

Open Space, Recreation & Agriculture Wetlands/Wildlife & Plant Habitat

This document is a brief summary of those elements of Mashpee's Comprehensive Plan that deal with open space protection, recreation, agriculture, wetlands and protection of important wildlife and plant habitat. Among other things, the full text of these elements includes an extensive description of those features of Mashpee's landscape and environment whose protection is critical to the ecological integrity of our community and an assessment of our needs and desires for recreational facilities and programs.

Since Mashpee's 1983 Conservation Plan, the Town has had both the fastest housing and population growth rate in Massachusetts and one of its most active programs of land preservation. In total, 2841 acres have been preserved as open space available for public use, constituting 19.8% of our total land area. However, that percentage is significantly below the Cape-wide percentage of 24.5% reserved open space in public ownership. Another 1318 acres have been set aside as open space through cluster subdivisions and other zoning mechanisms as well as conservation restrictions and Chapter 61 current use tax provisions on private land. Altogether, 4149 acres have been set aside, bringing total protected open space in Mashpee to 4159 acres, or about 29% of our land area.

The amount of land "preserved," however, must be viewed in the context of an overall reduction and fragmentation of natural areas and the most rapid real estate development of any town in the Commonwealth in recent decades. Preservation doesn't actually create new wildlife habitat, but only offers a promise that certain portions of existing habitat won't be destroyed in the future. We are fighting a "rear guard action" in a losing battle to maintain our wildlife, their habitat and the Town's rural identity.

However, prospects for open space preservation and resource protection have improved. Housing construction has declined to more reasonable levels. The Cape Cod Commission has provided stronger controls on growth and added open space requirements for Developments of Regional Impact. Town Meeting and regulatory boards have adopted innovative and effective bylaws and regulations intended to protect our natural resources. The Town has established good relationships with federal and state agencies, leading to significant state purchases of open space land as well as to the creation of the Mashpee National Wildlife Refuge in Mashpee and Falmouth. Recent funding of a new state open Space bond issue, including funding for the Cape Cod Pathways program, as well as the Cape Cod Land Bank, bodes well for our continued success.

Finally, the community, including the business community both in Mashpee and county-wide, has come to recognize the significant value of preserved open spaces, wildlife and our special character to the Cape's tourism and retirement-based economy. The resulting cooperation between "business" and "environmental" groups, formerly at odds on most issues, bodes well for both Mashpee and the Cape.

Community Goals & Objectives

Results of the 1992 resident survey, along with goals and policies recommended in 1986 by the Committee on Mashpee's Goals & Priorities, the goals of the County's Regional Policy Plan and input received at planning issues forums held in August and September, 1992, were used by the Planning Department to develop a first draft of goals, objectives and policies for open space, recreation and agriculture and for wetlands, wildlife and plant habitat. These goals were approved by the Leisure Services Advisory Council on January 3, 1995 and by the Mashpee Conservation Commission on January 5, 1995.

On February 1, 1995 the Planning Board held a public hearing to receive comments on the draft goals, objectives and policies. The Board adopted these goals and objectives for wetlands/ wildlife & plant habitat on October 4, 1995 and for open space, recreation and agriculture on December 6, 1995 and made minor amendments to Open Space Goal 1 and Wetlands etc. objective H in approving this Plan element on January 7, 1998.

The adopted goals and objectives for Open Space, Recreation and Agriculture are as follows:

GOAL #1. TO PRESERVE AT LEAST 50% OF MASHPEE'S REMAINING OPEN SPACE IN ORDER TO PROTECT WILDLIFE HABITAT AND OUR OTHER NATURAL RESOURCES, PROVIDE A VARIETY OF OUTDOOR RECREATION OPPORTUNITIES AND MAINTAIN THE RURAL AND SCENIC CHARACTER OF THE TOWN.

GOAL #2. TO MEET THE NEEDS OF RESIDENTS AND VISITORS OF VARIED AGES AND INTERESTS FOR PASSIVE AND ACTIVE RECREATION OPPORTUNITIES.

GOAL #3. TO PRESERVE AND ENHANCE LOCAL AGRICULTURAL ACTIVITIES.

GOAL #4. TO ENSURE THAT PRIME AGRICULTURAL SOILS AND OTHER POTENTIALLY VALUABLE AGRICULTURAL AREAS ARE PROTECTED FROM DEVELOPMENT OR DEGRADATION.

Objectives

- A. To maintain the integrity of existing large unfragmented open space areas and of open space corridors which may be important for wildlife movement or recreational activities.
- B. To encourage the location of any new development outside areas of prime agricultural soils or important open space areas through clustering, transfer of development rights or other available means.
- C. To ensure that public access to open space areas and water bodies is preserved where it will not adversely affect sensitive natural resources.
- D. To ensure that the design and construction of any new development does not adversely impact significant or fragile areas of wildlife and plant habitat, lakes, rivers, wetlands and other water bodies, groundwater quality, historic buildings and sites, cultural and archaeological resources, agricultural operations and significant scenic roads, views and landforms.
- E. To ensure the coordination of all Mashpee open space preservation and management activities by public and non-profit organizations.
- F. To ensure the successful development and management of the Mashpee National Wildlife Refuge.
- G. To ensure that recreational needs are addressed in the design and permitting of new residential and non-residential developments and that any required facilities are provided.
- H. To ensure that new or existing public recreation areas and facilities are developed or improved to meet National Recreation and Park Association standards wherever feasible.
- I. To supplement local tax funding of open space acquisition and recreational facilities and services with all available alternative sources of funding and revenue.
- J. To provide the maximum feasible level of access consistent with the Americans with Disabilities Act and state laws for disabled persons to the Town's open space areas and recreational facilities and services.
- K. To develop new or expanded recreational programs and facilities to meet the changing needs of the Town's residents and visitors.
- L. To ensure that School Department facilities and other Town facilities are available for recreational use and other leisure activities by all segments of the community.
- M. To develop a comprehensive program for informing residents and visitors about the Town's open space and recreation areas, facilities, services and programs.

- N. To coordinate the Town's recreational facilities and activities with those of neighboring towns, state and federal agencies and other organizations.
- O. To preserve areas of prime agricultural soils or soils of state or regional significance through the Town's open space protection, regulatory and facilities development and management programs.
- P. To ensure that possible adverse impacts on existing or potential agricultural uses are considered in the development and adoption of Town by-laws and regulations.
- Q. To properly manage agricultural and forest resources on Town lands.
- R. To develop community gardens and greenhouses to provide agricultural products and passive recreation opportunities.
- S. To reduce the use of harmful pesticides in the agricultural sector, when possible, in order to minimize agricultural impacts on public health, wildlife, water resources and other natural resources.
- T. To continue responsible rehabilitation and management of Town-owned cranberry bogs in order to preserve agricultural activity and produce revenues for conservation land acquisition, management and improvement while protecting wildlife, water quality and our other natural resources.
- U. To increase agricultural and forest landowner participation in federal and state programs intended to preserve such land as open space.

The following goals and objectives were adopted relative to Wetlands and Wildlife & Plant Habitat:

GOAL #1. TO RESTORE AND PRESERVE THE QUALITY AND QUANTITY OF INLAND AND COASTAL WETLANDS IN MASHPEE.

GOAL #2. TO PREVENT LOSS OR DEGRADATION OF CRITICAL WILDLIFE AND PLANT HABITAT OR MIGRATION ROUTES.

GOAL #3. TO MAINTAIN EXISTING WILDLIFE POPULATIONS AND SPECIES DIVERSITY.

Objectives

- A. To minimize man-made alterations to wetlands in Mashpee, except where there is an overriding public interest or for water-dependent uses where there is no feasible alternative.
- B. To ensure that the wildlife habitat value and other natural functions of coastal and inland wetlands, including isolated wetlands and vernal pools, are protected by maintaining adequate undisturbed buffer areas along their edges wherever possible.
- C. To minimize or avoid, where possible, any disturbances of wetlands and buffer areas for construction, operation and maintenance of underground and overhead utility lines and to ensure that surface vegetation, topography and water flow are restored substantially to their original condition if disturbed.
- D. To reduce the negative impact of discharges of stormwater runoff on, and to prevent any new point source discharges of untreated stormwater into, natural wetlands, streams and water bodies, including vernal pools.
- E. To restore or enhance the historic natural function of altered or degraded inland and coastal wetlands where practical and economically feasible.
- F. To minimize any impact of groundwater withdrawals for water supply or other purposes, on wetlands, streams and water bodies, including vernal pools.
- G. To minimize any adverse impact of agricultural activities on wetlands and water bodies.
- H. To ensure that new developments are designed so as to provide for the maximum feasible amount of suitable habitat for native wildlife.
- I. To ensure that any landscaping projects include appropriate vegetation, where possible, to enhance or restore wildlife habitat.
- J. To preserve large unfragmented forest areas, as well as connecting greenways and wildlife corridors, to protect both "edge" species and those that require interior forest habitat.

- K. To provide wildlife with opportunities for safe passage under or across roads and through developed areas, where appropriate, to maintain the integrity of wildlife corridors.
- L. To protect local populations of rare wildlife and plants from the impacts of land development or other activities.
- M. To ensure that the preservation of wildlife habitat is a primary consideration in proposals for open space acquisition by the Town as well as in the location and development of Town facilities.
- N. To minimize depredation and other impacts of domestic animals on native wildlife.
- O. To maintain and enhance hunting and fishing opportunities while protecting public safety and private property rights.
- P. To enhance wildlife populations and diversity through appropriate habitat management.

Environmental Inventory & Analysis

Any understanding of why Mashpee's natural resources require and deserve protection must be based on an understanding of what they are and why they are important. Chapter 4 of the full text of this element is a 118 page tour through Mashpee's natural world from the bottom up. It begins with the bedrock on which our Cape Cod is built and looks at the fascinating processes that caused more than 400 feet of sand, gravel and stones to be deposited upon that bedrock and how the upper level of those deposits has been modified by wind, water, plants, bacteria, worms and other natural forces to become what we call soil. It then looks at the values and limitations of our various soil types.

Next, it describes those aspects of our landscape that give Mashpee its special character, including distinctive landforms and scenic areas. It looks at the impact that development has had, and may have in the future, on the town's scenic character and on recreational use of various areas.

Interacting with soils and the plants and animals that rely on them, including man, and flowing over and under and surrounding all, water and the variety of environments it creates are studied next. The chapter looks at groundwater as a resource for man and at its effect on surface environments such as bogs, marshes, rivers and ponds, then goes on to study those surface water bodies as their waters flow to, and meet, the sea, looking at our estuaries, salt marshes, salt ponds and bays.

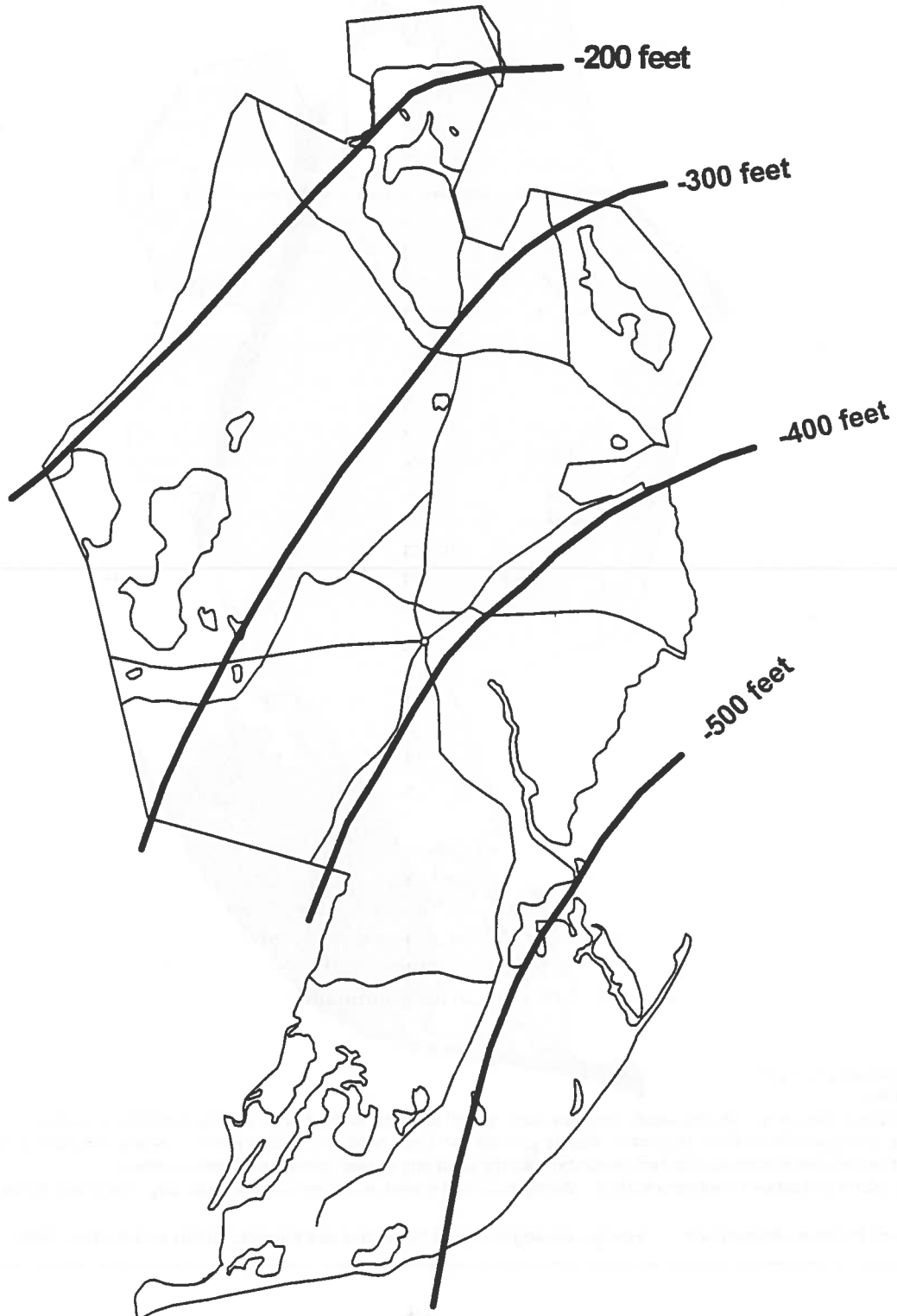
Mashpee's vegetation is studied next, with an emphasis on three basic plant communities: upland forests and fields, freshwater wetlands and pond and stream edges. The next section reviews Mashpee's fisheries and wildlife, looks at finfish, shellfish, mammals, birds, and insects and then identifies wildlife corridors and Mashpee's rare, threatened and endangered species.

Finally, the chapter briefly reviews some of Mashpee's scenic resources and unique environments as well as environmental problems that could influence our open space and recreation planning efforts.

Because of the length of the chapter, no attempt is made to present its content here beyond the above summary and the series of maps on the following pages dealing with depth to bedrock, surficial geology, soil types, wetlands, rivers and streams, rare woodland communities and rare plant habitat.

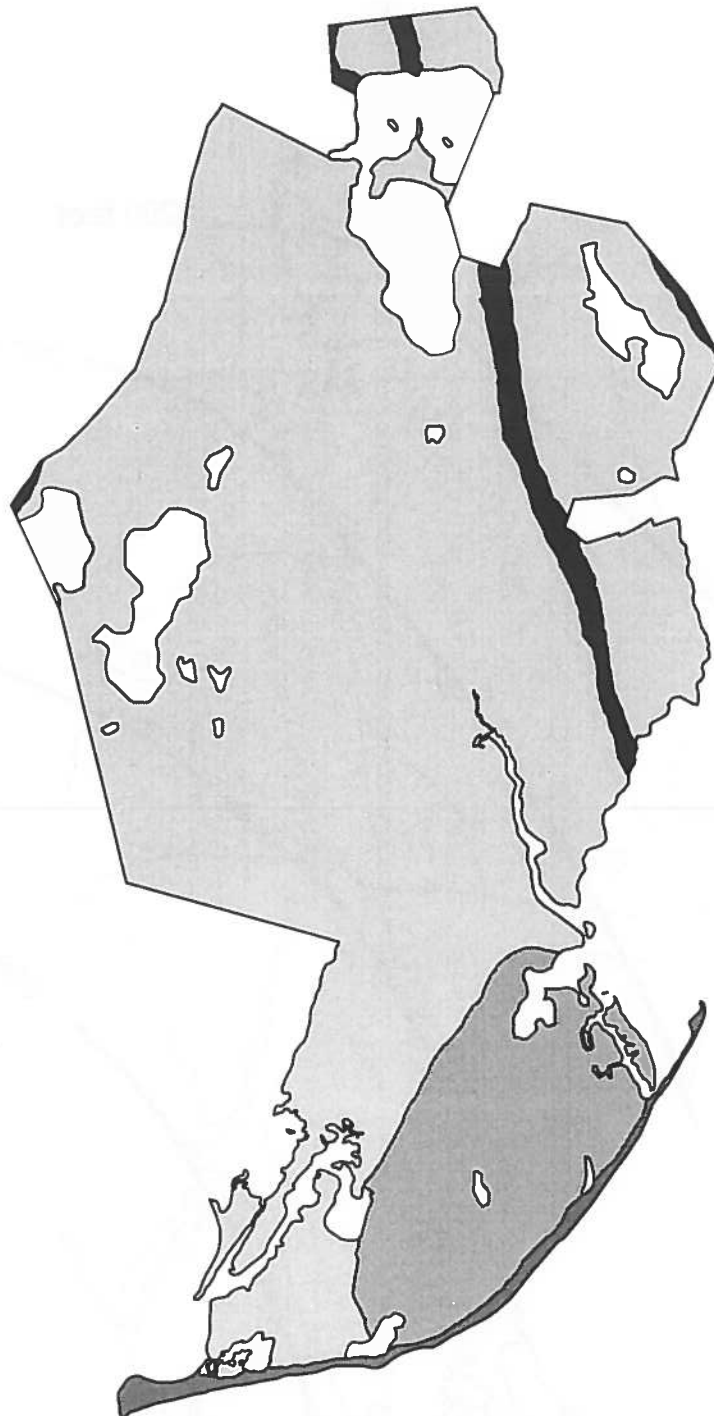
Depth to Bedrock

Map 4-1



Mashpee Surficial Geology

Map 4-3



Surficial Geology by Type

HYDRO

Qb (Beach Deposits) - Mostly sand. Includes some gravel and sparse boulders. Boulders locally abundant.

Qmp (Mashpee Pitted Plain Deposits) - Mostly gravelly sand and pebble to cobble gravel. Locally includes boulders.

Qnd (Nantucket Sound Ice-Contact Deposits) - Mostly sand and gravel, includes till and boulders.

Qsu (Sand and Gravel, Undifferentiated) - Mostly sand and gravel, includes some silt and clay. Generally floors, kettle holes and valleys.

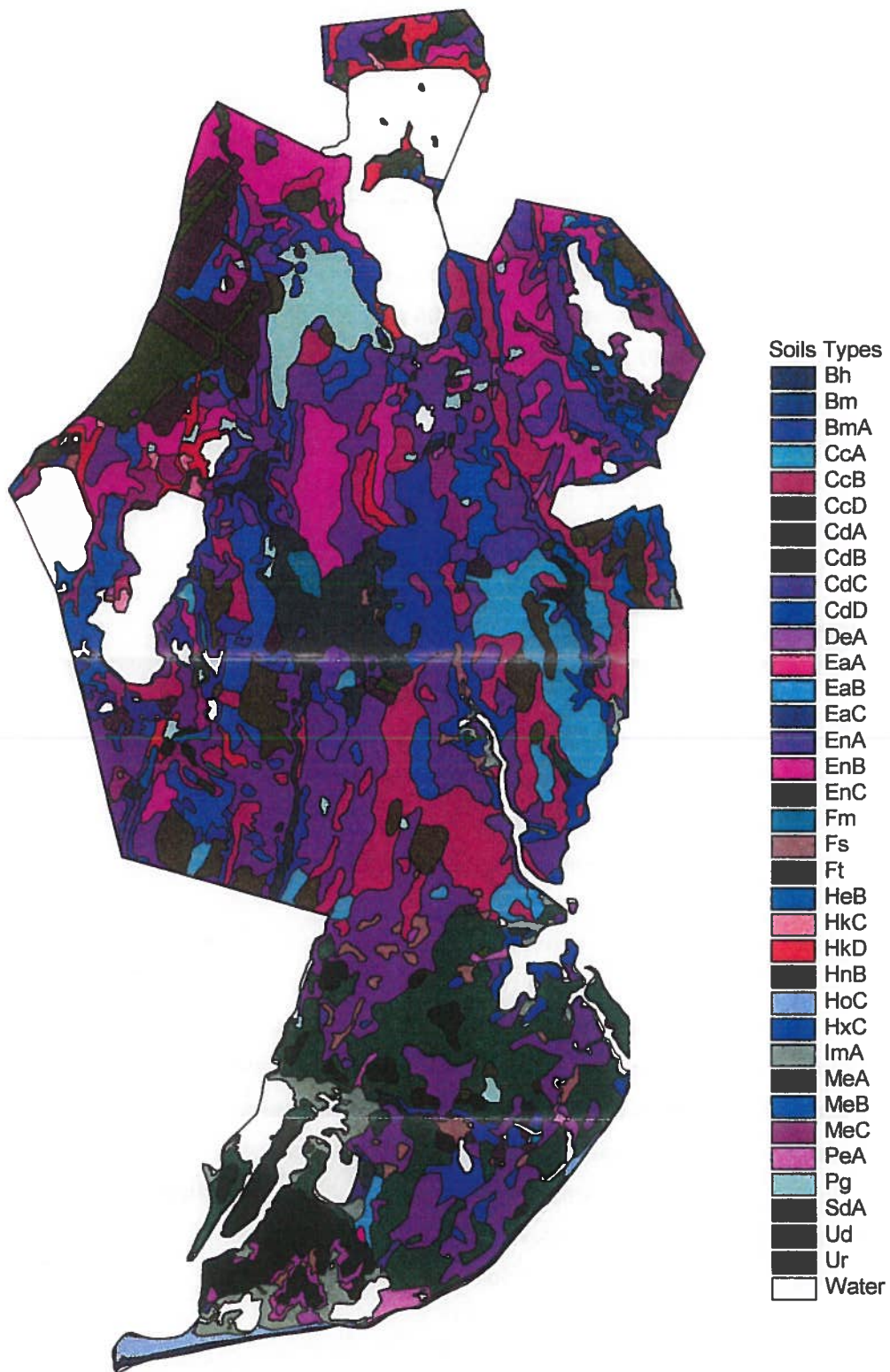
Mashpee Planning Department;

Source: Geologic Map of Cape Cod and Islands; Oldale and Barlow, 1986.

April 29, 1996

Town of Mashpee Soils Types

Map 4-4



Mashpee Planning Department

May 22, 1996

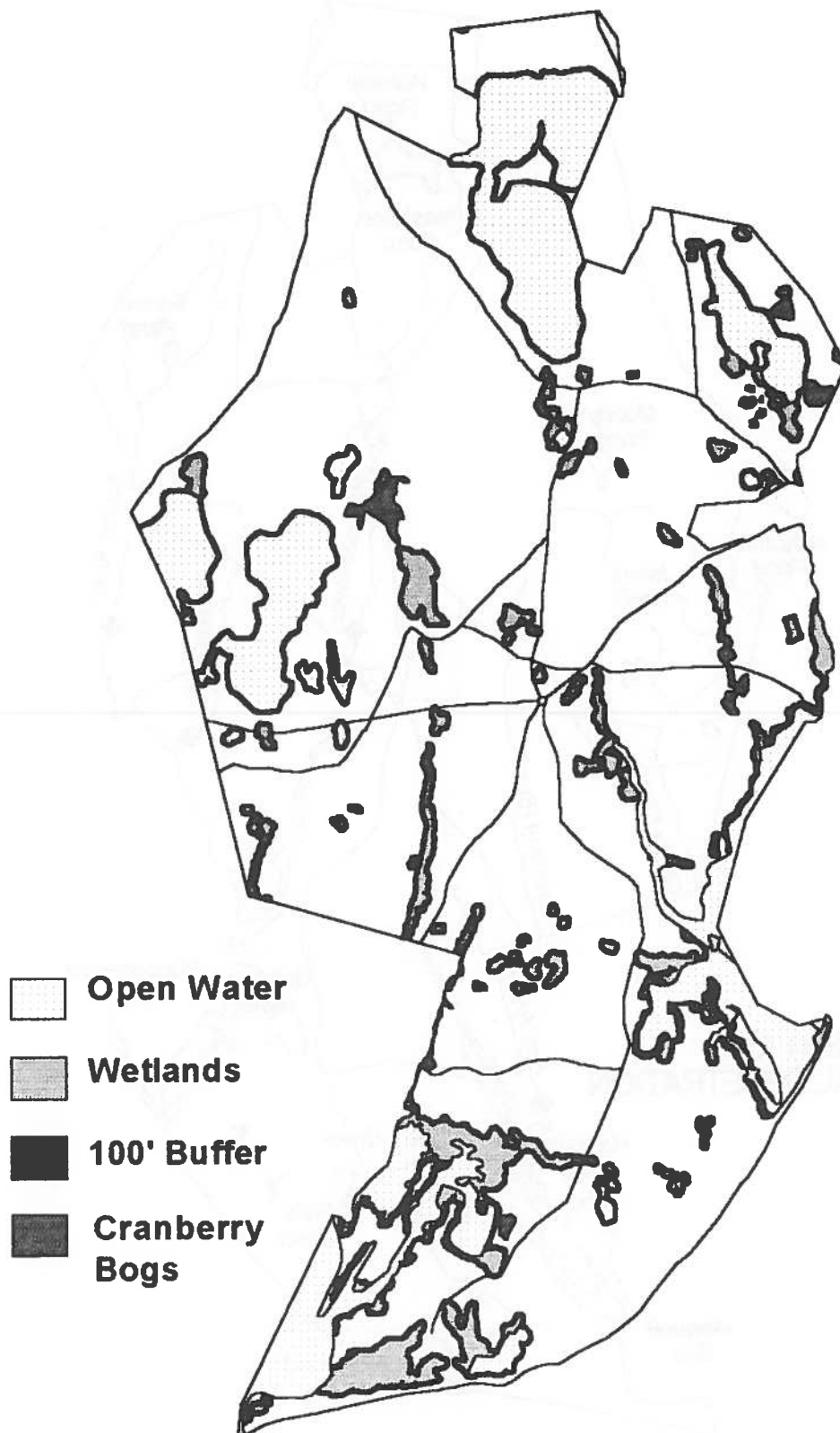
Source: U.S Soil Conservation Service, Barnstable County Soil Survey

Town of Mashpee Soil Types

Bh	Beaches
BmA	Berryland mucky loamy coarse sand, 0 to 2 percent slopes
CcA	Carver loamy coarse sand, 0 to 3 percent slopes
CcB	Carver loamy coarse sand, 3 to 8 percent slopes
CdA	Carver coarse sand, 0 to 3 percent slopes
CdB	Carver coarse sand, 3 to 8 percent slopes
CdC	Carver coarse sand, 8 to 15 percent slopes
CdD	Carver coarse sand, 15 to 35 percent slopes
DeA	Deerfield loamy fine sand, 0 to 5 percent slopes
EaA	Eastchop loamy fine sand, 0 to 3 percent slopes
EaB	Eastchop loamy fine sand, 3 to 8 percent slopes
EaC	Eastchop loamy fine sand, 8 to 15 percent slopes
EnA	Enfield silt loam, 0 to 3 percent slopes
EnB	Enfield silt loam, 3 to 8 percent slopes
EnC	Enfield silt loam, 8 to 15 percent slopes
Fm	Freetown mucky peat, 0 to 1 percent slopes, ponded
Fs	Freetown and Swansea mucks, 0 to 1 percent slopes
Ft	Freetown coarse sand, 0 to 1 percent slopes
HeB	Hinckley sandy loam, 3 to 8 percent slopes
HkC	Hinckley gravelly sandy loam, 8 to 15 percent slopes
HkD	Hinckley gravelly sandy loam, 15 to 35 percent slopes
HnB	Hinesburg sandy loam, 3 to 8 percent slopes
HoC	Hooksan sand, rolling
HxC	Hooksan-Dune land complex, hilly
ImA	Ipswich, Pawcatuck and Matunuck peats, 0 to 1 percent slopes
MeA	Merrimac sandy loam, 0 to 3 percent slopes
MeB	Merrimac sandy loam, 3 to 8 percent slopes
MeC	Merrimac sandy loam, 8 to 15 percent slopes
PeA	Pipestone loamy coarse sand, 0 to 3 percent slopes
Pg	Pits, sand and gravel
SdA	Sudbury fine sandy loam, 0 to 3 percent slopes
Ud	Udipsamments, smoothed
Ur	Urban land

Mashpee Wetlands

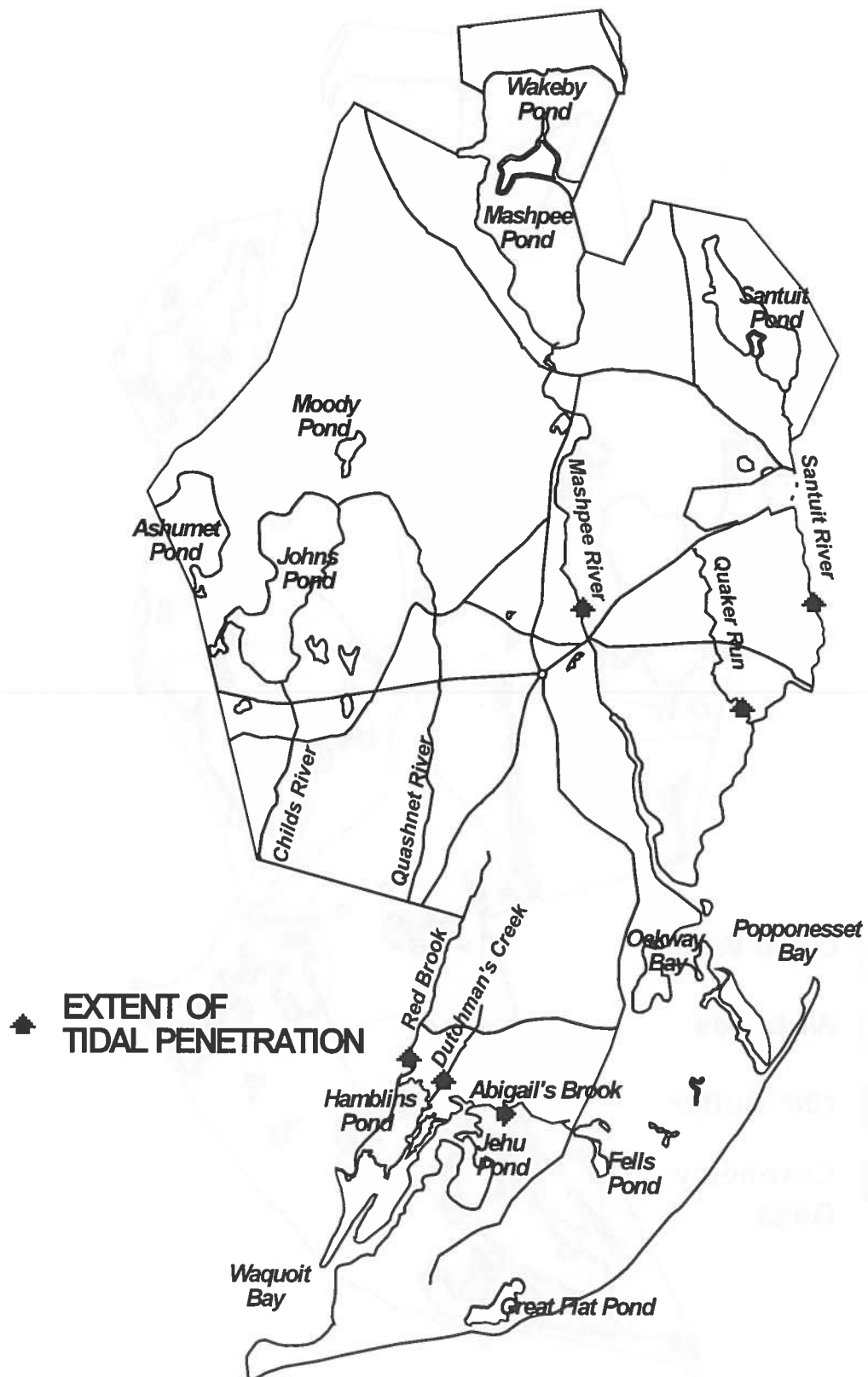
Map 4-19



Source: Mass. Wetlands Restriction Maps digitized by Cape Cod Commission

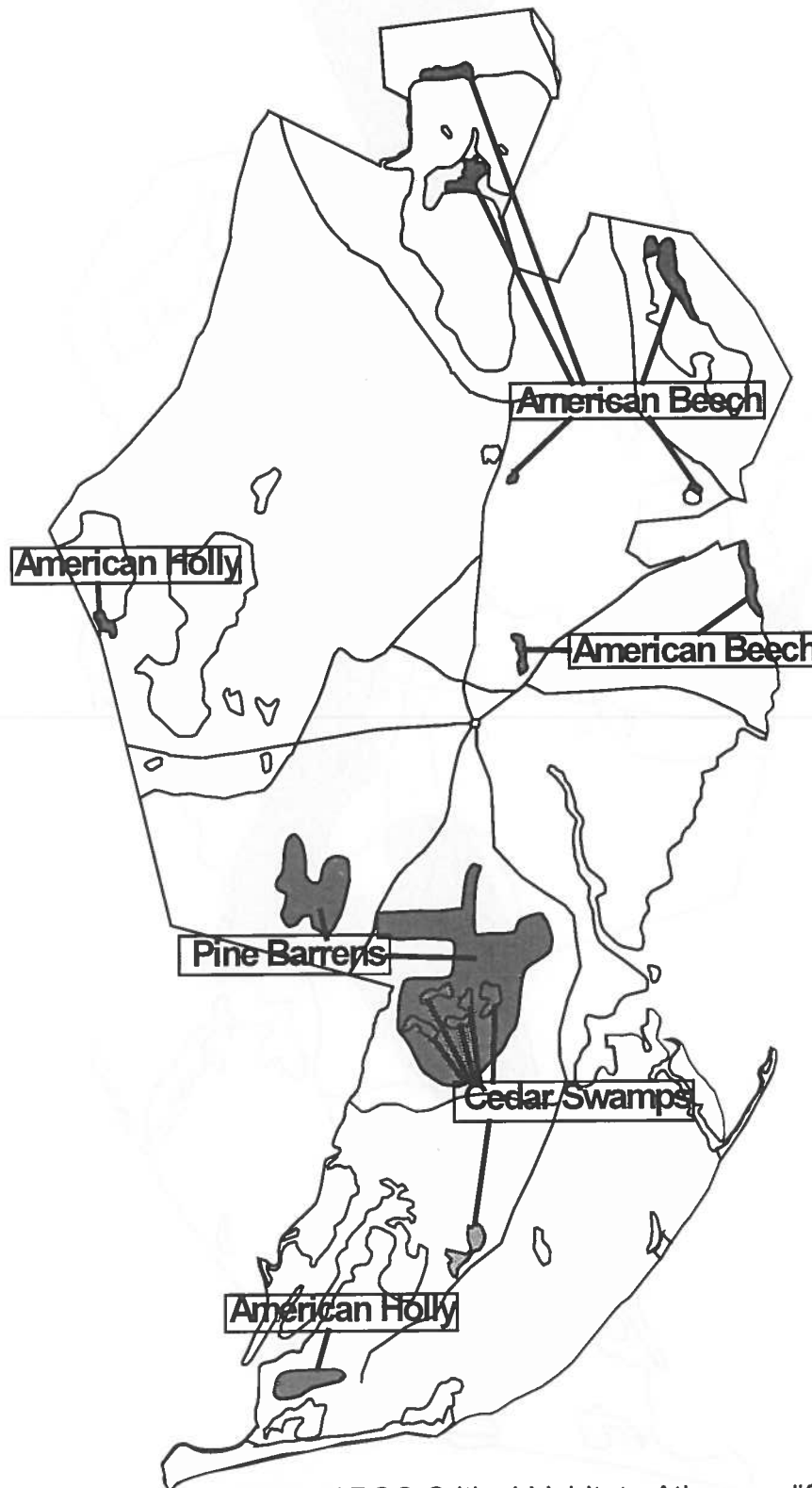
Rivers and Streams

Map 4-21



Rare Woodland Communities

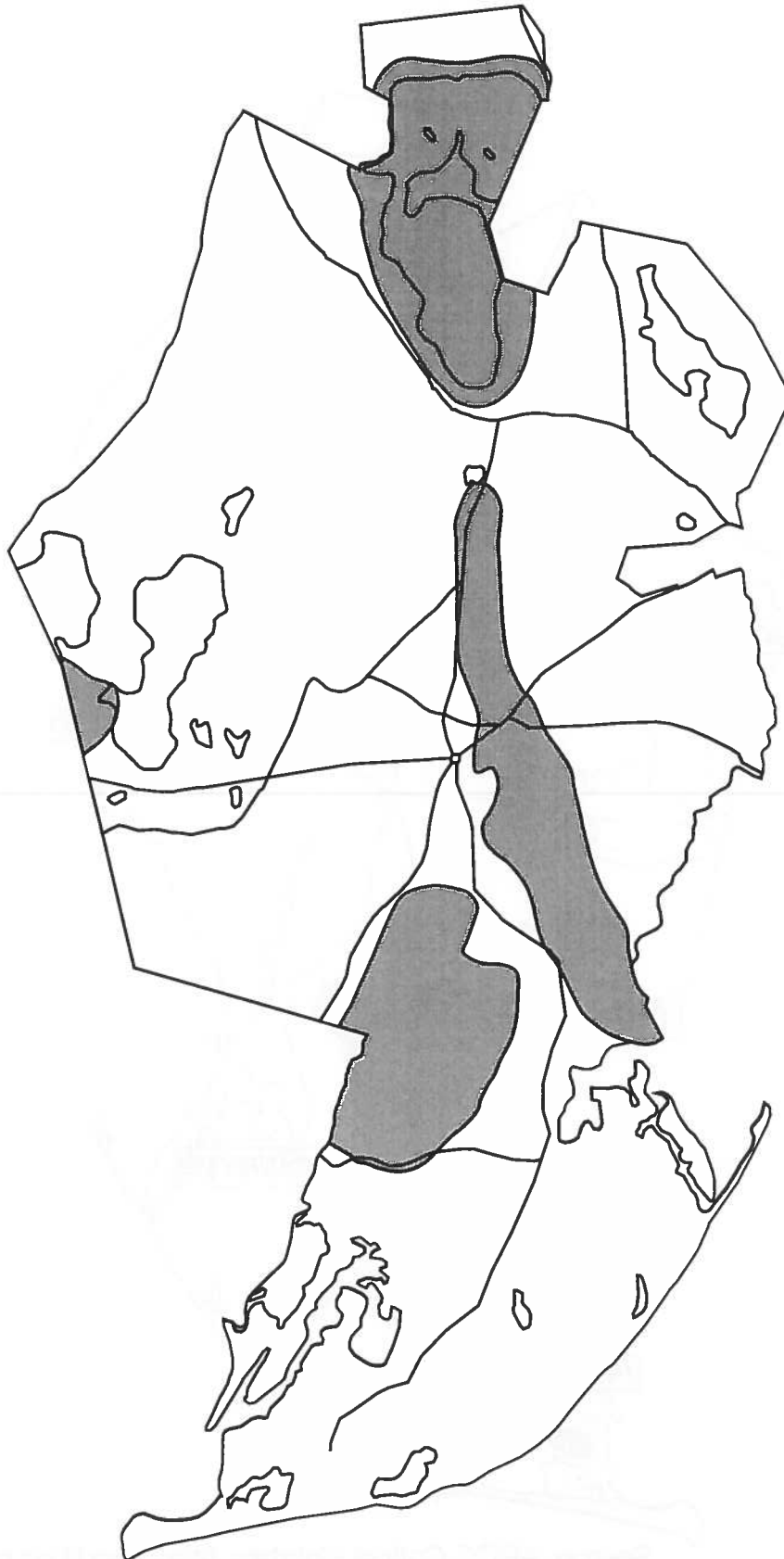
Map 4-23



Source: APCC Critical Habitats Atlas modified by Planning Dept.

Rare Plant Habitat

Map 4-24



Source: APCC Critical Habitats Atlas

Existing Lands and Facilities

The following is a brief summary of the Town's existing recreation and conservation lands and facilities.

Town and Public Facilities - Water Oriented

Attaquin Park, an 8.4 acre recreation area with 200 feet of sandy beach on Mashpee Pond, is operated by the Mashpee Parks & Recreation Department, which provides lifeguards and parking lot attendants. During the summer season it is open only to Town residents with Town beach stickers and to members of the Wampanoag tribe.

Lowell Holly Reservation, located on Conaumet Neck (the peninsula which divides Mashpee and Wakeby ponds) is a 135.13 acre tract owned and managed by The Trustees of Reservations. 45.2 acres of the reservation are located within Mashpee on the neck itself. (This land is isolated from the rest of the town by intervening portions of the Town of Sandwich.) The Reservation has an unguarded swimming area, picnic tables and 1.5 miles of walking trails, with access via a parking area on South Sandwich Road and another seasonal parking area on Conaumet Neck accessed from South Sandwich Road. A small fee is charged during peak summer season.

Also on the shore of Mashpee Pond is ***4H Farley Outdoor Education Center***, a summer youth camp operated by the Cape Cod 4H Corporation.

John's Pond Park Conservation Area, on the northern end of the pond, is managed by the Conservation Commission. Its 250 acres also surround Moody Pond (17 acres) and include a 30 acre active cranberry bog operated under contract by Handy Cranberry Trust. The park also has extensive pine / oak woodlands, a fish ladder at the head of the Quashnet River and a 1200 foot sandy beach. The beach, which was originally developed for use by residents of the Massachusetts Military Reservation, is open to Town residents with beach stickers and to other residents of the state by fee. Life guards and parking lot attendants are provided by the Leisure Services Department. Free guided nature walks and other outdoor programs are offered by the Conservation Commission on the Park's four miles of walking trails and wood roads.

The ***Alper Conservation Area*** is a 33 acre parcel with 1100+ feet of frontage on the west side of John's Pond. Access is from Hoopole Road. There are no developed facilities on the site, but free guided nature tours are occasionally provided by the Conservation Commission.

On the west side of ***Santuit Pond*** is an unpaved ***Town landing*** accessed via Timberlane Drive. The pond is a popular warm water fishery which has yielded state record fish.

South Cape Beach State Park includes 474 acres of saltwater beach on Vineyard Sound, saltmarsh, and uplands acquired by the State Department of Environmental Management in 1983 and 1995. At one time the state proposed a \$4.5 million development project for the Park, including a visitor center, bike trails, bathhouse, 400 car parking facility and road access improvements. That project is on hold due to funding constraints and other issues. However, a new parking area, access road and beachfront facilities were completed in 1995. Those facilities were intended to serve as a new Town Beach as part of a land trade with the Town, but Town Meeting did not approve the trade.

South Cape Town Beach includes 19.3 acres of oceanfront dunes and saltmarsh on Vineyard Sound. It is the only Town-owned saltwater beach and is surrounded by South Cape Beach State Park.

Town landings with access to salt water include: one on *Great River*, an arm of Waquoit Bay with access from Great Oak Road, one on *Ockway Bay* with access from Great Neck Road South and the “Cherry Tree” landing on *Popponesset Bay* at Pirate’s Cove, located at the end of Mashpee Neck Road.

The *Mashpee River Woodlands Conservation Area* provides more than 8 miles of maintained walking trails and woods roads accessed via three parking areas located on Quinaquisset Avenue (north), Mashpee Neck Road (south) and River Road (west). With cool pine forests, salt and fresh water marshes and abandoned cranberry bogs, this area is popular for hiking, fishing, canoeing and birding.

The Trustees of Reservations’ *Mashpee River Reservation* spans most of the middle section of the river between Route 28 and Great Neck Road North as well as 19 acres at “Farley’s Camp”, below Route 28. The latter provides an ideal canoe launch area accessed via a dirt road from Route 28. Aside from a mile of walking trails south of Farley’s Camp, there are no other developed facilities.

The *Division of Fisheries & Wildlife* areas along the upper Mashpee River, particularly at *Washburn Pond*, are ideal for fishing and birdwatching.

The Town’s *Mill Pond Fish Ladder* and *Indian Museum*, located on opposite sides of Route 130, provide an opportunity to study the Town’s Wampanoag history and enjoy the spring herring run that is an important part of that history.

358.25 acres along the *Quashnet River* south of Route 151 are owned by Mass. DEM and DFW. 50.78 acres of adjacent Town conservation land, 54 acres of the Town’s new high school site which are covered by a the U.S. Fish & Wildlife Service conservation restriction and 62.3 acres owned by the Mashpee Water District about the state properties. While there are no developed facilities, there is an extensive network of woods roads and trails along the river, which provide excellent access for fishing and birding.

The 37.8 acre *Childs River Conservation Area* borders the river south of Old Barnstable Road. Although there are no developed facilities, the Conservation Commission offers free guided tours of the stream and the Town’s cranberry bogs.

Jehu Pond is a salt / brackish water pond at the head of Great River and is a part of the Waquoit Bay estuarine system. In March, 1997, the Town purchased 47.1 acres of the “Bufflehead Bay” property, the remaining 280 acres of which was bought by the U.S. Fish & Wildlife Service as part of the *Mashpee National Wildlife Refuge*. The Town purchase was added to an existing 30 acre Town parcel to create the 77 acre *Jehu Pond Conservation Area*, which includes an island in Jehu Pond connected to the mainland by an extensive area of salt marshes. The Conservation Commission’s adopted management plan for the area includes eventual development of a carry-in boat launch and dock with limited parking facilities at the northeastern corner of Jehu Pond.

Other Town and Public Facilities

Heritage Memorial Park is the Town’s largest active recreation area, encompassing 27.3 acres of fields and woodland. Located in the northwest corner of the Town on Route 130, it is used extensively for Little League and Farm League baseball and has been the site of the Mashpee Wampanoag Pow Wow each Fourth of July weekend. Facilities include a Community Recreation Center used by the Kid’s Klub preschool center as well as for other community activities.

Davis School Playground - Formerly operated by the School Department, this small playground is located behind the Town Hall (former Samuel G. Davis School). Two former fenced tennis courts have been

converted for use as Town Hall Parking. A former Little League baseball field, with backstop, is occasionally used.

Mashpee High School - Located at Route 151 and Old Barnstable Road, the Town's first high school opened in September, 1996. It has extensive recreational and community facilities which are open to the general public through a cooperative agreement between the School Department and the Leisure Services Department.

Collins Lot Park - Located opposite Town Hall and surrounding the Mashpee Archives building at the corner of Great Neck Road North and Main Street (Route 130). The park has no facilities but has attractive lawns and shade trees. It was previously used as the site of the Annual Wampanoag Pow Wow.

Mashpee Middle School / Coombs School - Located on Old Barnstable Road, these two adjacent schools have a number of facilities to which non-school users have limited access.

Carol H. Jacobson Senior Citizens Center - Operated by the Council on Aging, the Center is located on Great Neck Road North and has 1 large meeting room, 1 small divisible meeting room, a kitchen and dining hall / meeting room, a lounge / meeting room, offices and storage space. There is also a picnic area with 8 picnic tables and 2 shuffleboard courts.

Gamefield Walking Course - Dedicated in October of 1982, this is a one-half mile exercise trail located in the woods behind the Jacobson Senior Center. It has 14 exercise stations with apparatus and instructional signs.

Conservation & Recreation Lands

Approximately 29 percent of Mashpee's Land area has been set aside for open space and recreational uses over the years. 3194 acres are currently owned by public agencies or land trusts and open to public use. These are shown on the Action Plan Map 9-2, along with another 69.1 acres of private land which has been made subject to conservation restrictions as well as cluster subdivision and condominium open space which is permanently protected through the provisions of zoning special permits and, in most cases, recorded deed restrictions.

Other lands have been effectively protected for open space and recreational use, although they may not have permanent deed restrictions or other absolute legal protection. These include 210 acres of the New Seabury golf course which is unlikely to be put to any other use and is currently subject to current use taxation under M.G.L. Chapter 61, as well as cluster subdivision open space set aside under old zoning which did not require special permits or deed restrictions. Another 141 acres of subdivision open space is owned by homeowners associations and is unlikely to be sold off or developed in the future.

Three major projects have defined which lands would be of most interest to the Town for preservation. All lands within the authorized acquisition boundary of the Mashpee National Wildlife Refuge can be considered of conservation and recreation interest to the Town. The Mashpee River Corridor project, which is close to its goal of protecting all remaining open spaces along the river, is a second project that defines which parcels are of interest. The third major project is the proposed Cross-Cape Trail from Sandy Neck in Barnstable and Sandwich to South Cape Beach in Mashpee. Its Mashpee segment is also illustrated on the Action Plan map.

Other private lands of conservation interest which are shown on Map 9-2 include parcels at the south end of Ashumet Pond which are critical for protection of endangered plant species, waterfront property along

Shoestring Bay and the Santuit River, a large tract of undeveloped land at the south end of Santuit Pond and other parcels required to fill out the boundaries of existing conservation areas.

Analysis of Needs

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. 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 four operating wells are located off Rock Landing Road (2 wells) and Wading Place Road (one small well used only seasonally) in New Seabury and off Sampson’s Mill Road in east Mashpee (on non-conservation Town land). Zone IIs have been mapped for six additional wells. 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, 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. Open space land acquisitions need to be seriously considered in the Noisy Hole area, around Santuit Pond and west of the state lands on the Quashnet River in order to prevent degradation of 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 7-2), 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.

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 7-3 illustrates critical plant and wildlife habitat areas mapped by the state's Natural Heritage and Endangered Species Program, along with 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 a decade. Of the large areas indicated on Map 7-3, 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 or The Trustees of Reservations. On Mashpee Pond, a significant amount of land at the south end and on Conaunet Neck has been preserved, although there are large unprotected parcels on its eastern shore. Most of the American Beech forest on the northeast shore of Santuit Pond is owned by the Town although there is a significant portion in small private undeveloped lots in the Santuit Pond Estates subdivision. Other beech forests on the north shore of Amos Pond 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 that 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.

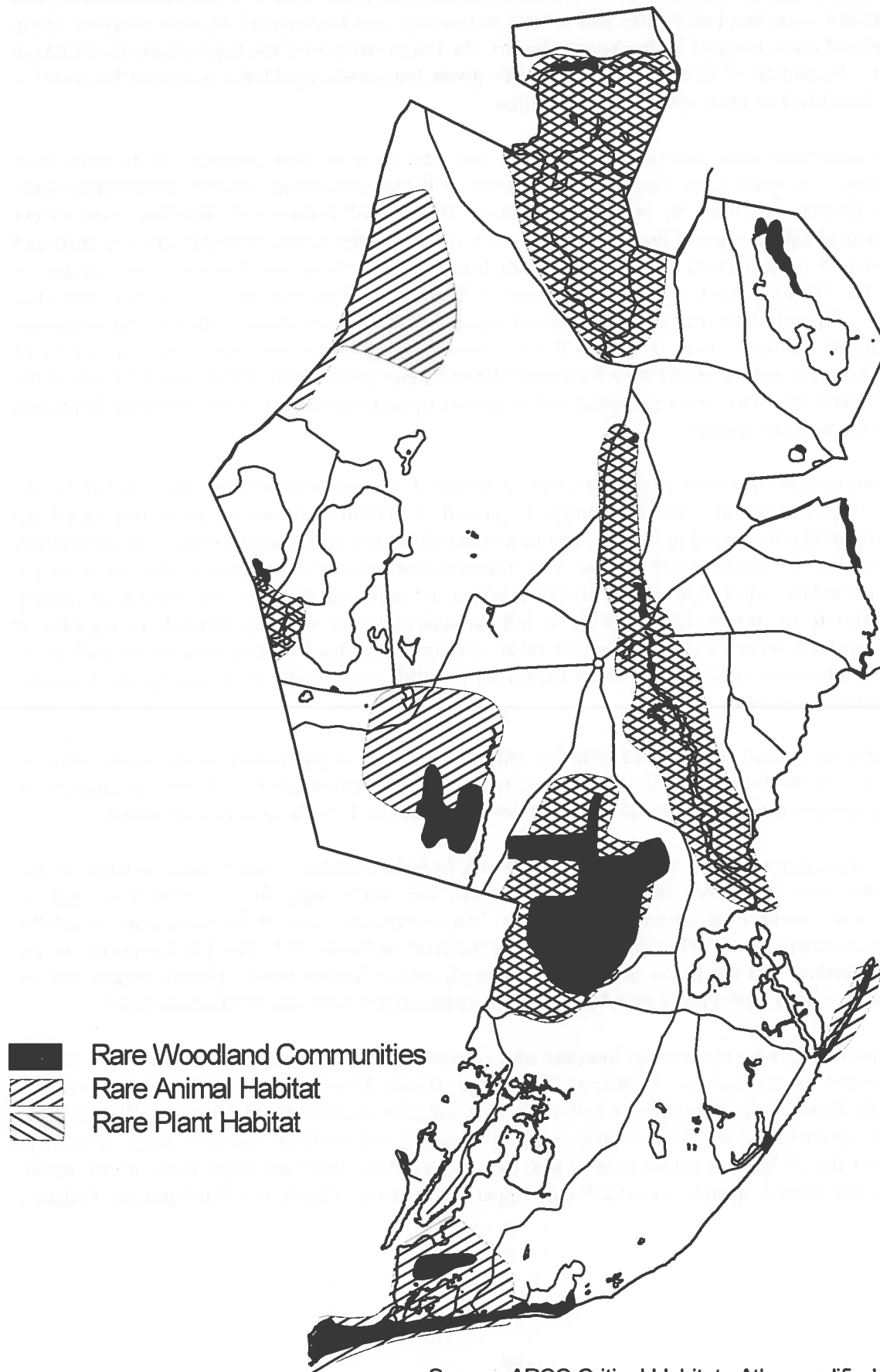
The only significant critical habitat area with no public ownership or protection is the south shore of Ashumet Pond, with its large collection of rare coastal plain pondshore plants. Public acquisition or conservation easements in that area should be a top priority among the Town's conservation efforts.

Other priority acquisitions related to rare species habitat include privately-owned cedar swamps in the "Bufflehead Bay" area and South Mashpee Pine Barrens, the "Great Hay Acres" subdivision and an additional 115 acres in the Pine Barrens, 152 acres in five ownerships west of the state lands along the Quashnet River as well as the "Dawson" property on the river at Route 151, The Fitch property in the Mashpee River corridor and the Baker property at the north end of Santuit Pond. Efforts should also be made to protect the Camp Farley and Camp Vinhaven properties on the west side of Mashpee Pond.

Residents' #3 protection priority was our **beaches and coastal resource areas**. These include 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. While the largest portion of the ACEC 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

Critical Habitat Areas

Map 7-3



Source: APCC Critical Habitats Atlas modified by Planning Dept.

Brook that should be considered for public acquisition and protection. All of those areas also lie within the boundaries of the Mashpee National Wildlife Refuge.

Wetlands are another critical resource area that 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. 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, abandoned cranberry bogs on the east side of Santuit Pond, beautiful salt marshes along the lower Santuit River, the Dawson property on the Quashnet River, several shrub swamps in the South Mashpee Pine Barrens and west of the Quashnet River, abandoned cranberry bogs along the upper portion of Abigail's Brook and two previously-mentioned cedar swamps in the Pine Barrens and 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, "Bufflehead Bay" property 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, the Dawson property, the "Great Hay Acres" subdivision in the Pine Barrens, the Barrows property (which bisects the "Bufflehead Bay" property purchased by the U.S. Fish & Wildlife Service), the Fitch property on the Mashpee River and the Als property and a number of smaller parcels along Goodspeed's Meetinghouse Road. The Quashnet corridor lies entirely within the National Wildlife Refuge while the Mashpee River corridor has been a main focus of Town protection efforts for two decades. Acquisition of the "missing links" in these corridors is, accordingly, a top priority.

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 agricultural soils. 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.

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 continues to be among the leaders in new home construction. With continued growth and a buildout population roughly double 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 2005 and 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.

Recent projects undertaken by the Town will help meet some of the demand noted below. The construction of the Town’s first high school includes 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. Plans have been developed for a new town landing and public dock on Little

River. The Mashpee Conservation Corps continually expands and upgrades the town's walking trail network. A Bicycle Committee has recently developed a long-range bicycle facility plan, while bicycle paths have been developed in the Mashpee Commons area and along Route 130 between the Barnstable town line and Heritage Memorial Park and bicycle shoulders have been added to Red Brook and Great Oak Roads.

NATIONAL RECREATION AND PARK ASSOCIATION STANDARDS

SPORT	STANDARD (fac/person)	MASHPEE'S REQUIREMENTS			
		2005y/r	2005 pk	Bldt. y/r	Bldt.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

Other important factors in the Town's open space and recreation needs are the age of our population and the needs of handicapped persons. Mashpee has the youngest population of any town on the Cape and has seen a rapid increase in its school-aged population. As a result, there is a growing demand for recreational facilities oriented toward youth sports and other youth activities. The Town's two Little League fields at Heritage Memorial Park are overwhelmed. The addition of extensive recreation facilities at our new high school will help meet some needs, but we will soon need to develop additional Town recreation areas. 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. In addition, a Cape Cod Boys & Girls Club has been formally chartered in Mashpee and recently received Town Meeting approval for a 99-year lease of Town land between the police station and Coombs School for construction of a clubhouse.

While we are the youngest town on the Cape, we also had the largest increase during the 1980s of residents over the age of 65. 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, also 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.

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 four years the Town has sponsored an extensive series of three-season free naturalist-guided walks through our conservation areas. The program is operated by a Tour Guide Coordinator, who is a trained naturalist, and two additional tour guides. The walks have attracted visitors from as far away as Hong Kong and France to Mashpee's peaceful woods and beaches.

Another project recently 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 central part 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. 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 have 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 will be a major focus of the Town's open space protection activities, as well as the Town's entire identity in coming years.

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 are done by the volunteers of the Mashpee Conservation Corps. The Town's guided nature tours are done by a contract naturalist, although Town Meeting recently voted to switch to non-standard part-time Town employees, with one supervisor and two additional tour guides 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 Conservation Commission's cranberry bogs in Johns Pond Park are operated by a private contractor under a seven year contract. The Commission employs a part-time person to oversee the contractors performance. There have been some problems with the arrangement which may lead to changes when the current operator's contract expires.

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 is being provided for the Leisure Services Department, which will 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 Carol H. Jacobson Senior Center and offers a variety of senior-oriented programs and activities.

One new management challenge and opportunity that the Town faces is its role in the joint management of the Mashpee National Wildlife Refuge. Because the Refuge is a partnership effort between the U.S. Fish & Wildlife Service and a variety of Town, state and non-profit agencies which, together, own more than 2500 acres within the Refuge boundary, it is to be 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.

Recommended Policies

These policies are intended to be expressed either through new or revised bylaws and regulations, or through ongoing regulatory and other activities of Town boards and departments. They may become formally adopted principles to guide the process of achieving goals and objectives.

Open Space, Recreation & Agriculture

1. To require that the design of new developments maintain the integrity of large unfragmented open space areas, wetlands and open space corridors which may be important for wildlife movement or recreational activities.
2. To transfer to the care and custody of the Conservation Commission any lands acquired through tax takings, purchase, trade or other means which have not been previously identified for other Town facilities and which would help maintain the integrity of large unfragmented open space areas, wetlands or open space corridors important for wildlife movement or recreational activities.
3. To require that new development preserve existing public access to open space areas and water bodies.
4. To develop new or preserve and enhance existing trails, access to water bodies or other public access to open space on Town lands where such access will not adversely affect sensitive natural resources.
5. To develop a system of consistent and attractive signage for open space and recreation facilities such as conservation areas, trails, bike paths, boat ramps, beaches and playgrounds.
6. To require that the design and construction of any new development protects significant or fragile areas of wildlife and plant habitat, unfragmented forests, lakes, rivers, wetlands and other water bodies, groundwater quality, historic buildings and sites, cultural and archaeological resources and significant scenic roads, views and landforms and will not adversely impact existing protected open space areas or agricultural operations.
7. To require that residential developments involving 10 or more acres or residential units provide at least 50 percent of the site area (whether on one or more parcels), excluding wetlands, as permanent open

space designed to be contiguous and interconnecting with any adjacent existing or proposed open space and made subject to permanent recorded conservation restrictions. An increased percentage will be encouraged in areas which are significant for protection of natural resources, such as zones of contribution to existing or proposed public water supply wells, groundwater recharge areas of nitrogen-sensitive marine embayments, lands within 350 feet of wetlands and water bodies, unfragmented forest habitat, corridors between existing protected open space areas, rare species habitat and other critical habitats.

8. To require that residential, commercial, industrial or mixed-use developments which are Developments of Regional Impact under the rules of the Cape Cod Commission provide at least 50 percent of the site area, excluding wetlands, or an alternate area determined as part of the Commission's DRI review, as permanent open space designed to be contiguous and interconnecting with any adjacent existing or proposed open space and made subject to permanent recorded conservation restrictions. The site area may include more than one separate parcel and required open space may be provided off-site within open space areas designated for protection by the Town. The Town may include certain landscaped areas designed to screen and buffer the development as part of such required minimum open space and may consider the contribution of funds for Town open space acquisition in lieu of all or a portion of the required open space.
9. To coordinate the Town's open space preservation and management activities with those of other public and non-profit organizations.
10. To encourage and support by all available means the successful protection and management of lands within the Mashpee National Wildlife Refuge.
11. To support and participate in the development of the Cape Cod Pathways and Cape Cod Bikeways recreational trail systems. Toward that end, the Town will create a local Pathways committee to work with the County to identify and designate suitable locations for such trails and assist in their development.
12. To support the creation of a Cape Cod Land Bank to provide an additional funding source for preservation of open space.
13. To require that recreational needs be addressed in the design and permitting of new residential and non-residential developments and that appropriate facilities be provided to meet needs generated by the development, either through the provision of on-site or off-site lands and facilities or the contribution of funds for Town recreational facilities or programs.
14. To utilize National Parks and Recreation Association standards, when feasible, in the design, development and reconstruction of any recreational facilities required for new developments or managed by the Town.
15. To provide the maximum feasible level of access consistent with the Americans with Disabilities Act and state laws for disabled persons to open space areas and recreational facilities and services managed by the Town or required for new developments.
16. To actively seek all available alternative sources of funding and revenue to supplement local tax funding of open space acquisition and recreational facilities and services.
17. To make School Department and other Town facilities available for recreational use and other leisure activities by all segments of the community.
18. To coordinate and integrate Town recreation facilities and programs with those of neighboring towns, state and federal agencies and other organizations as appropriate.
19. To ensure that preservation of prime agricultural soils or soils of state or regional significance is considered in the design of new developments and in the acquisition and management of Town lands.
20. To ensure that possible adverse impacts on existing or potential agricultural uses are considered in the development and adoption of Town by-laws and regulations.
21. To encourage proper management of agricultural and forest resources or both public and private lands.

22. To encourage the development of agricultural-based businesses in Mashpee which will provide jobs, income and increased local production of agricultural products without adversely impacting public health, wildlife or our natural resources.
23. To encourage the use of biological treatments, rather than harmful pesticides, in the agricultural sector in order to reduce agricultural impacts on public health, wildlife, water quality and other natural resources.
24. To responsibly rehabilitate and manage Town-owned cranberry bogs in order to preserve agricultural activity and produce revenues for conservation land acquisition, management and improvement while protecting wildlife, water quality and our other natural resources.
25. To encourage owners of agricultural and forest land to participate in Federal and State programs, such as the Agricultural Preservation Restriction program and the Farmland Assessment Act, to preserve agricultural land as open space, or preserve the agricultural use of the land. In order to encourage such participation and the creation of other forms of conservation restrictions, the Town will develop consistent procedures and policies for the approval and assessment of such restricted lands.

Wetlands / Wildlife & Plant Habitat

1. That alterations shall not be permitted to wetlands in Mashpee, including vernal pools and isolated wetlands, except where there is an overriding public interest or for water-dependent uses where there is no feasible alternative and subject to appropriate mitigation measures and the approval of all required permits. Appropriate mitigation will not include wetland creation or replication.
2. To require that vegetated, undisturbed buffer areas of at least 100 feet in width are maintained or provided, wherever possible, from the edge of coastal and inland wetlands, including isolated wetlands and vernal pools either within or outside other wetland resource areas, to protect their wildlife habitat value and other natural functions. The Cape Cod Commission's technical bulletin on Wetland Buffer Methodology, Technical Bulletin 96-004, will be used as an initial guideline for developing local buffer regulations and procedures. This policy shall not be construed to preclude pedestrian access paths, vista pruning or construction and maintenance of water-dependent structures within the buffer area, any of which may be permitted at the discretion of the Conservation Commission where there is no feasible alternative to their location. A larger buffer area may be required where necessary to protect sensitive areas or where site conditions such as slopes or soils suggest that a larger buffer area is necessary to prevent any adverse impact to wetlands and associated wildlife habitat. Where a buffer area is already altered so that the required buffer cannot be provided without removal of structures and / or pavement, this requirement may be modified if 1) the proposed alteration will not increase adverse impacts on that specific portion of the buffer area or associated wetland and 2) there is no technically demonstrated feasible construction alternative.
3. To take all reasonable measures to protect the vernal pools certified in Mashpee by the state's Natural Heritage and Endangered Species Program.
4. To permit the installation of new utility lines in wetland or buffer areas only if the Conservation Commission finds that there are no feasible alternatives and that the proposed route is the best alternative relative to environmental impact. In such cases the Town will require that any disturbance of wetlands or buffer areas for construction, operation or maintenance of underground and overhead utility lines is minimized and that surface vegetation, topography and water flow are restored substantially to their original condition if disturbed.
5. To prohibit any new point source discharges of untreated stormwater into natural wetlands, streams and water bodies, including vernal pools. Any new stormwater discharges shall be located a minimum of 100 feet from wetlands and water bodies.
6. To encourage the reduction or elimination of existing direct discharges of untreated stormwater into natural wetlands and water bodies and to develop and implement plans to address existing stormwater

management problems related to Town roadways and facilities where runoff and drainage systems are adversely affecting water quality in wells, wetlands or water bodies.

7. To encourage the restoration of altered or degraded inland and coastal wetlands, ponds and adjacent banks, including non-structural bank stabilization, revegetation and restoration of tidal flushing, in order to reestablish or enhance their historic natural functions. This does not imply that the Town endorses mitigation banking for wetland alteration projects.
8. To permit construction of artificial wetlands for stormwater and wastewater management in appropriate areas if there are no adverse impacts on natural wetlands, waterways or groundwater.
9. To encourage management practices for agricultural areas in wetlands and buffer areas that improve water quality and conserve water, such as those recommended by the Natural Resources Conservation Service.
10. To require that groundwater withdrawals within the Town's jurisdiction not adversely impact wetlands or water bodies, including isolated wetlands and vernal pools, and to encourage the application of a similar standard to other groundwater withdrawals.
11. To require that clearing of natural vegetation and alteration of natural topography for building construction, roads, driveways and other development not take place prior to any required local review or permitting for such projects and be limited to the minimum necessary in order to maintain natural groundwater recharge and to maintain the maximum possible amount of suitable habitat for native wildlife.
12. To protect standing specimen trees where feasible and encourage the use of plant materials in landscaping projects which will help restore or enhance native wildlife habitat and which will not adversely affect native plant populations.
13. To encourage the preservation of large areas of unfragmented forest habitat through Town land acquisitions and allocation of other Town and tax title lands, through support of conservation land acquisitions by other government and non-profit agencies, through zoning bylaws relating to cluster subdivisions, multi-family and mixed-used development projects and transferable development rights and through any other available means.
14. To require that mandated open space in cluster subdivisions and other development projects be laid out as large unfragmented areas rather than narrow strips or disconnected parcels and that such open space is located so as to provide the maximum benefit relative to wetlands protection, preservation of wildlife habitat and corridors, preservation of rare wildlife and plants and protection of water quality.
15. To encourage the development or preservation, by appropriate means, of opportunities for safe passage by wildlife under or across roads and through developments where necessary to maintain the integrity of wildlife corridors. This will include requirements that any significant lengths of fencing not be constructed so as to interfere with wildlife migration.
16. That the preservation of wildlife habitat and the protection of local populations of rare wildlife and plants is a primary consideration in the location and development of Town facilities and any new development or redevelopment. Any development that would adversely affect habitat of local populations of rare wildlife and plants identified by the Massachusetts Natural Heritage & Endangered Species Program shall not be permitted. Development may be permitted in areas identified in the County's Regional Policy plan as Critical Wildlife and Plant Habitat Areas where the proponent can demonstrate that such development will not adversely affect such habitat. A wildlife and plant habitat management plan may be required as a condition of approval of development or redevelopment in such areas.
17. To encourage measures to restore altered or degraded upland habitat areas or enhance wildlife habitat where ecologically appropriate.
18. To encourage and require, as permitted by law, agricultural practices which minimize any adverse impacts on wetlands and water bodies, including vernal pools. For agricultural areas in wetlands and buffer areas, management practices that would improve water quality and conserve water as recommended by the U.S. Soil Conservation Service will be encouraged.

19. To encourage and require, as permitted by law, the restraint of dogs and other domestic animals to minimize canine depredation on deer and other wildlife as well as other wildlife impacts of domestic animals.
20. To support the retention of large tracts of land within the Massachusetts Military Reservation for hunting and wildlife management and to encourage hunting practices which are consistent with public safety.
21. To require that applications for projects which qualify as Developments of Regional Impact include a natural resources inventory prepared in accordance with the Cape Cod Commission's Plant and Wildlife habitat Assessment Guidelines, Technical Bulletin 92-002.

Action Plan

Mashpee's goals and objectives provide a long-range focus for our activities, serving as a guide both to plotting long-term strategies and to dealing with challenges and opportunities that will surely arise but can rarely be predicted. At the same time, land acquisition opportunities, grant deadlines and other important items can arise on short notice and require a quick evaluation of costs and benefits relative to other possibilities and how each meets our goals and objectives.

Five Year Plan:

The following is a listing of the most feasible projects for accomplishment during the next five years. It is based on the adopted goals and policies and analysis of needs, tempered by fiscal constraints and focused on six key areas:

- firmly establishing the Mashpee National Wildlife Refuge as an operating entity and increasing its publicly-owned and protected land base;
- completing protection of the Mashpee River corridor;
- developing the Cross-Cape Trail's Mashpee segment;
- continuing development of trail and parking facilities at Town conservation areas;
- upgrading and expanding the Town's active recreation facilities;
- integrating our new high school facilities into the Town's recreation programs.

Specific currently-proposed activities during the next five years are as follows.

Year 1

- Acquisition of 16.85 acre Fitch property along the upper Mashpee River to complete protected corridor from Mashpee Pond to mouth of river. Estimated price \$180,000. Proposed funding from County through Cape Cod Pathways program, Town funds and state Self-Help program 52% reimbursement. A portion of the property may be purchased by The Trustees of Reservations, who's Mashpee River Reservation is bisected by the Fitch property.
- Acquisition of 15.07 acre northern portion of the MacDonald property (Map 42, Block 24) adjacent to Moody Pond and Johns Pond Park. U.S. Fish & Wildlife Service or Town / Self-Help purchase.
- Acquisition of 6.2 acre property (Map 116, Block 1) on Great Oak Road claimed by Tremont at Union Limited Partnership (formerly "owners unknown"). This property is surrounded by the lands recently purchased by the Town and federal government from Bufflehead Bay Limited Partnership.
- Transfer of 32.25 acres of Town-owned land (Map 110, Blocks 67, 70 and 71) adjacent to the U. S Fish & Wildlife Service's "Bufflehead Bay" property to care and custody of the Conservation Commission.
- Mass. DFW purchase of 12.37 acre Greaney property in the South Mashpee Pine Barrens.

- Secure consultant for site selection and design for childrens' nature trail. Funded through \$10,000 grant to Conservation Commission, Leisure Services Department and Mashpee Conservation Corps from Willowbend Children's Charity. One likely location is Jehu Pond Conservation Area.
- Initial development of trail system at Jehu Pond Conservation Area.
- Completion of Johns Pond Park trail system by Conservation Corps.
- Completion and formal dedication of Cross-Cape Trail segment through Lowell Holly Reservation connecting to Sandwich's Ryder Conservation Area trail system.
- Create or designate a local Pathways Committee to work with the County in identifying and designating suitable locations for walking paths to be included in the Cape Cod Patways network.
- Expansion of Adult Education and other Leisure Services programs using new High School facilities.
- Construction of handicapped-accessible multi-station playground facilities at Johns Pond Park Town Beach, Heritage Memorial Park and Attaquin Park Town Beach. Funded by EOCD Small Cities grant.
- Review local wetlands bylaws to ensure tat they provide for the following: protection of vernal pools outside other resource areas as well as isolated wetlands, a policy of no alteration / replication of wetlands for both public and private projects, expansion of jurisdiction beyond 100 feet were appropriate, improved enforcement authority and the ability to hire consultants to review applications at the applicant's expense.
- Complete GIS mapping of wetlands and water bodies at a scale appropriate to Town regulatory programs based on aerial photo interpretation work by the DEP GIS group and local sources.
- Continue the Town's ongoing program to identify all vernal pools in Mashpee for certification by the Massachusetts Natural Heritage & Endangered Species Program.
- Update the Town's cluster, OSID and other zoning bylaws directed at preservation of open space and natural resources, including consideration of mandatory cluster subdivision, increased minimum lot sizes and overlay districts. (See Land Use & Growth Management Element for more extensive discussion of this item.)

Year 2

- Acquisition of (approximately) 40 acre Barrows property which bisects the lands purchased in 1997 by te Town and federal government from Bufflehead Bay Limited Partnership. May be by federal government or joint Town / federal purchase.
- Possible tax taking of 15.7 acre salt marsh property on lower Santuit River submitted for foreclosure 3/94.
- Possible Town or state acquisition of Slaymaker and Peck properties on the lower Santuit River, including possible Town land trade.
- Possible set-aside of conservation lands at Quashnet River, Trout Pond and / or South Mashpee Pine Barrens as part of Mashpee Commons project permitting.
- Extension of Cross-Cape trail from Red Brook Road through "Bufflehead Bay" property to Great Oak Road and South Cape Beach State Park by Conservation Corps and DPW.
- Development of Noisy Hole Conservation Area trail system and parking area by Conservation Corps and DPW.
- Construction of Children's Nature Trail, probably at "Bufflehead Bay" property if purchased, along with parking areas at Red Brook and Great Oak Roads and additional walking trails. By Conservation Corps, Friends of the Mashpee NWR Trail Committee, WBNERR Trail Committee, DPW and private contractor funded with Willowbend grant.
- Development and submission to state Division of Conservation Services of updated Mashpee River Woodlands and Johns Pond Park management plans by Planning Department and Conservation Commission.
- Construction of exercise course and Little League field lighting at Heritage Memorial Park. (See draft site plan in Appendix.)

- Development of temporary outdoor ice skating rink at Heritage Memorial Park, Town Hall ballfield or another suitable location.
- Possible development and adoption of parks and recreation impact fee bylaw under the provisions of the Cape Cod Commission Act.
- Construction of 8-10' wide bicycle / pedestrian path along the north side of Route 151 from Job's Fishing Road to James Circle if Mass. Highway Dept. Public Works Economic Development (PWED) grant is received.
- Create and distribute a map and guide to the Town's open space and recreation areas.
- Expansion of Heritage Memorial Park recreation building to provide additional community center / meeting room space. Funded through Town capital facilities budget.
- Construction of second outdoor basketball court at Heritage Memorial Park.
- Development and adoption by Board of Assessors of a standard policy on, and approval procedures for, property tax reductions for properties made subject to conservation restrictions.
- Develop a review and regulatory process for activities that could adversely impact critical plant and wildlife habitat areas and / or seek their designation as significant habitat areas under the Massachusetts Endangered Species Act.
- Adopt a bylaw limiting land clearing and alteration of natural topography prior to development review.
- Adopt a bylaw regarding development and restoration of sand and gravel pits and similar mining and earth removal activities.

Year 3

- Acquisition of Andrade cedar swamp surrounded by Jehu Pond Conservation Area by Town using Conservation Commission's Land Acquisition and Maintenance Account and possible Self-Help grant.
- Town or federal acquisition of the 8.21 acre Prime View Trust property (Map 115, Blocks 12-16) located between Amy Brown Road and Abigail's Brook and surrounded by the "Bufflehead Bay" property owned by the U.S. Fish & Wildlife Service.
- Possible acquisition of "Great Hay Acres" property in South Mashpee Pine barrens by USF&WS.
- Possible acquisition of 8.7 acre Wilbur property west of Quashnet River by Falmouth Rod & Gun Club or by Town with Self-Help assistance.
- Possible Mass DFW or USF&WS purchase of 17.7 acre Dawson property on Quashnet River at Route 151.
- Possible acquisition of 71.3 acre Corey & Vose property west of Quashnet River by USF&WS, Falmouth Rod & Gun Club, Water District and / or Town with Self-Help assistance.
- Acquisition of property corridor or trail easement from Wampanoag Rod & Gun Club or alternate route for completion of Cross-Cape Trail in Mashpee.
- Construction of Cross-Cape trail from Route 28 north to Lowell Holly Reservation via The Trustees of Reservations' Mashpee River Reservation, along a temporary location on Goodspeed's Meetinghouse Road to Route 130, then on existing conservation land and the Wampanoag Rod & Gun club easement to Lowell Holly. An additional loop may be completed on Town and Mass. DFW land to Attaquin Park. By Conservation Corps and DPW.
- Rehabilitation of gamefield walking course at Senior Center.
- Development of three soccer / lacrosse fields on Town landfill cap, located on Ashers Path. Leisure Services project by DPW or contractor.

Year 4

- Town acquisition of the 30.0 acre Als property (Map 36, Block 35) and the 4.4 acre Laffey property (map 36, Block 34) for conservation at the time of site acquisition for the elementary school proposed for construction between 2002 and 2004 on adjacent lands (see School Facilities element). A portion of

the Als property west of Goodspeed's Meetinghouse Road may be included in the school site. The Cross-Cape Trail would then be moved from its temporary location on Goodspeed's Meetinghouse Road to a new footpath across the two parcels.

- Acquisition of Collins cedar swamp in South Mashpee Pine Barrens by Mass. DFW or Town using Conservation Commission Land Acquisition and Maintenance Account with Self-Help assistance.
- Possible acquisition of Commonwealth Electric 35.0 acres west of Quashnet River by USF&WS, state or Town with Self-Help assistance.
- Development of temporary National Wildlife Refuge visitors center by USF&WS and / or Friends of the Mashpee NWR.
- Development of Santuit Pond Conservation Area parking and trail system by Conservation Corps and DPW.
- Development of Childs River Conservation Area parking and trail system by Conservation Corps and DPW.

Year 5

- Town and / or federal acquisition of the 135.1 acre Belcher Realty Trust property (Map 44, Block 46) and the adjacent 31.5 acre parcel (Map 51, Block 3) currently listed by the Assessors as "owners unknown" as key elements of the northern section of the Mashpee National Wildlife Refuge.
- Town or federal acquisition of the 4.5 acre Louis Santos marsh (Map 115, Block 4) located off Amy Brown Road adjacent to the Prime View Trust property.
- Possible Town acquisition of the 7.1 acre Carleton Collins (Map 56, Block 5) and 19 acre Edgar Tobey (Map 53, Blocks 6 & 7) properties currently surrounded on three sides by the Noisy Hole Conservation Area.
- Development of Sachems Field Conservation Area parking and trails by Conservation Corps and DPW.
- Development of Alper Grant Conservation Area trails and parking facility by Conservation Corps and DPW.

Long Range Plan:

For the most part, our long-range plan involves expansion upon or completion of projects included in the five-year action plan. Activities that are ongoing rather than one-time tasks are also included. Of necessity, long range planning involves fewer specifics and should be viewed as a flexible outline of activities that can be considered in more detail at the next update of the Town's Comprehensive Plan. With that in mind, recommended long-range activities are as follows:

- *Maximize publicly owned and protected lands within the Mashpee National Wildlife Refuge.* Although there are 4,653 acres of land in Mashpee that lie within the proposed acquisition boundary of the Refuge, some has already been developed or is approved for imminent development. It will take a concerted and extended effort by the Town and the other parties involved in the Refuge management agreement to ensure that at least the most critical lands within the Refuge's paper boundaries are actually preserved.
- Work with the U. S. Fish & Wildlife Service, the other Refuge partners and the Friends of the Mashpee National Wildlife Refuge to develop an appropriate *Refuge visitor center*, interpretive facilities and programs, trails and other access facilities in order to maximize resident and visitor recreational and educational opportunities without disrupting the Refuge's primary goal of wildlife habitat protection.
- Complete protection of the *Mashpee River Corridor* and develop appropriate access, trail and interpretive facilities.

- Complete implementation of *Johns Pond Park Master Plan*.
- Complete and maintain the Mashpee segment of the *Cross-Cape Trail*. Coordinate trail-related events, activities, advertising, signage and maintenance with the Town of Sandwich and the county's Cape Cod Pathways program.
- Complete Mashpee segments of the *Cape Cod Pathways walking trail network* as well as other portions of a *town-wide system of walking trails*. Aggressive efforts to obtain land acquisition funding authorized in state Open Space Bond for Cape Cod Pathways should be continued.
- Continue and expand the Town's *interpretive tour guide program*.
- Complete a *town-wide system of bicycle facilities* as specified in the Transportation element of the Comprehensive Plan.
- *Preserve open spaces necessary for protection of public water supplies, surface water bodies and wildlife habitat.*
- Develop and maintain a complete *inventory* and GIS map / database of *all wetlands*, vernal pools and lands subject to review under the Wetlands Protection Act and the Town's wetlands protection bylaw and seek formal state certification of all vernal pools by the Natural Heritage and Endangered Species Program.
- Where still feasible, preserve appropriate *buffer areas around the Town's water bodies and wetlands*. The Cape Cod Commission's Technical Bulletin on Wetland Buffer Methodology will serve as a guideline for such efforts.
- **Develop and implement plans to address existing stormwater management problems where runoff and drainage systems are adversely affecting water quality in wetlands and water bodies. (See Water Resources / Water & Wastewater Facilities Elements.)**
- Develop *neighborhood playgrounds* in appropriate areas. A number of parcels have been set aside in residential subdivisions over the years but have not been developed. The Town should consider acquiring such parcels and developing appropriate playground facilities in neighborhoods with large numbers of children whose residents favor the concept. Playground facilities should also be developed at new recreation areas proposed in North Mashpee and on the "Keeter" property (see below).
- Develop sufficient *active recreation facilities* to meet National Recreation and Park Association standards for, at a minimum, our projected year-round buildout population. (See page 7-10.) Such facilities would be developed as expansions of the existing Heritage Memorial Park recreation area, as expansions of existing school facilities, as part of any new school facilities and in four potential new recreation areas: a 20+ acre Town-owned site at the intersection of Route 28 and Sampson's Mill Road adjacent to the proposed VFW Post, on the cap to be constructed over the Town's former landfill, on the "Keeter" property on Red Brook Road and at a new North Mashpee recreation area located either at the current site of the Wampanoag Rod & Gun Club (which might be acquired through a land trade for Town-owned land on Ashumet Road), off Route 130 (on parcels shown on the Assessors' Maps as Map 38, Blocks 1, 5 and 9, of which 5 and 9 would have to be purchased), or behind Town Hall if an elementary school is not built on that site. Based on the NRPA standards and on the results of the Town's opinion survey the following facilities are recommended (see Map 9-4 for locations):

archery range - NRPA recommends one. A location for such a facility has been specified in the John's Pond Park Master Plan in an area of former sand pits north of Moody Pond. Because that site is not easily accessible, an alternative location in recent excavations on the east side of the Town bogs in the Park should be considered.

basketball courts - NRPA recommends 4-8. We currently have one at Heritage Memorial Park and two (outdoors) at the high school. The high school's double gym has two full-size courts, the Middle School gym has one full-size court and the Coombs School gym has one undersized court. A second court is proposed at Heritage Park. In addition, lighted courts are recommended at the new recreation area proposed at Route 28 and Sampson's Mill Road and in North Mashpee, along with one outdoors and one in the gym of the Town's next new elementary school. An additional court should also be considered as part of, or adjacent to, the proposed Boys & Girls Club near the Police Station. Private association courts also exist at Willowbend, Santuit Pond Estates and TCB Mashpee Village.

tennis courts - There are 53 outdoor private association tennis courts in Mashpee, of which 3 are currently unusable, along with one indoor court at the South Cape Resorts timeshare condominium. In addition, the Town owns three outdoor courts at the Middle School and six at the High School. 2-3 additional Town-owned courts are suggested as part of the recreation facilities at our next elementary school or at the proposed North Mashpee recreation area, along with another 2 at the Keeter property. If all are built, there would eventually be 13-14 Town-owned courts. NRPA's recommendation is for 9-19 courts.

volleyball courts - NRPA standards suggest a need for 4-8 volleyball courts. The Town currently has one court located at John's Pond Park. Occasional games are played during the summer at South Cape Beach. The Briarwood Association also maintains a private court. New Town courts are suggested at the High School, as part of the proposed recreation area at Route 28 and Sampson's Mill Road and adjacent to the proposed Boys & Girls Club. A seasonal court could also be considered on the beach at Attaquin Park.

baseball fields - NRPA suggests 4-8 at buildout. We currently have seven Town-owned fields, with two at the high school, two at the middle school and three at Heritage Memorial Park (of which two are regulation Little League fields). New Seabury has a private field, as does Santuit Pond Estates and the Popponesset Beach Association. Because of strong projected demand for additional Little League-sized facilities, one additional field is proposed at Heritage Park, one as part of the next elementary school and 2-3 at the proposed North Mashpee recreation area. A full-sized baseball field is proposed at the Route 28 / Sampson's Mill Road recreation area, which is intended to be oriented more toward adults and teenagers.

football fields - The high school has one football field, which meets the NRPA standard for buildout year-round population. A second field could be developed in the outfields of the baseball and softball fields being proposed for the Route 28 / Sampson's Mill Road site or at Heritage Memorial Park. A site for a future practice football field has been reserved at the high school.

field hockey fields - NRPA recommends 1-2 at buildout. The high school has two fields which are shared field hockey / soccer fields. Similar shared facilities could be developed, if future demand warrants, at other Town soccer fields. Such a shared field would also be part of the recreation facilities at the Town's next elementary school.

soccer fields - The Town currently has four fields vs an NRPA standard of 2-4 at buildout. Two are the shared facilities noted above at the high school, one is located at the Middle School and one is in the baseball outfield at Heritage Memorial Park, along with another undersized practice field. Because of strong and growing demand for soccer facilities, an additional 3-4 fields have been proposed to be located on the cap to be placed on the former Town landfill on Asher's Path. A shared field hockey / soccer field would also be built at the next elementary school. Soccer fields are also proposed for the North Mashpee recreation area and the "Keeter" property on Red Brook Road.

1/4-mile track - The high school has one such track, which meets the NRPA standard for our potential year-round buildout population. No additional facilities are proposed.

softball - There are currently two softball fields at the High School and one at the Middle School, with space for an additional field reserved at the High School. NRPA calls for 4-8 fields to serve our projected buildout population. Full sized softball fields are recommended at the Route 28 / Sampson's Mill Road recreation area, the North Mashpee recreation area and the "Keeter" property. A youth softball field would also be built as part of the recreation facilities for our next elementary school.

golf courses - There are currently four 18 hole golf courses in Mashpee, with construction begun on a 9-hole course at the Southport retirement community. There are also three driving ranges associated with the golf courses. The Willowbend and Southport courses are not open to the public. The two New Seabury courses allow limited public use. The Quashnet Valley Country Club, although developed as part of a residential condominium, has been operating as a commercial course open to the general public. NRPA standards recommend 0-1 driving range, 1-2 9-hole courses and 0-1 18-hole course for our year-round and summer potential buildout populations. While we have clearly exceeded those standards, our public opinion survey indicates support from 21% of residents for a municipally owned course. Three options appear available to meet that demand. The first is acquisition of the Quashnet Valley Country Club as part of a larger shared purchase with the federal government of lands within the National Wildlife Refuge that have been previously approved for development as part of the Quashnet Valley condominium / subdivision project. A second potential approach is development of a nine-hole course in conjunction with Willowbend on Town lands adjacent to that development. A third is purchase of lands on the south side of Santuit Pond to develop a 9 or 18-hole course in conjunction with operation of existing cranberry bogs in the area. No other vacant land of sufficient size remains in the Town outside of the National Wildlife Refuge and existing conservation areas.

swimming pool - For a town with our potential buildout population, NRPA recommends 1-2 public swimming pools. We currently have none, although there are indoor pools at the South Cape Resorts and Sea Mist timeshare condominiums that have been used on a limited basis for some public programs. The designs prepared for the High School provide for future addition of an indoor pool at the south end of the building. An outdoor pool might also be considered in the long term adjacent to the proposed Boys & Girls Club.

ice arena - Although not listed in the NRPA standards, there appears to be considerable local support for ice skating facilities. A seasonal outdoor facility is currently being considered by the Leisure Services Department as noted in the five year action plan. In the long term, an indoor ice arena might be appropriately located either adjacent to the high school or to the Boys & Girls Club and Middle School. Private or joint public / private financing and operation should be considered for such a facility due to the considerable construction and operating costs involved.

exercise course / trail - A “gamefield walking course” is currently located behind the Carol H. Jacobson Senior Citizens’ Center. Its 14 exercise stations are primarily used by and oriented towards senior citizens. The Leisure Services Department has proposed a longer cross country walking & exercise course at Heritage Memorial Park.

Action Plan

Map 9-2

