Community Facilities and Services

Orleans Town Hall

7. Community Facilities and Services

7.1 Overview

Community facilities and services are a major contribution to the quality of life for Orleans residents. Residents enjoy a high level of service, but should look to the future demands placed on the system by projected population growth. This chapter provides an inventory and analysis of existing services. The analysis measures the capacity and level of service of capital facilities such as water supply and distribution, waste management, health, public safety and education. All Town owned facilities, infrastructure, and equipment are included in this definition, as well as human-based resources.

7.2 Goals & Policies

Community Facilities and Services Goal

To provide high quality facilities to meet the community and regional needs consistent with the goals and policies established in the Orleans Comprehensive Plan and the Regional Policy Plan.

Policies

- Current and future facility needs of the community including the adequacy and location of facilities should be assessed on a periodic basis.
- Development of new infrastructure should only occur after an analysis of the impact of this infrastructure with regard to land use, traffic, water quality, natural resources, historic preservation, and community character.

Development of new infrastructure should only occur after an analysis of the impact of this infrastructure with regard to land use, traffic, water quality, natural resources, historic preservation, and community character, as well as other applicable issue areas noted in the Regional Policy Plan and should be consistent with the Orleans Comprehensive Plan and Capital Improvement Plan.

Policies

- Privately provided infrastructure to service development and redevelopment should be consistent with the Orleans Comprehensive Plan and, when constructed off-site, should receive formal approval from the town prior to construction.
- Approval of development and redevelopment which increases the intensity of use should be based on existing infrastructure and system capability or on a development's ability to provide for or contribute to the infrastructure and services necessary to support it. The provision of infrastructure and services should be

consistent with the minimum performance standards in the Regional Policy Plan and consistent with the Orleans Comprehensive Plan and Capital Improvement Plan. Installation of necessary infrastructure should be timed to meet the need generated by the development or a contribution of funds toward the necessary improvements should be provided.

Water Supply Goal

To provide safe and adequate drinking water for the residents and businesses of Orleans.

Policies

- The Town should maintain a current water supply system master plan, with established thresholds for actions to ensure an adequate production of quality drinking water.
- The Town should monitor water quality and protect the yield of Town wells.

Wastewater Management Goal

To ensure that all sewage generated within the Town is properly treated to protect the long-term health of the community's ground and surface water resources.

Policies

- The construction of public or private sewage treatment facilities (PSTFs) should not allow development to occur at a higher density than would be allowed by local zoning.
- PSTFs should not be constructed in FEMA V zones and floodways, Areas of Critical Environmental Concern (ACEC), wetlands, and buffer areas, barrier beaches, coastal dunes or critical wildlife habitat. PSTFs may be constructed in FEMA A zones only to remediate water quality problems from existing development within such A zones.

Solid Waste Management Goal

To manage solid waste using an integrated solid waste management system that includes waste reduction, recycling, composting, incineration and landfilling, and to divert 40% of municipal solid waste from incinerator and landfill facilities through recycling and composting programs by 2005, consistent with regional goals.

Policies

- The Town should take all necessary action to meet State goals for recycling and composting.

- Development and redevelopment should allocate adequate storage space for interim storage of materials to be recycled.
- Construction and demolition debris from development and redevelopment should be removed from construction sites and disposed of in accordance with the solid waste management system.

Hazardous Waste Goal

To ensure that hazardous wastes generated by Orleans households and businesses are disposed of in an environmentally sound manner.

- Development and redevelopment should make reasonable efforts to minimize hazardous waste generation through source reduction, reuse, material substitution, employee education and recycling.

Stormwater Goal

To provide treatment of stormwater runoff before release into surface waters, beginning with all direct discharge points to salt ponds and other environmentally sensitive areas.

Policies

- Stormwater should be managed and disposed of onsite. Development and redevelopment should use Best Management Practices (BMPs) to minimize runoff and maximize stormwater treatment.
- No direct discharge of untreated stormwater, parking lot runoff and/or wastewater into marine and fresh surface water and wetlands should be permitted.

7.3 Inventory

The Town of Orleans provides certain services, including police, fire and ambulance service, a municipal water supply, and a strong public school system along with other basic town services. Town staff and boards are also responsible for administration of various state and local regulations, such as wetlands regulations, building codes, and health codes. Additional services, such as road maintenance, water provision, beach and park operations, and recreation programs are also the responsibility of town staff. An inventory of Town services is discussed in some depth in the following sections.

Improvements to capital facilities are planned and scheduled according to the Town's Five-Year Capital Improvement Plan (CIP). The CIP is a moderately extensive estimate of the needs for capital expenditures that is used for budget planning. The CIP is developed by the Town administrator with input from all Town departments, and serves as a useful tool for the Board of Selectmen, Finance Committee, and other boards. The recommendations contained in this plan are to be used in the development of the Capital Improvement Plan. By reference, the CIP is incorporated into this Plan. The Capital Improvement Plan is not binding upon the townspeople, and all expenditures it recommends must be approved at Town meeting.

7.3.1 General Town Administration and Services

The Town of Orleans maintains a staff in excess of one hundred permanent and full-time employees, with an additional number of part-time and seasonal employees to support Town services. The table below provides a listing of the number of permanent full-time employees by department and their annual budget for the 2006 fiscal year (FY06). This list does not include employees of the school department.

Table 7-A: Departmental Budgets and Employees

Department/Expense	FY06 Operating Budget	Permanent and full-time employees*
Selectmen/Town Executive	$391,867	4.00
Telephone	$27,965	
Cable Television	$43,400	1
Finance Committee	$86,044	
Finance Director/Town Accountant	$202,206	2.00
Assessor	$218,696	3.00
Treasurer Collector	$216,147	3.73
Computer Systems	$168,444	1
Conservation Department	$96,708	2.00
Town Clerk	$101,093	2.00
Planning Department	$181,390	3.00
Zoning Board of Appeals	$9,600	
Town Reports/Town Meeting	$13,070	
Town Office Building	$72,789	0.88
Community Center	$22,038	
Police Department	$1,892,394	26.00
Police Building	$52,518	
Fuel	$123,074	
Fire/Rescue Department	$1,988,906	16.00
Fire Building	$48,233	
Building Department	$222,522	3.00
Building Board of Appeals	$250	
Sealer of Weights & Measures	$500	
Tree Warden	$85,802	.57
Shellfish/Harbormaster	$192,468	3.00
Highway Department	$640,259	9.00
Disposal Area	$560,105	3.00

Water Department	$806,016	9.00
Health Department	$230,733	4.00
Council on Aging	$368,376	2.00
Human Services	$633,722	
Veterans Benefits	$34,613	
Snow Library	$442,196	2.75
Recreation Department	$125,633	1.00
Windmill	$7,497	
Parks & Beaches	$1,000,108	6.66
Total		107

** Note: The staffing figures include only full-time and permanent part-time employees receiving benefits.*

Source: Town of Orleans Annual Budget for Fiscal Year 2006. The figures above are "as listed" in the FY 2006 Budget. The Town owns and maintains numerous properties, buildings, and facilities necessary to the provision of services. Table 7-B provides an inventory of Town-owned properties. This list does not include properties of the Nauset Regional School District.

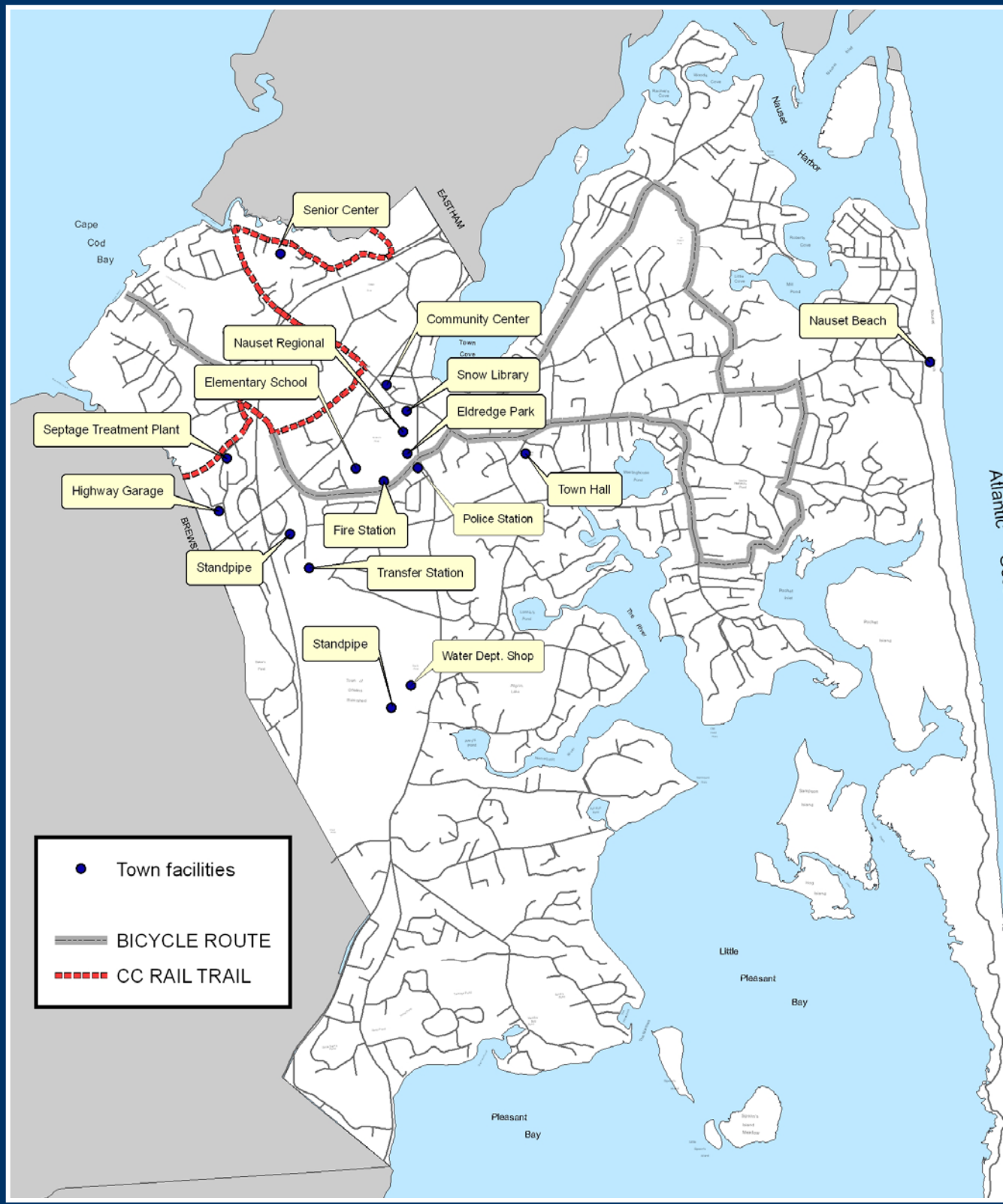
The Town of Orleans owns a large number of facilities that are located throughout town. They serve a variety of purposes that range from Town Hall, home to Town administrative operations, to fields and public safety buildings. The table below provides a listing of the Town owned facilities and their respective location.

Table 7-B: Town-owned Facilities

Property	Location
Administrative Building and Bathhouse	Nauset Beach
Administrative Building and Bathhouse	Skaket Beach
Baseball Fields, Tennis Courts, Field Lighting	Eldredge Park Way
Duplex Dwelling #2	Wildflower Lane
Duplex Dwelling	Wildflower Lane
Elementary School and Gym	Eldredge Park Way
Fire/Rescue Station	Eldredge Park Way
Former American Legion Hall	Main Street
Highway Department Garage	Bay Ridge Lane
Highway Department Garage/Office	Bay Ridge Lane
Music Shell	Eldredge Park Way
Parks Department Office	Bay Ridge Lane
Police Station and Harbormaster Office	Eldredge Park Way
Rock Harbor (Docks, Piers and Floats)	Rock Harbor
Sea Call Farm Building	Tonset Road
Senior Center	Rock Harbor Road
Snow Library	Main Street
Storage Building	Transfer Station
Town Hall Annex	Main Street
Town Hall Office	School Road
Transfer Station	Lots Hollow Road
War Memorials (3) Flag Pole	Academy Place
Water Department Garage and Pump 1	Route 28
Water Department Pump 7	Quanset Road
Water Department Pumps 2,3	Chatham Road
Water Department Pumps 4,5,6	Cliff Road
Water Dept. Iron & Manganese Plant	Cliff Road
Windmill Museum	Town Cove

Source: Statement of Values for insured Town properties & department managers 2003

Orleans Comprehensive Plan: Community Facilities



Town Hall

Administrative and regulatory services of the Town are provided at Town Hall on School Road. The existing facility is 14,800 square feet in size. In November 2005, the Town Hall was evacuated to a temporary facility while a major renovation is under way.

The building, originally a school, was considered inadequate to meet the needs of the Town for public offices and meeting space. The design of the building was inefficient, handicapped access was incomplete, and the heating system was not reliable. The Town considered building a new facility but the final decision was to renovate the existing Town Hall. The renovated facility will be 18,000 square feet in size, with modern communications and audio/visual systems. The building was planned to accommodate the needs of the Town for the foreseeable future.

Occupancy of the renovated Town Hall is anticipated for spring 2007.

7.3.2 Library Services

The Snow Library facility, located on the corner of Main Street and Route 28 in the Village Center, currently meets the needs of residents and has been planned to accommodate the level of use anticipated for a growing population for the next 20 years. Library membership is free to all residents of Massachusetts and non-resident taxpayers. An annual donation of $10.00 is requested of individuals not residing in Massachusetts who wish to obtain a card. A CLAMS (Cape Libraries Automated Materials Sharing) library card may be used at over 26 libraries on Cape Cod and the Islands of Martha's Vineyard and Nantucket.

The library was renovated in 1992, adding 5,700 square feet to increase the total area to 16,500 square feet. The library remains a well run and successful facility. In circulation, Snow Library was 2nd in its population group and ranked 14th out of all 336 public libraries in the state. In attendance, Snow Library was 3rd in its population group and 10th in the state.

As a member of the Cape Libraries Automated Materials Sharing (CLAMS) Network, Snow Library has in place the core technology for library telecommunications. This type of technology will have to be updated periodically, including new equipment. As with building space, technology is critical to providing citizen access to information.

Circulation & Reference Services

Circulation of library materials has shown a steady increase from 98,427 items in fiscal year 1995 to 158,367 items in fiscal year 2005. This increase is partially due to the increase in library operating hours over the past several years, from 38 hours per week in 1995 to 49 hours in 2005. Library reference service also continues to increase, with 7,865 transactions completed in fiscal year 2005 (Snow Library, 2005).

Internet Access and Computer Stations

In recent years access to the internet and internet workstations have become a very popular use of the library facilities and continues to be a valuable community service. The Library first offered internet access in 1992. Patrons can book one of the four stations where they are able to sit down at a computer to do research, shopping, or just surf the internet for up to one hour. The library also maintains "express" stations where patrons can sit down for 15 minutes or less to check email. Recent upgrades in technology infrastructure have allowed the facility to be a wireless internet "hot spot". Wireless access is available to anyone within 500-1000 feet of the library, and on summer days numerous people use the service from their vehicles via laptop computer. With wireless internet becoming more popular the Library expects internet access to be an important community service well into the future.

Marion Craine Room Gallery

The Crane Room at Snow library is a 125 seat meeting room and exhibit space available for public use. The meeting space has been a valuable venue for public information forums and other available public events. The room is also available for public display of art and other exhibits at the approval of the Library Director.

Programs

Snow Library offers many programs to the community, and is a valued resource. Programs for children are provided by the youth services librarian and are offered throughout the year. The services include:

- Summer reading programs
- Story hours for preschool and toddler groups
- Outreach to Orleans Elementary, Nauset Middle and High Schools, and Lighthouse Charter School.

The library also offers several adult programs, which include:

- Sunday at Snow Lectures, held November through March (sponsored by the Trustees of Snow Library and the Friends of Snow Library)
- Lifetime Learning classes held in the Fall and Winter (sponsored by the Friends of Snow Library)
- Art exhibits presented on a monthly basis

Future program additions will depend upon the demographics of the area and, in all probability, will require an expansion of services for an older population.

7.3.3 Parks & Beaches

Operations

The Parks and Beaches Department is responsible for the maintenance and operation of all parks, playing fields, town cemeteries, public buildings grounds, public beaches, conservation areas, and numerous Town buildings.

The Parks portion of the department is devoted to maintenance of the park grounds, playing fields, cemeteries, conservation lands, bike and walking trails, plantings at traffic islands, and Town Buildings (Police Station, Fire Station, Town Office Building, Elementary School, Senior Center, Library and Community Center). This totals 129.4 acres of grounds, with 38 acres of lawn. The Department is also responsible for maintenance of 25,680 square feet of Town Buildings, including cleaning and trash removal.

The Beaches portion of the department covers water safety programs, collection of parking fees, beach passes and stickers, the off-road vehicle program, shorebird monitoring program, traffic control and enforcement of parking and off-road vehicle rules and regulations, overseeing concession contracts and operations, beach concert scheduling, and buildings and grounds maintenance and custodial services. The beach facilities include 864 acres of land, 8,200 square feet of buildings, and 22 miles of off-road vehicle trails.

Parks and Beaches facilities accommodate various activities, programs, and events, including swimming, surfing, fishing, sunbathing, biking, team sports, tennis, Cape Cod League baseball, Monday night concerts at Nauset Beach, Pops in the Park concert, and art shows at Depot Square.

Eldredge Field hosts Orleans Cardinals (Cape Cod League) baseball games each summer. The park is also home to Pops in the Park, Nauset Regional High School Homecoming, and two tennis tournaments each year. The department estimates that over one million visitors make use of Parks and Beaches facilities from May 1st to Columbus Day each year.

Staffing & Facilities

The Parks and Beaches Department maintains a staff of 6 2/3 permanent employees, and up to an additional 65 seasonal full- and part-time employees. The increase in population during the summer, and the seasonal use of most facilities requires that the operations of the department expand greatly during these months, including some twenty-four hour, seven day per week operations. Seasonal positions include beach supervisors, gate officers, park patrol, beach patrol, lifeguards, shorebird monitors, and laborers. Staffing with seasonal employees continues to be a problem. With the high costs of living on Cape Cod and the lack of affordable seasonal accommodations the Town could experience a shortage of available seasonal employees in the future.

The office and maintenance facility is located at 18 Bay Ridge Lane on land currently shared with the Highway and Harbormaster/Shellfish Departments. The Parks and Beaches building is a converted garage built in 1968 and remodeled for office use in the early 1980's. The building is in good condition. The maintenance operation is carried out in a shared portion of a 2,400 square foot metal barn. Constructed in 1975, the metal skin of the structure needs to be replaced. Two wooden storage structures (400 sq.ft. and 144 sq.ft.), original bathhouses at Nauset and Skaket Beaches, are also located on the site.

Table 7-C: Beach Parking Facilities

Beach	Number of Spaces
Nauset Beach	1000
Skaket Beach	175
Pilgrim Lake	60
Crystal Lake	8

Source: Parks & Beaches Department, 2004

The department currently has adequate office space to meet its needs; however, the existing maintenance and storage facilities are inadequate to meet the needs of the department. There is inadequate space for storage of equipment, vehicles, benches, lifeguard stands, and bulk purchases. There is also inadequate space to build floats and perform other tasks. In 1998 the Town commissioned Gaffney Architects to conduct a study of space needs for several departments, including Parks and Beaches, Highway/Transfer Station, Water, and Harbor Master. The report found that the Parks and Beaches Department was operating with less than the required amount of space. The report recommended that administrative functions continue in the existing building, and that equipment storage be accommodated in the existing Highway Department garage, which would be vacated under the recommendations of the report. The Parks and Beaches Department estimates that if it were to make use of the entire Highway Department metal barn, its space needs would be satisfied until 2010. A recently approved feasibility study for new Highway Department facilities should provide the Town with additional information on the space needs of that department. Any vacated space may be available for use by the Parks Department in the future. This could supply the additional space needed for Parks and Beaches operations that was detailed in the Gaffney report.

There are a number of Park and Beach facilities that have plans for future refurbishment and replacement.

Nauset Beach is the Town's most significant public beach (see Natural Resources chapter). Its 1,000 car parking area provides significant capacity for residents and visitors alike. Despite having the largest car parking capacity of any parking lot on the Outer Cape, it commonly fills up in the summer months. In recent years the Atlantic shoreline directly in front of the Nauset beach parking lot has significantly eroded. In many cases the level of erosion in this area has exceeded the shoreline average of 5' a year. At this time there is approximately 250 feet of dune area between the parking lot and the ocean. Under the current erosion average of five feet per year, the waters edge could reach the parking lot in approximately 50 years. However, there is potential for a major storm to erode into the parking lot much sooner, especially at the north end of the parking lot which is only 170 feet from the dune edge.

A new parking area further from the beach may be needed if the existing area is rendered unusable by erosion. The Town has put a 2 million dollar place holder in the capital plan in 2010 for developing off-site parking for Nauset Beach. Other investments have been made at Nauset Beach such as the installation a new septic system beneath

the parking lot, further away from the beach. In addition, funding has been placed in the capital plan for the replacement of the snack bar in FY 2007.

Skaket Beach, the Towns large bay side beach also has plans for future improvements. The Skaket Beach snack bar is scheduled to be replaced in 2007. The beach also undergoes regular re-nourishment to replace sand washed away with winter storms (see Natural Resources chapter).

The music shell, located at Eldredge Park, is aging and in need of major repairs. In fact, the music shell is scheduled to be replaced in 2008 for the sum of $300,000.

In addition to the services provided by the Parks and Beaches Department, the Town also provides recreational services and programs through its Recreation Department.

7.3.4 Recreation

The Recreation Department offers various programs to all segments of the population on a year-round basis. The department has one full-time staff person (the Recreation Director) but hires 30 to 35 part-time seasonal employees for approximately 7 weeks in the summer months. The department office is currently located at the Community Center in the Village Center. The Community Center is staffed and open, for inside activities, 3 days a week in the summer.

Recreational activities take place at facilities throughout town. The Department continues to offer quality recreational programming for all ages. Utilizing the school facilities, the Town's many parks and beaches, and having dedicated group of volunteers and summer staff, Orleans makes available a good number of healthy social and physical programs year round.

The facility needs of the department are currently being met. Although school enrollment has been declining participation in Recreation Department programs has been stable throughout the calendar year and over the last 5 years. Additional students from the charter school and high school have been increasingly participating in the Departments programs.

Community Center

The existing Community Center, formerly the Town Hall Annex, is located on Main Street in the Village Center. This building is partially used by the Recreation Department for office and storage space, and as a play area for young people. The Orleans Chamber of Commerce also uses a portion of the building. The building has a limited ability to accommodate recreation and cultural programs and events.

Recreation programming and the need for a community center are discussed in more depth in the Open Space and Recreation chapter.

7.3.5 Harbormaster/Shellfish Department

The Harbormaster/ Shellfish Department is responsible for providing services to the Town's waterfront, including harbor and Town landing maintenance, installing and

removing of seasonal equipment, and providing mooring and shellfish licenses. The department also enforces shellfishing regulations and restrictions. The department oversees the operation of Rock Harbor, and all other waterways facilities, leases, and incomes, and enforces local waterways bylaws and Massachusetts General Laws. Department staff participate in marine rescues, develop resource management plans for shellfish and other coastal resources, as well as enforce the Federal Clean Water Act and Endangered Species Act.

The department maintains a total of twenty-four Town landings. A listing of Town landings is provided in the Analysis section of this chapter. In the past several town landings have recently been improved by using available state funds through the Department of Environmental Protection. The Rock Harbor bulkhead is currently in need of improvement. The sheet pile and floats are expected to be replaced as well as the pilings used to create the slip space. This work is currently being planned for 2009.

The Department currently employs three permanent, year-round staff, one part-time assistant, and three seasonal employees.

7.3.6 Water Department

The Town developed a Water Supply Master Plan in 1998 with consulting assistance from Comprehensive Environmental Inc. (CEI) of Dedham, MA. A study was performed over a twelve-month period and included several meetings with the Water Department, Water Advisory Board and the Water Commissioners.

There are six groundwater lenses on Cape Cod that are hydraulically independent under natural conditions and are separated by tidal rivers. The lenses are bound laterally by the surface water bodies of Cape Cod Bay, Nantucket Sound and the Atlantic Ocean. Cape Cod is surrounded and partially underlain by salt water and a ground water divide crosses the Cape from west to east. This divide is the highest elevation of the water table from which water flows down and to either side. Water to the north of the divide flows into Cape Cod Bay and the Atlantic Ocean; water to the south of the divide flows to Nantucket Sound and to the Atlantic Ocean.

The Orleans wellhead protection areas, which encompass the Town's seven water supply wells, are located in the Monomoy lens of the Cape Cod Aquifer. This lens is bounded by the Atlantic Ocean, Cape Cod Bay, Bass River and by the Nauset lens. Groundwater in the Monomoy lens generally flows west to east.

The Water Department's administrative operations are housed in Town Hall. The administrative staff consists of the Water Superintendent, the business manager, and a clerk. The administrative staff is responsible for processing water bills, department accounting, and processing requests for new service, maintaining service files, pumping records, and chemical reports.

The Water Department serves approximately 5,060 accounts (97% of the town) through over 140 miles of water mains. The system has a total of seven production wells. Wells #1-3 were installed in 1962; Well #4 in 1973, Well #5 in 1974, Well #6 in 1984, and Well #7 in 1990. Wells #4,5, 6, and 1 are year round supply wells that feed the Town water

system via the water treatment plant. Wells #2 and 3 are on-line and augment the water supply system by adding capacity directly to the water supply system. Well #7, in South Orleans, is online and is primarily used for peak demand periods and seasonal use.

There are two storage tanks (standpipes) with a total capacity of 3.1 MG (million gallons), and usable storage of 1.9 MG. A water distribution system is considered adequate if it can provide the required flow for fires in addition to average consumption on the maximum day of the year. The Town has standby power on wells # 2, 3, and 7 and also has standby power on wells 4 and 5 via the water treatment plant. Wells 1 and 6 have no standby power. In addition, there are interconnections with the Town of Brewster valves to allow flow in either direction.

The majority of water mains are 8" in diameter and are made either of cast iron or ductile iron (cement lined). In 1989, the Town initiated replacement of all undersized mains (less than 6"). The distribution network is systematically flushed to remove sediment and precipitated iron in the spring and fall. Hydrants are inspected on a three-year cycle and repaired when needed.

System Capacity

As currently permitted under the State Water Management Act, the average daily capacity of the water system is limited to 1.78 MG. Over the past ten years, the average daily demand has been 0.86 MG, in 2004 it was .83MG. Typically, the greatest demand for water is in the summer months. The average daily demand for July 2004 was 1.58 MG. The peak water use days often jump very high as compared to the average day. The peak maximum day in 2004, June 28th, recorded 2.44 MG pumped.

Based on population and water demand projections, the Water Supply Master Plan projected that town water demand would reach the upper level of system capacity by 2013. This is based on the requirement that a system provide enough capacity to exceed the Peak Maximum daily demand by 1 MG, which represents a safety factor in the event that one well should go off-line due to a mechanical or other problem during the maximum day demand. The estimate also assumes that all existing wells would still be online at that time. The current maximum capacity of the system, using wells #1-7, is approximately 4.968 MG. The maximum day demand was projected to reach 3.38 MG by 2013. These water demand and capacity projections were based on historic trends in water consumption, population growth, new construction and new or upgraded water connections, and continued production from the 6 of 7 wells currently on line.

The Water Department in 1998 established a potential site for a new well within the Watershed. In May 1999, the Town approved spending $100,000 for an extended pump test to determine the impact of the new well on the groundwater table. With the addition of the new well, it was projected that Orleans' water supply needs will be met through 2020. Currently there is $200,000 in the FY 2009 capital plan for the construction of well #8.

The Town is continuing to experience a proliferation of private water wells, both potable and nonpotable, primarily in areas of Town not currently served by municipal water (approximately 5% of the Town). There has been an increase in the number of irrigation

wells installed, reducing the demand on the Town's public water supply during the summer months.

Currently, the Water Department conducts a Water Conservation Program with an annual open house during Drinking Water Week. Drinking Water Week provides an opportunity for residents to visit the pumping and water treatment facilities of the Water Department in order to learn more about the production of our drinking water. Other programs conducted by the Department include an annual newsletter, a tiered payment rate for water consumption, and biannual bills that have conservation messages. Also, the Orleans Elementary School's curriculum includes a tour and instruction of the production facilities.

Water Quality

The Town has met all criteria of the federal Safe Drinking Water Act, including the recent amendments of 1996. The Lead and Copper Rule of the Act limits the levels of these substances which may be present in drinking water at the faucet.

To prevent the leaching of copper and lead from household plumbing, the Town is required to neutralize the drinking water with potassium hydroxide. This treatment is currently being performed at the new water treatment plant (I&M plant) discussed later in this section. The Town not only continues to work to improve the quality of water once it is in the supply system, but also protects the quality of groundwater through land acquisition and land use regulation on watershed properties and in groundwater protection districts.

Bacteria

The combination of alkalization, phosphates and resident iron within the water supply has led to greater than usual layering out of biofilm along the walls of the water mains, providing a protective coating for the coliform bacteria. This issue was investigated in Orleans in 1994 and 1995 by consultants (Whitman & Howard, CEI). The consultant's report recommended chlorination, periodic flushing, and physical improvements to the system, all of which have been completed by the Water Department. By 1998, there was no sustained evidence of elevated bacterial count.

Slow flow within some of the "dead-end" portions of the distribution system and elevated water temperature and thermal layering in the stand pipes during the summer months are considered to be contributing factors to bacteria growth. The Water Department has introduced a plan to continue replacing undersized water mains, reducing "dead-ends" by looping the system, and studying the significance of water temperature in bacteria growth.

Nitrate Nitrogen

Non-point source pollution associated with individual septic systems has been shown to be a major contributor to drinking water quality problems in some Cape Cod communities. It should be noted that even a fully functional Title 5 septic system does not remove nitrogen from wastewater. Nitrogen passes through the soil to the

groundwater table and is then transported to its eventual release into a surface water body. In most Cape Cod soils, groundwater travels approximately one foot per day. This means that effluent from a septic system may take months or years to reach a down-gradient water body or water supply well.

Fortunately, Orleans has yet to experience degradation of the water supply resulting from nitrate contamination. Sampling results presented in the 1998 *Water Supply Master Plan* indicated nitrate nitrogen levels less the 0.1 mg/l (PPM), well below the federal drinking water standard of 10 PPM, and Regional Policy Plan recommendation of 5 PPM. Nitrogen levels in the drinking water supply continue to remain low today.

Iron and Manganese

Iron and manganese are commonly found in many New England water supplies. There have always been moderate amounts of iron in Orleans' water supply. However, high levels of manganese coupled with existing iron levels resulted in Well #1 being removed from use in the early 1990s. Furthermore, increased but sequestrable levels are present in other wells, most notably in Well #6. It is common for groundwater sources to exhibit this increase in iron and manganese over time and in many cases the source or cause is not found. Polyphosphate has been used in the past at the wells with high iron and manganese in an effort to prevent oxidation and precipitation.

In 2004, an iron & manganese removal facility *(I&M Plant)* was constructed to treat all water pumped from the main watershed area. The plant went on–line in March 2005. At present, Wells # 1, 4, 5, and 6 all feed the I&M plant. The plant is highly automated and no additional water department staff are necessary to run the facility. A network of 305 alarms and an automated alarm reporting system keep staff informed at all times that the plant is operating correctly and efficiently. Redundant systems occur throughout the plant and a generator stands by to keep the plant on-line and available during times of prolonged power outages. This major step has allowed the Town to put all 7 wells back into production, which increased the pumping capacity of the system as well as improved the overall quality of Orleans' drinking water supply.

Salt Water Intrusion

Because of its proximity to Pleasant Bay, Well #7 is the most prone to salt water intrusion. In 1998, a study was conducted to determine the potential for seawater intrusion. It was found that there has been no deterioration of the water quality in the history of the well (first exploration in 1983). Using an algorithm based on the elevation of the groundwater table under non-pumping conditions, it was hypothesized that the freshwater/saltwater interface is 400 feet below ground surface, or that the freshwater lens under Well #7 extends to bedrock. If true, there will be no need to alter the pumping characteristics of this well.

Impaired Groundwater Areas

There are some areas of degraded groundwater of concern to the Town due to their potential impacts on groundwater and surface water quality. The Health Department has identified the Town landfill, the Tri Town septage treatment plant, a sand and gravel

company, and a dry cleaner and service station in the Village Center as sources of contamination of varying degree. There has been limited exploration and analysis as to the outer limits of degraded groundwater from the above mentioned sites. However, monitoring wells are maintained in the area of the closed landfill, and the septage treatment plant. In other areas, state environmental officials are responsible for groundwater monitoring associated with the identified impaired areas.

Remediation projects have been completed for the old Hopkins Cleaner site and the Getty Service Station. Both of these businesses were located on Route 6A in the downtown area. According to a 1998 report, cleanup of the soil at the two sites has been completed. Groundwater cleanup for the gas station contamination has also been completed.

Although soil contamination at the Hopkins Cleaner site has been cleaned-up, the low-level tetrachloroethylene (commonly referred to as PCE) groundwater contamination has not been remediated. The level of PCE contamination was determined to be below that requiring cleanup under state regulations. In 1996, the groundwater beneath the downtown was reclassified by the state to a non-drinking water status which requires a lower level clean-up. The groundwater carrying the PCE is moving in the direction of Town Cove and is expected to have an as yet undetermined impact on this resource. There are no private water wells in the path of this movement.

The Commonwealth has designated the downtown area as an area of dense urban development, which is meant to raise concern regarding groundwater quality for any existing or future private wells in the area. Most new development in Town, especially in the Village Center, is on public water but the designation does raise the threshold for triggering cleanup of contamination.

The treated effluent from the Tri-town Septage Treatment Plant, located on Overland Way, is discharged and eventually reaches groundwater. This impacted groundwater is being tracked by the USGS as part of a groundwater study. Groundwater monitoring is also carried out as part of the requirements for plant operation, as regulated by the state. There is no immediate concern relating to this state permitted discharge.

There is also a sand & gravel excavation facility located outside of Orleans that was cited in August 2003 for a potential hazardous materials release. The site is located within the DEP Zone II for Orleans drinking water supply wells. Follow-up action by the DEP resulted in a cleanup of construction and demolition debris from the site as well as a requirement to install monitoring wells down gradient of the subject site. One concern cited by the Town environmental consultant was that the disposal plume emanating from buried wood waste showed elevated concentrations of nitrogen, which will continue to move down gradient with groundwater movement. The Orleans Health and Water Departments are fully aware of the need to closely monitor activities on the site in order to protect public drinking water.

The Health Department has begun a registration program for all private wells in town. This information will allow the department to identify private wells at risk of contamination due to any identified contamination.

7.3.7 Wastewater

Orleans currently relies entirely upon septic systems for the disposal of wastewater. As the population of Cape Cod has increased, it has become apparent that the level of treatment provided by individual systems is not sufficient to protect the natural resources of the community. In Orleans, all water that is discharged into the ground eventually flows underground to fresh or marine surface waters. In many cases, the nutrients contained in wastewater effluent have cause eutrophication, or accelerated aging, of the receiving water bodies. For this primary reason, the Town of Orleans has begin the process of developing a comprehensive wastewater management plan (CWMP). The plan will propose an integrated, phased program to develop wastewater facilities in order to properly treat residential and commercial effluent.

Septage Treatment Facility

In the mid-1980s, the Towns of Orleans, Brewster, and Eastham joined together to construct the Tri-town Septage Treatment Facility, located on Overland Drive in Orleans.. Septage pumped from businesses and residences in the region is treated at this facility utilizing advanced wastewater treatment processes. The facility has a permit for the treatment of 45,000 gallons per day (GPD). Septage is also accepted at the plant from Provincetown, Truro, Wellfleet, Dennis, Yarmouth, Chatham, and Harwich. Upgrades to the processing equipment have been ongoing.

In 2005, through funding from Barnstable County, the Town completed an engineering study of the Tri-town facility. The final report recommends a series of upgrades to maintain plant operations through 2025. There are also recommendations to increase plant capacity to 60,000 GPD and to add nitrogen–removal components. The study also considered the potential for adding a *sewage* treatment facility at the site.

Wastewater Management Planning

In 2001, the Town began the wastewater planning process by initiating a program of town-wide water quality testing. All marine waterbodies in the town were tested throughout the summer months as part of the Massachusetts Estuaries Project. The program was designed by The University of Massachusetts, School of Marine Science & Technology (SMAST). More than 100 local residents were trained in proper water sampling techniques. The intense level of testing continued through 2004, and was scaled back to more limited testing in 2005.

In 2003, Orleans was one of 12 recipients nationwide of a wastewater management grant from the Small Flows Clearinghouse. The federal grant was used to investigate the administrative, financial and regulatory aspects of managing wastewater. A report issued in 2005 described and evaluated the many management options that can be considered by the town and recommended that Orleans adopt an Integrated Water Management District. The district would manage any proposed wastewater facilities, and would also play a role in regulating the proper treatment and disposal of stormwater runoff, and lesser but important contributor of water-borne pollutants.

In 2005, the Comprehensive Wastewater Management Plan was formally commenced with the hiring the engineering firm Wright-Pierce. The process is expected to be completed in 2008, after which the highest priority facilities will be designed.

Future Wastewater Treatment Facilities

Until the Town makes further progress in its CWMP process, a true understanding of the need for future community facilities will remain unknown. Wastewater treatment requires three basic sets of equipment: collection system, treatment plant, and effluent disposal area. Because much of Orleans is low density, traditional centralized treatment facilities may not be cost-effective for large portions of the town. This is especially true around the headwaters of Pleasant Bay where a number of nitrogen-impacted embayments are located.

It is likely that the Orleans CWMP will recommend a combination of centralized, decentralized, and individual on-site treatment/disposal systems. Some areas of the Town will likely continue to rely on individual septic systems for the foreseeable future.

A decentralized approach would encompass the use of a number of small "package facilities" located in close proximity to the neighborhood being served. If this approach is found to be practical during the CWMP development process, the Town will need to purchase strategic parcels of land for facilities. A good example of a decentralized facility is the new sewage treatment plant at the Community of Jesus campus. Located within the watershed of Rock Harbor, the plant is licensed to treat up to 20,000 gallons per day of effluent, the equivalent of approximately 100 homes. The plant cost approximately $1.4 million to construct in 2001.

7.3.8 Highway Department

The Highway Department facility is located on Bay Ridge Lane, and shares a 3.88-acre site with the Parks and Beaches Department. The site is used to its full capacity, including buildings, storage sheds, parking, and outdoor equipment storage. Equipment and materials for all aspects of street maintenance are stored in the maintenance garage. The existing facility provides approximately 3,000 square feet of administration and operations space, far below the 10,000 square feet recommended in the Gaffney Report.

The department is responsible for maintaining 53 miles of public streets and all public parking areas (except beaches). Ten full-time workers are employed.

The Town voted in 2005 to conduct a feasibility study for a new Town Maintenance facility to replace the existing Highway Department garage on Bay Ridge Lane. The study will seek to update information previously outlined in the Gaffney Report. The study will include the review of possible existing Town owned locations for the new facility. Ideally any proposed larger facility would be constructed in a more central location in Town that could potentially accommodate the combined operations of several Town departments.

Solid Waste Management

The Solid Waste Management Facility consists of the closed landfill and the Transfer Station with all its components: recycling containers and structures, trash compactors, white goods (appliances) areas, and demolition and composting areas. It is operated and maintained by the Town Highway Department for disposal of acceptable waste generated within the borders of the Town of Orleans.

The facility on Lots Hollow Road is used for material storage. This material is then compacted and shipped to a location outside of town. Municipal Solid Waste (MSW) is the material that is generally bagged and placed in the compactor hoppers at the facility or collected by private haulers and taken to the Yarmouth facility. Acceptable MSW is defined by the contractor receiving facility (SEMASS and recycling receivers). This waste is delivered to the SEMASS incinerator in Rochester, or to appropriate recycling facilities.

The Town currently has a contract with SEMASS to accept municipal solid waste. The contract, originally executed in January of 1985, was recently renewed to run until 2015. The contract is to accept MSW at a rate of $37.50 a ton. Because of the Towns early enrollment in the SEMASS partnership the cost per ton for accepting waste is a good value to Orleans. Construction and demolition debris is collected and sent to a landfill in Bourne. The costs of transportation and handling are supported through tipping fees, separate from the basic sticker cost. In 2005, the cost for a residential or commercial sticker was $60. The capital and operating costs of solid waste disposal and recycling are supported through sticker fees, tipping fees and municipal taxes. As of 2004 the operating cost for all solid waste disposal totaled approximately $554,295. Revenues from tipping fees and sticker sales cover approximately two-thirds of operating costs, with the remainder covered by tax revenues.

The Board of Health maintains authority over the operation and maintenance of the facility. The *Rules and Regulations for the use of Orleans Solid Waste Facility* and the *Disposal Managers Operations and Maintenance Plan* are the two documents that define those parameters. In addition, the Board of Health determines the sticker fees and tipping charges and defines "sticker eligibility." The Board of Selectmen contract for refuse removal, establish the level of staff and personnel policies, and determine "sticker eligibility" for beach stickers, which double as Transfer Station stickers. The Board of Selectmen determines the policy by which Transfer Station operations will be funded.

Table 7-D describes the method of disposal and the amount of solid waste generated between 2000 and 2004.

Table 7-D: Solid Waste Management System

Type of Waste	Disposal Method	*Average**	2000*	2001*	2003*	2004*
Municipal Solid Waste	Brought to Orleans then shipped to SEMASS	*3440*	3514	3496	3314	3439
Construction/ Demolition Debris	Landfilled in Bourne	*4162*	1653	1100	978	431
Recycled materials	Recycled	*1772*	1507	1532	2044	2007

** : Data in TONS of waste*

Source: Orleans Highway Manager,2005

Solid waste and recyclable materials are delivered by commercial refuse haulers, contracted by the Town, to either the SEMASS incinerator or to the recycling market place. The capital and operational costs of solid waste disposal and recycling are supported through both fees and taxes.

Landfill

The landfill was closed by State mandate in June 1991. Capping work started in 2004 and was completed in 2005. All of the major issues with the Massachusetts Department of Environmental Protection were resolved and work is complete.

As discussed in the water quality section above, there was an area of degraded groundwater associated with the landfill. Now that capping is complete this will halt further infiltration and leaching of water through the waste, and the ongoing decline in contaminant concentration levels in the groundwater is expected to continue.

Recycling and Composting

Under Town Bylaw, residents and commercial establishments disposing of waste at the Transfer Station are required to separate recyclable items from other trash. Items that are currently recycled include: glass, newsprint, cardboard, plastic, tires, surplus paint, waste oil, gasoline, fluorescent bulbs, batteries, tin and aluminum cans, metal, and freon. Used household goods can be dropped off or obtained at the gift house. Organic matter such as brush, grass, leaves and pine needles are composted. Since 2000, Orleans' recycling program has grown by 500 tons and accommodates approximately 34 % of all solid waste. The Regional Policy Plan has set a goal of recycling or composting 30% of the waste stream by 2000, and 40% by 2005. Our recycling efforts should continue to be increased as DEP has implemented additional waste bans and the costs of disposal are anticipated to increase.

Waste Reclamation

In an effort to recycle in creative ways, the gift house provides the opportunity for unwanted but serviceable goods to be reclaimed for use. Residents can also remove composted material and unused paint for their use.

Hazardous Waste Collection

Hazardous waste is collected on the designated annual Household Hazardous Waste Collection Day. This county program, funded through taxes, provides for Hazardous Waste Collection day(s) at least once a year and sometimes more when held in conjunction with a neighboring town.

Certain household hazardous waste materials are also collected at the Transfer Station on a daily basis. Waste oil is collected in a 500-gallon approved container and removed as necessary. Gasoline collection is also available, although residents' primary need is in the spring and fall. Batteries, televisions, and electronic appliances are also collected for recycling.

The Town opens a paint shed for recyclables once per month during the summer for residents. This program has been temporarily suspended during the landfill capping and transfer station re-configuration. The Paint recycle program will continue, on a similar schedule, once the re-configuration is complete.

Stormwater Collection, Treatment and Discharge

The majority of the Town's roadway drainage system consists of leaching catch basins that require annual maintenance. Maintenance costs are approximately $7,000 a year per catch basin cleaning. An additional $10,000 is spent per year for as-needed drainage system maintenance. Updating and replacing deficient drainage infrastructure continues to be a priority for Orleans. In 2005 the Town voted to appropriate an additional $500,000 for the Highway Department to continue drainage system repairs throughout town. The department maintains a comprehensive list of drainage problem areas and will soon begin corrective actions on the highest priority locations.

There are several locations where catch basins are connected to leaching galleys or treatment systems to prevent the direct discharge of untreated stormwater into water bodies. Many of these systems have been equipped with particle separators to remove suspended solids. As part of a proactive program to improve coastal water quality, point source discharges of pollution from roadway run-off are systematically being eliminated. In the 1990s, the Town completed drainage improvement projects recommended by the Marine Water Quality Task Force at a cost of over half a million dollars. As a result of these improvement projects, stormwater discharged directly into water bodies has been greatly reduced.

As part of this drainage remediation program, the following Town-owned properties have had stormwater drainage facilities upgraded: Head of the Cove and Academy Place, Barley Neck Road, Town Landing at Meeting House Pond, and Tonset and Main Street (under street layout). The drainage system used on these properties consists of large sediment tanks with piped connections to leaching galleys and overflow pipes to the water bodies. In 1999, the Town installed remediation equipment on Kescayogansett Road near Lonnie's Pond and at Snow Shore landing. These systems employed sand filters and biological processes to treat stormwater prior to its discharge to local waters.

The stormwater drainage system at Cranberry Cove Plaza has been a problem for several decades. Stormwater that passes through the pond system for the complex originates from several locations in addition to the Stop & Shop site, including Route 6A and a number of businesses within the drainage area. In 1989, a release of hazardous materials from this site was responsible for the death of millions of seed shellfish at the Town Shellfish Lab, which has since been removed. In 2005, the Town completed a comprehensive study of all stormwater sources and recommended a phased program to effectively improve stormwater prior to release. The Town will be attempting to secure state funds through the Coastal Pollutant Remediation Program (CPR) to install better treatment systems for the area.

Other areas where construction, renovation, or expansion of the storm water drainage system has been completed or in progress, include: Briar Spring Road, Brick Hill Road Extension, Crescent Ridge Road, Crystal Lake/Monument Rd. & Rt. 28, Hopkins Lane, Loomis Lane, Arey's Pond, Pilgrim Drive, Quanset Road, Ruggles Road, Tonset Road (Near cemetery), Town Highway Garage, and Salt Works Circle.

7.3.9 Public Safety

Police Department

Currently, the Police Department's facilities are adequate to meet the needs of the resident and seasonal population. The existing police station, remodeled in 1989, is in good condition and is adequate to meet space needs of existing personnel; however, the heating system is in need of upgrading. The building houses the Police Department operations, Public Safety Dispatch, lock-up facilities, and includes a three-bay garage. The police station is located at the intersection of Route 28 and Eldredge Park Way, on 1.32 acres of land shared with the Harbor Master/Shellfish Constable.

As the Town approaches buildout, the increase in population will result in the need for additional officers, vehicles, lockup facilities, and other facilities. Currently, in the summer months, police staffing is not adequate to meet the Town's needs and seasonal help is hired. The Police department personnel consist of the following: a Police Chief, two Lieutenants, four Sergeants, one Detective, and twelve Patrolman. There are also four civilian dispatchers as well as two administrative assistants. In addition to the full time staff, the Town hired seven (7) seasonal Traffic Officers in 2005 . The current permanent staff of sworn police officers represents a level of 3.0 officers per 1,000 of population, a level that has been maintained since the late 1990's. The national average is 3.5 sworn officers per 1,000 of population.

The Town recently voted to approve an amount of $75,000 to be included in the FY 2006 Capital Plan to study re-design of the Police Station. This study will look at optimizing the existing facility and the growing demands and needs of the department. The study will focus on re-design of the centrally located building in order to bring the station up to current state codes regarding police facilities.

The Police Department's mission is to enhance the quality of life in Orleans by providing a safe environment for residents and visitors. The Department provides key community services and addresses many concerns, including the following:

1. Community Policing – This term, created several years ago by a former Police Chief, was introduced as a way to get citizens and police officers together to solve quality of life issues. By working together in the community they can help solve crime, problems related to crime, fear of crime, and create a safer unified community. This continues to be a key philosophy for the Department.

2. Elder Services - As discussed in the Health and Human Services Chapter, the Police Department participates in many health and human service functions. These popular services to the senior population could increase the demand on departmental resources as the population of older citizens continues to grow.

3. Roadway Safety – Educating the public about roadway safety, speeding and seatbelt laws, and aggressive driving behavior continues to be a top priority for the department. The department has received local and national recognition for its roadway safety efforts. Seasonal congestion continues to overwhelm the transportation system. This is expected to continue, and intensify, particularly as the population of Orleans and other towns on the lower cape continues to grow.

4. Homeland Security – Since 9/11/01 our nation stressed the need for enhanced homeland security. The Orleans Police Department continues to evaluate our security levels and provide enhanced training for department employees.

Fire/Rescue Department

Orleans Fire/Rescue Department is staffed 24 hours a day. The Fire/Rescue Department is housed in a two-story brick building at 58 Eldredge Park Way, on land shared with the Elementary School. The facility, renovated in 1989, is in very good condition. It has three truck bays, and four bays in the ambulance portion of the facility.

The facility is used to its full capacity at this time and any future expansion of the department will require an addition to the facility. The original design of the Fire/Rescue Station included space to accommodate expansion for 25-30 years. However, due to cost constraints, the facility was scaled back when constructed in 1989. Approximately 1,200 square feet of office space, and 2,500 square feet of apparatus space was removed from the original design. Now, sixteen years into the life of the facility, the department has maximized the use of the building. In addition, much of the infrastructure in the building (now 16 years old) will need updating and replacing. A large part of the departments annual budget continues to be directed towards apparatus maintenance due to the increased number of trip to the hospital *(see Human Resource Chapter)*.

As with the Police Department, the Fire Department's staffing resources will be increasingly stretched as the community continues to grow and age. Currently the department consists 19 full time personal and 15 call personal. Over the last 10 years the department has added 4 full time staff and relied on 3 fewer call firefighters.

There are planned capital investments in the next five years in order to support existing operations. These investments include replacing the ladder truck in FY 2008 at an estimated cost of $575,000 and continuing the ambulance replacement program. The Fire

Department has 3 ambulances total and one is replaced every 2 years. This program has been successful in maintaining the ambulance fleet and not allowing an ambulance in operation to be older than 6 years. A feasibility study for a possible expansion of the facility is listed in the Capital Improvement Plan for fiscal year 2010.

7.3.10 Cemeteries

The Orleans Cemetery Association is currently the sole entity providing new burial plots for sale to serve the needs of Town residents. The Association cemetery is comprised of approximately forty acres located in East Orleans, bounded by Tonset Road, Main Street, and Meeting House Road. The cemetery sells approximately 35-40 plots per year. Association officials estimate that at the current rate of sale, and with the increase in the number of cremations (requiring less space), the cemetery will be able to accommodate the needs of the community for the foreseeable future.

7.3.11 Education

Education in Massachusetts is regulated to a great extent by the Legislature, which delegates local authority to the School Committee. Since school curricula and spending are dictated by the State, this Plan does not attempt to engage in a discussion of the merits of the education system or its operating budget. In addition, most local school related issues are under the jurisdiction of the School Committee. However, schools are tied to the financial structure and growth of a community and should be addressed to some degree by the Local Comprehensive Plan. The focus in this section is projecting the capital facilities needs of local schools.

Local Schools

Students in Orleans attend local schools through grade five, then attend either the Nauset Regional Middle School or Cape Cod Lighthouse Charter School for grades six through eight. Students attend either Nauset Regional High School or Cape Cod Regional Technical School for grades nine through twelve. It should be noted that school choice is available on the outer Cape, which allows students to attend schools in other towns.

Orleans Elementary School

The design capacity of Orleans Elementary School is 480 students. In 1997, the school had its highest enrollment in recent history with 344 students. Current enrollment and projections, based on a cohort-survival ratio technique, indicate leveling and slight decline in future enrollment. It is unclear whether the decrease in student enrollments is part of a cycle or is a long-term trend. Construction data for new homes and census data suggest a continued population trend away from young families and toward an increased retiree population.

Table 7-E: Orleans Elementary School Enrollment

	Actual Enrollment					Projected Enrollment			
Grade	**2000-2001**	**2001-2002**	**2002-2003**	**2003-2004**	**2004-2005**	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**
K	34	41	34	40	30	29	31	31	31
1	45	33	40	32	43	31	29	31	31
2	38	40	34	36	33	30	31	29	31
3	37	39	43	35	38	44	31	32	30
4	47	35	39	47	38	34	44	31	32
5	54	49	39	42	47	40	36	47	33
TOTAL	***255***	***237***	***229***	***232***	***229***	***208***	***202***	***201***	***188***

Source: Orleans Elementary School, 2005

Nauset Regional Middle School

Nauset Regional Middle School is located on Route 28 at Eldredge Parkway. The school accommodates grades six through eight and has a capacity of 900 students. As of June 2004, enrollment totaled 759. As with the Elementary School, enrollment projections show a decline in the prospective number of students. In 2009 enrollment is forecast to be 579 students with 128 kids attending from Orleans.

Table 7-F: Nauset Middle School, Orleans Student Enrollment

	Actual Enrollment					Projected Enrollment			
Grade	**2000-2001**	**2001-2002**	**2002-2003**	**2003-2004**	**2004-2005**	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**
6	55	41	45	39	40	42	42	37	49
7	45	51	42	47	42	49	42	42	37
8	52	47	49	41	48	44	48	42	42
TOTAL	***152***	***139***	***136***	***127***	***130***	***135***	***132***	***121***	***128***

Source: Nauset Regional School District, 2005

Nauset Regional High School

Nauset High School in North Eastham has a capacity of 1,000 students and the flexibility to accommodate several hundred additional students. Total enrollment in the Nauset High School in 2004-05 was 1094 students, 205 from Orleans. The facility has been expanded to accommodate projected growth within the region, although growth from Orleans is not expected to be a significant component of overall student population increases as Orleans' projected High School enrollment is declining.

Table 7-G : Nauset High School, Orleans Student Enrollment

	Actual Enrollment					Projected Enrollment			
Grade	**2000-2001**	**2001-2002**	**2002-2003**	**2003-2004**	**2004-2005**	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**
9	52	63	59	57	54	49	44	44	36
10	40	38	55	47	49	46	43	39	39
11	35	37	42	55	45	45	44	41	37
12	38	29	35	42	57	50	43	42	39
TOTAL	***165***	***167***	***191***	***201***	***205***	***190***	***174***	***166***	***151***

Source: Nauset Regional School District, 2005. Projected enrollment figures are based on the average percentage of students from Orleans at 18.7%.

Cape Cod Regional Technical High School (CCRT)

A small contingent of Orleans high school students is educated at the CCRT. Over the last thirteen years, the total number of Orleans students attending the school was 15, but Orleans School officials expect that number to increase slightly in the future. Based on projected enrollment rates, no major expansion of facilities at Cape Cod Tech is expected. Aside from enrollment, other ongoing and future needs include $100,000 per year for technology updates, and an increased Operating Budget for maintenance of the buildings as they age.

Cape Cod Lighthouse Charter School

The Cape Cod Lighthouse Charter School, located in Orleans, has a capacity of 160 students, grades 6-8. During the 2005 school year, 14 Orleans residents attended the school. Classroom space is adequate to meet the needs of faculty and children, although there is concern about the lack of an outdoor recreational area. The lack of available land at the current location negates expansion of the facility for the development of playing fields.

7.4 Analysis

7.4.1 Town Administration and Facilities

The following sections discuss anticipated Town needs to address ongoing and anticipated services. Several facilities are currently in need of expansion, or are expected to require expansion in the future. These expansions are due, in part, to the need to continue service provisions for a growing and aging population. With the need for expanded facilities comes the potential need for the Town to acquire additional land to accommodate new and expanded operations.

Town Hall

Municipal business cannot be conducted effectively within the existing Town Hall facilities. In February 2004 the Town approved $425,000 to hire an architectural firm to design the Town Hall Renovation. In May of 2005 the Town approved the total project cost estimated at $6.2 million for the renovations. Work began in April of 2006 with Town staff working out of a temporary facility for approximately one year. It is expected that in Spring of 2007 Orleans will have a functioning, fully renovated, Town Hall located at the existing site. This milestone will wrap up many years of studies and design plans and will provide the Town with a facility capable of meeting its operational needs well into the future.

Other Issues

Insurance coverage should be adequate for all facilities to protect the Town in the event of a major loss. Replacement cost figures related to existing insurance coverage are from insurance appraisals completed in 1995, and were updated in 2004. . The Town should maintain and periodically update the current list of all Town facilities and their actual cash value or replacements cost, and insure these facilities accordingly. (CF-7)

Residents have expressed a strong desire for environmental and natural resource protection. Recycling of waste, such as paper, should occur throughout Town facilities. (CF-8) New buildings should be designed to be energy efficient and to take advantage of the latest in environmentally friendly technologies and recycled materials. (CF-9)

7.4.2 Library Services

The 1992 library renovations were designed to accommodate twenty years of growth. Although demand for the use of library space is currently heavy due to the lack of public meeting space throughout the town, this might be expected to change with the renovated Town Hall and its additional meeting space.

Snow Library anticipates a need for additional staff resulting from changing technology and an expansion of operating hours. With the dramatic change in information technology there is a need for staff with expertise in system maintenance and database searching.

Although the Snow Library facility currently meets the needs of residents, there are issues associated with Library service that will require capital expenditures to resolve:

- Technological upgrades and equipment will be necessary to remain compatible with the Cape Librarians Automated Materials Sharing Network (CLAMS) (CF-10);
- Building renovations and repairs, and possibly expansion, will be needed over the next twenty years.

Snow Library is in the process of formulating a five-year plan to be submitted to the Massachusetts Board of Library Commissioners. Subsequent five-year plans will then be completed. A major study of the capability of the existing building to meet anticipated library service requirements in 2010 should be planned to assess possible renovation/expansion and technology infrastructure needs.

7.4.3 Parks & Beaches

The Parks and Beaches Department is responsible for an extensive amount of facilities and programs, particularly during the summer season. Existing staff and operations facilities are stretched to maintain a high level of service. Additional staff and new facilities will be required to continue required operations. The need for additional staff and equipment will be accentuated by new conservation land acquisitions and any new parks, fields, and trails, as recommended in the Open Space and Recreation Chapter. The direction the Town takes on these items will determine the need for additional permanent and seasonal staff, as well as facilities and equipment.

At the present time, with existing responsibilities, the Department is in need of expanded maintenance and storage facilities. New or expanded facilities should be provided in conjunction with the proposed relocation of the Highway Department. (CF-11) The Parks and Beaches Superintendent has estimated that expanding into the existing Highway metal shed would provide adequate space until 2010. Existing office space is sufficient, although a new heating system is needed. Following is a listing of anticipated capital items and facilities needs.

Nauset Beach

- Additional toilet/changing/storage facilities
- Repairs to gazebo
- Renovate/relocate snack bar
- Replacement and new boardwalks
- Implementation of erosion control measures

Skaket Beach

- New changing facilities
- New handicapped boardwalk
- Purchase and provide better access to existing Cape Cod Bay waterfront

Crystal Lake

- Provide restroom facilities
- Purchase pond-front property to provide better access

Eldredge Field/Music Shell

- Music shell structural work
- New irrigation system

Community Center

- Replace electrical wiring

Jonathan Young Windmill

- Continuous repairs

New Facilities needs

- Restrooms
- New multipurpose athletic field (baseball, soccer, football)
- Insect/pest management program for Town buildings and grounds
- Irrigation systems (preferably supplied by new wells) at Police Station, Village Green, Eldredge Small, Soldiers Monument, Depot Square, Center Cemetery, any new athletic fields
- New equipment: tow-behind slice seeder, tow-behind coring machine, 500 gallon watering tank

Parking areas at Skaket Beach, and Pilgrim and Crystal Lakes are limited. Before pursuing expansion of these parking areas, the Town should determine the upper limit of use and the appropriate amount of parking and other services that these facilities are able to accommodate. (CF-12) It may not be desirable to increase parking to attract more use if the result will be to degrade the natural resources, or to negatively impact the users' experience.

The Department is currently in need of additional staff during the warm-weather months. As mentioned in the inventory section, department operations expand considerably during these months. This need for staff is expanding into the spring and fall as the number of visitors during these times of year is continuing to increase. Specifically, the Department currently needs additional part-time office help and an additional lifeguard during the summer season. Beach Patrol hours should also be expanded into the Spring and Fall months due to increasing use during these times.

Limited housing availability and the relatively low pay for seasonal Town employees have contributed to the inability to recruit adequate seasonal labor. This, combined with on-the-job injuries will continue to add to costs for completing needed work and deferment of some necessary maintenance.

Maintaining the level of service at Nauset Beach in the face of continuous beach erosion is a primary concern. (CF-13) Erosion is expected to continue which will result in the need to relocate the restrooms and snack bar. The department should develop a plan to

respond to Beach erosion at Nauset Beach, including relocation of buildings and parking facilities.

The town should develop a schedule to implement the necessary improvements identified above. (CF-15, CF-16)

7.4.4 Recreation

The existing recreation facilities are adequate for the programs currently offered. Any new proposed facilities would result in added programs that would then require the additional staff. It is expected that over time new facilities will be needed to meet the needs of the Town for the anticipated growth and aging of the population. To properly manage existing programs, the department is in need of at least one part-time assistant. The level of future staffing would be determined by the extent of the programming offered in response to the desires of Town residents. As the older segment of the town's population continues to grow, programs should be adapted to serve this group.

Community Center

The Town should revisit the use of the existing Community Center as it examines the community's facilities needs for recreational, cultural, and arts programs. (CF-2)

(CF-2) Interest has been expressed in the need for an indoor community swimming pool, an area for cultural gatherings, as well as any number of other community activities. This community center could also be designed to accommodate recreational programs and classes, in addition to cultural and arts activities. (OS-18) The community center should be located to maximize potential use and accessibility.

The Town should conduct a needs and cost analysis for community center and pool facilities. (CF-2) This analysis should include an examination of the suitability of existing Town facilities for use for these purposes, and determine the optimum location for any new facility. As discussed in the Open Space and Recreation Chapter, depending on the identified needs and the will of residents, a new facility should be designed and constructed. (CF-2, OS-18)

7.4.5 Harbormaster/Shellfish Department

The Harbormaster/Shellfish Department currently operates from a two-bay garage that is not adequate to meet space needs. Although the current location appears to be advantageous due to the close working relationship with the Police Department, the harbormaster office and storage space should be expanded. There is limited room to accommodate necessary building and parking expansion at the current site which may require relocation of these departments. The Department estimates a need to expand the facilities by 600-1000 square feet, while the Gaffney Report estimates a need for over 1,200 square feet of additional space. It also recommends relocating the Harbormaster/ Shellfish Department to the existing Highway Department facility, assuming that the Highway Department relocates to another facility.

In addition to current needs discussed above, the Department may need further expansion to meet the needs of a growing boating population. If demands on the department continue to increase, additional staff, boats, and a garage bay will likely be necessary.

A greater use of existing town landings is anticipated, which will require improvements and additional maintenance. There will also be more demand for expanded mooring facilities, and new landings. Even thought there are currently waiting lists for moorings at Town landings, the Town should consider the potential impacts of expanded mooring and landing facilities. The current cap on moorings is primarily due to parking limitations. Although there may be space within the Town's estuaries to expand mooring fields, expansion should not occur at the expense of water quality, shellfish and finfish habitat, eelgrass and other vegetation, or safety.

Expansion of parking facilities at the Town landings would require purchase of private property. The current level of facilities (24 landings and approximately 1,400 moorings) is the maximum that the ecosystem will support without experiencing substantial degradation, and public safety hazards.

The Harbormaster has recommended that the following improvements to existing Town landings should be considered:

Table 7-H: Town Landing Improvements

Area	Proposed Improvement
Snow Shore Landing	Repave parking area; Reconstruct retaining wall
Priscilla Landing	Install trench drain at northern edge of pavement; Install drainage system; pave parking area; install fencing
Sparrowhawk Landing	Repave parking area; Install catch basin
Gilman Lane Landing	Re-pave parking area
Portanimicut Road Landing	Replace bulkhead; Reconstruct launch ramp and retaining wall; Repave parking area; Install drainage system
Arey's Pond	Repave parking area; Install wooden staircase to shore.
Kescayogansett Landing(N)	Repave parking area; Reconstruct launch ramp; Improve fencing;
River Road Landing	Repave parking area; Install catch basins and trench drains; Reconstruct launch ramp, and pier
Meetinghouse Pond Landing	Repave parking area; Improve drainage; Reconstruct launch ramp;; Place sand on beach; Place pier and floating docks;
Cove Road Landing	Repave parking area; Reconstruct launch ramp.
Goose Hummock Landing	Re-grade parking area. Install drainage improvements as needed. Install fence at top of retaining wall. Reconstruct launch ramp, retaining wall, pier and floating docks.
Rock Harbor Landing	Harden interior shoreline with rip-rap. Reconstruct launch ramp

	and retaining wall. Replace bulkheads, fender piles, tie-up piles, floating docks, utilities. Provide additional floating docks to increase capacity. Install restroom/information building.
Tonset Road Landing	Maintain existing staircase to shore. Install public dinghy rack.

The Town should develop an implementation schedule for all necessary improvements. (CF-18, CF-19)

7.4.6 Water Department

Water Quantity

Water Department

Water Departmental field operations are based in a three-bay concrete block building located on the Town watershed land, accessed from Route 28. In addition to the bays, 770 square feet is allocated for operations. Six full-time staff are responsible for meter installation, new service connections, monitoring wells and water tanks, and water quality monitoring. Because the facility is located inside the Town watershed and a pumping station also located in the facility, vehicle storage and other shop related activities are not permitted under DEP regulations.

The Gaffney Report recommended that administrative and operations functions of the Department be housed at one location. (CF-11) Such a facility would house the administrative and field operations, and would include the control center and new water quality lab. The new lab should be designed to accommodate other Town water analysis needs as determined to be appropriate. The Town should examine the need for a new water quality lab to serve the needs of Town departments (i.e. Water, Health, Conservation, and various boards and committees). Furthermore, the Town should explore the potential for creating a regional lab in cooperation with other outer-Cape communities. Such a facility may offer cost efficiencies if a Town lab is found to be not economically feasible. (CF-20)

Expansion of the existing garage facility located on Watershed land is not feasible due to DEP regulatory concerns relating to the proximity of the maintenance garage to the well at that site. Relocating the facility to a less-sensitive portion of the Watershed property (northwest corner, adjacent to the landfill) may be an option. Because of the proximity of this area to the landfill, the possibility of DEP permitting a new supply well there would be remote. All options for relocation of the Water and Highway Departments should be considered in the context of creation of a Department of Public Works. The Town has initiated discussions to create a Department of Public Works, which would encompass the Highway Department, Transfer Station administration, the Water Departments and Beaches Department.

System Capacity

Based on population projections and current system capacity, the system is expected to reach the limit of its ability to maintain the required 1 MGD buffer by 2013. There is a valid need, therefore, to increase water production by some means which may include an additional well by 2013.

Review of water consumption trends had shown a flat to decreasing annual demand in spite of a rising population. However, for the purposes of fire protection, Orleans is also concerned that peak demand is met in any one time period." The current system consists of 6 of 7 operating wells with a maximum capacity of 4.5 MGD. The historic maximum pumping day occurred in 1999 at 3.1 MG. At buildout, with a population of approximately 10,000, the maximum daily demand will possibly be 4.3 MG. Nonetheless, Orleans employs a formula using 16 hours of pumping per day rather than 24, or 2/3 of capacity. Thus, the current maximum capacity is considered to be 3 MGD using the 6 wells. To reach the theoretical need for 4.3 MGD, the system would have to provide an additional 1.3 MG.

The Town has recently completed an iron/manganese treatment plant that has made it possible to utilize Well #1, which was previously limited due to iron levels. The well can produce .5 MGD. In addition, the Town completed prolonged pump testing for a proposed 8th well. Funds are anticipated in the Capital Improvement Plan for fiscal year 2009 for the development and permitting of the well, which will have a capacity of .5 MGD.

While there is a high capacity for water production from the Monomoy lens, and an additional site for a future well, the regulatory process for getting a new well on line is lengthy. (CF-21) The timeframe to install Well #8 will depend on population growth, associated water consumption rates, and the potential for treatment at well #1. (CF-22) The Town should continue to monitor water use (particularly summer peak use), population growth, water hookups, and the characteristics of water use. In addition, the target date for a new well to go on-line should be evaluated each year. Efforts to locate a site for the well, including conducting pump tests, should continue.

Recognizing that Orleans is one of a limited number of Outer-Cape communities with a water supply adequate to meet the town's present and future needs, some have raised questions regarding the potential for the creation of a regional water system to serve the Outer Cape. It has been suggested that such a system would rely, at least in part, on Orleans groundwater for its supply. State water officials have indicated to the Orleans Water Superintendent that creation of a regional system is not being considered at this time. The Town should, however, anticipate the potential for future creation of a regional water system should the need arise.

The Town should be cognizant of the potential impacts of development in adjacent communities on water supply. Cooperation among area communities and the Cape Cod Commission should be fostered to ensure that the regional water resource impacts of new development are recognized.

The Town should expand its water conservation program to reduce average consumption. (CF-23) Conservation efforts should focus on peak summer demand. As discussed above, the system, as it exists, has a finite daily supply capacity. As the

population continues to grow, so does concern for the ability to meet demand and maintain adequate supply for fire protection on peak usage days. Expanded conservation education should include information on measures such as limiting lawn watering and other outdoor water use, and curtailing use of dishwashers and washing machines, particularly on high-demand days. Included in an expanded conservation program should be demonstration projects within Town facilities retrofitted for reduced water usage. (CF-9) All new Town facilities should be designed using water conservation infrastructure. The Town should produce an updated water conservation plan to address all water consumption, public and private.

Water Quality

The Town must continue to address threats that jeopardize the quality of drinking water. The Town should consider land acquisition and other strategies in the vicinity of wellhead areas as a means of protecting groundwater quality. (NR-20) This is important for protection of all public and private water supply wells, but is particularly important in the case of Well #7, which has limited protection.

In addition to high quality drinking water, it is an expressed goal of this Plan to maintain clean, attractive water bodies for fishing and recreational enjoyment. (NR-7, NR-13) A trend toward lower water quality is becoming evident through the water quality monitoring efforts of the Water Quality Task Force. This issue is discussed in more depth in the Natural Resources chapter of this Plan.

Bacteria

Based on hydraulic monitoring and temperature measurements, it is possible that decreasing the amount of time that water remains in the pipes (residence time) will lead to less bacterial problems. The Water Department has been upgrading its water mains to at least 6" diameter piping, and planning to reduce "dead ends" by looping wherever possible in order to reduce residence time. A hydraulic modeling and monitoring system was installed in 1998 to assist in this program. The department is also considering a way to measure stagnation within the standpipes; if significant tank stagnation is found, the department will examine suitable mixing strategies.

Nitrate Nitrogen

Non-point source pollution associated with individual septic systems has been shown to be a major contributor to water quality problems in some areas of Cape Cod. Although there is no immediate threat of nitrogen contamination of Orleans' drinking water supplies, the Town should continue to monitor the situation. This issue is discussed further in the Wastewater analysis section, below. (CF-24, CF-25)

Iron and Manganese

The levels of iron and manganese differ from well to well. Well #1 was off-line until recently because of the elevated mineral content at this site. Even though the mineral content of the remaining wells is safe, the wells contribute increased perceptible iron into a system that is already prone to biofilm. Review of the history of those wells

indicates an increase of mineral levels over time which is the reason Well#6 was used sparingly.

In 2005, the Water Department brought on-line a state-of-the-art iron & manganese filtration plant. All wells within the main watershed feed into the plant before the water is pumped into the distribution system. The plant has reduced iron in the finished water by 99%. This allows the regular pumping of all wells in watershed, which improves the operation of the entire system. The presence of biofilm that is fed by iron in the water is also expected to improve.

Salt Water Intrusion

While there does not appear to be an immediate threat to drinking water supplies posed by saltwater intrusion, the Town should continue to monitor water, particularly from Well #7, in order to detect any changes in water quality.

Impaired Groundwater Areas

There are currently four areas in town that have been classified as Impaired Groundwater Areas. There has been limited exploration and analysis as to the outer limits of these areas. The reports produced to date have found that because the groundwater in these areas is flowing away from the Town's supply wells there is no risk to public water supplies.

According to the *Comprehensive Site Assessment Report* prepared for the Town by Coastal Engineering Co., Inc., dated January 1999, groundwater in the area of the landfill is generally moving in a north-northeasterly direction, toward Town Cove but found that there was "no risk" to public drinking water supplies as a result of the landfill. Although there is no immediate risk to public health, the landfill has the potential to impact private wells and surface water in the future with some level of contamination. The state has jurisdiction over the landfill capping project and groundwater monitoring. Landfill leachate constituents and concentrations are currently unknown. The Town should ensure that monitoring to determine the components of the leachate and the extent and movement of impacted groundwater be conducted by either the Commonwealth or the Town. Based on this information the Town should identify potential impacts to private wells and surface water in the path of the impaired groundwater. (CF-3) The proposed well registration program will provide the department with a tool to help identify at-risk private wells, and allow protection of public health.

In 2005, the Town completed capping of the landfill. The cap is a clay barrier which prevents precipitation from entering into the soil and groundwater beneath the buried solid waste.

The Tri-Town Septage Treatment Facility on Oak Ridge Lane is highly regulated and monitored by the state. There is no immediate concern regarding surface water or drinking water contamination, however, as with the other degraded groundwater areas, the Town should continue to monitor the situation. Each year, the United States Geological Survey provides an update on the plume from the leaching fields as it migrates toward Cape Cod Bay.

The Town should work with the appropriate state agencies to identify the outer limits and movement of all identified groundwater contamination, and assess the risk to groundwater and surface water resources. (CF-3) With the information gathered through these analyses the Town should then specify high risk areas where restrictions on new well installation could be imposed. Using the well registration system, at-risk wells could also be identified. Impacted households should be connected to Town water. (CF-26)

7.4.7 Wastewater

Virtually all wastewater generated in Orleans is treated and disposed on-site through individual septic systems. A small number of businesses utilize on-site treatment facilities. The Town has recognized that on-site solutions have limited ability to remove important pollutants from the waste stream. Nitrate nitrogen loading from septic systems passes into the groundwater and eventually discharges into marine waters. Above certain levels, it causes accelerated eutrophication of coastal waters. Freshwater ponds, in contrast, are sensitive to phosphorus loading, which is also a component of wastewater effluent.

Concerns about the impacts of development on sensitive environmental resources is the primary reason that in 2001, the Orleans began the process of broadly assessing water quality and developing a long-range plan in response. In 2005, the Town hired Wright-Pierce to develop a comprehensive wastewater management plan (CWMP). The plan is expected to be completed in 2008, and will contain prioritized recommendations for wastewater treatment and disposal facilities needed to protect the community's surface and groundwater.

Tri-Town Septage Facility

The Tri-town Septage Treatment Facility is designed to treat the solids that are pumped from septic tanks and delivered by truck. Based on projected buildout, the plant will meet the capacity demand of member towns for the next twenty years. At present, septage is accepted from other Cape towns for economic and operations reasons. In 2005, the engineering firm Wright-Pierce completed a study of the facility, and recommended a host of short and long-term capital improvements to ensure viability of the plant in the future. The Town should work with the Tri-town District to implement the recommendations of the study to maintain a viable facility for the future (CF-35).

Growth & Development Limitations from Wastewater

Much of the Town of Orleans is impacted to some degree by wastewater treatment and disposal limitations. The ability to place an on-site a septic system limits the development potential of many small commercial parcels, particularly in the Village Center. The Village Center has many desirable qualities of a modern village, but its continuing concentrated growth is restricted by septic system requirements.

During the formulation of this Plan, several business owners described the hardships placed on their commercial properties to comply with Title 5 requirements. The cost to upgrade a restaurant's septic system can exceed $100,000. Such costs and restrictions

limit the ability of the Town to direct future growth to the Village Center and the two major commercial nodes (Skaket Corners and Cranberry Plaza); such limitations encourage commercial sprawl to areas where there is more vacant land available. It is a goal of the Town to focus village-style growth in the future.

The Massachusetts Department of Environmental Protection regulates septic system design, and requires nominal sewage volume capacity that must be accommodated for different types of development. Businesses with high sewage volume are severely constrained from locating in the downtown area, even though it is this area in which the Town wishes to focus growth. Any business generating in excess of 15,000 gallons per day of wastewater would require an advanced septic treatment facility. This factor has prevented a theater from locating in the downtown and limited expansion of a number of viable businesses.

As part of the CWMP process, the Town will be considering wastewater treatment options that would allow for more development in the Village Center. If community sewering is proposed, changes to the Zoning Bylaw will be needed to protect against unwanted development.

Primary goals of this plan are to protect the rural character and natural resources of Orleans, and to direct commercial activities into existing commercial nodes. (ED-5) Unless wastewater disposal issues are seriously addressed, future business development will continue to occur at suburban densities along Route 6A where larger lots are available, resulting in a sprawling development pattern. Orleans' marine and freshwater bodies will continue to be threatened by nitrogen and other sewage constituents that pass through septic systems. The Town should take action to protect the environment and character of the community, while allowing for responsible economic development in appropriate locations.

Public water is available throughout the town. A wastewater management study is needed to determine the most appropriate locations for future wastewater treatment infrastructure to protect the environment and to guide the location of future growth. The purpose of wastewater management for Orleans is to reverse the negative impacts of development and to allow appropriate and desirable development to occur in an environmentally friendly manner. The CWMP will specify where wastewater infrastructure is recommended, and is intended to complement the basic growth control regulations adopted by the Town.

Centralized sewer for the Village Center has been discussed as an option that would allow for more compact, pedestrian-oriented development within the downtown area. This would be consistent with the Commonwealth's Smart Growth Initiative. Some have argued, however, that the lack of public sewer service is an effective growth management tool. While this may be true in some instances in limiting residential growth, it jeopardizes the future success of the town's economic base. Providing community wastewater management in the downtown would allow flexibility in the types of businesses in the area, and permit the type of compact, pedestrian-oriented village that residents desire. Any study of wastewater management must include the need to review and amend the Zoning Bylaws to properly manage growth if and when

the constraint of septic systems is overcome. Zoning district boundaries and bylaw requirements such as floor area ratio, parking, and setbacks should be reexamined town-wide, and particularly in the village center, in the context of any proposed sewage disposal strategy resulting from a wastewater management study. (CF-27, ED-5, ED-6)

Community wastewater issues are complex, highly regulated, and cost driven. For example, a local decision today to install public sewers would begin a lengthy and cumbersome regulatory process, likely on the order of 8-10 years before the project was completed. The CWMP process presently under way is the start of that process (CF-27). At present, it is thought that the plan will likely recommend a combination of individual, community and centralized treatment facilities to protect the Town's waters and provide for orderly and appropriate development. When the CWMP is adopted, the Town must be in position to act upon its recommendations and begin to implement the highest priority actions. (CF-28)

During the early development phases of the comprehensive wastewater management plan, it became evident that Orleans does not presently have the administrative capacity manage new facilities. In 2005, a study of wastewater management districts was completed by the Horsely Witten Group. The study investigated municipal options for addressing the administrative, regulatory, and financial aspects of wastewater management.

The report recommends converting the Board of Water Commissioners to a Board of Water Commissioners to a town-wide Integrated Water Management District. The District would have authority over the public water system, new wastewater treatment facilities, and eventually over stormwater management at a later phase. The conversion process will need to begin upon completion of the CWMP so that the Town is in a position to take positive steps to implement the plan (CF-34).

7.4.8 Highway Department

The Highway Department is in need of a new facility. The current building is too small for equipment storage, resulting in the need to store equipment outside. Exposing equipment to the elements reduces life span, precipitating the need for quicker replacement. The building is outdated for its current personnel and storage needs, has a termite problem, as well as a failing septic system. (CF-11) The Gaffney Report found that the Highway Department has far less space than needed. As discussed earlier, the report recommends relocating the Highway operations to the vacant Commonwealth Electric building located adjacent to the existing highway facility. The report also recommended that the Water Department, Building Department, and Health Department relocate to the Commonwealth Electric building; however, this has been sold and is no longer available to the Town.

Discussions are ongoing regarding the construction of a new highway maintenance and storage garage. A feasible study for a new facility was funded in 2006 and will provide updated recommendations as to the best location for a new garage.

The future organization of the Highway Department and the creation of a Department of Public Works could affect the decision on a new facility. The Town should determine

the location of, and design and construct a new Highway/Public Works facility. The Town should consider providing for centralized vehicle maintenance and wash-down at the new facility. Currently, one highway staff member works to maintain 25 Highway, Parks, and Water Department vehicles. A central vehicle maintenance facility with appropriate staffing would allow for more effective maintenance to be performed on all vehicles owned by the Town, with expected cost savings.

As responsibilities for road maintenance increase, there will be an increase in the workload. In addition to the new roads being constructed, there is continuous pressure on the Town to accept some existing private roads, thus adding them to the Town system. (T-3) Staffing needs may be expected to increase. The Town is required to pay snow removal contractors at prevailing wages. It may be more cost effective for the Town to hire addition staff to provide snow removal services. The superintendent recommends that several additional programs be initiated in the department, including access management, tree maintenance, sidewalk construction and maintenance, and possibly some maintenance of private roads. Additionally, the Town should examine other department staff needs, including the need for an Assistant Highway Manager. (T-7)

Additional Highway Department needs and concerns are discussed in the Transportation Chapter.

Solid Waste Management Facilities

Since 1999, several changes to the transfer station have been effected. A review of the operations and capital needs was done as part of the landfill capping process. Municipal solid waste that was located beneath parts of the site has been relocated to the landfill cap. The fees structure for Transfer Station was amended in 2003 and is due to be reconsidered in 2006.

Traffic flow was improved as part of the landfill capping project. There are more containers for itemized materials than in the past. There remains a need for additional storage for materials before they are shipped off-site.

A policy has been developed for the operation of the gift house by volunteers to ensure that the use is consistent with the main purpose of the transfer station. Recently, the practice of allowing residents to pick through discarded metals for recyclable materials has been prohibited due to liability concerns.

Overall, the Transfer Station functions effectively, although there are aspects that should be improved. Recycling materials need to be better managed and there remains opportunity to improve station function and efficiency. The Town should periodically review all operations of the Transfer Station and make changes to ensure a safe, convenient operation, and to encourage a high level of recycling. (CF-30) Commercial use procedures should be streamlined through the use of technology, such as monthly billing. This will free-up staff time at the facility. Also, a "bag and tag" or similar program might help to alleviate many of the problems in operations at the site.

Methods to increase recycling should be carefully evaluated, and the most appropriate method implemented to bring the Town in line with the State's recycling goal of 56% by 2010. Recycling at the Transfer station is free, and should remain so even if the Town must pay to remove recyclables. Changes to State regulations regarding the acceptance of certain materials are subject to change and may cause the Town to alter its policies in the future to remain compliant. A solid waste collection system that requires the customer to pay for each bag of waste may encourage recycling. Curbside pick up of recyclables is an option to increase recyclables. This would be convenient for homeowners but would require significant financial support by the Town.

The Town must enforce its Recycling Bylaw if it truly wishes to increase recycling. The bylaw mandates recycling for plastics, glass, aluminum, cardboard, newsprint and a host of other materials. A system of fines is contained in the bylaw. There has been no enforcement of this provision.

The Town itself should begin to set an example for businesses and residents by recycling as much of the waste stream from Town buildings as possible. A public awareness program is also needed educate residents on the need for recycling, and the benefits to the community and region of removing recyclables from the landfill waste stream.

The current fee system at the Transfer Station is supported by a combination of general municipal budget and user fees. Fees for certain items, such as demolition debris, are much lower than in other towns, resulting in the station receiving debris from other towns in the region. With the advent of private construction & demolition processing facilities in the region, the burden on the Orleans facility is expected to decrease in the future.

Brush and yard waste is accepted free of charge, and the cost to process the material into compost is borne by the community. The Town needs to periodically review the fee schedule and costs associated with running the Transfer Station to ensure that (1) fees are appropriate to the material being collected, and (2) the Town does not become a collection point for materials generated in other communities, which is currently prohibited, but difficult to enforce. Enforcement of tipping fees and regulations should be a primary concern.

Approximately 3,000 tons of municipal solid waste generated annually within the Town is bypassing the Orleans Transfer Station and being transported to the Yarmouth transfer station. This tonnage is accounted for as Orleans trash but the Town expense for handling and storage is eliminated, producing a financial advantage for Orleans.

As discussed in the Inventory section, much of the Town's waste is transported to the SEMASS facility in Rochester, MA. Under the current contract the Town pays $25/ton for disposal at SEMASS. When the current contract ends in 2016, costs are expected to at least double. Additionally, SEMASS towns are subject to direct charges for improvements and other costs at the SEMASS facility, which can occur at any time. These costs should be anticipated in drafting operating budgets and plans for the facility.

Landfill

The municipal landfill capping project was completed in 2005. To the rear of the landfill are several parcels purchased by the Town because they contained buried solid waste from the municipal landfill. The parcels were cleaned as part of the landfill cap, resulting in several acres of municipal land that may be suitable for an active purpose. The site is one of several being considered for a new Highway Department garage. A formal plan for re-use of the capped landfill, and a decision on a location for a new Highway Department/DPW facility is needed. (CF-31)

The contamination plume emanating from the landfill should be continuously monitored to anticipate any potential impact to groundwater and surface water bodies.

Recycling and Composting

In 1999, Orleans' recycling program accommodated 10% of all solid waste. The region had set a goal of recycling or composting 40% by 2005. The 2005 goal was not realistic in Orleans and an aggressive program to encourage recycling would be required to significantly increase recycling.

It is recommended that the Highway Superintendent/ Disposal Manager, the Board of Health, and the Solid Waste Advisory Committee work together to develop plans for the transfer station that address existing problems and address the solid waste disposal needs of the seasonal and year round population. As addressed in the Town Hall discussion, the Town should take the initiative in establishing a recycling program for Town facilities, including Town purchase of recycled items. (CF-8)

Stormwater Collection, Treatment, and Discharge

In recent years, the Town has recognized the negative impact of stormwater on the town's fresh and salt water resources. Priorities for remediation of discharge sites have been developed by the Marine Water Quality Task Force. It is recommended that the Town continue its efforts to remedy all significant pollutant sources associated with stormwater runoff.

As the number of residential homes in town increases, road and drainage systems to service the new housing developments will be needed. Drainage systems for new roads are generally adequate to contain, treat and direct run-off appropriately. However, as the existing drainage infrastructure continues to age, pipes, catch basins, head walls, leaching chambers, etc., will need to be repaired and replaced. The operating life of many of the existing leaching catch basins is limited and many will need replacement in the next 5 to 10 years.

In 2005, Town Meeting voters recognized the need to improve drainage systems by approving a $500,000 warrant article that funded drainage improvements. The Highway Department is systematically working through a prioritized list of needed repairs.

In recent years, the Highway Department has utilized the Town GIS system to map drainage systems in key areas of the town. This information will provide records of the

direction of flow and discharge of the many drainage networks for which there are no plans on record.

The Highway Department is also in the process of developing a computerized pavement management system. One component of the system allows information on catch basins and drainage structures to be evaluated and programmed for systematic maintenance, including cleaning and repair of culverts. The pavement management system should be incorporated into the operations of the Highway Department and should take advantage of, and be incorporated into the Town's Geographic Information System. (T-1)

7.4.9 Public Safety

Police Department

The Police Department will need additional facilities, space, staff, and equipment to accommodate the needs of Orleans' future population. The Police Department should be prepared to respond to the need for changes in service resulting from projected changes in demographics and factors such as traffic. (CF-32) As discussed for the Fire/Rescue Department below, it may by appropriate to establish a substation to serve those areas particularly impacted by traffic and increased development.

Over the coming decade, the Department may be required to expand its permanent, full-time and seasonal personnel. In order to return the level of 3.5 per 1,000 as the population grows the department will have to add up to fourteen additional officers, for a total of 34 officers. This will lead to the need for five additional vehicles. Table 42 provides the Police Department staffing comparison for 1990, 1998, and anticipated needs at buildout.

Table 7-I: Police Department Staffing

	Popula-tion	Officers	Seasonal Officers	Reserve officers	Dispatch	Clerical	Janitor-ial	Totals
1990	6,061	21	12	6	2	2.5	1	44.5
1998	6,827	20	0	4	4	2	.5	30.5
Buildout	8,975 (est.)	34	15-20	10	10	3	2	74-79

The Police Station facility located at 90 Route 28 currently meets the department's needs; however, the addition of new staff would require an expansion of the facility. The ability of the existing site to accommodate an expansion is limited, which may require that a site for a new Police Station be located. If a new Police Station is not pursued in the short-term, as discussed in the inventory section, a new heating system for the existing station will be required.

Fire/Rescue Department

Two major issues have been identified to maintain adequate Fire and Rescue Services. The first issue is the adequacy of personnel to handle rescue and fire calls, which is exacerbated by both the elderly population of the town and the increase in population during the summer season. The department now three rescue vehicles, which are necessary to serve the population. The second issue is the shortage of staff to handle the fire prevention program. This is due to the increase in inspections, work load increases created by new regulations, and the continued building construction over the past few years.

In addition to the immediate staffing concerns, the Fire /Rescue Department projects that it will need an additional six personnel over the next twenty years to fulfill its current role, including its role as the primary emergency medical service provider. An increase in equipment would also be required. The Department relies heavily on, "on call" fire personnel who supplement the full-time staff. The issue of medical response is discussed in more depth in the Health and Human Services Chapter.

With the projected need for additional personnel and equipment, an addition to the existing fire station will be required. An addition would provide for needed office and storage space, and equipment floor space. The existing wash-down area at the Fire Station, as well as those at the Highway Garage and Police Station, will have to be altered and/or consolidated in a central town facility in response to DEP water quality concerns relating to discharges from these areas (a central wash-down facility is discussed in the Highway Department section of this chapter). The Fire Chief anticipates that an addition will require 2,500 square feet of office/storage space, and an equivalent amount of additional apparatus space.

Also discussed in the Health and Human Services chapter, issues relating to emergency and medical response are of primary concern to the Fire/Rescue Department and the Police Department. (CF-32) Increasing traffic, particularly in the summer months, impacts the ability to respond to some areas of Town. There may be a need to establish a Fire/Rescue Department substation to respond to calls in areas of Town severely impacted by traffic. Such a facility might also house a police substation. The Fire/Rescue Department anticipated that a substation in South Orleans may be required in coming years. Such a station should provide space for two engines and a rescue vehicle, as well as office space. The Town should examine the feasibility of a combined Police and Fire/Rescue substation located as needed to provide required public safety services in the future. (CF-32) The Town should also consider the feasibility of providing a "life-flight" helicopter pad to meet emergency response needs.

7.4.10 Education

If Elementary School enrollment projections for Orleans are accurate, the existing facility is sufficient for the foreseeable future. If enrollments increase, the short-term solution will be to increase classroom size. If demographics stay consistent, as the town approaches its buildout population, there will be nearly 400 elementary school students. Even with a continued shift toward more retirees, the increased student population may necessitate an expansion of school facilities. For the next decade, it does not appear

likely that any expansion will be necessary. School officials should monitor trends in enrollment and respond accordingly if increased enrollment is projected beyond the capacity of the existing facility. (CF-4)

Overall, current demands placed on the school buildings and recreation fields do not exceed their designed capacity. However, Nauset Regional Middle School's fields are showing signs of over use as they are currently just barely able to accommodate school, town and regional activities for residents and visitors. Therefore, additional play fields should be developed in the future, as recommended in the Open Space and Recreation Chapter.

7.5 Impact Fees

As a means of funding the recommended community facilities improvements discussed in this chapter, the Town might consider the implementation of development impact fees. An impact fee is a one-time assessments on new development used to fund necessary improvements to municipal facilities of benefit to that development.

New development has impacts on a variety of facilities and services depending on its type. For example, some types of development might be expected to introduce additional students to the school system, increase traffic on local roads, increase demand on the water system, and place greater demand on fire, rescue and police services. The type of development will dictate the level of impact on these and other municipal facilities. Over time, the impact of numerous development projects accumulates until a point is reached that requires the Town to construct new facilities, add staff, and/or expand services. Without the collection of impact fees, the cost for such improvements is borne by all property owners through property tax revenue. Collecting impact fees on new development shifts a portion of the burden for supplying expanded services and facilities from the municipality to the development that is seen to be contributing to the need. The developer is charged only a proportional share of the total cost for improvements, depending on the level of impact. Fees are collected, and system improvements are generally implemented concurrently with the development.

Impact fees allow new development to pay its own way, and are seen as a tool for managing growth in a community. This method of growth management is most effective in rapidly growing communities that anticipate, or are currently experiencing, adverse impact on the level of municipal services. A discussion of the Town's growth management options is included in the Land Use and Growth Management chapter.

For Orleans the use of impact fees was evaluated, but was not recommended for action. The level of new development in Orleans (40-60 homes and 2-3 businesses annually) does not appear to be high enough to make impact fees an appropriate mechanism for funding infrastructure improvements. The requirements for record-keeping, administration, and justification of changes in levels of service would be difficult to accomplish with little promise of return. If changes occur in the level of growth or legislation makes them easier to develop, the need for impact fees can be revisited.

7.6 Implementation Program

	Action	Time for Completion	Resources Required	Lead Responsible Agency
CF-1	Conduct an analysis of near and distant future land acquisition needs in order to accommodate future town facilities.	FY 07-10	L	Planning Department
CF-2	Perform an analysis of the needs, public interest, and costs for a new multipurpose community center.	FY 11-20	M	Planning Department
CF-3	Work with state officials to ensure that appropriate monitoring programs for contaminated groundwater areas are instituted, including identification of potential impacts to public health and the environment.	FY 07-10	L	Board of Health
CF-4	Monitor school enrollment trends and respond accordingly if increased enrollment is projected beyond the capacity of the existing facility.	Ongoing	L	School Board
CF-5	***Complete planning for a new Town Hall.***	***Addressed See Appendix***	***H***	***Town Hall Building Committee***
CF-6	***Construct a new Town Hall.***	***Addressed See Appendix***	***H***	***Board of Selectmen***
CF-7	***Maintain a current list of all Town facilities and their actual cash value or replacement cost, and insure these facilities accordingly.***	***Addressed See Appendix***	***L***	***Town Administrator***
CF-8	Develop and implement a recycling program for Town facilities.	FY 07-10	L	Town Administrator
CF-9	Incorporate energy efficiency into the design and improvement of Town facilities.	Ongoing	L	Town Administrator
CF-10	Assess capabilities of existing library facility for changing technology.	FY 11-20	L	Library Board of Trustees
CF-11	Construct office, storage and maintenance facility(ies) for Highway Department, Parks & Beaches, and Water Department.	FY 07-10	H	Board of Selectmen
CF-12	Determine the appropriate level of services, including parking, at parks and beaches.	FY 07-10	L	Parks Commissioners
CF-13	Develop a plan to respond to beach erosion at Nauset Beach.	FY 07-10	L	Parks & Beaches Department
CF-14	***Replace failed septic system at Nauset Beach.***	***Addressed See Appendix***	***M***	***Parks & Beaches Department***

CF-15	Implement improvements to parks and beaches as scheduled.	FY 07-10	M	Parks & Beaches Department
CF-16	***Develop a schedule to implement improvements to parks and beaches.***	***Addressed See Appendix***	***L***	***Parks & Beaches Department***
CF-17	Examine the adequacy and location of Harbormaster/Shellfish Constable Department facilities.	FY 07-10	L	Town Administrator
CF-18	***Develop a schedule to implement improvements to all Town Landings.***	***Addressed See Appendix***	***L***	***Harbormaster***
CF-19	Implement improvements to Town Landings as scheduled.	Far-term	M	Harbormaster
CF-20	***Consider creation of a Town or regional water analysis lab.***	***Addressed See Appendix***	***L***	***Board of Selectmen***
CF-21	Continue development, to the point of licensing, of potential site for Well #8.	FY 07-10	M	Board of Water Commissioners
CF-22	Bring Well #8 on-line based on water demand.	FY 11-20	H	Board of Water Commissioners
CF-23	***Update the Town's Water Conservation Plan.***	***Addressed See Appendix***	***L***	***Water Department***
CF-24	***Conduct a feasibility study of greensand or other filtering process for removal of iron and manganese.***	***Addressed See Appendix***	***M***	***Water Department***
CF-25	***Based on the findings of the study in CF-24, implement a program to remove iron and manganese from the water system.***	***Addressed See Appendix***	***H***	***Board of Water Commissioners***
CF-26	Identify private wells at risk of contamination, and require that affected households connect to Town water.	Ongoing	M	Board of Health
CF-27	Develop a wastewater management plan for the entire town.	FY 07-10	H	Board of Selectmen
CF-28	Implement recommendations of the wastewater management plan	FY 07-10	H	Board of Selectmen
CF-29	Redesign the Transfer Facility to meet state standards.	FY 07-10	L	Highway Dept.
CF-30	Implement the new Transfer Station design.	FY 07-10	H	Highway Dept.
CF-31	***Complete the capping of the landfill, and continue monitoring the groundwater to anticipate potential impacts to private wells and surface water.***	***Addressed See Appendix***	***H***	***Highway Dept.***
CF-32	Study the future facilities and staffing needs of the Police, and Fire & Rescue Departments.	FY 07-10	M	Town Administrator

CF-33	Initiate consideration of potential sites for wastewater treatment.	FY 07-10	M	Wastewater Management Steering Committee
CF-34	Prepare administrative structure for town Comprehensive Wastewater Management.	FY 07-10	M	Board of Selectmen
CF-35	Work with the Tri-town District to evaluate the actions recommended in the 2005 Tri-Town Facility Study to maintain a viable facility for the future.	FY 07-10	M	Board of Selectmen