



# Island's Water Problems Are Manifold, Study Shows

## *Metcalf and Eddy Weighs Supply, Soil, Pollution in Relation to Population Growth*

Water problems on the Vineyard, pollution, and refuse disposal were all among the topics weighed by the Metcalf and Eddy engineering and planning firm last year at the request of the Dukes County Planning and Economic Development Commission. Their discussion of these problems follows:

### **Water and Sewer Service Areas**

The relationship between land use planning and the provision of public water and sewer facilities is, of course, very important. Generally speaking, the more intensively land is developed, the greater the probability that it will require public water and sewer service. (This general statement is subject to local conditions affecting water supply and the suitability of soils for septic tanks.)

Any provision for new or expanded water and sewer service areas in Dukes County will be a direct and immediate inducement for the development of land at a higher population density and of a more intensive character than would, or perhaps should, be the case without such public utilities. Therefore, in order to help control and direct the future use and intensity of land development on Martha's Vineyard, recommendations concerning public water and sewer service, should be made only after serious and informed consideration as to their ultimate

effects on the Island environment. In fact, after open space acquisition and zoning controls, the judicious extension and construction of public water and sewer facilities is one of the most useful ways to implement any land use-plan.

### **Existing Service Areas**

Oak Bluffs and Tisbury are served by public water, while Edgartown is served by a private water company. Chilmark is privately supplied on a seasonal basis and Gosnold also has public water. In Oak Bluffs, Tisbury, and Edgartown these water service areas extend quite a bit farther than the closely built up town centers. In fact, if all the area that is presently served by public water in Oak Bluffs and Tisbury develops at the same general density as their respective centers, then much of their separate identities would be physically destroyed. That is to say, a uniformly more intensive development of the land on either side of Lagoon Pond would tend to take the place and would probably join at the intersection of the Edgartown-Vineyard Haven Road and Barnes Road. This definite trend towards urban sprawl is exactly what the concept of a new Island community with its containment greenbelt is designed to prevent in the future.

Even with the relatively high average densities of town and village

centers in Dukes County, only Cuttyhunk in the Elizabeth Islands has municipal sanitary sewers at the present time. All the other town and village centers on Martha's Vineyard, as well as all other development in the county, are served by private on-lot systems (cesspools or septic tanks). The development trends outlined in the previous paragraph might tend to upset the relatively pollution-free conditions in Oak Bluffs and Vineyard Haven if the residential densities gradually increased over wide areas without a sanitary sewer system to protect the ground water table.

### **Refuse Disposal**

Refuse disposal is another problem with which the Vineyard must immediately contend, in view of the state's requirement to prohibit open dump burning after July 1.

In Dukes County there are presently eight municipal refuse disposal facilities (including one on Chappaquiddick), one refuse disposal facility for the use of Martha's Vineyard Airport and airport tenants, two privately owned automobile graveyards, and one area for the disposal of septic tank and cesspool wastes. (Action is now under way to close the airport facility.)

Refuse is collected and deposited in the various dumping grounds by several means. Municipal collection service is provided in Tisbury, Oak Bluffs, and Cuttyhunk, while residents in the remaining municipalities must rely upon private contractors for collection service or must themselves transport the refuse to the respective disposal areas.

No previous planning studies relative to refuse disposal have been made in Dukes County. However, the Massachusetts Department of Public Health is presently preparing a report consisting of an inventory of existing municipal solid waste disposal

facilities throughout the state. This report is expected to be released sometime during the first quarter of 1971, and will provide the basis for subsequent reports dealing with evaluating the existing facilities and proposing recommendations.

Legislation recently passed by the Massachusetts General Court gives the Massachusetts Department of Public Works the power to investigate and study the solid waste disposal needs of the state. It is this agency which is responsible for all future planning relative to solid waste disposal.

### **Refuse Quantities**

Records are not maintained on the quantities of refuse disposed of at the various disposal facilities in Dukes County. Consequently, existing refuse quantities are estimated based on a per capita generation rate of 3.6 pounds per calendar day. Because the seasonal population of the Island increases many times over, the refuse quantities in the summer months are obviously higher than at other times of the year. It is estimated that approximately 500 tons of refuse are produced weekly in Dukes County during the summer months of June, July, August, and September, opposed to approximately 73 tons per week during the off-season totaling over 11,000 tons of refuse a year. Projected refuse quantities for 1990 are based on a per capita production of 5.4 pounds per calendar day, which amounts to an annual increase of 2 per cent, and on the previously projected 1990 year-round and seasonal populations. Dukes County can expect some 170 tons of refuse weekly between the end of September and the beginning of June, and approximately 1,430 tons per week during the four seasonal months, or a total of 30,000 tons of refuse for the year 1990.

The above existing and projected refuse quantities do not include special refuse such as junked automobiles, brush, septic tank pumpings, and bulky wastes.

It is not possible to accurately estimate the space requirements in terms of acreage for refuse disposal without some knowledge of the type of operation and the depth to which the refuse is to be placed. However, assuming that the annual quantity of refuse generated in Dukes County will increase from 11,000 tons to 30,000 tons in the next 20 years and that a sanitary landfill operation is adopted, some 1,000 acre-feet is needed, which may require as much as 110 acres of land.

Refuse disposal in Dukes County is inadequate in several respects. Eight of the nine general refuse disposal facilities are operated as open face dumps, which is an unacceptable means of refuse disposal, and open burning occurs in all facilities. None of the disposal areas are fenced nor are the entrances gated, permitting uncontrolled access to the sites. Furthermore, only in the Edgartown, Oak Bluff's, and Tisbury facilities are custodians on duty on a fulltime basis, and only in the latter, facility is equipment available for daily use.

Based on information obtained from local officials, excluding the airport disposal facility, the estimated remaining usable space of the combined facilities is sufficient to accommodate the estimated cumulative refuse volume in Dukes County up to 1990. However, if the present situation of separate municipal facilities continues, at least one community, Edgartown, would require additional space to meet its refuse disposal needs.

Presently, sewage solids pumped from septic tanks and cesspools on the Island are disposed of by

conveying such wastes to isolated areas where it is left to oxidize. Because of the possibility of contamination of groundwater and/or surface water, this disposal method is unacceptable. Septic tank and cesspool wastes should be delivered to a sewage-treatment plant, for proper treatment and disposal. Since no treatment facilities presently exist on the Island, any plans to provide such facilities should take into consideration septic tank and cesspool wastes.

There are two basic possible alternative plans for refuse disposal in Dukes County. These plans are set forth below and are based on the assumption that open face dumping will not be permitted in the future and that presently other disposal methods such as incineration and composition are not economically competitive with sanitary land-fill. However, it must be realized that land is not an unlimited commodity and may not always be available for sanitary landfill. Consequently, in the distant future (beyond the-concern of this study) some other method of refuse disposal may be more suitable for Dukes County.

The municipal plan is based on the responsibility of refuse disposal service remaining separately with each community. The present disposal methods at the various municipal disposal areas would be converted to sanitary landfill, which would be substantially more expensive than the present operation. In order to somewhat alleviate the cost, each municipal facility, depending upon need, should be open only a certain number of days per week, thereby reducing the cost of supervision and equipment. Possibly during the off-season, a facility need be open only two or three days of the week, while in the summer months,

the same facility may find it necessary to be open four or five days of the week. To further reduce costs, it may be possible for two or three towns to jointly purchase the necessary equipment and to arrange that the disposal sites be opened on a staggered basis, thus permitting the equipment to be transported to and utilized at each of the respective sites.

The intermunicipal plan consists of two or more communities forming a district and entering into a cooperative agreement to operate a regional refuse disposal facility. Each of the towns in the district would pay a portion of the capital and operating costs. This agreement is particularly desirable for contiguous communities where no one town has a sufficient volume of refuse to establish and economically operate a properly run refuse disposal facility on a six- or seven- day basis.

The down-Island towns, of Edgartown, Oak Bluffs and Tisbury should consider forming such a district for joint refuse disposal. If a disposal site could be located, approximately equidistant from the population centers of the three towns, such as in the vicinity of the intersection of Edgartown Road, County Road, and Vineyard Haven Road, the benefits may be quite advantageous to each town. For instance, this would help minimize total hauling costs. Similarly, the up-Island towns of Gay Head, Chilmark, and West Tisbury may find it mutually beneficial to regionalize refuse disposal. It may be possible that a combination of the two alternatives would best meet the needs of the up-Island towns; for example, possibly a regional approach to refuse disposal could be utilized during the summer months when the population swells, and during the remainder, of the year due to the

small volumes, general refuse could be deposited in metal containers (located at the present disposal sites or at more convenient locations), which could be emptied periodically at a regional disposal facility.

#### **Standards Recommended**

By the very nature of the communities, refuse on Chappaquiddick and Cuttyhunk would obviously be disposed of on a nonregional basis.

The following planning objectives, policies and standards are recommended:

1. Provide for the disposal of refuse in the most efficient and economical manner without hazards to ecology, public health, natural beauty or neighborhood environment.
2. Coordinate refuse disposal plans and operations with future land use plans for new centers of population.

Seemingly out of place in a regionally-oriented plan covering over 100 square miles, three important county buildings are nevertheless briefly, discussed here. They are the Dukes County courthouse, the county jail, and the airport terminal.

Interviews with county officials and an inspection of the county courthouse indicate the need for additional floor space to serve the growing needs of the county government. The district probate, and superior courts of Dukes County are all held in the same building. According to the clerk of the district court, its business in terms of cases and paper work has increased approximately three times in the past seven years. More storage space and room for additional personnel will undoubtedly soon be needed. The three county commissioners conduct their meetings in a room that is perhaps large enough for one desk.

Such general statements could be made regarding some of the other offices in the courthouse, although the needs of the two offices cited above seem to be particularly pressing.

The building itself was built in 1858, remodeled during the 1950s, and two wings have been added within the past 10 years. The structure appears to be in sound condition and the original brick construction has held up well over the years. Although specific recommendations go beyond the scope of this program, a general proposal would be to expand the first floor area of the existing courthouse on the Main street site in Edgartown. A consultant should be seriously considered by the county to determine specific space needs and architectural design drawings. An alternative proposal would be to split the functions of county government with perhaps the registry of deeds and one of the three county courts remaining in the present building and a new courthouse constructed on unoccupied land owned by the county on Main street where the jail now stands.

In conversations with the Dukes County, sheriff and personnel of the Massachusetts Department of Correction, it has been determined that there is a feeling that the old granite building on Main street in Edgartown should be replaced. Not enough is known about the situation, however, to make a firm recommendation.

It is known that the jail serves only as an overnight lockup and that the Barnstable Jail and House of Correction on Cape Cod is the major regional detention center. If a subsequent decision is made to construct a new courthouse building on the two-acre jail site, then perhaps

new cell blocks could be constructed at the airport on county-owned land. The county's Communications Center is already located in the terminal building at the airport and the sheriff already has his main office there. However, if a transition were made, then prisoners would have to be kept four to five miles from the courthouse while awaiting trial, instead of the present 1,000 to 2,000 feet.

#### **Airport Terminal**

Metcalf & Eddy prepared an Airport Layout Plan Report for the Dukes County Commissioners in the fall of 1969. In general, the plan proposed extending the northeast-southwest runway from 5,000 to 6,300 feet; a total of 1,300 feet, 800 feet of which would have been towards the northwest. This northwest extension would have required the clearing of some particularly important pine trees in the adjoining State Forest. For this reason, the Commonwealth of Massachusetts did not allow the 800-foot extension. The 500-foot extension to the southwest has been constructed, but there is still a legal question as to the clearing of certain obstructions at the end of the runway.

In conclusion, it can be said that the previously referred to long-range development plan for the county airport includes an instrument landing system, as well as a federally-operated and installed tower. Such development should no doubt be done from a safety point of view. From an economic point of view, the larger jets of Northeast Airlines have not been so successful as the smaller jets used by both Executive Airlines and Air New England, and the commercial airlines are still a distant third behind the Steamship Authority and the private ferry lines in the overall picture of external transportation. Therefore, any future development of the airport terminal should be consistent

with both economic and transportation realities and environmental principles and land use and transportation policies agreed to by the Dukes County Planning and Economic Development Commission.