

## **CHAPTER 9**

### **CASE STUDY -- BARNSTABLE**

#### **INTRODUCTION**

The Town of Barnstable has undertaken a program to upgrade the wastewater treatment plant at the Horace Mann Charter School (formerly the Marstons Mills Charter School) to improve its performance and to provide capacity for an abutting affordable housing project. The program illustrates the application of several of the recommendations of this report.

#### **BACKGROUND**

In the late 1990s, the Town's Open Space Committee identified a prospective land purchase in Marstons Mills adjacent to the Horace Mann Charter School. A portion of that parcel was deemed appropriate for affordable housing. The Housing Land Trust for Cape Cod acquired that portion of the parcel and entered into an agreement with the Town to participate in the upgrading of the wastewater treatment plant at the school, as a way to facilitate the future affordable housing project.

The wastewater treatment plant at the school was built in the 1980s with a capacity of 32,000 gpd. It has experienced problems meeting its DEP groundwater discharge permit, in part due to low flows during school vacations. Upgrading of the plant is necessary to more reliably achieve the permit limits. The more constant flow expected from a residential development would help achieve that goal.

The wastewater treatment plant provides primary and secondary treatment and nitrogen removal for the wastewater generated at the Horace Mann Charter (Middle) School and the Marstons Mills Elementary School. Current combined enrollment is 1,409 students with a staff of 181. Student population at build-out is expected to be 1,751. Both schools are open Monday through Friday from September through June. Typical average flows at the plant are 22,000 gpd. The abutting affordable housing project is expected to connect to the plant in November 2004 and add about 7,600 gpd of flow.

#### **TREATMENT PLANT MODIFICATIONS**

The Town of Barnstable, through its Department of Public Works (DPW), commissioned a study of the treatment plant to determine the upgrading needs. The study found that modifications are needed to both improve treatment performance and increase capacity for the affordable housing project. The plant will be expanded from 32,000 gpd to 42,000 gpd. Process modifications will include new primary settling and pre-equalization tanks, changes to the denitrification filters, addition of ultraviolet disinfection facilities, and expansion of the leaching pits for effluent disposal. To facilitate connection of the affordable housing project, 650 feet of sewer will be

installed across the school parcel to its common boundary with the site of the affordable housing project.

## **IMPLEMENTING AGREEMENT**

In March of 2004, an agreement was signed by the Housing Land Trust, the Barnstable School Department and the Town of Barnstable. This agreement provides for the Housing Land Trust to pay its share of design, permitting and construction costs for plant upgrading. The agreement also provides for the Housing Land Trust to pay a sewer connection fee and a sewer use fee based on the flow treated at the plant and the water use in the affordable housing project. The Town of Barnstable, through the DPW, is designated as the party responsible for operation, maintenance and repair of the plant. The Town and the School Department agree to create a capital reserve account for future improvement.

## **PROJECT COSTS**

The current project cost estimate is \$466,000 to upgrade the plant, including \$242,000 in construction costs and \$224,000 in engineering/legal expenses and contingencies. The estimated cost of the sewer connection is \$98,000. The project agreement calls for the Housing Land Trust to pay 73% of the plant upgrading costs and 100% of the sewer connection costs. Overall, the Housing Land Trust will pay \$438,000 and the School Department will pay \$126,000, based on current estimates and a projected total cost of \$564,000.

## **RELATION TO RECOMMENDATIONS OF THIS REPORT**

This project illustrates the practical application of several recommendations of this report as detailed in Sections 5B and 5I, specifically:

- Planning for affordable housing projects;
- Connection of nearby properties to satellite plants; and
- Transfer of responsibility for a satellite plant to Town wastewater professionals.

As a result of this project, the Town has also begun to develop design and construction standards for such projects, another recommendation of this report; see Section 5B.