performance standards, monitoring requirements and flow/sizing requirements. These conditions will form the basis for a uniform approach and will serve as the platform for site-specific special conditions.
5. The Nutrient Management Working Group should organize and conduct a training session on enhanced treatment systems for members of all applicable boards, departments and commissions. The training should cover the basic technologies, likely performance in nutrient removal, conditions under which performance may be compromised, benefits with respect to pathogens, and the improvement in performance expected at higher design flows.
6. The Town should consider putting into place a system of escrow accounts and nitrogen offset funds that would allow money otherwise spent on enhanced treatment to be set aside to contribute to long-term solutions (see Section 5A of this report).
7. The Town should amend current regulations and bylaws to make them more consistent with respect to enhanced treatment and related issues, and to reflect information that emerges from the MEP studies and comprehensive wastewater management planning. For example, a single assessment report or study should replace the "analysis of

development impact" required in the Coastal Pond Overlay District and the "environmental and economic impact statement" required under the subdivision bylaw. The critical trophic thresholds in the Coastal Pond Overlay District Bylaw should be updated to reflect the results of the MEP studies.

8. The Town should evaluate means of encouraging multi-home housing developers to design cluster wastewater treatment systems, rather than individual treatment system for each home. That evaluation should include consideration of a new bylaw that requires developers to provide conceptual plans for both conventional development and alternative development using cluster systems, as recommended in Section 5B of this report.
9. For those instances where enhanced treatment systems are appropriate, the Town should enact a license or permit system, impose annual fees, and contract with the Barnstable County Department of Health and Environment for inspection and oversight services; see Section 5J of this report.
10. The written plan for use of enhanced treatment systems should be reviewed and updated annually to reflect information emerging from planning studies and advances in technology.

#### **PROGRESS TOWARD IMPLEMENTATION OF THESE RECOMMENDATIONS**

Since the publication of the first draft of this report, the Town's Wastewater Superintendent has convened two meetings of Town officials to begin to address these recommendations. Additional meetings are planned to work toward the formulation of a written plan for enhanced treatment systems.