

CHAPTER 7

Water and Sewerage

*Westport Master Plan * 2004*

7 Water and Sewerage

7.1 Introduction

In terms of population, Westport is the largest community in southeastern Massachusetts without a municipal water system and one of the largest without a municipal sewer system. Lack of such public systems has served to slow growth somewhat thus far, but without careful planning and aggressive efforts to protect existing groundwater resources and enhance management of private septic systems and stormwater runoff, the negative impacts on Westport in the future could be profound.

As recognized in previous sections, the presence or absence of a public or large-scale private water system in any part of Town will have a major impact on the development patterns of the community. This must be recognized in any projections of growth or plans for future land use. For example, the development of a light industrial park, which could broaden the tax base and provide local employment opportunities, would be unlikely without municipal water and sewer.

Currently, 98% of Westport households depend on private wells for their water supply. Stormwater and its run-off are the sole known sources for recharge of the existing groundwater, which is the source of drinking water for almost all of Westport. Increases in impervious areas, filling of wetlands, and other impacts of development severely decrease stormwater recharge. As the town becomes more densely populated and the number of dwellings, commercial establishments, and industries increase, adequate private well supplies to meet consumption demands will become extremely difficult to find and the danger of pollution of these private wells will also increase. Additionally, this type of supply does not provide the fire protection that a growing community requires. However, it is unlikely the entire town will ever be serviced by a public water supply, thus it will be critical to enhance protection of the existing groundwater supplies.

Westport relies almost exclusively on on-site septic systems to meet the sewage disposal needs of its residents. Although on-site septic systems are adequate under many circumstances, the village areas and portions of North Westport tend to lack the required land for adequate disposal. In addition, malfunctioning on-site septic systems may pollute adjacent wells, and nearby ponds and streams. Instances of pollution have been observed in north Westport and along South Watuppa Pond. Westport has no public provisions for disposal of sanitary sewage; given the huge infrastructure costs for developing municipal sewage treatment, it is unlikely to have any in the near future. This fact conditions development in Westport, and must be recognized in planning for future land use.

In the fall of 2003, the business community under the guidance of an *ad-hoc* "Water-Sewer Committee" donated the funds necessary for a preliminary design and assessment for a water and sewerage system in the north end of Town. The firm of Camp, Dresser & McKee has been hired to produce the initial plan, expected to be finished in the spring of 2004, for extending both water and sewer lines from Fall River further into the north end of Westport, primarily along Rte 6. This plan will include costs for a final design, proposed areas to be served by water, sewer, or both, and necessary information to receive monies from the State Revolving Funds. Following up on this effort,

the Town has also appointed an official Water-Sewer committee to recommend to the Board of Selectman necessary or desirable changes in local by-laws, regulations and policies. If funded by Town meeting, the design will be completed by the summer of 2004, with possible funding for construction available in 2005.

The town Highway Department currently maintains Westport's road system; however the town has no comprehensive stormwater management plan. Most problems with stormwater occur on older "non-engineered" roads that were initially adequate for handling runoff but are increasingly vulnerable to drainage and episodic flooding problems. The EPA has promulgated new National Pollutant Discharge Elimination System (NPDES) Phase II standards that must be followed by any new construction, or any major reconstruction of existing roads. These standards act to improve run-off quality, however at a cost that will surely stretch existing Town department budgets. Although the Town has complied by filing its initial Notice of Intent, complete compliance with this document and implementation will place additional burdens on departments to re-write regulations, review project applications, inspect projects, and monitor progress towards compliance with the NOI.

7.2 Existing Conditions

7.2.1 Water

Despite plentiful wetlands, Westport does not have plentiful groundwater. This apparent contradiction may be explained by the fact that the predominant soils in town are not sand and gravel types, but rather soils with a very firm substratum (hardpan layer) that restricts the vertical movement of water recharging the aquifer. This results in rainfall running off ridges and hills into valleys where swamps develop because of the poor permeability of the soils. These issues came to light in the U.S. Geological Survey Water-Resources Investigations Report 95-4234 entitled "Stream flow, Groundwater Recharge and Discharge, and Characteristics of Surficial deposits in Buzzards Bay Basin, Southeastern Massachusetts" (1995).

Westport's surface water resources (South Watuppa Pond, Devol Pond, Sawdy Pond, and Lake Noquochoke) seem obvious solutions to providing a public water supply. Unfortunately all "rights" to surface waters with the exception of Devol Pond, are owned and managed by the City of Fall River. At this time a small area in the northern section of Westport is serviced with Fall River water. Map 4-1 Water Resources depicts surface and groundwater resources.

In 1964, concerned about future pollution and lack of knowledge regarding the town's water resources, the town hired the firm of Camp, Dresser, & McKee (CDM) to research and report on their findings. In May 1965, the Town of Westport received, "Report on a Public Water Supply", May 1965, Camp, Dresser, & McKee. The report's overall conclusion summarized that, "Comprehensive geological studies of the town, together with the test well information, indicate that a municipal well supply with adequate capacity is not available and alternative means will have to be utilized,"¹²

Approximately 98% of Westport residences depend on private wells; almost 100% have private individual septic systems for waste disposal, with the exception being recent affordable housing projects build under General Law Ch. 40B, which have small, on-site treatment plants. Over

¹² "Town of Westport Massachusetts, Report on a Public Water Supply System", Camp, Dresser, & McKee, May, 1965.

recent years the presence of gasoline, pesticides, nitrates, Methyl tertiary-Butyl Ether (MtBe), Trichloroethylene (TCE), Chlorobenzene, and fecal pathogens have shown up in many private wells. After extensive well drillings at 29 selected sites for potential groundwater supplies, only one site was suggested for a possible public water supply. Unfortunately the water quantity was insufficient to service a large population and the supply itself would require extensive treatment for iron and manganese. By 2010, a total consumption of some 2 million gallons per day (mgd) might be expected during the summer months in Westport (Summary, Camp, Dresser & McKee, 1965). Using an estimated combined summer and year- round population of approximately 20,000 by 2010, that same report indicated "an average daily consumption for the proposed initial system of about 0.3 mgd (million gallons per day), and this can be expected to increase to approximately 0.9 mgd by 1990 and 1.4 mgd by 2010. We estimate that consumption on the maximum day, which represents the maximum total amount of water used during a 24-hour period, will be approximately 0.9 mgd initially, 2.7 mgd in 1990, and 3.8 mgd by the year 2010."

The town's only known significant aquifer areas generally follow the east and west branches of the Westport River and Bread and Cheese Brook. The 1995 United States Geological Survey (USGS) report concerning the availability of a drinking water supply and recharge area,¹³ concludes that most of Westport's surficial deposits are glacial till on top of bedrock, and therefore provide very little water recharge for potential water supplies. The exceptions to this are the areas along the barrier beach, and the upper East Branch of the Westport River, to Lake Noquochoke, through the Shingle Island River, that consists of stratified drift. These aquifer areas were carved out during the glacial period and contain glacial outwash and gravelly soils conducive to groundwater recharge and aquifer formation. Within these areas the stratum is not of sufficient depth (greater than 50ft.) to provide for an adequate large-scale public water supply. Even in some of these areas that are favorable for finding groundwater, the potential for development of wells is limited because excessive pumping could induce salt water into the aquifer along the river, where salt or brackish conditions exist. The soils in these areas are important to protect primarily for their recharge capabilities to serve private drinking wells. This area is now the designated Aquifer Protection District.

The Town's best option for low-supply community groundwater for development lies in North Westport, along Bread and Cheese Brook north of the Head, all the way to North Watuppa Pond and the Town line. If Westport were to develop satellite municipal water systems, this is where supplies may be found for the Head of Westport village and, possibly, the existing schools. If the Town were to encourage industrial or large-scale commercial or residential development dependent on private wells, this is where it might be feasible. In this critical area, however, site designs for commercial, industrial and high-density residential development must minimize the area of impervious surfaces, and control and clean up runoff, as well, to preventing potential contamination of water resources.

The majority of Westport's land area can be categorized as having a low (less than 25 gallons per minute) potential groundwater yield. This fact severely limits any type of development that would utilize more than a minimal amount of water. For example, single-family home development can take place, but industrial development dependent upon wells would not be

¹³ "Stream flow, Groundwater Recharge and Discharge, and Characteristics of Surficial Deposits in Buzzards Bay Basin, Southeastern Massachusetts", USGS, Water-Resources Investigations Report 95-4234 (1995).

successful in most parts of Town. The lack of a municipal water system for industrial purposes will inhibit commercial development in most parts of Town.

The City of Fall River holds flowage rights to North Watuppa Pond (which it uses for domestic supply) and its watershed, which includes flowage rights to Noquochoke Lake; to the Copicut and Shingle Island Rivers which feed the Lake; to Sissons Pond; and to Bread and Cheese Brook and the flow from Noquochoke Lake, both of which feed Sissons Pond. Although land on one small corner of the pond is in Westport, this land is owned by Fall River. Although Sawdy and Devol Ponds are entirely within Westport, and flow into South Watuppa Pond, which is largely in Westport, Watuppa Reservoir Company owns the flowage rights to all three ponds. These waters are used for industrial purposes in Fall River. The terms accorded to the Watuppa Reservoir Company regarding South Watuppa Pond allow it to maintain the water level from five to seven feet above the natural level of the pond.

A pipeline from Noquochoke Lake to South Watuppa Pond with a spur to North Watuppa can be opened for re-supply of the ponds, although the quality of water is such that it is used to feed the domestic supply in North Watuppa only with the express permission of the Massachusetts Department of Public Health.

It is unlikely that the entire town will ever be serviced with a large public water system. The area north of Route 177 is the area most likely to be given first consideration. For most residents, the service improvement brought by public water will be marginal. Most present inhabitants have good wells that give little trouble. Perhaps the major service gain for these people will be the virtually perfect reliability of a public system, with only rare interruptions. Water quality should be better than that of water from many individual wells, and pressure need never be a problem. For those residents with poor wells, the service improvement will be substantial. Some families, even with normal rainfall, must "ration" their use of water, and some have been faced with the expense and inconvenience of developing new wells when old ones failed.

Just as the lack of municipal **sewer** will inhibit development in most parts of town due to poor soils, the lack of a municipal **water** system will inhibit development in most parts of town due to limited groundwater resources.

Most types of commercial development are dependent on strategic location. High cost of land, unfavorable topography, and lack of public utilities are major deterrents. Provision of public water may, in some cases, have a significant impact on commercial development potential. To attract some types of commercial development, such as restaurants and hotels, provision of public water would be a necessity. For other types, it would have a lesser, but certainly a positive, effect.

Industrial development has somewhat similar variability in its need for public water. For many industries, though, availability of a dependable source of high quality water for process use is essential. Provided that the supply volume developed is adequate, public water is certainly an attraction for such industries.

Other industries, having no need for process water and relatively little concern over insurance costs, will prefer the convenience of public water over development of their own wells. The overall effect of providing public water to industrial development areas is certain to be positive, and would remove one of the present barriers to the expansion of the economic base of the community.

The only fire hydrants now available in Westport are along Route 6. Fire protection in other areas must depend upon water carried in tankers or on water pumped from a nearby source, if available. The major reason for Westport's poor fire insurance rating (Class D) is apparently the lack of public water for firefighting. Provision of public water would lower insurance costs in those areas of the Town that are serviced and, presumably, would reduce the average annual fire loss. Fire hydrants might also be seen as necessary to protect the investment of any company seeking to build a commercial or industrial development of any size in Westport.

Some institutional uses that would provide funds for the Town might be affected by provision of public water. The State Police have been considering a new facility in either Westport or North Dartmouth; availability of water might be a factor in their decision. While the Southeastern Massachusetts Regional Plan anticipates no other major regional facilities likely to locate in Westport, other needs unforeseen in that Plan might well arise, and are more likely to locate in Westport if water is available.

In summary, the City of Fall River and the Watuppa Reservoir Company hold, between them, rights to all of the flowing and ponded surface water of any consequence north of Route 177 and the Head of Westport. Independent development of surface water sources in that area therefore appears unlikely as a means of obtaining water, although this does not necessarily exclude surface water as a source. Westport probably does not have sufficient groundwater to support a municipal system without sources being supplemented from outside the town. Fall River is the only neighboring community with a large enough resource to supply Westport. The possibility of purchasing water from Fall River is not a new idea. Groundwater as a source is unaffected by those rights. Unless the town reverses its policy and decides to develop municipal water, it will have to rely on low-density development and discouragement of large water users to preserve its limited resources.

7.2.2 Sewerage

Westport relies almost exclusively upon on-site septic systems to meet the sewage disposal needs of its residents. Although successful under most circumstances, there are potential problems with this approach. Malfunctioning on-site septic systems may pollute adjacent wells and nearby ponds and streams. As noted previously, instances of pollution have been observed in north Westport and along South Watuppa Pond. Currently, Westport has no public provisions for disposal of sanitary sewage, and in all probability will not have any for many years. Surveys of surrounding communities with sewage treatment facilities indicate neither the capability, nor desire, to expand or to annex areas of Westport. This fact conditions development in Westport, and must be recognized in planning for future land use.

Experience the world over has shown that living at urban density with water being constantly recycled—drawn as drinking water, replaced through on-site septic works as waste, then redrawn (at least in part) as drinking water again—will in time lead to health hazards. Even if the entire community were composed of single-family homes on ½ acre lots, there would be concern (some health experts advocate no less than a 2 acre site for homes with both wells and disposal works). Because much of Westport is developed on far smaller lots, in time, a general health problem could easily develop, at least in the north end of the Town. A recent study in Wellfleet Village on Cape Cod, an area with density similar to parts of North Westport and also lacking both public water and public sewerage, suggests that over half of all the wells there are in danger of pollution, as indicated by presence of such pollutants as detergents, benzene compounds, and bacterial sources. In addition, the improper storage of fuel and siting of gas stations and fuel depots have caused major groundwater contamination in many areas of Westport. The emergency need caused by MtBE contamination of their wells, allowed citizens in the Davis Road area to tie into the Fall

River water supply system. However, other sites such as Central Village, Adamsville Road, and Sanford road would require an enormous amount of infrastructure for the same type of relief.

Since the inception of Title V (The State Sanitary Code), requiring inspection and upgrade of existing on-site disposal systems, problems with individual sewage disposal systems have been identified more frequently and shown to be fairly evenly distributed around the Town. Areas in the immediate vicinity of wetlands, such as along Route 6, understandably have more frequent problems than have areas with more permeable soils and lower water tables. Existing large commercial facilities in all probability have the most severe problems. The difficulty of siting both an on-site sewage disposal system and a potable drinking water well on the same lot in densely populated areas has become apparent. This problem is most acute in the "villages", which sometimes lack adequate land to use even a shared disposal system, without tremendous infrastructure costs.

Lack of public sewerage affects residential development in several ways. Soil characteristics limit density and location of development; in extreme cases, prohibition of development is necessary to protect public health.

If the soil is suitable, public water is provided, and the water table is low, lots measuring 40,000 square feet and smaller may prove to be satisfactory for on-site sewage disposal for many years. If, however, the permeability of the soil is poor, the ground slopes excessively, the water table is high, and drinking water must be obtained on the site, far more land is required; and, in some cases, safe sewage disposal is not possible at all.

The effects of a lack of public sewerage are felt on both residential and non-residential development. Lack of sewerage does not slow residential development; in fact, it causes increased land consumption for development, impinging upon open space areas, and environmentally sensitive areas. Without sewerage, on-site systems, with their potential problems become scattered randomly throughout Town, even in areas that are unsuitable for on-site systems or that should be protected, for open space or environmental reasons. The lack of sewerage does, however, slow industrial development, and has a slight inhibiting effect on commercial development. Lack of sewerage would severely hamper the Town's ability to attract industry and diversified commercial development. Although lack of sewerage does not prohibit commercial and industrial development, one must be cautious in projecting the potential types and locations of such growth.

Public health considerations might justifiably suggest prohibition of development in certain areas because of a lack of sewerage. These areas, which are the most desirable for development, would be lowland areas along both branches of the Westport River, where the land is subject to occasional flooding. The flooding of cesspools and septic tanks can cause serious pollution, and might suggest prohibition, by one means or another, of residential development of land below, say, eight or ten feet above mean sea level. One means of accomplishing this would be an overlay zoning district.

Anywhere that soil tests indicate on-site disposal would not work, the Board of Health should prohibit development; in areas where soil tests are satisfactory but other legitimate public health concerns exist, the Board of Health should regulate or condition development.

As stated previously, individual septic systems containing household wastewater are the most common means of disposal in Westport. While in the more rural areas, this may be adequate, the village areas tend to lack the land area needed for adequate disposal. Over the past three years

the Board of Health has granted, on average, 90 variances a year to Title V, some in extremely sensitive areas. The lack of alternative disposal options severely limits the Town's ability to control septic disposal provisions. One very disturbing trend over those years is the increase in the number of wells found to be contaminated when they were tested, as required, for variances. This trend towards contaminated wells is also apparent throughout the Town in general. An extensive review of Board of Health files reveals that approximately 15% of the well samples on record fail to meet drinking water standards set forth by the state. While these results represent a small sampling throughout the Town, this disconcerting trend bears monitoring.

Intensive residential shoreline development, if based in porous soils, has contributed to the pollution of surface waters and the wildlife habitat and marine environment they provide. It is interesting to note, however, that in the Town of Wareham, where such intensive development has taken place (though generally on good soil), pollution counts in the various waters have actually gone down over the past thirty years, perhaps reflecting changes in technology in commercial and industrial waste disposal and the construction of sewerage infrastructure.

Table 7-1. lists the most common soil types in Westport, the percent of Westport's land area they cover, and their limitations for septic systems.¹⁴ Septic limitations are taken from Table 11. Sanitary Facilities, Septic Tank Absorption Fields of the Soil Survey. There are nine possible conditions that are unfavorable for septic systems: flooding, shallow depth to bedrock, ponding, wetness (shallow depth to high water table), slow percolation rates, poor filtration, steep slopes, and large stones. The four most prevalent limitations for septic absorption fields in Westport are slow percolation, ponding, wetness and poor filtration. For most soils with limitations in Westport, the limitations are characterized by the USDA as "severe". Ninety-seven percent of the land area of Westport is comprised of soils that have at least one severe limitation for septic. This does not mean that 97% of the Town is undevelopable. Within areas generally categorized as having severe limitations there may be smaller areas of good soils. The general characterization of the soils in an area should be used to identify potential problems and design in response to them. Although soils with limitations for development are found throughout Town, some areas of soils may indicate a need for specific zoning regulation, such as the excessively well-drained soils with poor filtration capability located above or adjacent to important water resources in the Aquifer Protection District and shoreline areas. Other than in those areas, the changes in soil quality occur at such a fine scale, that it is not possible to zone for the intensity of land use based on Soil Survey mapping.

The most common limitation for septic systems in Westport is slow percolating soils, generally due to hardpan. Seventy-eight percent of the land area of Westport is potentially covered by soils which pose a severe limitation to siting septic systems because they perc slowly.

The next most common limitations are ponding and wetness, each of which are potentially problematical for 27% of the Town's land area. Lastly, poor filtration capability is found in 14% of Westport's soils.¹⁵

¹⁴ According to the most recent, October 1981 USDA Soil Survey for Bristol County, Massachusetts, Southern Part. Areas computed by GIS using digitized version of soil survey provided by USDA Natural Resources Conservation Service in summer 2003.

¹⁵ Because some soil units have more than one severe limitation, these percentages total more than 100%.

Several tools are available to the Town to protect public health, with the most obvious being the State Sanitary code (Title V). The provisions of Title V are compulsory, not voluntary; the Board of Health is obliged by State law to enforce them. The requirements are minimal, but if enforced, they will prevent homes being built, as they sometimes are in Westport, in areas where the water table is virtually at the surface of the ground.

In coastal areas subject to hurricane and other coastal storm flooding, Board of Health control can be used to regulate development in some cases, probably not in others. However, there are several other means of preventing unwise coastal development.

Table 7-1. Westport Soils with Severe Septic Limitations

Limitation	Soil Description	Percent Of Land Area
Percolation (hardpan)	Charlton & Paxton fine sandy loams (FSL's), including rocky, rock outcrops, stony, very stony and extremely stony FSL's	33.5%
	Pittstown loam	0.01%
	Ridgebury FSL's, including very stony & extremely stony FSL's	7.01%
	Whitman FSL's including extremely stony FSL's	23.0%
	Woodbridge FSL's, including very stony & extremely stony FSL's	14.6%
	Total % with severe limitation due to poor percolation	78.1%
Ponding	Pawcatuck & Ipswich peats	3.22%
	Freetown muck, ponded	0.21%
	Scarboro muck	0.79%
	Whitman FSL's, including extremely stony FSL's	23.05%
	Total % with severe limitation due to ponding	27.3%
Wetness (High water Table)	Deerfield loamy sand	0.24%
	Freetown muck	4.06%
	Ninigret fine sandy loam	0.02%
	Pipestone loamy sand	0.09%
	Pittstown loam	0.01%
	Ridgebury FSL's, including extremely stony FSL's	7.01%
	Sudbury fine sandy loam	0.20%
	Swansea coarse sand	0.01%
	Swansea muck	0.31%
	Walpole fine sandy loam	0.02%
	Wareham loamy sand	0.23%
	Woodbridge FSL's, including very stony & extremely stony FSL's	14.56%
	Total % with severe limitation due to wetness (high water table)	26.76%
Filtration	Beaches ¹⁶	0.36%
	Pawcatuck & Ipswich peats	3.22%
	Agawam fine sandy loam	0.08%
	Deerfield loamy sand	0.24%
	Gloucester-Hinckley Complex, includes undulating or rolling, very stony	3.10%
	Hinckley gravelly fine sandy loam	3.12%
	Merrimac fine sandy loam	0.58%
	Ninigret fine sandy loam	0.02%
	Pipestone loamy sand	0.09%
	Scarboro muck	0.79%
	Sudbury fine sandy loam	0.20%
	Swansea coarse sand	0.01%
	Swansea muck	0.31%
	Udipsamments, hilly (sand dunes)	1.63%
	Walpole fine sandy loam	0.02%
	Wareham loamy sand	0.23%
	Windsor loamy sand	0.34%
	Total % with severe limitation due to poor filtration capacity	14.34%

¹⁶ Beaches have not been specifically characterized for septic limitations by NRCS. They are noted as not suitable for most uses, except recreation. They have been placed with poor filtration soils in this table, but obviously may have wetness, flooding, and percolation problems as well.

First, Chapter 426 of the Acts of 1963 provides that no dredging or filling along coastal waters may take place without a permit issued by the Board of Selectmen, which is only to be issued upon demonstration that the development will not jeopardize public health, safety, or welfare. Second, Section 2 of Chapter 40A, G.L., authorizes zoning control over lands subject to "seasonal or periodic flooding". This would apply to any land below 10 feet or so above mean sea level. Within such an area, development may be prohibited or subjected to special restrictions and conditions

7.2.3 Stormwater and Drainage

All but a few small areas of Westport may be classified into one or another of four major drainage basins. The largest of these is the area drained by the East Branch of the Westport River and its tributary brooks and creeks. The area drained by one of those tributaries, Bread and Cheese Brook, has been designated as a separate basin because of its size. Another large basin is drained by various means into the interconnected Devol, Sawdy, South Watuppa, and North Watuppa ponds. Finally, there is the area drained by the West Branch of the Westport River and its minor tributaries. In addition to these major areas, there are smaller areas, which drain directly into either Westport Harbor, into the Ocean, or into smaller brooks going directly into the ocean.

Typically, the divisions between these basins occur in areas of relatively flat topography, so the exact line dividing basins probably moves from time to time with even minor erosion action. This flat topography at major divides results in large areas with relatively slow water motion, and in large areas of swamp.

The two most unusual characteristics of drainage in Westport are the above-mentioned extensiveness of poorly drained areas, and the exposure of some areas of Westport to tidal flooding. Flooding has occurred as recently as November 1963, when East Beach road was partially washed out. Catastrophic damage occurred in 1938; major flooding occurred in 1944 and in 1954.

The Town presently does not have a comprehensive stormwater plan. The adoption of such a program would greatly enhance the synchronization necessary between the pertinent Town boards that deal with such issues. The EPA has slowly promulgated guidelines and regulations requiring communities of a certain size to provide stormwater treatment prior to discharge. Westport will be required in the near future to comply with these "Phase II" standards in order to obtain state and federal monies. Improvements to the current stormwater systems would require permits, and designs appropriate to the areas involved.

Westport's road system is currently maintained by the Highway Department. Most problems with stormwater occur on the older "non-engineered" roads that initially were adequate in handling run-off. As development and population increased more drainage problems became symptomatic. Road drainage lines are normally short, release water into receiving streams at many points, and consist of many (several hundred in Westport) separate facilities, not all interconnected. These emergency "fixes" have, by default, become the policy, allowing untreated stormwater to enter waterways and wetlands areas, and have changed drainage patterns within watershed areas. A noted example of this is the inadequacy of numerous culverts along Drift Road. This inadequacy is the direct result of improvements upstream made in conjunction with construction of Route 88. These changes caused faster runoff and concentrated it into fewer streams, with resultant flows too large for existing structures under Drift Road to handle. Just as Route 88 altered patterns in the East Branch basin, so will Route 195 alter patterns in the Bread and Cheese basin, and adjustments on local roads may again be required.

The clear public responsibility for road drainage is being handled in three ways. First, as roads are reconstructed with public funds, adequate provisions to handle present and future drainage should be incorporated. Second, new subdivisions are required to provide drainage systems satisfactory to the Planning Board. Third, numerous localized problems are being eliminated one at a time, largely based on requests of abutting property owners.

The major Westport deficiency in this area of responsibility is that drainage is not being adequately provided for on roads being surfaced with local, as opposed to Chapter 90, funds. Drainage structures are an investment in lower future costs, and should be provided, even if this means slower progress in street paving.

7.3 Goals and Objectives

7.3.1 Water

Although planning reports and feasibility studies have been prepared proposing the development of limited water and sewer systems, it has been the policy of the Town of Westport to remain with on-site wells and septic systems. The pitfalls of the current practice of indiscriminate siting of wells in a scattered pattern throughout the town are obvious. Wells being sited next to gasoline stations, and in close proximity to disposal systems, while legal, may need to be changed if the Town cannot provide alternatives. However, this practice can also provide valuable information about the state of the aquifer in the Town. It is then probably a good idea to mandate the reporting information of all well sampling data to the Board of Health, in as a precursor to a town wide water study. This study may lead to important policies and considerations that will severely alter the Town's direction. If municipal service were to be developed in either area, the most likely means of development would be in conjunction with the City of Fall River. In view of the fact that Fall River and Fall River interests own considerable water rights in Westport, there has been some question concerning feasibility of development of water supplies by the Town.

In addition to a ground-water supply, there are two other possible sources of supply for the Town of Westport, namely a surface supply from within the town, or the purchase of water from a neighboring community having an adequate water supply. Both sources were investigated in detail.

Thus, Westport has two main goals for management of the water and sewer needs of its residents and businesses:

- Strengthen protection of existing groundwater resources for private water supply, including pollution prevention through management of stormwater etc.

- Plan for the development of municipal water and sewer for at least portions of North Westport, where the existing land use patterns and resources are inadequate to sustain safe drinking water in the future.

7.3.2 Sewerage

A malfunctioning system can pose a significant health risk, be detrimental to the environment, and costly to repair. A broad spectrum of means is available to accomplish the previously discussed objectives of keeping land subject to flooding from being unwisely developed. In upland areas, there is the simple and proper method of denial of a sewage disposal permit in any case where the water table or soil conditions are so poor that safe sewage disposal cannot be assured, as required by Article 11 of the State Sanitary Code adopted by the Massachusetts Department of Public Health.

A treatment plant and outfall south of Head of Westport could service much of the north of Westport by gravity collection without resorting to expensive uphill force mains or lift stations; however the ensuing problems associated with such a discharge render this option unfeasible. The same location could service an area of Dartmouth. Sewage cannot reasonably be drained into Fall River for any type of regional system. A capital expenditure for sewage treatment in the next six years is most unlikely. Designation of a site for a treatment plant is unwise, because the optimum location, given Westport's topography, cannot be forecast a generation or more in advance.

It would seem to be impractical and foolhardy to think that the Town could come up with the resources to construct a treatment plant that would inevitably discharge into the river or the ocean, let alone construct the infrastructure to collect and pump the wastewater. To accommodate future growth and development the Town may become more dependent on alternative technologies, shared systems, and, possibly, regionalization with surrounding communities. Even for individual homeowners, sometimes the best solution to their septic disposal problems, both economically and environmentally, is to coordinate with their neighbors and build a shared system. Presently, a "decentralized" or distributed infrastructure for wastewater management is technologically available and economically achievable at a lesser cost than conventional sewer. Simple modifications can be made to existing systems to supply the needs of several residences. These systems are typically known as cluster systems and can work well in rural areas where trouble spots are spread over large areas within a town. These systems allow for centralized maintenance with a shared cost spread over several residences. They allow for the best siting of a disposal system.

Maintenance and construction of these systems requires a comprehensive management program to be established and funded. These management "agencies" can be private, governmental, or a collaborative depending on the needs and desires of the community. An overall community needs evaluation and selection of any management entity, if needed, should be carefully considered to take maximum advantage of available resources, including expertise, grant funding, and other public and private funds. Most importantly, public education and participation in decision making is vital to establishing an effective wastewater management plan. The public has a vested interest in the choices available. Future economic development and expansion of the tax base will be dependent on the ability to provide an economically and environmentally viable method of treatment and disposal. The complexity of the issue will require the education of citizens, some of whom are using individual septic systems for their first time; real estate professionals who have a vested interest in being able to sell properties, especially in the highly desirable but sensitive waterfront areas; perspective business operators; and government leaders who are charged with the enforcement of local by-laws and regulations. All this will come at an increased cost, but will pay dividends to future generations.

For the next generation at least, Westport should attempt to guide development in such a way that public sewage disposal is unnecessary. In the near future, when small "package" plants to service localized areas may become less costly and more maintenance-free than today, Westport may be able to economically service any concentrated areas where problems have developed. On-site disposal methods may be far better by then.

Although the technology of sewage disposal changes quite slowly, future changes are sufficiently probable that to guide development today in anticipation of a possible future centralized public system is neither advisable nor reasonably accomplished.

Both alternative technologies with enhanced treatment, and “cluster” systems, which provide affordable and attractive options to conventional systems, are now being used, although infrequently. A model cluster system was installed at Cadman’s Neck, but required neighborhood cooperation and overcoming procedural red tape before final approval.

If Westport were to develop a municipal sewer system, connection to Fall River is the only viable option. Federal and state laws prohibit or restrict the discharge of sewer effluent into the ocean or into any of the rivers or streams in Town, most of which are classified as “anti-degradation.” Since the Fall River sewage treatment plant has been designed with capacity to accept projected flow from Westport, federal or state funding would not be likely for any other proposed alternative. If sewers are developed in Westport, the priority areas should be along South Watuppa Pond (for protection of this potential reservoir) and the Route 6 – Gifford Road area (over the best aquifer). These areas also have higher incidences of septic system failures. In areas without town sewers, the Town should pursue a policy of low-density development and inspection and maintenance of existing systems.

7.3.3 Stormwater and Drainage

Before discussing the relationship of drainage problems to other elements in the Master Plan, it is important to clarify the area of local public responsibility for drainage provisions.

1. Where watercourses intersect roads, there is a clear public obligation to insure provision of adequate bridges, culverts, and other drainage facilities to allow for the free flow of water. Provision may be through expenditure of public funds or through subdivision control.
2. Where periodic damage is done to presently developed private property by flooding which can be prevented through reasonable expenditures, and where multiple ownerships prevent private solution of the flooding problem, it may well be in the best interests of the community to invest public funds for flood prevention in order to protect health and welfare, and also to bring the secondary benefit of increased valuations in the areas affected.
3. Expenditures of public funds for open land reclamation may or may not be justifiable, depending upon circumstances. Such expenditures, if made at all in a “land-rich” community such as Westport, are only reasonable in those cases where the return to the town in taxes on resultant development will balance public costs.
4. Massachusetts law makes it clear that localities may accept the responsibility of keeping development out of the flood, as well as the traditional job of keeping the flood out of developments. This can be accomplished through a variety of legal means. The major issue is the whether the Town is willing to commit to doing so.
5. Streams and wetlands in a natural condition are an irreplaceable asset; many feel that there is a public responsibility for this generation to preserve them for the use and enjoyment of future generations. This concept is generally unquestioned, but the actual expenditure of public funds to accomplish it is frequently opposed.

7.4 Implementation/Action Plan

7.4.1. General

1. Create a Westport Water and Sewerage Commission to initiate enactment of a Betterment Act, to acquire necessary land for drainage, sewerage, or well head protection, to purchase land for future water supply wells, and to work with regional and sub-regional organizations in planning for water and sewerage districts.

7.4.2. Water

1. Develop a municipal water system to serve those areas of northern Westport that are presently experiencing problems with the contamination of private wells.
2. Consider enlarging the Aquifer Protection District to include the entire Town or, if too restrictive, the areas around secondary drinking water supplies, *i.e.* South Watuppa Pond, Devol Pond, and Sawdy Pond. Because Westport's groundwater supply and access to surface water is limited, it is important to protect known existing supplies and sources.

7.4.3. Sewerage

1. In view of the low likelihood that a public sewer system will ever be built, we urge the Board of Health, the Planning Board, and the Selectmen to strictly enforce the health regulations governing disposal works. In the past, permits have been granted for construction on sites where the water table is so high that sewage disposal problems are inevitable. Permitting such development does not serve the public interest.
2. The Board of Health should institute a program of septic system inspection and maintenance, and well testing to identify problem areas, to be funded in the form of a betterment fee, or permit fees.
3. Delineate and create a sewer service area. This may be combined with the water service area, operate under the same guidelines and cover the same area. Expansion of the sewer system beyond the boundaries of this area would be strictly regulated. The cost of the system would be borne primarily by service area residents through assessments and user fees.
4. The sewage collection system for northern Westport will probably need to tie into the Fall River Sewage Treatment Plant. Most streams in Westport have been given an anti-degradation classification, which places a severe restriction on effluent discharge. The Fall River Sewage Treatment Plant was also designed to accept effluent from Westport and the collection system is located so that an interconnection with Westport is possible.
5. An inspection and maintenance program with varying degrees of municipal involvement is the best alternative for addressing the sewage disposal needs of the remainder of Westport. Under the most basic approach, the Town could inspect systems and issue an order for the owner to take remedial action (pumping the septic tank, enlarging the leaching field, etc.). A more complicated approach would have the Town inspect systems and take responsibility for making any needed repairs. Any costs would be billed to the owner, possible at the same time as tax bills are issued.

7.4.4. Stormwater and Drainage

1. Continue the present program of road drainage improvements, with a definite sum allocated for this purpose for each year in the six-year Capital Improvement Program, but with no specific six-year schedule of projects. Urge Mass. Highway to considerably enlarge the culverts under Route 6 for Bread and Cheese Brook in order to correct the flood conditions in that area.
2. *Conduct an engineering study of means to improve drainage in the Bread and Cheese basin. This study can be financed through either a local appropriation or through an interest-free loan from the federal Community Facilities Administration, under Section 702 of the federal Housing Act of 1954. The federal government under the Accelerated Public Works Program might*

conceivably reimburse in part the construction of any improvements. Other grant monies and programs should be investigated

3. The Town should not attempt to provide flood control for presently vacant land. Require **any** new development on vacant land to provide adequate provisions for handling drainage. The Town should develop any new engineering standards and regulatory tools needed to enforce this provision.
4. The Board of Health should carry out their legal responsibility in preventing development in unsuitable areas; the community should consider adoption of additional controls over development in flood-prone areas.
5. Stream improvements should be coordinated with the Conservation Commission.
6. Adopt additional building regulations and zoning by-laws for the flood prone areas

These might be in the form of special building code provisions applicable to flood zones only. Special hurricane codes have been adopted by Narragansett and Warwick, Rhode Island, and include such provisions as specification of the lowest permissible floor elevations, and foundation construction methods to be employed.

Lastly, these lands may be publicly acquired. Either the Commonwealth or the Conservation Commission could acquire the lands in most danger, which often are lands of great conservation value. The earlier listed control methods might be thought of as only interim measures until public acquisition can be made.

NOTES

- 1. For the complete Action Plan for Natural Resources, please refer to Chapter 12, Action Plan, Section 12.5 Natural Resources.**
- 2. During the public meeting held in February 2003, a resident expressed concerns about denser development increasing stormwater runoff to streams and causing off-site intermittent streams to become perennial, thus imposing additional regulatory limits on abutting properties. This resident was also concerned about whether the quantity of water available in the aquifer is sufficient to sustain new development and existing residents' wells. Questions were asked about how a proposed Water and Sewer Commission would be empowered, via state or local authority, and what its duties would be. Concerns were expressed about how clean the effluent from new alternative technologies is and about septic system maintenance, and protecting existing private wells as new development occurs.**
- 3. For additional information not available when this plan was written, please see the Water Assets Study conducted by EOEa, scheduled to be completed in the summer of 2004.**