

7. Analysis of Needs

A. Summary of Resource Protection Needs

Both our analysis of resource issues and the public input received through the opinion survey and public meetings have pointed toward certain resources which are, or are perceived to be, in great need of protection. The highest priority of survey respondents both in perceived need and willingness to expend tax dollars on resource protection and open space land acquisition was **protection of public water supplies**. In Mashpee, that means protection of groundwater quality, particularly in the “Zone II” recharge areas of our existing and proposed public supply wells (see Map 4-16). 79% of survey respondents favored Town purchases of open space to protect those areas and 89% considered them their highest priority for protection.

The Mashpee Water District’s six operating wells are located off Rock Landing Road (2 wells, Zone 1 area owned by Water District), off Sampson’s Mill Road in east Mashpee (“Quaker Run” well on leased portion of non-conservation Town land), off Turner Road between the Quashnet and Childs Rivers (on 130+ acres owned by the District and surrounded by another 1000+ acres of Town and State conservation lands), adjacent to the Mashpee Village housing project (Zone I owned by the District after taking from the Village) and off Lowell Road (Zone I area purchased by the District from the Town, surrounded by Quashnet Woodlands open space lands purchased from the Belcher family by the Town under the Cape Cod Land Bank Act). Zone IIs have been mapped for four additional wells, one designated “P-1 #2” located on state land west of the Quashnet River (and unlikely to be developed due to opposition from Mass DFW), another known as “P-11” located on Bearses Road on the eastern edge of Johns Pond Park (undeveloped due to a nearby contamination plume generated by fuel spills on the Massachusetts Military Reservation which is the subject of an ongoing “pump and treat” cleanup by the federal government), a third on Mashpee Conservation Commission land near Holland Mill Road (whose development has been blocked due to concerns about its proximity to a wetland on adjacent Mass DFW property) and a fourth, now under active development, located on Water District land near the Turner Road well. The District has also acquired a parcel of land off Meetinghouse Road which had previously been developed as a well site for a failed condominium project and is likely to be the next District well developed. Additional proven well sites are located on Town conservation land off Noisy Hole Road (“T-5” well) and on Town land at the north end of Santuit Pond (“T-8” well). These well sites should be adequate for the town’s future year-round needs but additional wells may be needed to meet eventual peak summer demand.

Significant portions of the eastern and western edges of the town also lie in mapped Zone II areas of Town of Falmouth and Cotuit Fire & Water District Wells. Those areas, as well as the mapped Zone IIs of the Mashpee wells, have been given a certain amount of protection through the Town’s “Groundwater Protection District” zoning bylaw (see Map 4-17), which prohibits certain uses and development densities. The Town has also adopted large lot zoning (80,000 square foot lots) in the recharge areas of all but the wells located in New Seabury. However, those zoning protections may not be adequate to protect some of the wells in the long-term, particularly given the existence of substantial high-density “grandfathered” development in their recharge areas. Additional open space land acquisitions, and transfers of Town tax-taking lands to the Conservation Commission, need to be

seriously considered in the Noisy Hole area and north of the “Belcher” and “P-11” well sites, in order to prevent degradation of water quality in our public well sites.

The second highest priority for protection was given to our **fresh water ponds**. Protection of that resource involves both direct measures to minimize or prevent any negative impacts of shoreline development as well as maintenance of groundwater quality in their recharge areas (see Map 4-19), particularly relative to phosphorous and hazardous materials. Boating activities can also have negative impacts on the ponds and their inhabitants but have proven very difficult to manage.

Current regulatory protections relative to shoreline development lie primarily with the Town’s Conservation Commission acting under the state wetlands act and the Town’s own wetlands bylaws and regulations. Maintenance of water quality in the pond recharge areas is dealt with in the Town’s “Water Quality Report” zoning bylaw, which requires a water quality impact analysis and mitigating measures, if necessary, for all residential developments of more than five lots and any commercial development involving a building over 10,000 square feet. Larger projects require approval by the Cape Cod Commission, which also considers water quality impacts on the ponds. Because the recharge areas of all our major freshwater ponds extend into other towns, primarily Sandwich, we have little control, except through the Cape Cod Commission, over what happens outside our boundaries that could impact our ponds.

Any of the available regulatory measures, however, only serve to mitigate or reduce adverse impacts. Only outright preservation of recharge area lands in their natural state can actually eliminate potential impacts. Significant opportunities for such preservation still exist upgradient of each pond.

Critical **rare plant and wildlife habitats** have very little protection under the Town’s bylaws, except where they coincide with wetlands regulated by the Conservation Commission. Map 4-24 illustrates critical plant and wildlife habitat areas mapped by the state’s Natural Heritage and Endangered Species Program, while Map 4-23 identifies rare woodland types mapped in the Association for the Preservation of Cape Cod’s *Cape Cod Critical Habitats Atlas*. Protection of these areas, particularly given the sensitivity of the resources involved, is almost totally dependent on open space land acquisition.

Such acquisition has been actively pursued by the Town and state for more than two decades. Of the critical areas identified in previous updates of this Open Space Conservation & Recreation Plan, South Cape Beach is now entirely in public ownership, roughly 80% of the South Mashpee Pine Barrens is owned by the Town or Mass. Division of Fisheries & Wildlife, most of the undeveloped critical habitat west of the Quashnet River is owned by the Town, Water District or State and the vast majority of critical lands along the Mashpee River are owned by the Town, Mass DFW or The Trustees of Reservations. On Mashpee Pond, a significant amount of land at the south end and on Conaumet Neck has been preserved, although there are large unprotected parcels on its eastern shore (including 86 acre Camp Vinhaven, of which purchase of 78 acres for the Conservation Commission was authorized by the May 2008 Annual Town Meeting). Most of the American Beech forest on the northeast shore of Santuit Pond is owned by the Town, although there is a significant portion lost in small private lots in the Santuit Pond Estates subdivision. Other beech forests on the north shore of Amos Pond and along the Santuit River have been protected within private open space as part of the Stratford Ponds and Willowbend condominium projects.

Popponesset Spit remains primarily in private hands, although its disappearing eastern end is owned by the Massachusetts Audubon Society, which manages to provide a minimal amount of protective patrolling during tern and piping plover nesting season. The remainder of the spit is threatened more with obliteration by storm waves than by development and has lost a tremendous amount of acreage to the sea in recent decades. While public acquisition might facilitate efforts to build up the spit and protect its nesting shorebirds, threats to its habitat relate mostly to human activities which are very difficult to regulate or control. An increased presence of Audubon or other staff during critical nesting periods as well as an increased public education and outreach effort regarding the birds may be the most appropriate measures available to protect this habitat.

The only significant critical habitat area with no public ownership or protection is the south shore of Ashumet Pond, with its large collection of rare coastal plain pondshore plants. Public acquisition or conservation easements in that area should be a top priority among the Town's conservation efforts.

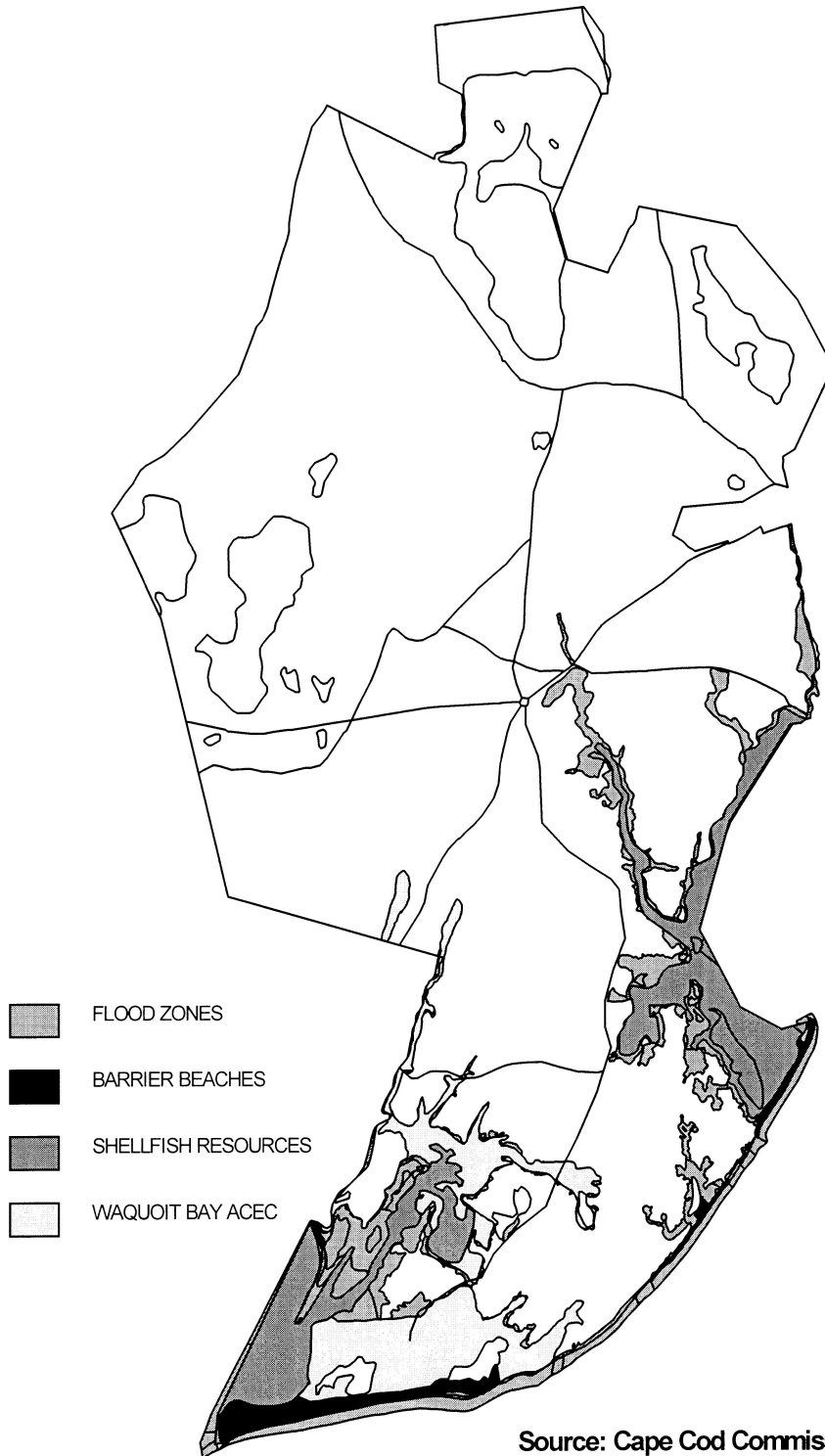
Other priority acquisitions related to rare species habitat include a privately-owned cedar swamp surrounded by the Jehu Pond Conservation Area, 29 acres at the head of Abigail's Brook owned by the developers of New Seabury, 50 acres south of the Mashpee Wampanoag Tribe's land in the Pine Barrens, the Trout Pond area proposed for development by Mashpee Commons, 8.7 acres south of the Water District's Turner Road well site, a number of parcels north and south of the "Steeplechase" subdivision in the northern portion of the Mashpee National Wildlife Refuge, the Cape Cod Farm & Forge property on Quashnet Road, the few remaining undeveloped, or under-developed properties along the Mashpee River, the Baker property at the north end of Santuit Pond as well as the Mills family lands on the east side of the Pond, and Camp Vinhaven on the west side of Mashpee Pond. Efforts should also be made to protect the 4H Camp Farley property if its continued existence as a summer children's camp is threatened.

Residents' #3 protection priority was our **beaches and coastal resource areas**. Map 7-1 illustrates the town's federally-designated barrier beaches, located at South Cape Beach, Dean's Pond (a privately-owned area known as "Sandy Beach") and Popponesset Spit, as well as federally-mapped flood zones, the Waquoit Bay ACEC (state-designated Area of Critical Environmental Concern) and shellfish resource areas. Critical coastal habitat is also illustrated on Map 4-24 as NHESP BioMap Core Habitats C1421 and C1435. While the largest portion of the ACEC and most of Core Habitat C1435 lies within South Cape Beach State Park, there are large areas of salt marsh, other wetlands and related uplands on Jehu Pond, Upper Great River, Hamblin's Pond and on Abigail's Brook that should be considered for public acquisition and protection. Many of those areas also lie within the boundaries of the Mashpee National Wildlife Refuge, and a large portion were acquired by the U.S. Fish & Wildlife Service and Town of Mashpee, but many smaller areas remain unprotected.

Wetlands are another critical resource area which can benefit from both regulatory measures and public ownership. The state's wetlands protection act and Town wetlands bylaws and regulations, implemented by the Conservation Commission, can provide limited protection of, and mitigation of development impact on, the Town's wetlands, but only public ownership or conservation restrictions on a substantial buffer area around wetlands can guarantee their continued value as wildlife habitat. Map 4-18 indicates the locations of the town's larger wetlands, while Map 4-24 identifies the locations of our certified **vernal pools**. Major wetlands not currently in public ownership or subject to conservation easements include a large freshwater marsh/shrub swamp/abandoned cranberry bog on the north side of Coombs Road adjacent to the Noisy Hole Conservation Area, cranberry bogs on the east

Coastal Resources

Map 7-1



Source: Cape Cod Commission

and north sides of Santuit Pond, re-growing cedar swamps along the Quashnet River at the Quashnet Valley Country Club and in kettle holes just west of the Country Club, abandoned cranberry bogs along Abigail's Brook and the previously-mentioned cedar swamp surrounded by the Jehu Pond Conservation Area.

There are only two significant and fairly well-defined **wildlife corridors** in the Town. One extends from the Massachusetts Military Reservation along the valley of the Quashnet River to the South Mashpee Pine Barrens, south through the US Fish & Wildlife Service's "Bufflehead Bay" property and the Jehu Pond Conservation Area to South Cape Beach. The second follows the valley of the Mashpee River and connects with the first at the Pine Barrens. Major "missing links" in protected ownership along these corridors exist in the area of the Quashnet Valley Country Club, just south of Route 151 and a number of smaller parcels along Meetinghouse Road. The Quashnet corridor lies entirely within the Mashpee National Wildlife Refuge while the Mashpee River corridor has been a main focus of Town protection efforts for three decades. Acquisition of the "missing links" in these corridors is, accordingly, a top priority.

As noted in Chapter 4, there are a wide variety of distinct plant communities in the town. One of our resource protection needs is to preserve prime examples of each type. These include mature oak/pitch pine forest, pine barrens, mature oak forest, American beech forest, American holly forest, white pine forest, pitch pine forest, Atlantic white cedar swamp, wet heath, wooded swamp, shrub swamp, freshwater marsh, abandoned cranberry bog, riverine corridor, pond shore, tidal freshwater marsh, brackish marsh, salt marsh, salt pond, coastal forest, dunes, bay shore and ocean beach.

Finally, there is a need to protect as much acreage as possible of lands having prime farmland soils, as shown on Map 4-6. Unfortunately, much of this acreage has already been developed in the areas around Johns, Ashumet and Santuit Pond. Remaining significant areas exist in the area between Old Barnstable Road, the Quashnet River and the Falmouth town line, in the Noisy Hole area and south of Ashumet Road. While acquisition or other protection simply on the basis of soil type is not likely, each of these areas has other resource values that may be more likely to result in their preservation. The Town's recently amended mandatory cluster subdivision zoning by-law, which received a Massachusetts Smart Growth Award, mandates mapping and protection of prime farmland soils as part of protected open space and allows agricultural use, including structures, within the cluster open space.

B. Summary of Community Needs

The Town's public opinion survey produced a clear indication of a variety of community needs and preferences related to open space and recreation. A variety of expressions of a desire to **retain the Town's rural or small town character**, or its **tranquillity**, were made by over 85% of survey respondents. Directly related to that preference was a desire to **reduce the Town's excessive rate of population growth**. As noted earlier, a desire to **protect water quality** was expressed by an overwhelming percentage of respondents, who were willing to back up their preference with tax dollars for land acquisition to protect water supplies. A solid majority backed acquiring land for **passive outdoor recreation and nature study**, while the majority also favored **improved public access to the waterfront**.

Very few respondents (5%) rated recreational opportunities as "excellent" in Mashpee, although 44% rated them as "good". This may reflect the town's limited number of active recreation facilities and programs compared to those of larger communities.

When asked to express a preference regarding what sorts of new facilities should be developed, the clear top preference was for **bicycle paths** (58%), followed by **hiking trails** (55%), **nature study/conservation areas** (45%), **ocean beaches** (43%) and **neighborhood playgrounds** (41%). Moderate support was expressed for more freshwater beaches (33%), outdoor basketball courts (29%), an indoor swimming pool (29%), baseball and softball fields (28%), tennis courts (27%) and picnic areas (25%). 21% favored developing a Town golf course but 67% were opposed to purchasing land for such a course. Only weak support was expressed for soccer fields, track & field facilities, indoor basketball courts, an outdoor swimming pool, an indoor ice arena, Town landings or a Town campground. 17% wanted a Town Marina but 45% were opposed to one.

In addition to the preferences expressed by residents, a number of other factors are of great importance in projecting community needs. Mashpee was the fastest-growing town in the Commonwealth during the 1980s and second-fastest during the 1990s and continues to be among the leaders in new home construction. With continued growth and a buildout population roughly 50% higher than that of today, sheer numbers will cause an increase in demand for all types of facilities while making it more difficult to achieve the "rural character" and "tranquillity" objectives of our survey respondents or to maintain favored pastimes such as shellfishing.

Some direction on potential future needs is given by reference to nationally -recognized per capita standards for various facilities. Such standards can help us determine what Town facilities and areas are currently adequate and what new facilities will be needed in the future to satisfy the demands of a growing population.

The National Recreation & Park Association (N.R.P.A.) has published minimum standards for active recreational facilities. Based on projected buildout year-round and summer peak population, the table below is an illustration of what those standards suggest for Mashpee.

There are numerous publications which cite standards for other recreational facilities not listed in the table. The Northampton (Mass.) Recreation Plan, for example, cites a standard for playgrounds of one 2,500 - 40,000 sq. ft. facility per 500 to 2,500 people. Such wide ranges in population standards are

not uncommon and perfectly reasonable due to the inexact nature of recreation needs assessment and the wide range of local population, income, town size and other relevant factors which differentiate any particular town from some national average. It should also be noted that, aside from the population standards noted above, the NRPA standards are also based on service radius or travel time to the facility. The standards cite a 1/4 - 1/2 mile service radius for badminton, basketball, tennis, baseball and softball facilities. A 15-30 minute travel time is cited for handball, field hockey, football, running track and swimming pools. It is apparent that standards such as these may be in some cases oriented to densely populated urban neighborhoods, but in all cases are only rough approximations which have to be used in combination with local need surveys and the knowledge and experience of local officials.

NATIONAL RECREATION AND PARK ASSOCIATION STANDARDS

SPORT	STANDARD (fac/person)	MASHPEE'S REQUIREMENTS			
		Current y/r	Current pk	Buildout. y/r	Buildout.pk
ARCHERY	1/50000	1	1	1	1
BASKETBALL	1/5000	2	5	4	8
TENNIS	1/2000	6	12	9	19
VOLLEYBALL	1/5000	2	5	4	8
BASEBALL	1/5000	2	5	4	8
FOOTBALL	1/20000	1	1	1	2
FIELD HOCKEY	1/20000	1	1	1	2
SOCCER	1/10000	1	2	2	4
1/4 ML. TRACK	1/20000	1	1	1	2
SOFTBALL	1/5000	2	5	4	8
GOLF:					
Driving Range	1/50000	0	0	0	1
9 Hole	1/25000	0	1	1	2
18 Hole	1/50000	0	0	0	1
SWIMMING POOL	1/20000	1	1	1	2

Recent projects undertaken by the Town helped meet some of the demand noted above. The construction of the Town's high school included the development of outdoor basketball courts, baseball and softball fields, six lighted tennis courts, soccer and field hockey fields, track and field facilities, a football field and two indoor basketball courts. Additional baseball and soccer fields have been built at Heritage Memorial Park. The Mashpee Conservation Corps and other volunteers continually expand and upgrade the town's walking trail network. The Town's Comprehensive Plan included a long-range bicycle facility plan developed by a Bicycle Committee, and planned bicycle paths and "mixed-use paths" have since been developed in the Mashpee Commons area, along Route 130, Route 28, Route 151, Donna's Lane and Great Neck Road South while bicycle shoulders have been added to Red Brook and Great Oak Roads.

Other important factors in the Town's open space and recreation needs are the age of our population and the needs of handicapped persons. In 1990 Mashpee had the youngest population of any town on

the Cape and saw a rapid increase in its school-aged population from 1980-2000. As a result, there was a large demand for recreational facilities oriented toward youth sports and other youth activities which has been only partially met. Another indication of growing youth recreation needs was the strong interest shown by our survey in neighborhood playgrounds. There are undeveloped common areas in a number of our subdivisions which could be developed by the Town for such use, but nothing has been done to date. However, the construction of the Cape Cod Boys & Girls Club on Town land between the police station and Coombs School has greatly added to the recreational options and programs provided for Mashpee youth.

While Mashpee had been the youngest town on the Cape, we also had the largest increase during the 1980s of residents over the age of 65. By 2000, the growth of our school-aged population was significantly reduced, while seniors kept coming, accounting for most of our recent population growth and moving Mashpee to the middle of the pack on Cape Cod in terms of population age. Our seniors, some of whom also make up the 4% of our survey respondents who indicated that they cannot use our recreation facilities and programs because of disabilities, require special consideration in our recreation planning efforts. A thorough analysis of the Town's recreation facilities relative to access by disabled persons was completed as part of the Town's Section 504 Handicapped Access Program and implementation of access improvements is ongoing. The construction of the new Mashpee Senior Center, adjacent to the Fire and Police stations and the Boys & Girls Club, has greatly increased the facilities and program opportunities available to seniors. In addition, it should be noted that a large percentage of the Town's growth in senior population has occurred at the Southport Planned Retirement Community, a 750 unit age-restricted (55+) condominium with extensive indoor and outdoor recreation facilities targeted to its senior residents.

One factor which sets Mashpee's open space and recreation facility needs apart from those of many other areas is its heavy dependence on a tourist and retiree-based economy. Our conservation areas, beaches and other recreation facilities serve not only our own residents but thousands of summer visitors. As a result, our needs for such facilities are larger than might otherwise be expected purely on the basis of our population. The same facilities also serve as a key element in the town's attractiveness to the tourists and retirees we depend on for most of our livelihoods. As a result, the Town actively promotes its image as "the green town" as well as "the home of the Wampanoag". For the last fifteen years the Town has sponsored an extensive series of three-season free naturalist-guided walks through our conservation areas. The walks have attracted visitors from as far away as Hong Kong and France to Mashpee's peaceful woods and beaches.

Another project undertaken by the Town, in conjunction with the Town of Sandwich and Barnstable County, was the development of a feasibility study and concept plan for the Cross-Cape Trail, a walking trail connecting Sandy Neck on Cape Cod Bay with South Cape Beach on Vineyard Sound. In Mashpee, the Trail would extend from the Lowell Holly Reservation on Mashpee Pond, via existing and proposed conservation lands near South Sandwich and Goodspeed's Meetinghouse Roads to the Mashpee River corridor, continuing on through the South Mashpee Pine Barrens and "Bufflehead Bay" property to South Cape Beach. Much of the trail in Mashpee has been developed and was dedicated as the first official segment of the county's Cape Cod Pathways trail system in May of 1995. Progress in Sandwich is much more limited. The Trail and connecting Pathways segments and other paths are another key element of the Town's open space plan.

As an outgrowth and a crowning achievement of the Town's open space protection efforts over the years, as well as the crystallization of the role the Board of Selectmen visualized for the town as a "green tourism" destination, The U.S. Fish & Wildlife Service established its' 504th National Wildlife Refuge, the Mashpee national Wildlife Refuge, on April 19, 1995. Encompassing an authorized acquisition boundary of 5,871 acres in Mashpee and Falmouth (4,653 acres in Mashpee, 1,218 in Falmouth), the Refuge is a source of great pride to town residents and has been a major focus of the Town's open space protection activities since that date, with three quarters of its acreage now permanently protected. Completion of acquisition and protection of land within the Refuge will continue to serve as another key element of our open space planning in coming years.

C. Management Needs

While Mashpee's conservation and recreation lands, facilities and programs are managed by a number of different entities, there are few conflicts or management problems. The Conservation Commission, through its agent, is responsible for management of the conservation lands in their custody. In practice, most on-site work and activities are done through other parties. Heavy maintenance and construction work, as well as regular trash pickup and ongoing maintenance, where required, is done by the Town's Department of Public Works. Trail construction, signage and maintenance have been done by the volunteers of the Mashpee Conservation Corps. A Conservation Land Stewardship Program, with over 40 volunteers, has recently been formed to patrol open space lands, report problems, and assist in future cleanup and maintenance projects. The Town's guided nature tours are done by a part-time Town Conservation Commission employee working under the Conservation Agent. The Town beach at the Johns Pond Park Conservation Area is staffed and managed during the summer months by the Leisure Services Department. The Planning Department assists the Commission in developing management plans for its conservation areas, in acquiring new properties and in securing grant funding.

The Leisure Services Department is responsible for staffing the Town's three swimming beaches, providing lifeguards and gate attendants. The department, which was the result of a consolidation of the Town's former Parks & Recreation Department and Community School, also operates the majority of the Town's recreation and leisure services programs, including the community school. Their activities involve coordination with both the Conservation Commission and the School Department, many of whose facilities they use. In the past, limitations on use of school recreation facilities have been a source of conflict. However, in recent years, operations have run more smoothly. As part of the construction of the new high school, office space was provided for the Leisure Services Department, to operate its community school and after-school programs from that location. The department receives advisory input from the Youth Commission and the Leisure Services Advisory Council.

Other recreation-related programs are run by the School Department as part of its educational program as well as by the Council on Aging, which operates the new Mashpee Senior Center and offers a variety of senior-oriented programs and activities.

One of the unforeseen benefits of the establishment of the Mashpee National Wildlife Refuge has been the greatly increased communication and cooperation it has created between the Town and Falmouth, the State's DCR and DFW, the US Fish & Wildlife Service, the Falmouth Rod & Gun Club and the Orenda Wildlife Land Trust (which effectively has served as Mashpee's local land trust). Because the Refuge is a partnership effort between the U.S. Fish & Wildlife Service and those other organizations which, together, own more than 4000 acres within the Refuge boundary, it is jointly managed under the terms of a memorandum of understanding entered into by the Fish & Wildlife Service, the Massachusetts Executive Office of Environmental Affairs, the Massachusetts Department of Environmental Management/Waquoit Bay National Estuarine Research Reserve, the Massachusetts Division of Fisheries & Wildlife, the Town of Mashpee/Mashpee Conservation Commission, the Town of Falmouth/Falmouth Conservation Commission, the Falmouth Rod & Gun Club, the Orenda Wildlife Land Trust and the Mashpee Wampanoag Indian Tribal Council. The partners meet regularly to discuss both management and wildlife habitat issues, most recently focusing on wildland fire protection and public safety issues, including the development of a Wildland Fuel Hazard Assessment of the entire Refuge funded by the USF&WS. Similar mutual cooperation is anticipated in the future.