




Town of Carver



2004-2009 Open Space & Recreation Plan



*A 5-year Plan to maintain
Carver's rural character,
protect its natural resources, and
provide recreational opportunities
for its citizens.*



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I. PLAN SUMMARY

Southeastern Massachusetts is the fastest growing region of the state. According to recent predictions, the population of Carver will increase by 50% over the next 20 years, and the population of the town could eventually reach 32,000 or higher. Compounding the problems associated with regional growth pressures, Carver must also deal with the downturn in the cranberry industry. The presence of the cranberry industry in Carver has buffered the town against past development pressures by maintaining thousands of acres of land in agricultural and associated uses, all while keeping this land from being developed. However, with the recent economic troubles in the industry, growers are under extreme pressure to sell their developable land simply to survive, making growth in Carver seem inevitable.

Carver has been generously endowed by nature with wonderful resources: ponds, wetlands, woods, forests, and agricultural lands. Many of our citizens moved to this area to enjoy these resources. In survey after survey, “rural quality” ranks high among people’s reasons for choosing Carver. One could agree that Carver’s abundant open land is its greatest asset, being the basis for a healthy, high quality of life for its residents. This land, the very essence of what makes Carver unique, is at risk of being lost forever. Development threatens not only to destroy the rural quality of this town but also the environmental quality. About half of the town is covered by wetlands and surface waters which feed the aquifer and provide drinking water to the town and beyond. Without appropriate development controls, these areas will become increasingly at risk from pollutants as Carver’s sandy soils facilitate the transmission of contamination.

Part of the lure of Carver’s rural atmosphere is the opportunity to enjoy an active outdoor lifestyle. Many citizens like to swim, hike, hunt, and fish. Many more are involved in organized sports. Ideally, the town would provide generously for all of these interests. The rural quality and beauty of the area would be protected through careful land use decisions. There would be an abundant amount of public open land available for the enjoyment of its citizens with hiking trails, picnic sites, and ample opportunities for fishing, swimming, boating, hunting, and getting close to nature. Also, significant amounts of private land would be protected through conservation restrictions and other means so that the town’s wildlife habitats, recharge areas, watersheds, and scenic landscapes would be preserved for future generations. None of this can happen without careful planning.

Preserving open space goes hand-in-hand with controlling population growth and stabilizing town finances. Many studies (some of which are included in this plan) have shown that open space and agriculture are among the most fiscally beneficial land uses for towns like Carver. Protected open space and agriculture keep land out of development and cost almost nothing in town services, whereas residential uses cost significantly more in services than they bring in taxes. Open land is valuable to the town for what it doesn’t have on it, as well as for what it does have.

The town must also acknowledge that cranberry growers are our number one allies in our fight to preserve the natural environment and slow the rate of population growth. One only has to look at former farming communities all over the state to see what results when a type of farming becomes unviable: closing of farms, wholesale sell-off of farmland, a boom in residential

building, a sharp increase in population, and more fiscal strain. The long-term success or failure of the cranberry industry could make a 50% difference in Carver's eventual population size.

This is not to say that cranberry-related practices should be unquestionably embraced; irresponsible practices can be damaging to the environment. And the town takes a risk when it relies completely on the fortunes and decisions of a single industry for the protection of its open space. Private industries, by necessity, have their own needs and agendas. Clearly, the town must have a strategy of its own, which should include acquiring more *public* land for the protection of the environment and the enjoyment of its citizens.

In this plan we propose some specific strategies for protecting and enhancing open space and recreation over the next five years. Underlying all these strategies is a call for Carver to become an *active* protector of its most important resource. In the past, the town's approach to open space has been decidedly passive: we have never actively solicited donations of land, never pursued conservation restrictions with landowners, never maintained a wish list of desirable land for acquisition, and never kept track of grant money that is available for open space enhancement.

With proposed large-scale developments on the horizon, such as that of the Makepeace lands, we owe it to ourselves to take a more active role in land protection. We have a wonderful asset in our open land today, but it can be improved, and it cannot be taken for granted. Protecting and enhancing our open space is essential for maintaining our environment, quality of life, tax rate, and future.

Below are the Goals and Objectives of the 2004 Carver Open Space and Recreation Plan:

Goal I: Maintain the rural character and scenic atmosphere of Carver.

Objectives:

- 1) Permanently protect open space in Carver.
- 2) Protect the town's historic, cultural and scenic resources.
- 3) Support planning policies that control population growth.
- 4) Modify existing zoning regulations to encourage open space in residential, commercial, and industrial development to protect open space, the environment and the scenic character of town.

Goal II: Preserve the quality of Carver's natural resources, including ground and surface waters, wetlands, and wildlife habitat.

Objectives:

- 1) Protect Carver's groundwater resources.
- 2) Preserve and restore water quality in Carver's rivers, streams, and ponds.
- 3) Support protection of wetland resources and areas bordering wetlands throughout Carver.
- 4) Encourage retention of existing cranberry grower-owned lands as wildlife habitats, water recharge areas, etc.
- 5) Preserve critical wildlife habitats.

Goal III: Improve access to and enhance recreational opportunities for all Carver residents

Objectives:

- 1) Develop walking and equestrian trails, bike paths, and picnic areas on public lands.
- 2) Expand and upgrade recreational opportunities on ponds and waterways.
- 3) Expand and upgrade facilities for active recreation.
- 4) Ensure public facilities are accessible to all residents regardless of age or ability.

Goal IV: Develop definitive strategies that will affect change in town policy regarding open space and recreation issues in Carver.

Objectives:

- 1) Establish open space preservation and recreation planning priorities in all town decisions and actions.
- 2) Increase community appreciation of the town's rich resources.
- 3) Develop implementation and funding mechanisms to support open space and recreation needs.

II. INTRODUCTION

A. Statement of Purpose

An Open Space and Recreation Plan is a policy guide, outlining a clear direction for the balanced use of a town's natural resources. The needs addressed in an Open Space Plan include: to maintain environmental quality, to protect and preserve ground and surface water, to provide a balanced recreation plan to meet the needs of a growing population, to preserve and promote natural areas for conservation purposes, and to integrate conservation and recreation areas. Carver's first Open Space Plan was drafted in 1986 and updated in 1996. This 2004 version is the second revision to the original Plan.

Since 1986, the year the original Open Space Plan was written, Carver's economy has been greatly affected by a cranberry industry whose success has been cyclical in nature. Times of economic prosperity in the industry during the eighties and nineties were followed by an economic downturn at the turn of the century. The current recession in the cranberry industry, combined with a rapidly growing population, puts a significant strain on the town of Carver's economy. As a result of the tight economy, few of the open space goals that were cited as priorities in the original 1986 plan and again in the 1996 plan have been implemented, and many of the needs remain the same.

There have, however, been some accomplishments since 1996. The lot adjacent to the new library was acquired by the town and is now the Carver Community Playground. The town has also built new ball fields at Pond and Purchase streets. In addition, the whole town has been designated a special water district in an effort to protect the Plymouth-Carver Aquifer, which is vulnerable to contamination.

There have also been some losses in open space in the last seven years, such as the Shaw property. This 196-acre parcel of wooded upland and bog adjacent to Myles Standish State Forest was targeted in the 1977 Master Plan for acquisition by the town and development as a conservation/recreation area. The current owner of this land recently began to develop it into a 102-lot subdivision of manufactured homes.

Carver still has a legacy of wealth in undeveloped resources that should be preserved for future generations. The 2004 Open Space and Recreation Plan is an opportunity for the town to rededicate itself to the goal of protecting and enhancing its open space so that the current and future needs of the townspeople can be served.

B. Planning Process and Public Participation

This new plan builds on the 1996 version and has been contributed to by many people representing many constituencies. At the request of the town's Conservation Commission, the Buzzards Bay Project National Estuary Program provided technical assistance to create this document.

The Open Space Committee, which was appointed by the Selectmen in March 2001, consists of the Conservation Agent, Sarah Hewins; a member of the Conservation Commission, Bob Conway; and three members-at-large, Dan Fortier, John Murray, and Marty Barrington. Former committee members that assisted in the planning process were Jim Hoffman, Larry Cole, and Frank Downing. Committee members all provided input and reviewed drafts of various sections of the plan.

Meetings were held bi-monthly in the Carver Town Hall. All meetings were posted on the Town Hall bulletin board and were open to the public.

To maintain the momentum created by this update one of the first recommended actions in the Plan is to establish a permanent Open Space Committee that will oversee implementation of the Open Space and Recreation Plan for the next 5 years.

Open Space and Recreation Survey and Community Meeting

The public was polled via a scientific survey that was mailed out to 1,715 households in November 2001. Selection was made by mailing to every fifth name on the town's resident list. The survey was developed by the Committee with the assistance of the Buzzards Bay Project and was designed to give basic public input on both conservation and recreation issues. Every effort was made to obtain confidential, unbiased results that accurately represent resident opinion.

Of the 1,715 surveys mailed, over 550 people responded, representing 33% of the sample pool. The results of that survey are incorporated into this report and can be found in the Appendix of this document.

On Thursday, April 18, 2002 from 7:00-9:00 p.m. the Open Space and Recreation Committee held a special public meeting to release the results of the survey and open up a dialog on conservation options available to town residents. The Committee invited several guest speakers, including representative from Massachusetts Wildlife, Massachusetts Audubon Society, The Nature Conservancy, The Wildlands Trust of Southeastern Massachusetts, and the Cape Cod Cranberry Growers' Association.

Release of Draft Plan to the Public

The draft Open Space and Recreation Plan was released to town boards and the Southeastern Regional Planning and Economic Development District in the Fall of 2003. Letters of comment are located in the Appendix of this document.

III. COMMUNITY SETTING

A. Regional Context

Carver is located in Plymouth County, bordered by Middleborough on the west, Plympton on the east and north, Kingston on the northeast, and Wareham on the south and southeast. The town, which has a total land area of 39.78 square miles (approximately 25,456 acres), is characterized by an abundance of cranberry bogs. In addition, Carver is the home to three major rivers as well as many brooks, ponds, and sizeable swamps. It lies 40 miles southeast of Boston and 39 miles east of Providence, Rhode Island.

The town of Carver is small, with a population of 11,163 (U.S. Census, 2000). Originally part of the town of Plympton, Carver gained its independence in 1790. As was the case from its very inception, two villages, North and South Carver, characterize the town. Today Carver employs a Town Meeting form of government with five part-time selectmen, a town administrator, and various boards and commissions.



Figure 1. Locus Map

Historically Carver's development, or more appropriately, lack of development, has been fairly independent of surrounding communities. This is mainly due to the distance of Carver from a major economic center. In its earliest years, Carver was an agricultural community, but by the 1730s the town had become known for the iron ore that could be dug from its swamplands or bogs, and used to make cooking tools. The need for lumber to power the foundries led to the creation of a number of sawmills, which were fed by the plentitude of large cedar and pine stands in town. Although the iron foundries no longer exist, handsome mansions built with the money from iron can be seen throughout town.

As the market for iron ore declined in the latter part of the 19th century, Carver identified cranberry farming as a new use for the bogs that dotted the town. Farmers began growing the crop in the 1870s. The agriculture industry flourished with the production of cranberries that prefer a sandy, acidic, low nutrient soil. In the 1940s, the town of Carver produced more cranberries than any town in the world and today Carver's cranberry bogs still remain an important part of the town. Although Carver is now clearly a suburban commuter community, it is one of the few towns with a significant remaining agricultural component as cranberries continue to be a big national business.

Although Carver's economy hasn't historically been linked to surrounding communities, it does depend on other towns for many resources. Up until 1993 Carver high school students attended Plymouth Schools. In addition, a lack of successful commercial enterprises in town makes it necessary for residents to do most of their shopping elsewhere.

There is a link between Carver and other towns in the region with regards to trash disposal. In the past, the Tri-town Landfill, which is located in Carver, was host to garbage from Marion, Wareham, and Carver. Although the facility has since been closed to the public, private haulers still bring ash to the landfill from the SEMASS Incinerator in Rochester. It is estimated that the landfill has sufficient capacity to accommodate 5-10 years of additional ash supplied by the SEMASS plant.

There is currently no public water and sewer in Carver. Residents of Carver benefit from sandy soils that are good for septic systems, and private wells tap into high-quality groundwater that comes from one of the largest aquifers in the state. This water may someday prove to be an income source for the town as other towns in the region look for new water sources to meet the demands of their own residents. Unfortunately, this groundwater has been threatened in certain locations. A plume of contamination emanating from the North Carver Landfill has spread under a number of homes and affected Muddy Pond. Affected residents had to be hooked up to public water from Middleborough while the cleanup of this site was underway. The site has been remediated and will be capped by the town. Another plume of contamination has been discovered down the road at the privately owned Ravenbrook Demolition Landfill. While this plume has not yet affected private wells, nearby neighbors have also been hooked up to the Middleborough water main as a precaution.

The town of Carver lies predominantly within the Buzzards Bay watershed, with the northern section of town falling within the Taunton River watershed. A watershed is an area of land where all sources of water, including streams, rivers, groundwater, and rain, drain to a common water body. These larger watersheds are broken down into several smaller areas called subwatersheds that drain to various harbors and coves. All of the land area of Carver lying within the Buzzards Bay watershed eventually drains south to the Weweantic, Wareham, and Sippican Rivers in the town of Wareham. The section of Carver that lies within the Taunton River watershed ultimately drains to Mount Hope Bay near the city of Fall River.

Negative impacts to water resources in one area of a watershed can have far-reaching effects on other areas as ground and surface water can transport pollutants far from the original source. The Weweantic, Wareham, and Sippican Rivers already suffer from poor water quality related to residential and agricultural pollutant sources, despite the fact that a majority of the watershed remains undeveloped. Should growth trends continue in Carver and neighboring towns even greater impacts to water quality are expected to be seen in these river systems.

B. History of Carver

The Wampanoags or Pokonokets, a Native American people who traveled along several trails in southeastern Massachusetts, originally inhabited the area that is now Carver. One of the more common routes used by the Pokonokets was the Nemasket Trail, which traversed Carver from the north to south and on to Rhode Island (now roughly where Route 44 lies). Trails that ran along sections of Purchase and Forest streets, South Meadow Road (the Pilgrim Trail) and the south side of Sampson's Pond where the historic Ridge Road is located were also believed to have been routes used by the Pokonokets. An archaeological dig has suggested that Annasnappet Pond, located in Plympton just north of the Carver town line along the path of the future extension of Route 44, was a central gathering spot for Native people. Also, archaeological artifacts show that the shore of Sampson's Pond was used as a campground for thousands of years.

Later, after European settlers moved into the region, Carver started its roots as a part of the Town of Plympton. The Plymouth Colony administered land grants for the Carver area of Plympton in 1637, and in 1660, the first permanent settlers moved into the Carver meadows. They settled along two Indian trails: the Nemasket Indian Trail and later, along the Pilgrim Trail. From the start, the area that is now Carver was settled in a network of separate villages, most notably Lakenham in the North and South Meadow in the South.

In 1790, after several petitions for separation, Carver, having been named after John Carver, the first Governor of the Plymouth Colony, was granted its independence from Plympton. As was the case in many New England towns, the reason for the town's creation was that many residents lived too far away to attend church in Plympton.

Iron and Lumber Industries

Carver has always been rich in iron swamps, ponds, and fresh meadows containing dissolved sulphuret of iron and iron oxide deposited by glacial drift and lateral alluvial deposition. To the early colonists, the discovery of this native ore was a great boon. Iron implements were so dear they were often bequeathed in wills. As early as 1628, England encouraged settlers to look for mineral wealth, and in 1641 incentives were offered for the discovery and manufacture of iron.

To actively mine and manufacture this ore, there were five major requirements: large quantities of iron ore, forests to provide charcoal for smelting, water, manpower, and know-how. Carver had the ore, wood, and water, and in time acquired the human element.

Two of the largest grant holders were Thomas Pope and George Watson. Watson's holdings were in the Rocky Meadow Cove area and Pope's holdings, known as Pope's Point, were located between the Weweantic River and Cove Brook. In 1735, Jonathan Shaw came into possession of Pope's Point, and leased the land and water rights to ten businessmen for the purpose of building an iron works and furnace. This was the birth of an industry that was to flourish in Carver for more than 100 years. The Pope's Point Furnace, the first in Carver, manufactured pots, kettles, cauldrons, pans, and fire dogs, and claims to have made the first American tea kettle.

The peak period of iron production was 1735-1835, during which there were eight furnaces located in the town. One of the most famous iron masters to come out of Carver was Benjamin

Ellis, known as the “Cast Iron Senator” to the Massachusetts legislature. Ellis controlled several Carver furnaces and contracted to make cannonballs for the American Army during the War of 1812. The *U.S.S. Constitution* was armed with Carver shot. At the height of the iron days, Carver enjoyed prosperity. The typical furnace “blast” lasted from one to two months continuously, night and day, with laborers working in shifts and sleeping in company bunkhouses.

Lumbering had a part in this prosperity. To produce a ton of iron, four cords of wood were required. Surrounding farmers made a tidy business supplying charcoal made from cordwood. Through the 1800s and 1900s, much of Carver’s woodland was cut for fuelwood and construction. The North Carver Pine Sawmill, which operated until the 1970s, was the largest white pine mill in the state. Pressure to feed this mill with timber sometimes led to over harvesting, with the result that there are almost no old-growth forests in the town.

In the mid- to late-nineteenth century, plentiful and high quality iron ore was discovered in the Great Lakes region, and the iron business in the east declined. From 1850 to 1900, the population of Carver steadily declined. There are relatively few traces of Carver’s early prosperity in the built environment of Carver. Carver’s flirtation with industry was too early and brief to produce the kind of infrastructure and architecture typical of 19th century industrial towns. There is no well-developed Main Street, no rows of fancy factory-owners’ homes. The few remaining architectural traces of this era are scattered about town: the homes of George Bowers and William Savery in the Savery Historic District, for example, and the old Crane Brook Foundry building, which now houses the picturesque Crane Brook Tea Room. Savery Avenue is also a legacy of the period: William Savery built this “first divided road in America” as a place for buggy races.

But while Carver’s history of iron manufacturing did not leave many architectural reminders, it made an impact in terms of open space. The excavation of the iron industry is responsible for several of the most scenic ponds in town. And other excavations laid the way for subsequent development of the cranberry industry.

The Growth of the Cranberry Industry

Cranberries (already found growing wild all over Plymouth County) were the natural successor to bog iron. The remnants of excavated meadows and old iron bogs, rich with peat, moisture, and acid soil, made a perfect medium in which to grow cranberries. In 1878 George Bowers, a Carver iron master, and John Russell, a Plymouth banker, reclaimed a derelict bog at Benson’s Pond as Plymouth County’s first large-scale cranberry operation. At the turn of the century, Carver experienced a burst of growth as cranberry cultivation took off. By 1905 the population was up dramatically to 1,410, due largely to a wave of immigrant field workers from Finland and the Cape Verde Islands.

In the late 1950s the cranberry industry suffered a catastrophic setback. Amino triazole, a herbicide rarely used but believed to be safe, was linked to cancer, and the press linked the cranberry industry to amino triazole. The cranberry market crashed, and even though that year’s crop was found free of residue, the market was ruined for a decade. Again, Carver suffered a grave economic blow. The sixties and early seventies were tough times for the cranberry industry, as low berry prices and rising property taxes forced the sale of a number of large tracts of grower-owned land. Vaughan Estates, for example, one of Carver’s largest subdivisions, sits

on land that once belonged to a prominent cranberry family.

The industry rebounded and enjoyed unparalleled growth in the nineties. Improved fertilizers and chemicals, sprinkler systems, and better agricultural practices increased yields. Aggressive marketing techniques and the growing demand for fruit and fruit products combined to give growers and the town of Carver success in the face of farm (and farming-town) failures across the nation. However, the growth boon did not last long and cranberry growers everywhere are now facing extreme pressures as berry supply has far outreached demand.

At present, Massachusetts is second only to Wisconsin in cranberry production, and Carver has the distinction of being the leader in Massachusetts.

The Cranberry Industry Today

Approximately 12,259 acres, or about 48% of the land in Carver, is kept in an open, agricultural condition by the cranberry industry. According to the Cape Cod Cranberry Growers Association, there were 3,500 acres of cranberry bogs in production in 1996. Although a more recent statistic is unavailable, it is likely that the number of acres in production today is closer to 4,000. The remaining grower owned land that is not in production is maintained for buffers, reservoirs, recharge areas, and other agriculture related uses. There is approximately a 2 to 1 ratio of swamps and woods to actual bog, which is highly beneficial to the town because “adjacent” land provides a habitat for a rich diversity of plant and animal species and contributes to the scenic value of the area in a way that bogs, which are essentially a monoculture, do not. It is this “adjacent” land that is the most vulnerable to development and other non-agriculture related uses, especially during times when the price of cranberries falls very low.

High cranberry prices encouraged a growth in productive cranberry acreage in the early to mid 1990s. As a result, the Ocean Spray cooperative made an effort to control the rate of bog expansion (in order to avoid overproduction) by limiting the rate of expansion by members to 10% a year. However, the growth of independent processors undermined the control of Ocean Spray over grower practices in the area and opened the door to more rapid bog expansion.

In the late 1990s there was a severe downturn in the cranberry market, which has threatened the stability of Carver’s agricultural community. Cranberry prices have dropped more than 80% since their peak in 1996 of almost \$70 a barrel. Although small and large sized growers alike may be strapped for cash as a result of this price drop, mid-sized growers are the hardest hit by this downturn, as they are most likely to be in debt and to have higher labor costs than the family owned farms.

Because of the current recession in the cranberry industry, some growers turned to soil mining as a way of supplementing the income they make from the sale of cranberries. Soil was being mined under the guise of agriculture because agricultural practices are exempt from regulations. Even though the Earth Removal Bylaw adopted by the town states that soil mining is not an agricultural exemption, the town is not enforcing it nor does it receive any tax money from the sale of the soil. Soil mining for profit still continues in town.

Occasionally, the coexistence of cranberry growing and other town uses is a source of conflict. There is the perennial debate, for instance, about what constitutes a fair tax burden for cranberry

land. Many people believe that cranberry growers (especially those receiving real-estate tax reductions under the 61A program) are increasing the town's financial woes because they tie up land that should be taxable at a higher rate and shift the local tax burden to other properties. An analysis shows this assumption to be incorrect. Many studies show that, in terms of revenues versus costs, agricultural and conservation lands are actually slightly better fiscally for the town than retail facilities, and much better than single-family home development. (For more detail, see the article, "*Is Land Conservation Bad for the Tax Base?*" in the appendix.)

There have also been occasional charges that the 61A status enables property owners to stockpile developable land at a low tax rate until the market is right for selling. The *1996 Carver Open Space and Recreation Plan* made mention of the possibility that the sell-off of cranberry land may be inevitable if the value of land gets high enough. The combination of decreasing cranberry prices and sky rocketing property values that we are seeing now is making this prediction a reality. The A.D. Makepeace Company has plans to construct the largest real estate development ever proposed in New England on land owned by the company in Carver, Wareham, and Plymouth. The proposal would allow the Makepeace Company to develop up to 6,000 houses, 6 million square feet of commercial space, four golf courses, and a hotel/resort center on 6,000 of the Company's 9,700 acres in the three towns – densities of up to four times that allowed under current zoning laws. Although A.D. Makepeace Company has withdrawn their proposals from Town Meeting Warrants in the three towns, there still exists a very real threat that this land will be developed either according to the proposal or into residential subdivisions. The Makepeace Company rejected two proposals made by the Southeastern Massachusetts Conservation Partnership to purchase the land for permanent protection.

There are other problem areas. Real-estate marketers often tout a bog view as an asset in a new home, but the reality is that subdivisions and cranberry bogs are not ideal neighbors. Night and early-morning pumping, aerial spraying, and dust blown from sand pits can disturb homeowners. Bog owners, in turn, have problems with vandalism, ATV riders, and the complaints of abutters about normal cranberry practices. They have also become concerned about the effects of nitrogen flows from large subdivisions, originating from septic systems and lawn fertilizers.

C. Population Characteristics

Distribution and Age

According to the 2000 U.S. Census there are 11,163 residents in Carver. A closer look at the Census data reveals there are 3,010 family households in Carver, with an average family size of 3.23. The data also found the average age of Carver residents to be 37. Table 1 shows that 25 to 44 year olds make up the largest segment in Carver. Table 1 also shows that the largest increase in the number of people within a particular age bracket was in the 45 to 64 age group. In fact, the only age groups that didn't decline over the past 10 years were made up of people 45 and older. People are living longer, families are smaller, and the general population is aging, following the national trend.

Table 1. Age Distribution Comparison, 1990-2000

Age	1990	2000	% Change
Under 5	869	726	-16.5%
5 to 19	2,699 ¹	2,583	-4.3%
20 to 24	513 ²	503	-2%
25 to 44	3,677	3,157	-14.1%
45 to 64	1,540	2,544	71.7%
65+	1,396	1,650	18.2%

1. Because the 1990 U.S. Census reported age data in the category 5 to 17, this figure had to be estimated. An equal distribution of people was assumed for all 13 ages that fell into this category. Thus, 2,339, the number of people in the age bracket 5-17, was multiplied by 2/13 and this number was added to 2,339.

2. Because the 1990 U.S. Census reported age data in the category 18 to 24, this figure had to be estimated. An equal distribution of people was assumed for all 6 ages that fell into this category. Thus, 769, the number of people in the age bracket 18-24, was multiplied by 1/3 and this number was subtracted from 769.

When looking at the age distribution in Carver it is important to look not only at Carver as a whole, but at the villages of North Carver and South Carver separately from one another. Carver was originally settled in these two villages and today they still possess their own unique characteristics, including the age of their residents. While the two census tracts have roughly equal populations, the group in the south tract is distinctly older. Because all but one of the adult-oriented mobile home parks are located in the south tract, 82% of the town's seniors (60 and up) live there, accounting for 26% of the south tract population. In the north tract, where most of the subdivisions approved in the last 20 years have been located, the population trend is towards younger families. (Only 7% of the north tract are seniors).

Carver's recreational planning must be geared to the needs of these two diverse population groups. Seniors, with their need for more passive forms of recreation, are well served by the abundance of lakes in the area (fishing and swimming), but their opportunities for walking are limited by the lack of sidewalks and trails. Seniors also need recreation facilities with ample benches for seating, and overhead shade from the sun. Some may also need transportation assistance getting to recreation spots.

Families with children, on the other hand, have a need for more active recreational facilities such as ball fields, tot-lots, and swimming pools. Some of that need has been addressed in the last five years with the construction of soccer fields at Pond Street and ball fields at Purchase Street.

In addition, the new Carver Community Playground was built next to the library. Unfortunately, there are only two other playgrounds in town and, because they are located on school property, are only available to the general public for use after school hours.

Both population groups would benefit from a network of bike paths that would make biking safer, as the roads of Carver are rather intimidating for young or casual bikers. Route 58, for instance, which is the most direct route from most homes to school or other activity centers, carries steady traffic moving in excess of 50 mph, with the lined “bike lane” serving as a passing lane. Given the lack of sidewalks and public transportation, a network of paths that would allow safe bike travel between activity centers in town would be a great addition.

Employment

With growth, the makeup of the population of Carver has shifted from middle-income blue collar to middle-income white-collar workers. The 2000 census shows the following occupational breakdown of Carver residents (Table 2):

Table 2. Employment Characteristics of the Carver Labor Force

Occupation	Number	Percent
Management/Professional	1,479	26%
Service	879	15%
Sales and Office	1,790	32%
Farming, fishing, & forestry	7	0%
Construction, extraction, & maintenance	720	13%
Production, transportation, & material moving	784	14%
Total	5,659	100%

The low figures for farming, forestry, and fishing are interesting, considering that cranberry growing is the town’s primary industry. These figures reflect the fact that cranberry labor tends to be imported from out of town. While some long-time cranberry families still live in Carver, most large-scale growers who farm in Carver actually live in neighboring towns, as do many of their permanent employees. In addition, a lot of seasonal work is performed by temporary workers who come from Puerto Rico, Scotland, or elsewhere for a few months, and then return home.

Carver residents commute an average of 35.7 minutes to work every day. This figure is up 19% from 1990, when the average commute was 30 minutes. The only other town in the SRPEDD region with a higher commute is Pembroke (35.9 minutes). Because there aren’t a lot of jobs in the local area many residents work closer to Boston yet choose to live in Carver and make the long commute because they like the rural small town qualities it possesses.

The census shows a total of 1,920 jobs in town. The largest employment sectors are the trade sector (498 jobs) and the government sector (669 jobs). SRPEDD, in their *Southeastern Massachusetts Fact Book* (January, 1993), projected that employment in Carver would roughly triple by 2020, with retail jobs increasing at the fastest rate. Although the number of jobs in

Carver is on track to meet this projection, the rate of growth for retail jobs (19%) has not increased as much as that of government (141%). Part of the large increase in government jobs was due to new hiring at Myles Standish State Forest. Table 3 shows the breakdown of jobs in Carver based on the 2000 census.

Table 3. Characteristics of Jobs in Carver

Sector	Number	Percent
Manufacturing	38	2%
Finance, Insurance & Real Estate	41	2%
Transportation, Communication & Public Utilities	107	6%
Agriculture, Forestry, & Fishing	134	7%
Construction	144	7%
Services	289	15%
Trade	498	26%
Government	669	35%
Total	1,920	100%

D. Growth and Development Patterns

Patterns and Trends

Carver is a large, low-density rural town, filled with woods, wetlands, and cranberry bogs. The town's beginning as a network of small, interconnected villages continues to shape its appearance. Unlike many small towns, Carver has no clearly developed commercial center, but instead a series of low-density commercial strips radiating out from the old village sites. In the central area there is the town hall, the library, the fire and police station, and a school. In the north, there is the small, historic North Carver Green area, and a strip of higher-intensity businesses near the future interchange of Route 44. In East Carver there is a small commercial area that contains mostly home occupations and to the south, there is a commercial strip that extends from the intersection of Tremont Street and Route 58 to the town line. In recent years, these commercial districts have been filling in with mini-malls and auto-related businesses. There are also two areas designated for industry.

Until the early 1970s, Carver's population was less than 3,000, and it resided mostly on "Form A" lots on the old town roads. In the late 70s and 80s, however, rising housing prices in and around Boston made Carver, with its attractive rural environment, cheap land, (then) low taxes, and relative proximity to Boston and Route 128, attractive as a bedroom community, retirement community, or "next step" community for people leaving the more congested areas up north. This has resulted in a current population of 11,163 (U.S. Census, 2000), which equates to a density of 297 people per square mile. The population has more than quadrupled since 1970 and, according to the SPREDD Factbook, urban land use increased 169% (from 1,544 acres to 4,157) during the period 1971 to 1999, second only to Rochester in the SRPEDD region. The population increase in Carver has been accommodated in numerous new subdivisions and mobile home parks. The size of Carver's population is not immediately apparent to the visitor passing through town because it lies hidden from view off the main roads. Table 4 shows U.S. Census population data for Carver for the period 1930-2000.

Table 4. Population of Carver: Past, Present and Future

Year	1930	1940	1950	1960	1970	1980	1990	2000	2010 ¹	2020 ¹
Population	1,381	1,469	1,530	1,949	2,420	6,988	10,590	11,163	12,143	13,123
% Change	-	6.4%	4.2%	27.4%	24.2%	188.8%	51.5%	5.4%	8.8%	8.8%

1. Numbers for 2010 and 2020 are SRPEDD projections.

The largest periods of population growth took place in the 1970s and 1980s. The 1990s saw a small rate of growth (5.4%) in comparison to the previous five decades. Figure 2 gives a visual depiction of the data in Table 4.

It is interesting to see how population growth in Carver compares to the other towns in the Buzzards Bay watershed. For the periods 1970-1980 and 1980-1990, Carver ranked 1st out of 14 towns with a growth rate of 188.8% and 51.5%, respectively. However, for the period 1990-2000, Carver ranked 10th out of 14. Only Fairhaven, New Bedford, and Westport had a smaller rate of growth.

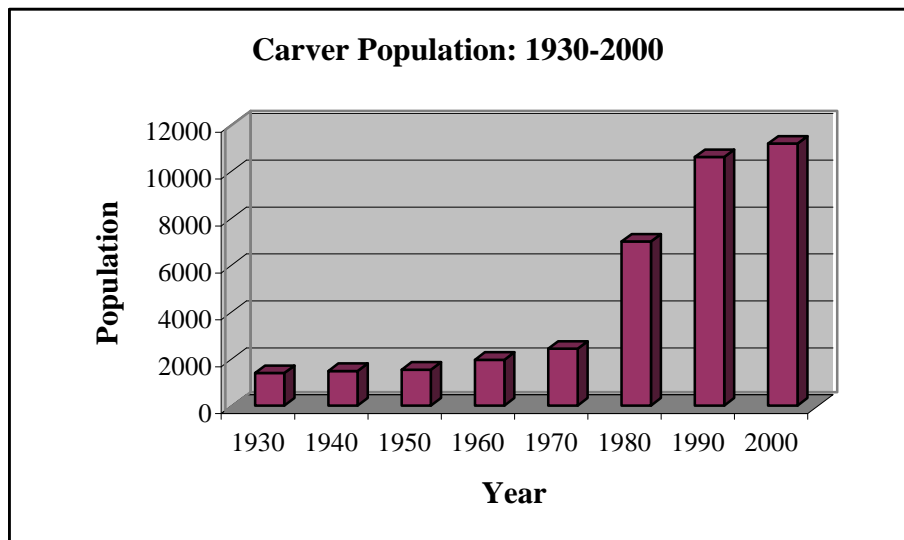


Figure 2. Carver Population: 1930-2000

Infrastructure

Interstate 495 and Route 3 indirectly serve Carver. Route 58 crosses Carver from north to south and Route 44 crosses the town from east to west. A new extension of Route 44 is currently being constructed that will link Routes 3 and I-495 and create two off-ramps in Carver. The State expects to have completed this 7.5-mile extension, of which 3.1 miles are located in Carver, by the year 2005. The new Route 44 will be a four lane limited access highway and will have full diamond interchanges at Route 58, and Spring Street at the border with Plympton/Kingston. Local water supplies will be protected by the construction of a closed drainage system with siltation and recharge ponds to treat all stormwater runoff.

In the last couple of years Carver has made great strides in updating some of its infrastructure. A new library was built to replace the aging space-metal building that used to be the library. In addition, a new Town Hall was built to replace the old Town Hall, which needed repair and didn't meet current building standards and Americans with Disabilities Act requirements.

Some of the infrastructure in Carver still needs to be updated so that it meets the needs of a town Carver's size. For example, the town still maintains a volunteer fire department, which is unusual for its size. In addition, there are no bus routes (unless one counts the GATRA buses which are available to serve the elderly community) and no rail service.

Lacking much of an infrastructure of its own, Carver has always been linked with and dependent upon surrounding towns in the region for many resources. For most of its history, Carver's school system was linked regionally to that of Plymouth, with Carver's high school students attending Plymouth Schools. In 1988, Carver completed its own high school, and in 1993 it dissolved its regional links and began operating on its own. Likewise, Carver citizens have long relied on the businesses of Plymouth and Wareham for their shopping. A mini-boom in commercial building in the late 80s sought to fill this void, and Carver did gain its own supermarket in the process. Unfortunately, many of these new businesses did not fare well, as Carver citizens continue to take much of their business out of town.

There are also regional links for sewage and trash. The Carver, Marion, Wareham Regional Refuse District manages solid waste. For years Carver trash was deposited in the Tri-town Landfill, a facility on Makepeace property in South Carver that was shared with the towns of Wareham and Marion. Since the closing of that facility to the public, private haulers have been taking trash to the SEMASS Incinerator in Rochester, which returns the ash to the Tri-town Landfill. It is estimated that the landfill has sufficient capacity to accommodate 5-10 years of additional ash supplied by the SEMASS plant.

There is no public water or sewer service in Carver; the majority of houses have private wells and septic tanks. The Town of Carver is underlain by a sole source aquifer, which is generally an excellent source of groundwater for residents. Ninety-four percent of the homes in Carver have septic tanks, a result of the fact that Carver benefits from a sandy soil that makes an excellent medium for septic systems. Septage from Carver is currently collected by private haulers and taken to Wareham.

Perhaps the most important element of Carver's infrastructure is the high-quality groundwater. This water, coming from one of the largest aquifers in the state, might someday become a water resource for other communities as well as Carver, and a source of revenue for Carver. There is a tendency among citizens to clamor for public water and sewer. However, it is worth reiterating that the absence of water and sewer has distinct advantages in terms of growth and resource protection. In any case, due to the prohibitive cost of providing town-wide sewer and water it is unlikely it will ever happen, so it is imperative that the town protects this resource vigilantly.

One of the challenges to protecting Carver's water sources is the town's reputation as a "dumping ground" for refuse from more affluent surrounding towns. Carver is host to the regional dump. In addition, out-of-town dumping at several now closed landfills has led to pollution of the immediately surrounding aquifer and forced approximately forty residences to be hooked up to the Middleborough water main as a precaution. Clearly, two of Carver's challenges in the future will be to figure out how to provide an infrastructure appropriate to the mid-sized town it now is, and how to raise its standards so that it becomes more self-protective and no longer gets "dumped on".

Zoning and Land-Use Controls

Carver has eight major types of zoning districts (see Figure 3): Residential –Agricultural (RA), which comprises the majority of the land area in town; General Business (GB); Highway Commercial (HC); Village District (V); Industrial A (IA), which is geared towards "light" industry and which occupies two areas at the far north and south ends of town; Industrial B (IB), a sub-category of the Industrial district, which allows all uses included in the industrial district and also asphalt and cement plants; Airport District (AP), which allows for certain aviation related uses; and Planned Tourism Commercial, which encompasses Edaville Railroad and the King Richard's Faire land.

In addition, there are some other special districts: the Water Resource Protection District, which overlays all other town districts and imposes groundwater protection standards; and two Historic Districts, both of which have special architectural standards.

In addition to designated districts, land-use is also controlled via the Site Plan Review process,

which gives the town some control over the design of commercial and industrial projects, and the Special Permitting process, which further regulates high-impact projects.

In the past, Carver's zoning bylaws contained many inconsistencies and ambiguities due to the fact that they had been assembled piecemeal over a number of years. A committee was appointed in 1996 to overhaul these bylaws. As a result, the Town Bylaws were updated in 1998 and later revised in 2000. Some of the major changes include an increase in the minimum lot size from 40,000 square feet to 60,000 square feet, and a change in the minimum lot frontage to 150 feet (see Table 5 for lot dimensional requirements).

Table 5. Lot Dimensional Requirements

REQUIREMENT	RA	HC	GB ¹	V ¹	IA	IB	AP
Minimum Lot Size ^{2 3} (X 1,000 ft ²)	60	60	40	20	60	60	40
Frontage (feet)	150	250	200	100	175	175	150
Front Setback (feet) ⁴	50	40	40	15	50 ⁵	50 ⁵	40
Rear Yard (feet)	50	40	25	15	30	30	30
Side Yard (feet)	30	40	25	15	30	30	30
Maximum Building Height (feet) ⁶	35	40	40	30	40	40	40
Maximum Building Height (stories)	2.5	3	2.5	2.5	2.5	2.5	-- ⁷
Minimum Lot Width at building line (% frontage in district)	80	80	80	80	80	80	80
Maximum % of Lot Covered by Buildings	30	60	50	70	50	50	50

1. Residential uses in commercial districts shall conform to all dimensional requirements for the RA District.
2. At least 70% of the minimum lot size shall be dry land; i.e. not taken up in streams, bogs, wetland and/or flood plain.
3. Portions of the lot less than 40 feet in width shall not be counted as any part of the minimum lot size.
4. Front setbacks shall be measured from the street layout line.
5. Provided, however, that this requirement shall be 60 feet where the subject property has frontage on the state numbered highway.
6. Provided, however, that chimneys, spires, silos, and unoccupied towers erected on the roof of a principal structure may be erected to a height of 70 feet from the base of the principal structure on which it is erected where no detrimental effects on the surrounding area are caused.
7. In order to prevent the erection of structures which, due to height, would create hazardous obstacles to air navigation in the vicinity of the Plymouth Municipal Airport, the applicable requirements of Chapter Ninety of the General Laws of Massachusetts and the standards of the Federal Aviation Regulations shall be met. No structure shall be erected which exceeds the height limitations of the above regulations unless appropriate authority shall have been issued by the Plymouth Airport Commission or the Federal Aviation Agency.

Carver Zoning Map

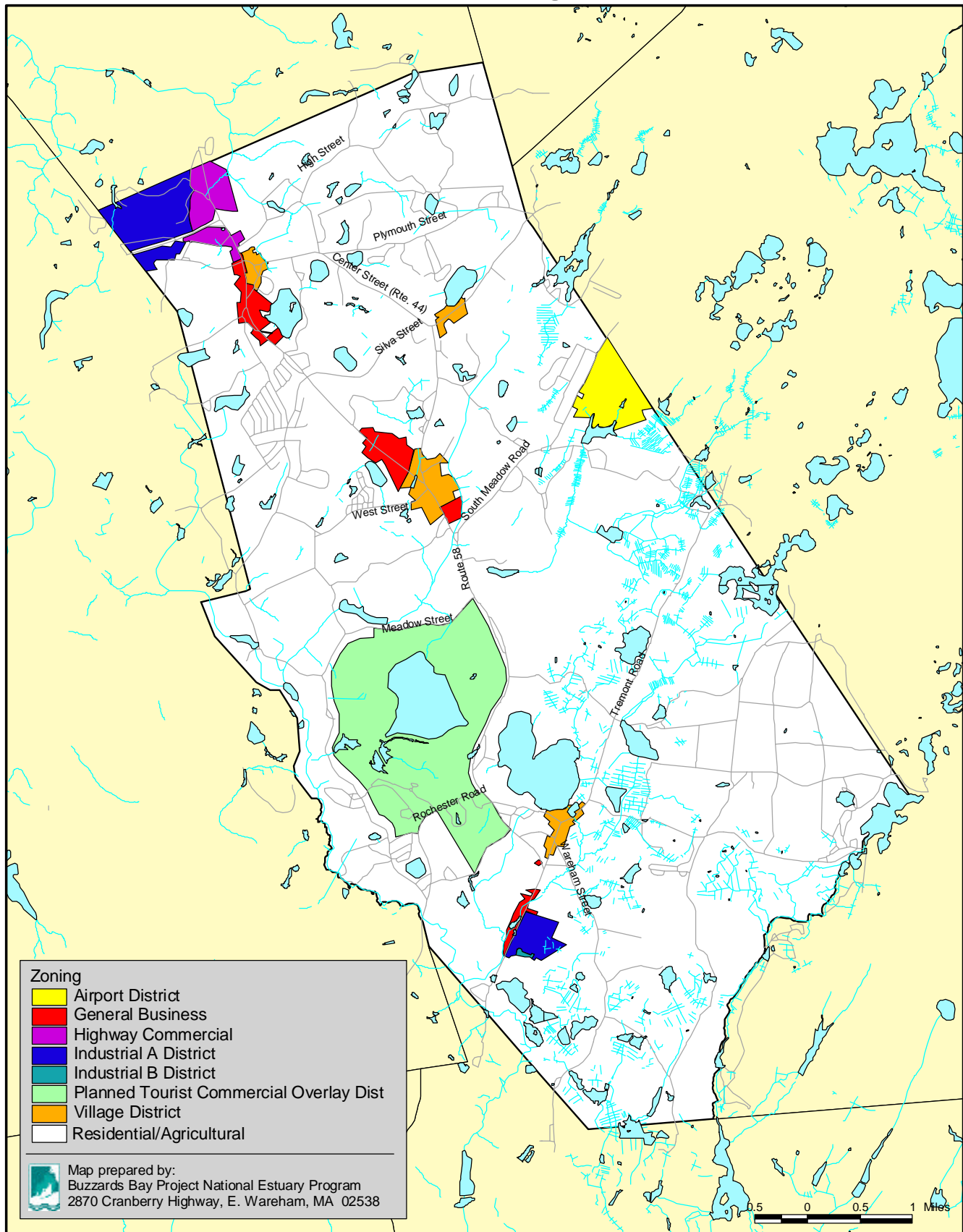


Figure 3. Carver Zoning Districts

Zoning regulations in Carver could go much further towards encouraging the protection of open space and natural resources than they currently do. There are a variety of zoning alternatives that can be used to promote open space preservation, including density controls, critical resource protection, and incentive zoning. Following are some strategies recommended in the town's 2001 Master Plan for reducing build out and the impacts of development:

Increase minimum lot size

Increasing the minimum lot size to two acres will result in the reduction of the potential residential build out by as much as 30%. While it can have the adverse effect of consuming open space at a faster rate it can also encourage the use of cluster development if combined with changes to zoning and subdivision regulations. Additionally, the creation of a Large Lot Critical Resource District would help protect fragile natural resources. Particularly sensitive environmental areas of town would need to be identified and the minimum lot size in this district would be increased to 3 acres.

Encourage/Require Cluster Development

Improvements to the cluster subdivision regulations may help to encourage the use of cluster provisions, as well as ensure that cluster subdivisions are well designed. Minimum lot sizes and dimensions may be reduced, with allowances for shared septic systems and/or restrictions on the number of bedrooms a unit may have. More stringent requirements for roads and drainage systems for all subdivisions may serve the dual purpose of protecting water resources, enhancing pedestrian mobility, and encouraging the design of cluster subdivisions to reduce infrastructure costs.

Density bonuses for developments that offer greater benefits to the community can provide another incentive for the use of cluster development. Exempting cluster subdivisions from an increase in the minimum lot size offers a built-in bonus for cluster development. Alternatively, bonuses may be conferred upon developments that offer a larger percentage of open space, protect an area of special interest to the community, or provide amenities such as recreational structures. Bonuses may consist of an increase in average density or the addition of a specified number of lots.

Recent state legislation has enabled towns to allow cluster subdivisions by right, instead of requiring a special permit. The requirement of a special permit poses a significant disincentive for developers to choose cluster subdivisions rather than traditional subdivision design. The town would need to change its bylaw in order to allow for cluster subdivisions by right.

Transfer of Development Rights

Transfer of Development Rights (TDR) is a zoning tool that allows landowners to sell the development rights of their properties to developers who will use them to increase the number of lots they can develop elsewhere in town. "Sending areas" are areas from which development rights can be sold, while "receiving areas" are areas where development densities can be increased. In Carver, the Village Center districts would be appropriate receiving areas for development rights transfers. Sending areas could be anywhere else in town, or limited to a specific district. A TDR bylaw should be stated in such a way as to ensure that lands from which the development rights are transferred are permanently protected from development.

Agriculture Preservation Zoning

The Zoning Bylaw can include a variety of measures to protect and support agricultural uses. These include requiring cluster site design to protect agricultural lands, requiring a buffer between residences and agricultural uses, protecting views of agricultural lands, and site plan review. Another option is to allow ancillary uses to agricultural operations, including small businesses, in order to allow farmers to diversify their operations and seek supplemental income.

Agriculture Preservation Zoning may also include design guidelines and site plan review to ensure that landscaping, site design, roads, and drainage systems are consistent with agricultural protection goals.

Nutrient Limiting Regulation

An alternative means of limiting development is to regulate the amount of nutrient loading that can result from development. This approach offers more flexibility than increasing the minimum lot size, while it directly addresses the problem of water resource degradation. The development of appropriate loading standards and a practicable regulatory framework must take into consideration the unique landscape and hydrology of Carver, and will require further study.

Even with innovative zoning tools, the possibility of protecting targeted open space parcels through regulatory means is quite limited. The town needs to concentrate on developing a methodology for evaluating open space parcels and a means for acquiring them.

Existing Land Use

There are approximately 24,749 acres of land in the town of Carver, of which about 16% are developed. Developed land includes private residential and non-residential uses, as well as public uses and utilities. Approximately 78% of the land in Carver is undeveloped, although much of this land cannot be developed because of wetlands or other constraints. The following is a breakdown of existing land use that was taken from the 2001 Carver Master Plan (See Figures 4 & 5 for an illustration):

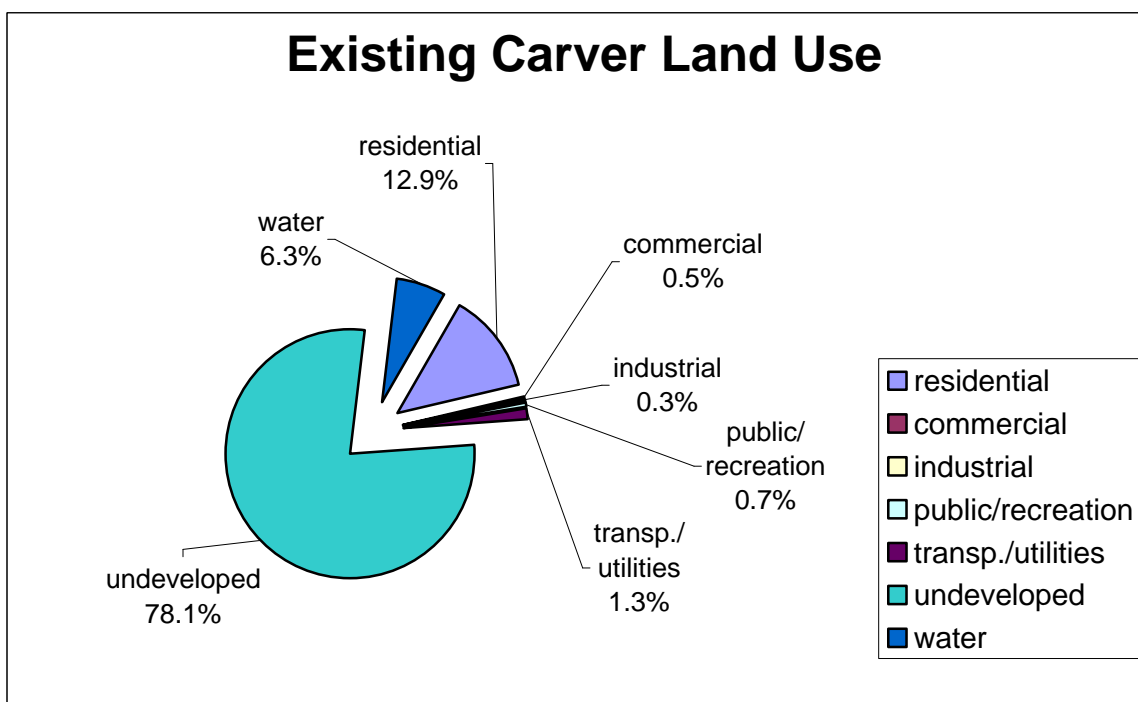


Figure 4. Existing Land Use in Carver by Percentage

Private Residential

About 3,197 acres, or 83% of the developed area of Carver, is in residential use. This includes single family residences as well as multifamily or other types of residences. According to the Master Plan, most of the residential development is of moderate density, with an average lot size of 1.35 acres per single family home. Some of the more densely developed areas are concentrated in subdivisions in North Carver, including South Meadow Village and a subdivision off of West Street, and in South Carver, Pine Tree Village off of Wareham Street. Low density single family housing is located throughout the town along most existing roadways. There are only two multifamily developments in the town, both located in the north off of Route 58.

Private Non-residential

About 176.5 acres, or 4.6% of the developed area falls into this category. This includes all commercial and industrial uses. These uses are concentrated mostly in North Carver near the intersection of Routes 58 and 44. In addition, there are commercial uses in village centers, as well as a few businesses scattered outside of these centers, mainly along Route 58.

1999 Land Use

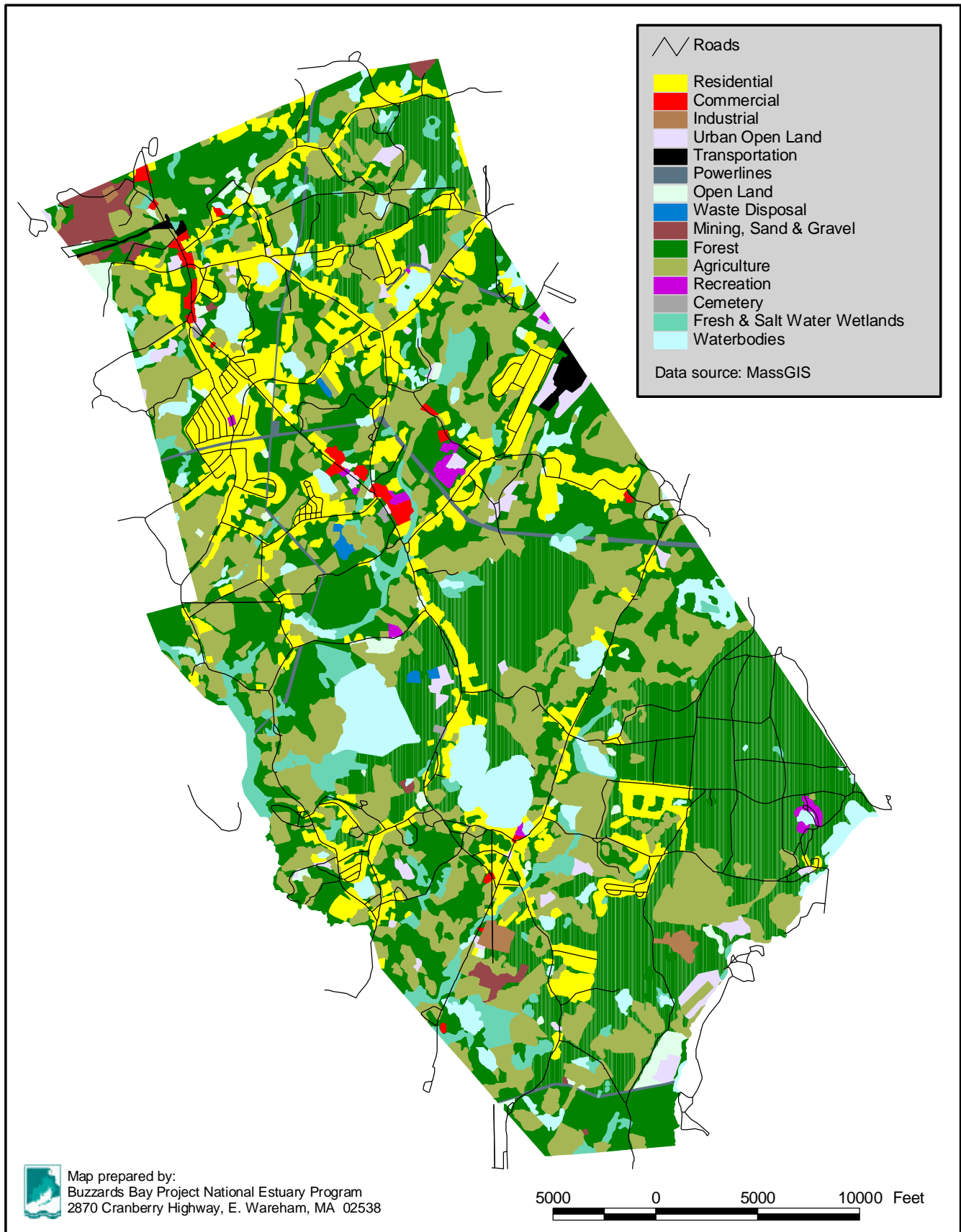


Figure 5. 1999 Land Use Map

Public/Recreation

This category includes land occupied by public facilities, public and private recreation facilities, and lands owned by public agencies (other than for conservation purposes). Land in this category consists of about 166 acres, or 4.3% of the developed area in the town. Public facilities include parks, playgrounds, ball fields and beaches.

Transportation/Utilities

The Plymouth Municipal Airport, and utility transmission lines that cross the northern part of the town occupy about 325 acres of land in Carver. The area of local and state roads is not accounted for separately, but is included in the area of abutting land uses.

Undeveloped Land

Undeveloped land includes forested uplands, wetlands, agricultural land, and other open lands. The extensiveness of cranberry agriculture in Carver is the most distinguishing feature of the town's landscape. Land that is actively used in cranberry production occupies about 6,890 acres, or 28% of the town's total area. Undeveloped, forested land comprises just over one half of the town's total area. The dominance of undeveloped open space in the town may not be immediately apparent because of development along the roadways. Much of this land is connected with cranberry growing activities, although a considerable amount may be developable at a future time, as described in the buildout analysis.

Future Trends - Residential

The relatively slow rate of development in recent years is not caused by intentional changes in the town of Carver's policy with respect to growth, but rather the lack of availability of developable land coupled with the profitability of cranberry agriculture until 1997. Excluding forest, recreation and cranberry land, most large parcels of good, easily accessible land have been developed, leaving land that is too wet or hard to reach and therefore expensive to develop. Unfortunately, the decline in agricultural values combined with an increased demand for housing in the region is creating a perfect climate for development activity. There is a real risk that if cranberry prices stay low and the value of land remains high, agricultural land currently owned by cranberry growers will be developed for residential and commercial purposes.

Under existing zoning, the potential for housing diversity in Carver is quite limited. It is unlikely that the town will see a boom in multi-family (and condominium) construction, such as that which occurred in many south shore communities in the 80s, because current zoning requires that a multi-family dwelling have at least 60,000 square feet of land area per unit, a requirement that appears to make the cost of development prohibitive for most builders. The one exception is the construction of multi-family dwellings that include a percentage of low-income housing. This type of project, otherwise known as a 40B project, is often eligible for a comprehensive permit that overrides local density regulations. Mobile home parks are also unlikely to increase at the rate of the early 80s. Current zoning requires a land area of at least 100 acres for a mobile home park. Aside from grower-owned lands, there aren't any tracts large enough for a mobile home park. Future mobile-home growth will probably be limited to infilling and expansions of existing parks.

The population of Carver will continue to grow. The vast majority of housing that will be developed is single family homes on 60,000 square foot lots. There is still potential for

numerous small projects (typically short cul-de-sac roads with ten or fewer houses) and there are several incomplete subdivisions on the books (see Table 6). In addition, the A.D. Makepeace Company has several subdivisions planned that have not yet been approved by the town of Carver. Makepeace owns a significant amount land in Carver, land that was once thought to be fairly safe from development but is now vulnerable because of the economic downturn in the cranberry industry. Future development of this land into residential subdivisions could have a major impact on the community. Unfortunately, not only do these homes serve only a fraction of the population that might seek to buy homes in Carver, they are the most costly type of development for the town to absorb in terms of fiscal impacts.

Table 6. Currently Approved Residential Subdivisions

Subdivision	Lots Approved	Lots Left
Alexandra Lane	15	11
Plymouth Street	18	18
Residences at Sampson's Pond ¹	29	29
Godfrey Woods	7	7
Harvest Brook ¹	10	10
Total	79	75

1. Townhouses.

Buildout Analysis

What can we expect the maximum population of Carver to be? As part of its Community Preservation Initiative, the Executive Office of Environmental Affairs recently performed buildout analyses for all towns in Massachusetts. Each analysis starts with available land in each zoning district and makes projections of additional housing units and commercial/industrial space according to each district's minimum lot size and other regulations. The projections only account for as-of-right development and do not include development by special or comprehensive permit that may increase the amount of development. These buildout projections were combined with 2000 Census and other data to create a profile of each community at buildout according to its current zoning.

According to the projections for Carver, if buildout were to be reached under current zoning, the town could expect to have an additional 21,574 residents, which would create a total town population of 32,737. Along with these new residents would come 7,641 additional housing units and 4,044 additional children entering the school system. The new residential growth would increase the demand for water by 1,618,073 gallons per day.

According to the study, commercial and industrial growth would consume another 431 acres and require 1,439,122 additional gallons of water per day. Municipal solid waste issues would also be of concern. At buildout, 11,067 additional tons per year of non-recyclable solid waste would be produced, as well as 7,875 tons per year of recyclable solid wastes. All of this new growth would require a total of 124 more miles of roadways throughout the town.

Additional growth will put increased pressure on the remaining open spaces and historic sites in the town. In an effort to alleviate some of the growth pressures being experienced in many

Massachusetts communities, the Community Preservation Act was recently passed. This legislation allows Massachusetts communities to adopt by referendum a 1%-3% surcharge on property taxes that go into a community preservation fund. Of the money raised from this surcharge, 10% must be set aside to buy open space, 10% to create affordable housing, and 10% to do historic preservation work. The remaining 70% can be used on any of the three categories.

Additional state funds are also being made available to participating communities from money collected from a new surcharge on documents filed at the Registry of Deeds and Land Court Offices. These surcharges are expected to generate approximately \$30 million every year.

Future Trends - Business and Industry

There is a lack of stable businesses in Carver. Although the Industrial Development Commission is working on attracting new businesses and filling the large amount of empty store fronts in town, attracting appropriate industrial and commercial development to Carver has proven to be a difficult task for a variety of reasons.

With one of the smallest economic bases in the region, the town is heavily dependent upon State aid and the existing commercial businesses, including agriculture, for its revenues. Commercial, industrial, and personal property (CIP) contribute 31% of the funds raised by local taxes. In fiscal year 2000, Carver had the second highest CIP and percentage of State Aid among 10 neighboring towns. It also had the second highest shift in the commercial tax rate.

Carver has two areas designated for industry that are reasonably appropriate for industrial development. Both are in relatively unpopulated areas near major highways and rigorous new zoning bylaws and the provisions of the Water Resource Protection District protects both. Unfortunately, neither tract has the kind of improvements that would make them truly "ready to develop." There are no roads or services, and no public water and sewer, all of which are deemed essential by most industries. All of the above factors limit the interest of the local business community to expand in town.

In the early 1990s, a developer built a regional septic plant in the front portion of the North Carver industrial park, with a promise to develop a road and services for other industries on the back acreage. The back of the industrial park is still vacant, however, the developer is trying to come up with a development proposal that is acceptable to the town. The town should seriously consider buying the land and creating a town-owned industrial park, so that it can have more control over the way the area is developed.

Other Long-term Development Trends

It is worth noting here the economic development strategies recommended by SRPEDD for Carver, in the *Small Town Economic Development Project* report. These strategies include:

1. Country-style tourism: exploiting the natural, scenic, and historic resources of the town via active and passive recreation activities including farmers markets, antique shops, orchards, vineyards and wineries, festivals, museums, historical sites, farmhouse bed and breakfasts, country inns, quaint restaurants, horseback riding, ballooning, canoeing, boating, fishing, hiking/nature trails, golfing, camping and swimming.

2. Agriculture: encouraging the retention and expansion opportunities from existing agriculture and natural resource-oriented business.
3. Agricultural parks and agricultural processing: encouraging businesses that add value to locally grown products before they are exported out of the region. This could be a facility to sort, clean and store cranberries or a manufacturing plant to process the raw berries into final product. (Note: Two businesses of this type are located in Carver. One is the Decas facility on Route 58, where all the Decas cranberries are brought to be prepared for export. The other is the Hiller facility located on Pond St.)
4. Forestry, wood, and lumber processing: expanding the low-profile forestry related businesses in town with more logging, sawmill operations and millwork. Business should be conducted in conjunction with long-range forestry management planning.
5. Industrial parks: making or encouraging the significant investment that is needed before industrially zoned land can be considered "ready to develop." This may have to include providing public utilities.
6. Town and village centers: modifying the town's zoning to strengthen our existing town center and "satellite centers," by promoting compact, high density development with easy pedestrian circulation. These activity centers would be the focus of town government and community life, and would also contain a mix of residential, commercial, and business uses.
7. Commercial corridors: reducing the amount of highway frontage zoned for commercial use so that business can be directed to new more compact commercial nodes and to village and town centers.
8. Home occupations: increasing the opportunity for residents to start and operate businesses in their homes.

Successful implementation of these strategies (especially #1, 2, 3, 4, and 7) would mean increased economic development and protection of open space and the rural quality of the town.

IV. ENVIRONMENTAL INVENTORY AND ANALYSIS

A. Geology, Soils, Groundwater, and Topography

Carver's surface drainage, ground water, geological resources, vegetation, and climate are all interrelated and provide a favorable setting for the dominant land use of today, cranberry agriculture. Many of these natural characteristics are the product of the Pleistocene Ice Age, a period of continental glaciation that ended about 12,000 years ago.

Groundwater resources, for example, are almost entirely derived from a thick saturated layer of unconsolidated glacial material deposited over the underlying bedrock. This layer, composed of materials carried from the face of the glacier by melt water streams, varies from silt to coarse gravel, but is predominantly coarse sand. The layer is thickest, and the corresponding water supply the greatest, over pre-glacial valleys that are eroded into the buried bedrock surface. There are two large bedrock valleys in Carver: the largest starts under Point Street in West Central Carver and runs southeast under Sampson's Pond and Cranberry Road towards Onset, with glacial deposits ranging from 50 to 15 feet in thickness. The second large bedrock valley starts in North Central Carver, near John's Pond, and runs northeast to Plymouth Center, approximately under Silva Street and Wenham Road, with glacial deposits of over a hundred feet in thickness. While the bedrock is too dense to yield significant supplies of water, there is an ample supply in the glacial deposit layer.

Thus Carver, along with areas from adjacent towns, contains the second largest aquifer in Massachusetts. Known as the Plymouth-Carver Aquifer, it is estimated to hold 540 billion gallons of water and is constantly recharged through groundwater sources. Wells in this southern part, over the "Wareham Outwash Plain", have potential yields of over 300 gallons per minute (GPM). Wells in the northern half of Carver over the "Carver Outwash Plain", can be expected to yield between 100 and 300 GPM.

The Plymouth-Carver Aquifer has been frequently studied as a potential water source for adjoining areas including Brockton and Boston. However, there is a strong need to ensure that local water supply needs are protected to serve anticipated population growth in the region. In the summer of 2002, selectmen from the town of Wareham sent letters to the selectmen in Plymouth and Carver to encourage the signing of a memorandum of understanding that would allow the three towns to comment on applications for development that would affect the Wankinko and Agawam River watersheds. This represents the first step towards the creation of a watershed advisory board that would work to protect these rivers and the Plymouth-Carver Aquifer. In the winter of 2003, SRPEDD facilitated the formation of the Plymouth-Carver Aquifer Advisory Committee, which will meet regularly to address concerns about the aquifer.

In the 80s, the town designated an area in the southeast corner of town adjacent to Miles Standish State Forest as a future source of public water. If tapping into this resource is to remain a possibility, great care must be taken to protect it.

Carver's sand and gravel are also valuable resources derived from the glacial period. They are used extensively as a soil treatment in cranberry bogs and as aggregate and fill by the construction industry.

While generous water supply, soils, and topography associated with these geological conditions have been ideal for the development of the cranberry industry, they have placed severe limits on other types of land use. Much of Carver lies beneath pond and swamp. According to the *Soils Interpretive Report* by the Soil Conservation Service of 1972, much of Carver has a water table near or at the ground surface nine months of the year. Of the roughly 24,000 acres of land in Carver, the sand-muck soils of cranberry bogs comprise 3,540 acres or 14% of the area. Marsh muck and peat total 3,136 acres or 13% of the area. In addition, 15% is open water, and 5% is adjacent shores. An additional 5% of the town has a slope greater than 15%. In all, the Soil Conservation Service has estimated that about 40% of Carver has severe limitations for home site development due to wetness or severe slopes.

Of the remaining land, almost half, or 11,489 acres, of the town's surface area consists of a coarse sandy soil type called "Carver". Water infiltrates into this soil quite rapidly and seasonal water tables are deep. There are only slight to moderate limitations for residential, commercial, or industrial development with this soil type. On the other hand, because infiltration happens so easily with this soil type, special care must be taken to avoid spillage that might lead to groundwater contamination. This overall soil profile for Carver serves as a natural protector of open space.

Below is a description of soils types shown in Figure 6 on the following page. This information was provided by the USDA Natural Resources Conservation Services, West Wareham Office.

General Soil Types in Carver

Birchwood-Poquonock-Mattapoisett – Very deep, nearly level to moderately steep, well drained to poorly drained soils formed in sandy mantled underlain by loamy firm to friable glacial till in areas of ground moraines and uplands.

Freetown-Swansea-Scarboro – Very deep, nearly level, very poorly drained soils formed in very deep to shallow freshwater organic deposits, underlain by glacial fluvial deposits in swamps and depressions.

Hinckley-Windsor-Deerfield – Very deep, nearly level to steep, excessively to moderately well drained soils formed in glacial fluvial deposits on outwash plains, deltas, kames, and ice contact deposits.

Plymouth-Carver – Gently sloping to steep, excessively drained soils formed in loose sandy ice contact and glacial outwash deposits on moraines and outwash plains.

Carver – Nearly level to steep, very deep, excessively drained sandy soils formed in glacial outwash and ice-contact deposits, on outwash plains and kames.

Raynham-Scio-Birdsall – Very deep, nearly level to gently sloping, moderately well to very poorly drained soils formed in silty lacustrine deposits.

General Soils Map

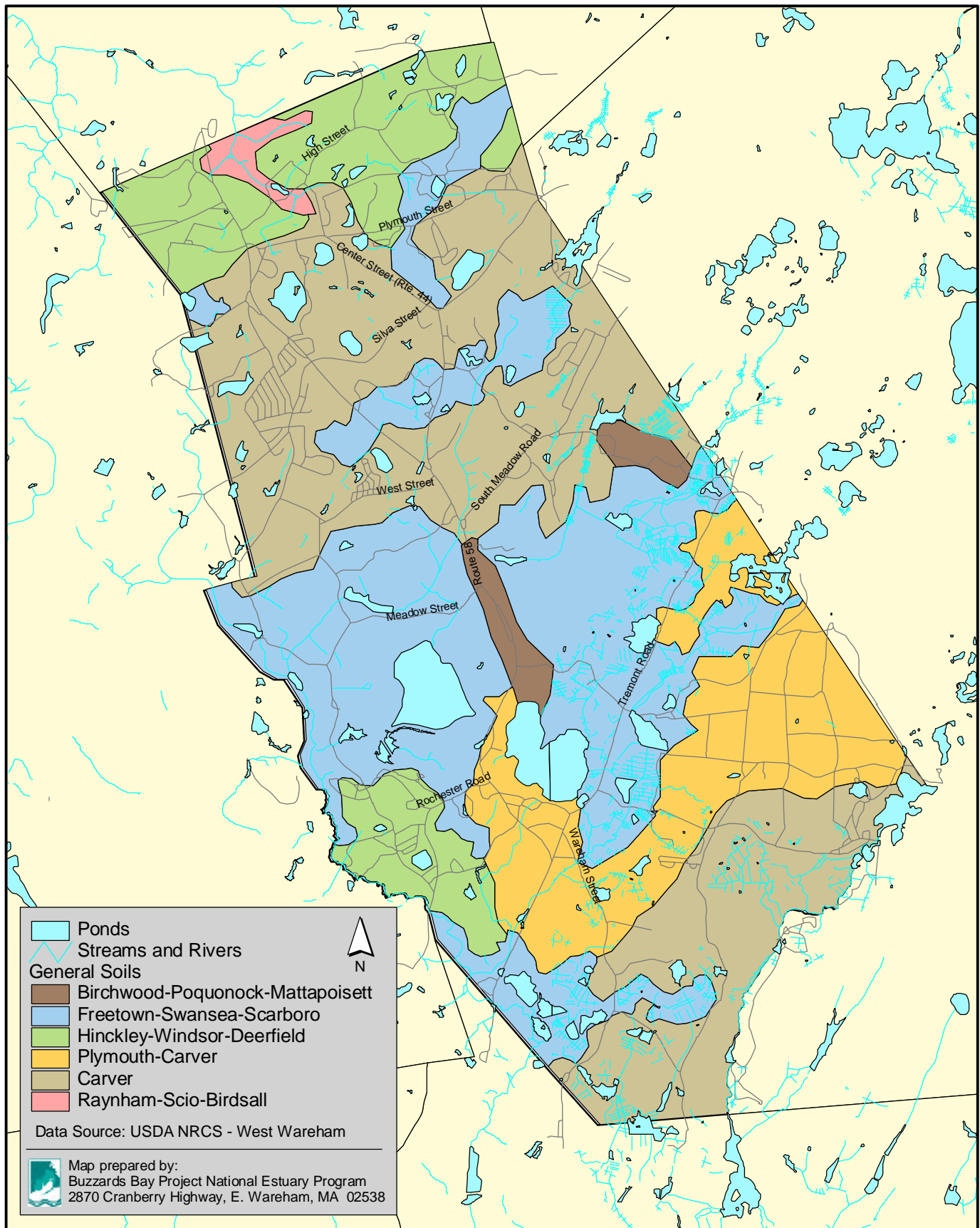


Figure 6. General Soils Map of Carver

B. Landscape Characteristics

Carver's visual character, created by cranberry bogs, tall pines, and sparkling ponds, is worth protecting. In many surveys over the years, citizens have cited "rural quality" as one of the main reasons for moving to Carver. Although this rural quality is under siege, it still persists. While the landscape view along the main roads is getting encroached upon by typical suburban sprawl, a turn down some of Carver's lesser developed roads reveals quite a different picture: there Carver still has the gentle rural quality that attracted so many residents, with vistas of woods, bogs, ponds, old farmhouses, and newer homes. The town looks especially scenic during harvest season, or when covered with snow.

Some of the most popular views in town are Sampson's Pond as seen from Lakeview Street, and the scenery provided by bogs on Purchase Street, Cranberry Road, Old Main Street, Federal Furnace, and Pond Street. Carver's cranberry views are especially popular during harvest season, when the red berries and bright foliage attract tourists from around the world. Savery Avenue, with its tunnel of 100 year-old pines, is also a favorite spot for its peaceful beauty and historical significance. The historic North Carver Green and Union Church are also views that exemplify the history and rural setting of Carver.

Some problems that continue to plague the character of Carver are the presence of visual clutter, landscapes stripped of their vegetation and soil, and ugly or abandoned buildings on main roads in town, particularly in the commercial areas. Community leaders recognize these problems exist and how they can affect the town, both in terms of aesthetics and the fact that they could deter potential new businesses and impact the town's bottom line.

Some zoning modifications have been instituted in the past to address the problems. The Site Plan Review Bylaw, which allows the town some oversight on new commercial and industrial projects, is a start, but for it to be fully effective, there needs to be more of a consensus as to what type and degree of architectural control is appropriate for Carver. Another bylaw, the Earth Removal Bylaw, was passed to address the issue of lots being stripped of their vegetation, gravel, and topsoil and then left in torn-up condition (with resulting erosion, dust, and unsightliness) for years on end. Unfortunately, this bylaw is not being enforced properly and changes need to be made in the future in terms of how earth removal is managed and by whom. In addition, a new sign bylaw was recently passed but it too is not being enforced because it is perceived by some to be too restrictive.

As Carver continues to court industry, it needs to consider how that industry will affect the visual flavor of town. Unlike many surrounding towns, Carver does not have a town-owned industrial park, located down a long driveway and hidden by trees. New industry in Carver will most likely be highly visible, especially in South Carver. Lots with frontage along the main road will be in especially high demand. Without some forethought, the push for economic development could lead to the further degradation of the Carver landscape.

C. Water Resources

Surface Water and Wetlands

Carver has no large rivers, but it has three small rivers and many brooks and small streams. The headwaters of most streams and rivers are either within the boundaries of the town, or a mile or two into Plymouth. The main drainage basins in Carver are along the Winnetuxet River, which flows north; South Meadow Brook and Cranebrook, which flow Southwest; the Weweantic River, which flows south along the town's southwestern boundary; and the Wankinco River, which flows south along the town's southeastern boundary.

Average stream flows are highest in late fall, winter and spring, and lowest in the summer and early fall. The rapid infiltration rates of the glacial deposits, a moderate, evenly distributed level of rainfall, and the presence of numerous ponds and swamps combine to moderate stream flow. Nevertheless, minor flooding along streams occurs most every year, caused by rapid snowmelt, or by a series of low pressure storms with high rainfall. Water quality is generally good, although a number of streams do exceed the recommended limits for iron, manganese, and color. The water is acidic and in places corrosive to metal.

Within each drainage basin is a complex pattern of wetland and cranberry bogs. The largest areas of wetlands are concentrated in the central and northern parts of the town. The Great Cedar Swamp in the center of town covers over 1,000 acres. These wetlands are important to the town as wildlife habitat, for water recharge, and to reduce flooding in developed areas downstream. Figure 7 on the following page shows just how much of the town is made up of wetland and water resources.

Carver's Wetland Protection Bylaw is intended to protect wetlands, water resources, and adjoining land from adverse impacts. Activity within these areas, including removing, filling, dredging, building upon, or otherwise altering the land, requires the approval of the Conservation Commission. The definition of resource areas and their buffer requirements are not clearly stated within the bylaw. Wetland resources are defined as wetlands, marsh swamps, bogs, beaches, meadows, ponds or lakes, rivers and streams, and land within the 100-year floodplain. To date, these resources have not been adequately mapped. According to the bylaw, no development may take place within 65 feet of any wetland or water resource. Buffer areas of 200 feet are required for rivers and streams, while buffers of 100 feet are required for all other resource areas.

Water quality in the three town swimming ponds is regularly tested for coliform bacteria. There is no testing done for pesticides and other agricultural chemicals in the swimming ponds, although occasional testing might be wise. The one exception to Carver's good clean pond water is Muddy Pond, which lies adjacent to the now closed North Carver Landfill. Volatile organics in the groundwater flowing from the landfill have contaminated the pond. The Division of Fisheries and Wildlife conducted a survey of Muddy Pond in the summer of 2002 to document fish species. While apparently healthy, rather large specimens of bass were collected, it has not been determined if the fish are safe for consumption.

Carver's ponds, rivers and wetlands are treasures and account for much of the appeal of the area. Besides providing beauty and a habitat for a rich array of plants and animals, they provide oppor-

Surface Water and Core Wetland Resources

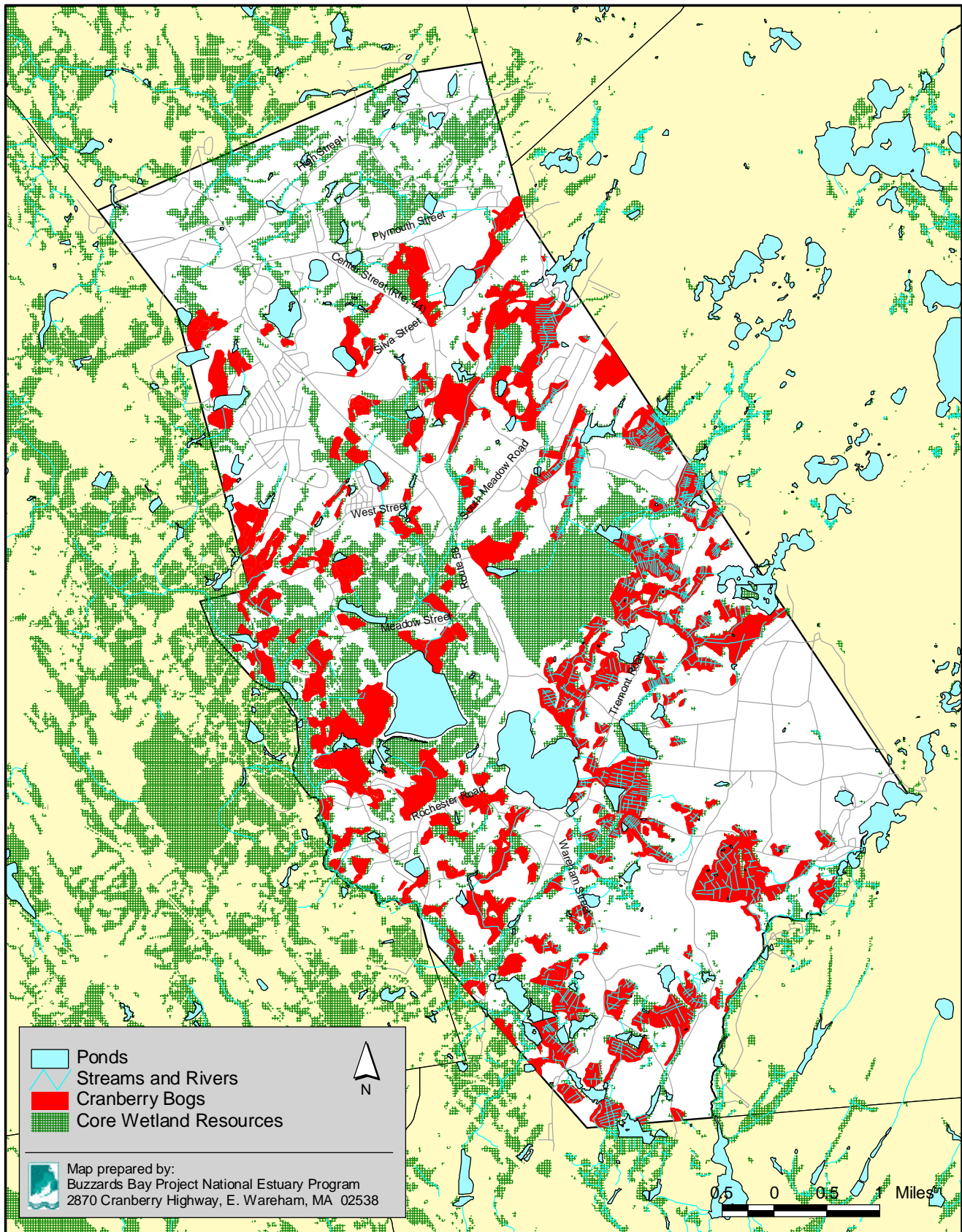


Figure 7. Surface Water and Core Wetland Resources in Carver

tunities for hunting, swimming, boating, water skiing, skating, and fishing.

Inevitably, with such popular resources, there are conflicting views about their best use. There are some town residents who feel the use of motorized watercraft on the ponds, such as jet skis and motorboats, are inappropriate due to the threats their use poses to public safety. Other complaints have emerged about oil and gas fouling pond waters, and about boaters from out of town bringing in alien weeds that proliferate and choke the sandy beaches. A Pond Study Committee was formed to address these issues. In actuality, the town's ability to control these conditions is somewhat limited by state law, which sets speed limits for great ponds, and requires that ponds of greater than 20 acres be accessible to everyone, not just townspeople. In addition, policing water sports is not easy. Current police efforts have been pretty much limited to ticketing non-residents parking in the very limited town-owned lots by the beaches and boat docks.

The town should make a high priority of expanding and improving its holdings on the ponds and rivers wherever possible. The town land overlooking Muddy Pond would make a first-rate recreational area once the state-mandated landfill cleanup is complete. (If contamination is limited to volatile organics, the water should restore itself rather quickly.)

There are thirty-nine ponds and reservoirs in Carver, adding up to a total of about 1,339 acres of water. Those of ten acres or more are listed in Table 7.

Table 7. Ponds in Carver

Pond	Type	Number of Acres
Sampson Pond	Natural	310*
Atwood Reservoir	Artificial	280
Federal Furnace Pond	Artificial	129
Muddy Pond	Artificial	64**
Wenham Pond	Enhanced	50
Dunham Pond	Natural.	45*
Crane Brook Big Pond	Backwater	37
Benson Pond	Artificial	26
South Meadow Brook Pond	Artificial	25
North Rocky Meadow Brook Pond	Artificial	24
Cooper Pond	Natural	23*
Vaughan Pond (Crystal Lake)	Enhanced	22*
Fuller St. Pond	Artificial	21
John's Pond	Natural	21*
Bates Pond	Natural	20*
Large Gibbs Bog Pond	Artificial	17
South Meadow Pond	Artificial	17
Golden Field Pond	Natural	16*
Barret Pond	Natural	16*
Southwest Atwood Bog Pond	Artificial	14
High Street Pond	Artificial	14
Cedar Pond	Natural	12*
North Center St. Pond	Artificial	12
Clear Pond	Natural	11*
Ricketts Pond	Natural	11*
Rocky Meadow Brook Pond	Artificial	11
Village Cedar Swamp Pond	Artificial	10

*Natural great ponds, which are under the control of the state.

**Under the control of the Division of Fisheries and Wildlife

Flood Hazard Areas

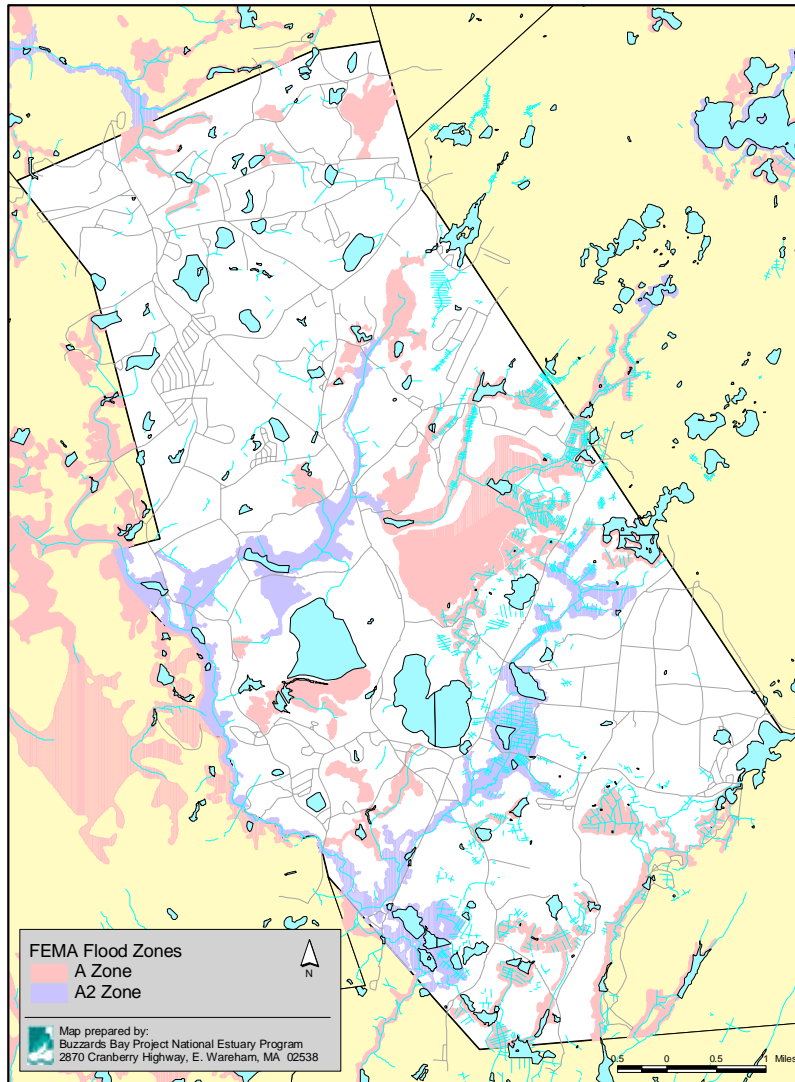


Figure 8. FEMA Flood Zone Map

that would be greatly impacted in a 100- year flood (A Zone) are shown in Figure 8.

Floodplains are areas that flood from a water level rise in a boarding waterway or waterbody during peak flows. Floodplains provide temporary storage for floodwaters that overtop the main channel of a creek, river or stream.

Flood risk data is compiled for the town of Carver by the Federal Emergency Management Agency (FEMA) for use in both insurance rating and floodplain management. Both the Carver Conservation Commission and Building Department use FEMA's Flood Insurance Rate Maps to administer floodplain management regulations.

Base flood elevations for a 100-year storm event (A2 Zone) have been established for the Weweantic River, South Meadow Brook, Rocky Meadow Brook, and Crane Brook. Additionally, approximate limits for flooding for the remaining waterways and waterbodies

Aquifer Recharge Area

The Plymouth-Carver Aquifer is the second largest aquifer in aerial extent in Massachusetts. It underlies an area of 199 square miles and contains more than 500 billion gallons of fresh water. The aquifer is located under the towns of Carver, Plymouth, Bourne, Wareham, Sandwich, and parts of Plympton and Kingston (see Figure 9). The quality of the aquifer's water is rated as good to excellent and the towns in the area are fortunate to have such an abundant supply of high quality drinking water. In fact, Carver, Plymouth, two districts in Bourne, and most of Wareham rely exclusively on the Plymouth-Carver Aquifer for their drinking needs.

In 1990 the Plymouth-Carver Aquifer was designated a Sole Source Aquifer by the Environmental Protection Agency (EPA). A Sole Source Aquifer (SSA) is an aquifer designated by EPA as the "sole or principal source" of drinking water for a given aquifer service area; that is, an aquifer which is needed to supply 50% or more of the drinking water for an area (US Environmental Protection Agency).

Geologically, the Plymouth-Carver Aquifer is an unconfined aquifer made up of sand and gravel deposited about 15,000 years ago by a retreating glacier. As the glacier melted, broad areas known as outwash plains formed. Wells in the southern part of town, known as the "Wareham Outwash Plain", have potential yields of over 300 gallons per minute (GPM). Wells in the northern half of Carver over the "Carver Outwash Plain", can be expected to yield between 100 and 300 GPM. These outwash plains make excellent aquifers as the sandy soil allows water from precipitation and snowmelt to readily percolate and "recharge" the aquifer. However, this characteristic of the soil makes the groundwater supply susceptible to pollution. If the soil is contaminated from spilled oil, septic effluent, a leaking underground storage tank, or run-off from agricultural enterprises and paved areas, the contaminant easily moves through the soil along with the natural recharge waters. Carver's Water Resources Protection District, which overlays the entire town, provides some protection to the Plymouth-Carver Aquifer. The Water Resources Protection bylaw prohibits solid waste disposal facilities (including landfills and salvage yards), storage of large amounts of hazardous wastes, disposal of hazardous wastes, and disposal of snow containing de-icing chemicals within the Water Resources Protection District. Certain other uses, such as storage of road salt or petroleum, service stations or garages, or rendering more than 10,000 square feet of any lot as impervious (except for roadways), are only allowed by special permit.

Southeastern Massachusetts is the fastest growing area in the state. Rapid growth and development leads to increased populations, which translates to greater groundwater withdrawals and increased risks of pollution of the aquifer. Because the water supply is underground and hidden by nature, it is often more susceptible to pollution and misuse. As Carver continues to experience greater development pressures it will be important to implement well planned, long-term programs that address drinking water supply issues. Recently, the town of Wareham initiated discussions with the towns of Carver and Plymouth to encourage the signing of a memorandum of understanding that would allow the three towns to comment on applications for development that would affect the Wankinko and Agawam River watersheds and the creation of a watershed advisory board that would work to protect the rivers and the Plymouth-Carver Aquifer. In the winter of 2003, SRPEDD facilitated the formation of the Plymouth-Carver Aquifer Advisory Committee, which will meet regularly to address concerns about this irreplaceable natural resource.

In Massachusetts, the land area contributing to or recharging a well is divided into specific zones, which are given different levels of protection. Zone I is located closest to the well and is typically a circular area with a 100- to 400-foot radius, depending on the pumping rate of the well. Land use in this area is restricted to water supply-related activities only.

The Zone II is a recharge area around a well that is determined by means of hydrogeologic modeling studies. Zone II boundary delineations must be approved by the Department of Environmental Protection (DEP). In cases where hydrogeologic modeling has not been done and there is no approved Zone II, as is the case in Carver, an Interim Wellhead Protection Area (IWPA) is established to cover an area around a public well. The area is defined by a radius, ranging from 400 feet to one half mile, depending on the pumping rate of the well. (Making Wellhead Protection Work in Massachusetts, DEP) Figure 9 shows the town's DEP approved public water supply wells and their IWPA's.

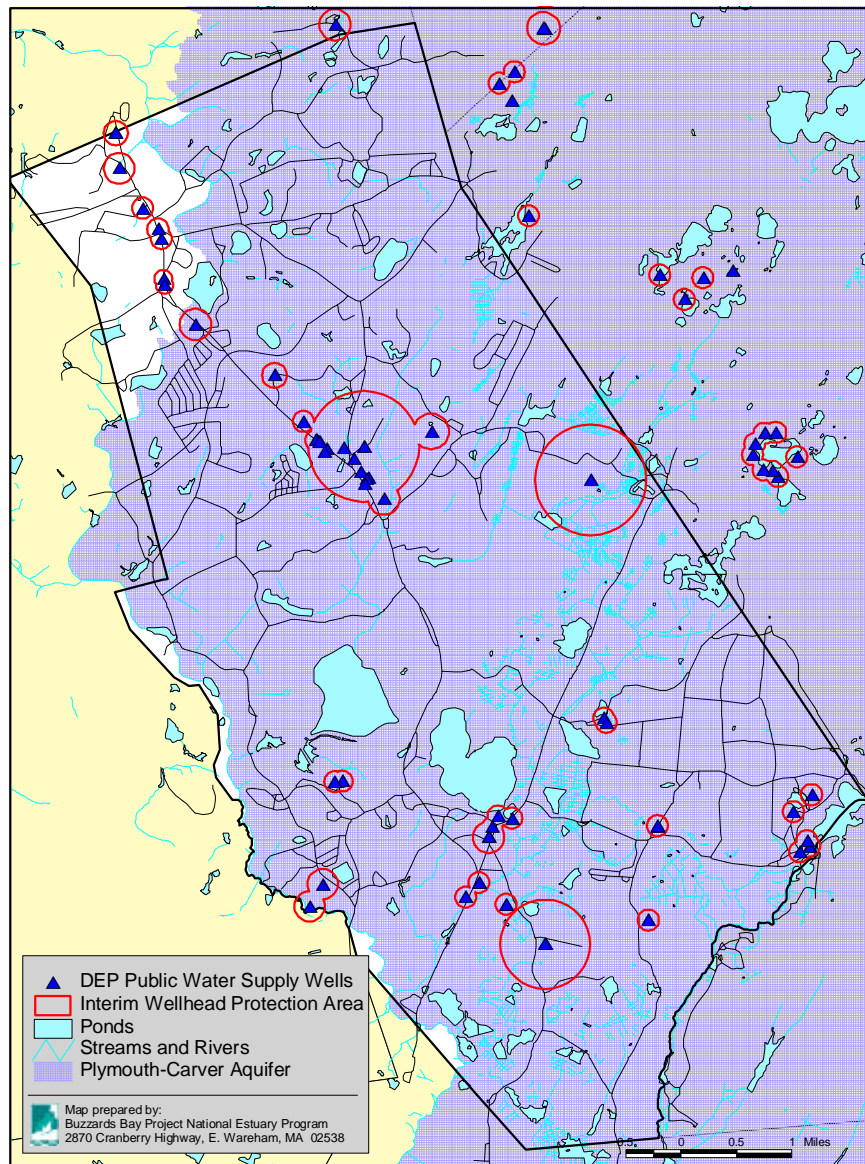


Figure 9. The Plymouth-Carver Aquifer

In the 1980s the town designated an area in the southeast corner of town adjacent to Myles Standish State Forest as a future source of public water. If tapping into this resource is to remain a possibility, great care must be taken to protect it. Besides this location, other potential well sites for future public water supply need to be identified and steps taken to protect their contributing recharge areas as soon as possible.

Buzzards Bay and Taunton River Watersheds

The town of Carver lies predominantly within the Buzzards Bay watershed, with the northern section of town falling within the Taunton River watershed. A watershed is an area of land where all sources of water, including streams, rivers, groundwater, and rain, drain to a common water body. These larger watersheds are broken down into several smaller areas called subwatersheds that drain to various harbors and coves. All of the land area of Carver lying within the Buzzards Bay watershed eventually drains south to the Wareham, Weweantic, and Sippican Rivers in the town of Wareham. The section of Carver that lies within the Taunton River watershed ultimately drains to Mount Hope Bay near the city of Fall River.

Negative impacts to water resources in one area of a watershed can have far-reaching affects on other areas as ground and surface water can transport pollutants far from the original source. Carver's Weweantic River, and the Wareham and Sippican Rivers in Wareham, already suffer from poor water quality related to residential and agricultural pollutant sources, despite the fact that a majority of the watershed remains undeveloped. Should growth trends continue in Carver and neighboring towns even greater impacts to water quality are expected to be seen in these river systems.

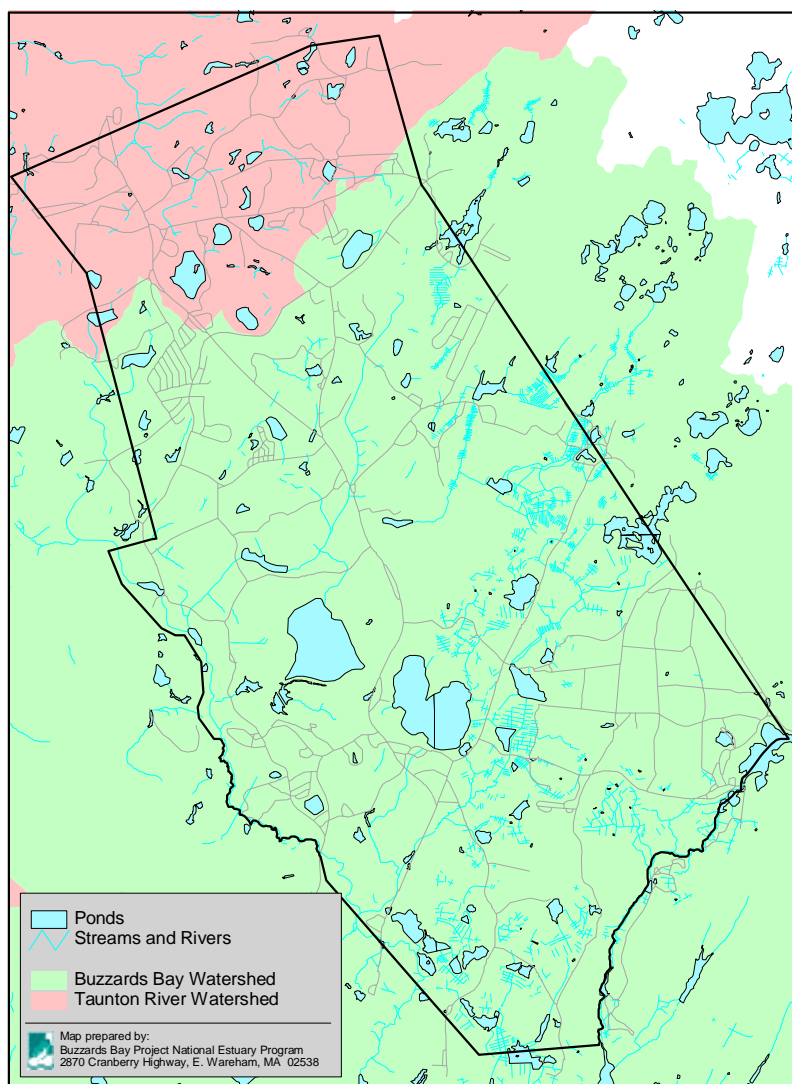


Figure 10. Buzzards Bay and Taunton River Watersheds

D. Vegetation, Fisheries and Wildlife

Much of Carver is private woodland, which provides a habitat for numerous species of animals and birds, as well as recreational opportunities for those who have access. This woodland consists of dry upland sites, mesic sites, and wooded swamp. The sandy-gravelly upland consists primarily of eastern white pine with some black, white, and scarlet oak. In the southeastern part of town these sites also support pitch-pine scrub oak barrens, which are a unique habitat, according to the Natural Heritage and Endangered Species Program. Ground vegetation in the upland areas consists of huckleberry species and blueberry.

On the mesic sites, which lie more to the center of town, one finds eastern white pine, black tupelo, black oak, red oak, white oak, red maple, sassafras, and occasionally beech, birch, and hemlock. Trees prosper in the mesic areas because of the good combination of soil and moisture. Understory plants consist of sweet pepperbush, viburnum species, blueberry, huckleberry, and others. The wooded swamps consist primarily of red maple and Atlantic white cedar. Understory plants consist of greenbriar, silver briar, sweet pepperbush, highbush blueberry, and others. In some of the wetter areas along streams and other water bodies, one can find fresh meadow swamps vegetated primarily with clumps of grass. In the open upland surrounding cranberry bogs, there are grasses and low shrubs.

The fresh water ponds and streams support a number of fish species. Carver has some of the best large mouth bass fishing in the state, which has drawn fishermen to the town for years - especially on Sampson's Pond, where there is a boat ramp. However, a town sticker is needed to park at the boat ramp. Other fish species include chain pickerel, black crappie, pumpkinseed sunfish, bluegill sunfish, golden shiner, horned pout, American eel, yellow perch, and white perch. The Winnetuxet and Wankinko Rivers support trout, which are primarily stocked. Some other lesser species, such as minnows, also inhabit Carver.

Many wildlife species, both game and non-game, inhabit or pass through the town on migratory routes. The rural character of the town along with large wetland areas provides ample food and opportunity to forage and travel for both large and small mammals. An extensive list of bird, mammal, amphibians, and reptile species occurring in Carver can be found in the Appendix of this Plan.

Vernal Pools

The town of Carver has numerous vernal pools. Vernal pools consist of small, shallow temporary pools that are most evident in the springtime. These pools often dry up in the summer and are therefore unable to support fish communities. However, vernal pools are critical to the survival of a variety of wildlife species, including some salamanders, which breed exclusively in these pools. These salamanders travel in mass migrations during the spring to return and breed in the vernal pool they were born in. A few organisms, such as fairy shrimp, spend their entire life cycle within a single vernal pool. They lay drought-resistant eggs that hatch when the pool fills with water in the spring. Other wildlife species are attracted to vernal pools because of the abundant prey available. Some of these species include spotted turtles, Blanding's turtles, great blue heron, green heron, and garter snakes.

Potential Vernal Pool Sites

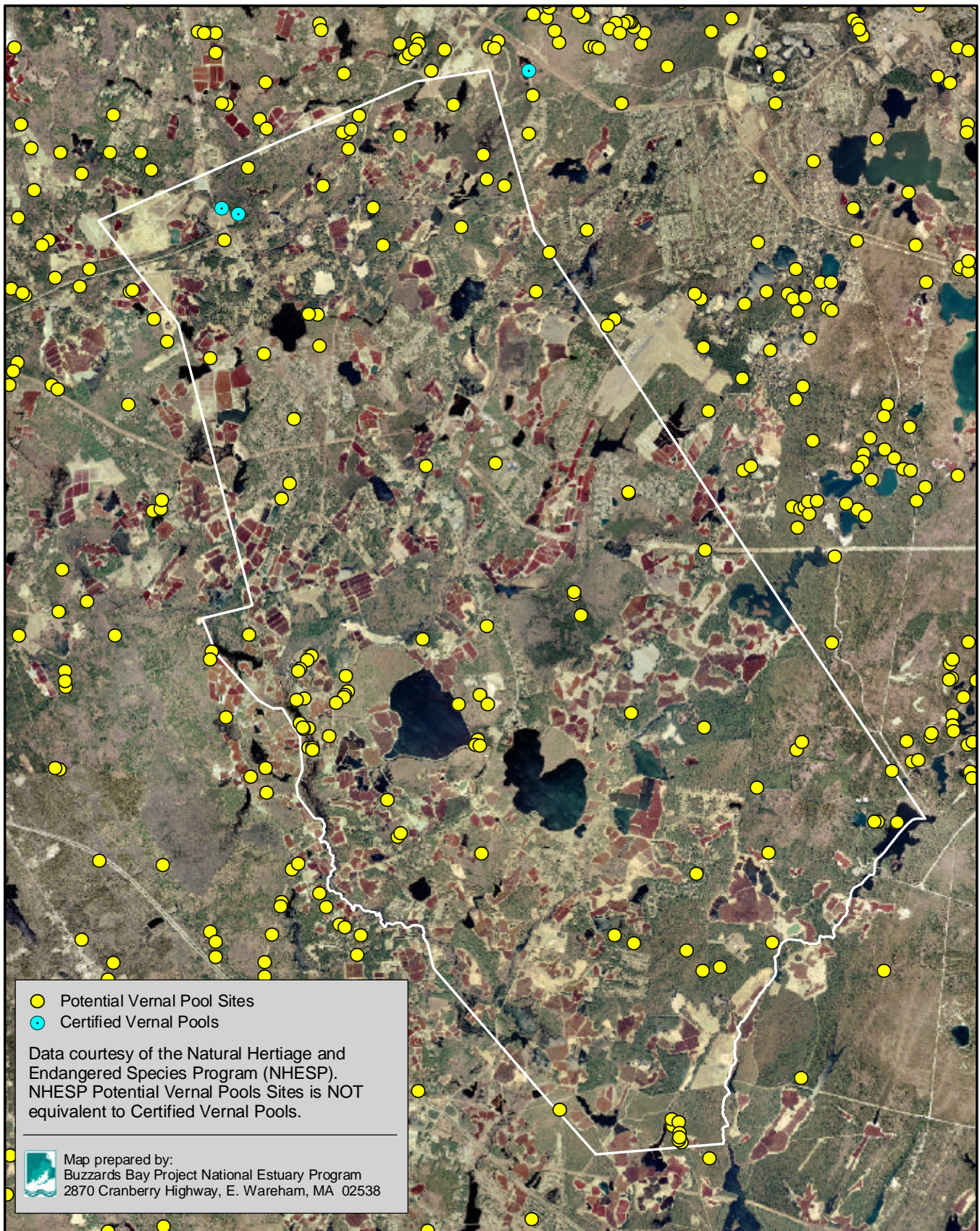


Figure 11. Potential Vernal Pools in Carver

The Natural Heritage and Endangered Species Program (NHESP), a division of the Massachusetts Division of Fisheries and Wildlife, documents and certifies vernal pools. Certified vernal pools are provided protection under several state and federal laws, such as the Massachusetts Wetlands Protection Act, Title 5, Section 401 of the Federal Clean Water Act, and the Massachusetts Forest Cutting Practices Act. In an effort to increase the number of certified vernal pools, the NHESP recently released data on potential vernal pools sites in southeastern Massachusetts. Using color infrared photos, the NHESP identified areas with the highest potential for supporting vernal pools (see Figure 11). All of these sites must now be field checked to find out if vernal pools actually exist. Due to the large land area that must be covered, the NHESP will be relying heavily on volunteer efforts to help identify vernal pools and begin the certification process. To date, two vernal pools have been certified in Carver.

BioMap

The Natural Heritage and Endangered Species Program is currently working on a biodiversity mapping project that identifies areas of the state with the most viable habitats for rare species and natural communities in Massachusetts. These areas, referred to as the BioMap habitat areas (see Figure 12), are the most important to protect in order to maintain biodiversity. Carver contains several of these important habitats. The southeastern section of the town, including the Myles Standish State Forest and an expansive region of wetland and cranberry bog complexes, falls within a BioMap core habitat area, making the southern extent of Carver a good focus area for land protection efforts.

Dispersed throughout the central and northern extents of the town are several other BioMap core areas. The western edge of town is buffered by a large expanse of Supporting Natural Landscape (SNL), which the NHESP defines as buffer areas to the BioMap habitats. The NHESP recommends connecting pieces of the SNL with other protected open space and the BioMap habitat areas to ensure the biodiversity of the town is maintained.

Rare, Threatened and Endangered Species

According to the Massachusetts Natural Heritage and Endangered Species Program, Carver has several types of habitats important for rare species, several of which are uncommon statewide. Particularly of note are the pitch pine-scrub oak communities located in the Myles Standish State Forest area. Many rare state-protected species of moth occur in such habitats. Carver also is home to globally restricted Coastal Plain Pond communities, which support populations of many rare species; and large Atlantic white cedar swamps, which are uncommon in the northeast.

The most recently documented observations of species monitored by the Natural Heritage and Endangered Species Program was a spotting of New England blazing star in 2001, and a red-bellied turtle and Plymouth gentian in 2000. Table 8 documents reported occurrences of rare species in town. It should be noted that the NHESP database is constantly being expanded and updated and Carver should make a concerted effort to help document rare species in town.

Carver BioMap

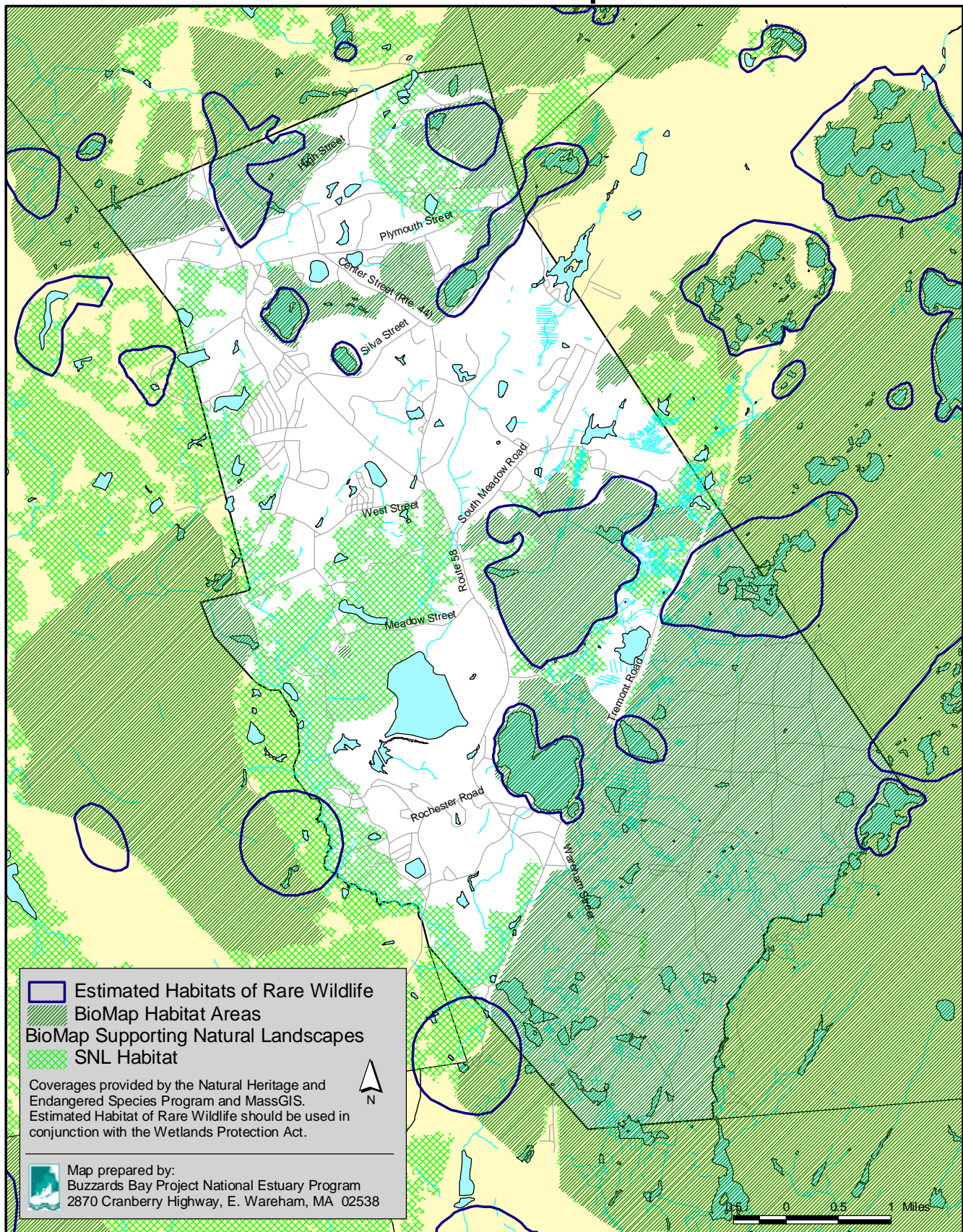


Figure 12. Carver BioMap

Table 8. Rare Species in the Town of Carver

Scientific Name	Common Name	Year	Status
Vertebrates			
<i>Terrapene carolina</i>	Eastern box turtle	1995	SC
<i>Pseudemys rubriventris</i>	red-bellied turtle	2000	E
<i>Notropis bifrenatus</i>	bridle shiner	1993	SC
<i>Clemmys guttata</i>	spotted turtle	1999	SC
<i>Clemmys insculpta</i>	wood turtle	1990	SC
Invertebrates			
<i>Callophrys hesseli</i>	Hessel's hairstreak	1987	SC
<i>Enallagma recurvatum</i>	pine barrens bluet	1993	T
<i>Leptodea ochracea</i>	tidewater mucket		SC
<i>Ligumia nasuta</i>	Eastern pondmussel		SC
<i>Papaipema sulphurata</i>	water-willow stem borer	1994	T
Plants			
<i>Carex striata</i> var. <i>brevis</i>	Walter's sedge	1990	E
<i>Panicum longifolium</i>	long-leaved panic-grass	1988	T
<i>Liatris scariosa</i> var. <i>novae-angliae</i>	New England blazing star	2001	SC
<i>Rhynchospora inundata</i>	inundated horned-sedge	1994	T
<i>Sabatia kennedyana</i>	Plymouth gentian	2000	SC
<i>Sagittaria teres</i>	terete arrowhead	1988	SC

Key to State Status:

- E = Endangered. Any reproductively viable native species of wildlife or wild plant which has been documented by biological research and inventory to be in danger of extirpation from the Commonwealth.
- T = Threatened. Any reproductively viable native species of wildlife or wild plant which has been documented by biological research and inventory to be rare or declining within the Commonwealth and which is likely to become endangered in the Commonwealth in the foreseeable future.
- SC = Special Concern. Any native wildlife or wild plant species which has been documented by biological research and inventory to be suffering a decline that could threaten the species in the Commonwealth if allowed to continue unchecked, or that occurs in such small numbers or with such restricted distribution or specialized habitat requirements that it could easily become threatened.

E. Historic Sites, Scenic Resources and Unique Environments

Prehistoric Sites

Dating back as far as 10,000 years to the Archaic Period, Carver's unique natural environment of rivers, streams, and wetlands attracted some of the earliest nomadic peoples in this region. People passed through during the spring and fall seasons on their travels to and from Plymouth, the Cape and Rhode Island. The Nemasket Trail, running east to west roughly along the present path of Route 44, was an important byway for Native Americans living in the area as well as early white settlers. Another Native American path was the Pilgrim Trail, which ran along the present route of South Meadow Road and continued south along what is now Route 58.

Historic Sites

Iron Furnaces and Lumber Mills

Early historic sites include the various lumber mills and iron furnaces, which were established in the area primarily during the 18th century. Few of these industrial structures are still standing. One of the most important contributors to Carver's industrial history was Cole's Mill in North Carver. The grist, saw mills, and dam built at the site off High Street were key contributors to the early development of Lakenham, now North Carver. As the mill expanded in the 19th century, it provided the industrial focus for the area. The gristmill was a place for farmers to have their grain milled, while the sawmill provided lumber for houses in the village center. The family-run business made shoe-shipping boxes in the 1850s, supporting a local cottage industry, and began making cranberry shipping barrels in the 1890s to support the burgeoning cranberry business in the town. In the 1950s, the mill moved into production of gift-sized cranberry boxes when plastic barrels took the place of the traditional wooden ones.

Another historically important contributor to local industry was Charlotte Furnace, which was so important to the development of South Carver that until the 1850s it was called Furnace Village. Bartlett Murdock built the iron furnace on the edge of Sampson's Pond and built a house nearby for himself. The house, which dates back to about 1760, is currently a private residence and still stands at 1728 Tremont Street. In 1986 the Massachusetts Historical Commission suggested that South Carver could be a historic district because of the various landmarks in the immediate area related to the furnace. These landmarks include the Benjamin Ellis School, Mt. Carmel Church, the Atwood House, and Crane Brook Tea Room.

Historic Homes

While Carver was the site of many business ventures, few grand houses were built by the entrepreneurs who worked here to establish their legacy. Still, a number of important houses dating from the 18th and 19th centuries can be found in town. Among them are the Marcus Atwood House in South Carver, built in 1845, the Murdock and Ward Houses, and the George Bowers Home and Savery Avenue Homestead, both on Route 58 near South Carver Village. Each of these houses was built by local people who had prominent roles in the local iron or cranberry businesses. In the latter half of the 19th century, the Greek revival style of architecture was enormously popular; many older houses, including the Atwood and Murdock houses, were renovated to display this style. Unfortunately, there are few surviving Colonial era houses in Carver.

Churches

Between the 1840s and 1870s, there was great economic prosperity in Carver, so that in addition to many houses, several schools and churches were built. The churches included the Methodist, Episcopal, Union, Congregational and Advent churches. A number of additional historic sites have also been located.

Cemeteries

Carver has several historical cemeteries, including Lakenham Cemetery on Forest Street in North Carver; Center Cemetery on Cranberry Road in South Carver; Wenham Cemetery; and the picturesque Union Cemetery next to Union Church on Route 58. Lakenham Cemetery contains the gravestones of many of the earliest settlers of the community.

Cranberry Industry

The site now used by Edaville Railroad, off Rochester Road in South Carver, was formerly the Ellis Atwood Company, which built rent-free housing for 50 year-round employees who worked in Atwood's cranberry bogs. The 8-mile narrow-gauge railroad that later drew tourists to the area was originally built as a hobby of Atwood's.

Other important locations in the development of the cranberry industry include the Wankinco bogs near Cranberry Road and Federal Street, which were built in 1879 by Abel D. Makepeace of West Barnstable. This became the largest bog tract in the state. Also of importance were the East Head Bogs near the Plymouth town line; built in 1878 by George Bowers. The success of these bogs led to the industry's expansion in the town.

Historic Districts

There are two officially designated Historic Districts in town: the Savery Historic District and the Lakenham (North Carver) Historic District. The Savery Historic District, built by William Savery, has the distinction of being the first divided road in America and was a place for buggy races. Both historic districts are managed by the town's Historic District Commission, however, no design standards have been adopted for these districts. The Historic District Commission currently has some oversight on new commercial and industrial projects, however, the Master Plan recommends that the Site Plan Review Bylaw be modified to include the review of historic preservation issues in site plan review, Earth Removal By-law, Subdivision review, and Special Permit review. To date, the committee has limited volunteer support for taking on new responsibilities.

The town also has a Historic Committee, which is concerned with the general issue of historic preservation and public education. Currently this committee does not participate in the review of proposed projects.

Scenic Roads

The town's landscape of bogs, ponds, and rivers and the dominant agricultural activity of cranberry production have given the town its infrastructure of narrow, winding roads whose primary purpose was to permit farmers to access and bring their products to market. Without proper planning these beautiful roads are at risk of losing their rural nature in the name of progress.

Massachusetts General Law Section 15C, Chapter 40 was created to protect the character, scenery and history of roads by allowing towns to designate certain roads as scenic (see Appendix). Scenic Roads bylaws are an effective, although limited, method of maintaining the rural character of scenic roads. A Scenic Roads designation provides limited protection from actions resulting from the repair, maintenance, reconstruction, or paving of the road that would involve the cutting or removal of trees or tearing down, destruction or alteration of stonewalls, or portions of stonewalls, within the public right of way. On a Scenic Road, such actions are subject to a public hearing and approval by the Planning Board.

A town may designate any road other than a numbered route or state highway. A numbered route may be designated only if its entire length is contained within the town's boundaries and the Commonwealth maintains no part of the route. Recommendations for the designation of Scenic Roads may come from the Planning Board, Conservation Commission, or Historical Commission. The process involves a petition to the Planning Board, coordination with the Highway Department, a public hearing, and placing of the bylaw on the Warrant for a Town Meeting to obtain voter approval. This plan recommends in its Action Plan that a scenic roads bylaw be investigated for its feasibility to protect some of Carver's more beautiful roadways.

The following are considered scenic roads in town: Meadow, Holmes, Pond, France, Fosdick, Purchase, High, Center, Wenham, Plymouth, Wareham, Federal, Tremont, Cranberry, and Mayflower.

Unique Environments

Carver's unique environments include the pine barrens that inhabit the southeast part of town, the "coastal plain ponds" that dot the town, Federal Pond (where the endangered red-bellied turtle lives), the large cedar swamps, the river corridors, and some of the areas that have older-growth tree species. The cranberry bogs also provide a unique environment for many different species of animals and plants.

Scenic Views in Carver

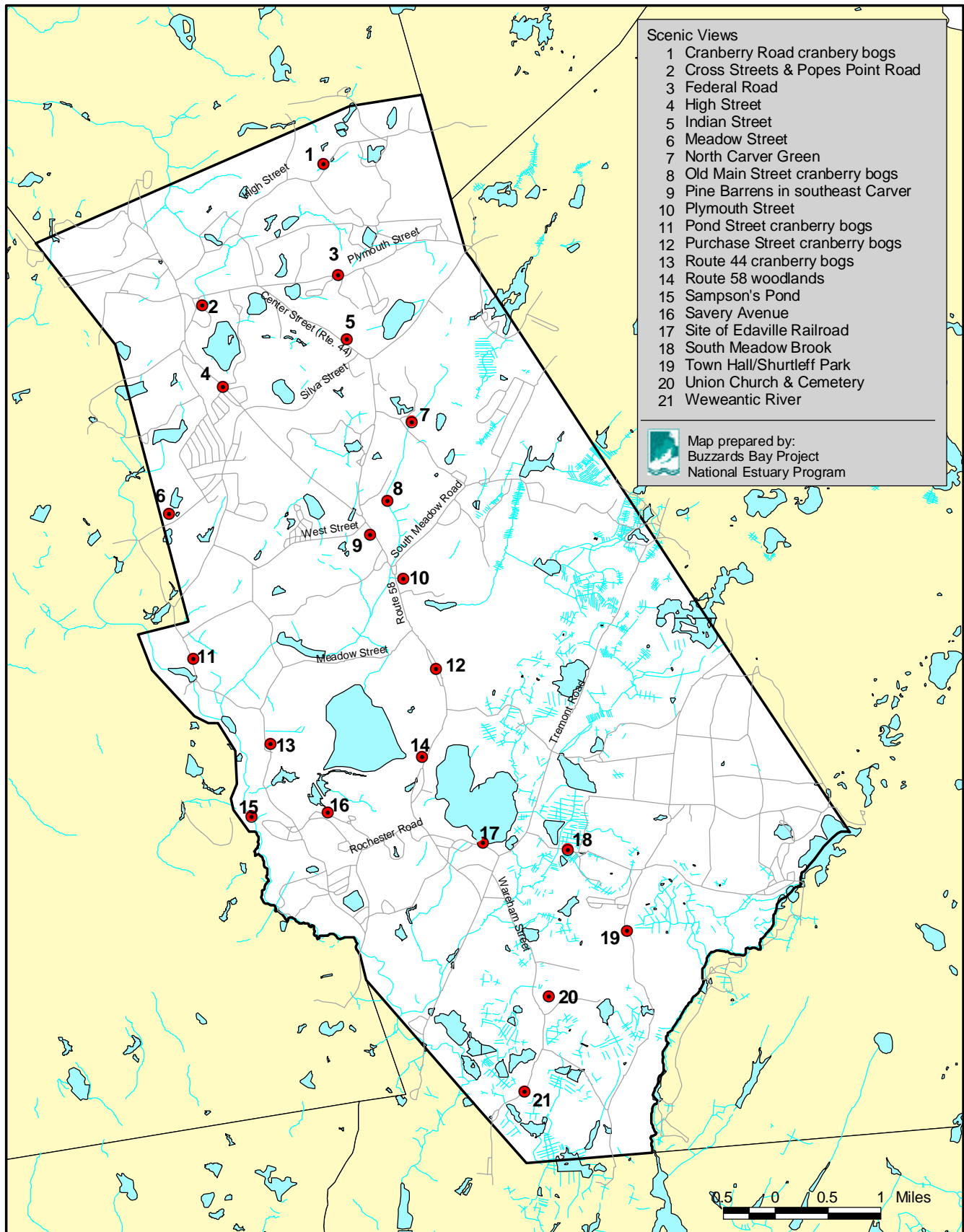


Figure 13. Scenic Views in Carver

F. Environmental Problems

The biggest environmental threat in Carver is contamination of the town's ground and surface water resources. Ground and surface waters are closely related, and both are threatened by the same potential sources of pollutants. Contamination threats come from both "point sources" and "non-point sources". Aside from producing contaminants, development may physically upset the ecological and hydrologic systems that give form to the town's water resources. The impact from development may not appear for several years after contamination has begun because of the time it takes for water to travel through the ground.

Point Source Contamination

Point sources of contamination in Carver come primarily from specific sites where polluting land uses have occurred. Within Carver, the Department of Environmental Protection has recorded 32 contaminated sites (see Table 9), the most notorious of which has been the closed North Carver Landfill, where a plume of contamination has spread under a number of homes and affected Muddy Pond. Affected residents had to be hooked up to public water from Middleborough while the cleanup of this site was underway. This site has been remediated, and is being capped by the town, at a cost of approximately \$3-4 million (funded with an State Revolving Fund loan from the state). Approximately 25 acres will become available for recreation, an animal shelter, or other such use, or alternatively an industrial site with access off Route 58.

Additionally, down the road at the Ravenbrook Demolition Landfill, another plume of contamination exists, caused apparently by dumping by the state of polymer-concrete landing-strip materials from Otis Air Force Base in the 1970s. While this plume has not yet affected any housing, nearby neighbors have been hooked up to the Middleborough water main as a precaution. This landfill has been capped and monitoring wells were installed.

Carver needs to protect the quality of its water resources from contamination from existing and future waste disposal facilities. Despite the prohibitions under local regulations, Carver is host to both the regional dump and a regional septic processing plant. In addition, out-of-town dumping at several now closed landfills has led to pollution of the immediately surrounding aquifer. Waste disposal is an environmental problem that every community has had to deal with. Carver does not operate its own recycling program, however, to address this need, a regional recycling center was created for use by town residents on Route 28 in Rochester. One of Carver's challenges in the future will be to figure out how to provide needed infrastructure while maintaining high standards to protect its groundwater resources.

Non-Point Source Contamination

The two greatest non-point source threats to ground and surface waters are septic systems and stormwater runoff.

Carver has no municipal sewer system and residents rely on individual septic systems for waste disposal. Because of the town's sandy soils, which allow rapid flow of water through the ground, the potential for contamination from untreated wastewater is magnified. Vigilance about updating old septic systems is critical considering the importance of the town's aquifer. For instance, several converted cottage colonies, where dozens of houses are located on lots of less

than 5000 sq. ft., have already contaminated each other's wells. At present there are no town laws requiring inspection and replacement of old septic systems. The decision to do this rests with the homeowner. However, Title 5 requires septic systems to be upgraded when a home is sold. The Board of Health oversees any such changes and is responsible for inspection and approval of new systems. Carver should consider adopting a septic management plan similar to the town of Yarmouth. Locations of high nitrogen in the ground water would be monitored. Septic systems would be pumped and treated on a regular basis, with the remainder of the town being monitored on a less frequent basis. Septic system replacement, if needed, would be carried out by the town with the homeowner charged a betterment fee requiring a payback over a period of 10-20 years.

Development threatens to permanently alter upland and near-wetland habitats and destroy the character of our rural town. Excessive development also has an impact on the quality of both ground and surface water. Increased impervious cover in the form of roads, driveways, and buildings has the potential to reduce the amount of water being recharged to the groundwater. Also, stormwater runoff associated with development in the watershed can also serve as a pollutant transport.

Stormwater runoff has been identified as one of the most pervasive sources of contamination to surface and groundwater resources. Contamination from stormwater might include solid particles, bacteria and viruses, metals, volatile organic compounds, and nutrients. These contaminants may leach through the soils or they may be deposited into surface water through runoff or discharge pipes. Such pollutants can affect drinking water quality, productivity of agricultural uses, and the ecological function of wetlands, ponds and streams. To reduce impacts from stormwater, natural hydrologic functions of a site should be maintained through retaining natural contours and vegetation to the maximum extent possible. The amount of impervious area is a fair measure of the impact that development will have on environmental resources. Flexible zoning and subdivision regulations can be targeted toward minimizing the impervious surface coverage and/or relating the extent of infrastructure requirements to development thresholds. Subdivision regulations can be changed to reduce required road widths on local service roads and require drainage systems such as constructed wetlands, which provide stormwater treatment.

The town's current Subdivision, Zoning, and Board of Health regulations do not adequately address septic systems and stormwater runoff. The subdivision regulations, for example, direct stormwater to be deposited untreated into the "nearest open stream channel". This violates the state's updated standards for stormwater management. Given the reliance on individual wells to provide drinking water for the town's residents, it is essential that protection extend to the entire town. Regulations regarding stormwater management released by the Massachusetts Department of Environmental Protection (DEP) should be closely adhered to for projects involving wetlands permitting. The Planning Board should also closely control stormwater in subdivisions and commercial development not covered by the DEP regulations.

Hazardous Waste Sites

The Department of Environmental Protection (DEP) maintains a list of sites, referred to as 21E sites, where reported discharges of oil or hazardous materials have occurred. As of July 2002, there are thirty-two 21E sites in Carver. Sites are usually Tier Classified using the Numerical Ranking System (NRS), which scores sites on a point system based on a variety of factors. These include the site's complexity, the type of contamination, and the potential for human or environmental exposure to the contamination. These sites are then assigned by DEP to the categories listed in the table below. Tier 1 is DEP's highest priority ranking. In some cases sites are automatically classified as Tier 1 if they pose an imminent hazard, affect public water supplies, or miss regulatory deadlines. Carver has eight Tier 1 sites.

Table 9. DEP 21E Sites in Carver

Category	Number of sites in Carver
Tier 1A: A site/release receiving a total Numerical Ranking System (NRS) score equal to or greater than 550. These sites/releases require a permit and the person undertaking response actions must do so under direct DEP supervision. <u>Sites:</u> North Carver Landfill – Off Route 50 [oil & hazardous material, 4/3/1987]	1
Tier 1B: A site/release receiving a total Numerical Ranking System (NRS) score of less than 550 and equal to or greater than 450. These sites/releases also require a permit, but response actions may be performed under the supervision of a Licensed Site Professional without prior DEP approval. <u>Sites:</u> Carmichael's Mobil – Main St (Rte 58) [hazardous material, 1/5/1998] Edaville Railroad – 7 Eda Ave [1/5/2001] Service Station FMR – Rte 44 & Rte 58 [oil, 6/29/1994]	3
DEF Tier 1B: (Default Tier 1B) A site/release where the responsible party fails to provide a required submittal to DEP by a specified deadline. <u>Sites:</u> Delta Gas – 303 Tremont Street [hazardous material, 10/22/1999] No location aid – 132 Main Street [hazardous material, 2/14/1997] Town of Carver – 99 Main Street [oil, 7/15/1991]	3
Tier 1C: A site/release receiving a total Numerical Ranking System (NRS) score of less than 450 and equal to or greater than 350. A site/release receiving a total NRS score of less than 350 but which meets any of the Tier 1 Inclusionary Criteria specified in 310 CMR 40.0520(2)(a), is also classified a Tier 1C. These sites/releases also require a permit, but response actions may be performed under the supervision of a Licensed Site Professional without prior DEP approval. <u>Sites:</u> Ravenbrook Landfill – Plymouth St [hazardous material, 10/15/1990]	1

Table 9. DEP 21E Sites in Carver (Continued)

Category	Number of sites in Carver
<p>Tier 2: A site/release receiving a total Numerical Ranking System (NRS) score of less than 350, unless the site meets any of the Tier 1 Inclusionary Criteria. Permits are not required at Tier 2 sites/releases and response actions may be performed under the supervision of a Licensed Site Professional (LSP) without prior DEP approval. All pre-1993 transition sites that have accepted waivers are categorically Tier 2 sites.</p> <p><u>Sites:</u> Holman & Sons BP Station – Tremont St/Rte 58 [1/15/1991] Rte 58 – 131 Main Street [oil & hazardous material, 9/8/1997] Simeone Asphalt Plant – Plympton St/Rte 58 & 44 [oil, 4/15/1991]</p>	3
<p>RAO: (Response Action Outcome): A site/release where an RAO Statement was submitted. An RAO Statement asserts that response actions were sufficient to achieve a level of no significant risk or at least ensure that all substantial hazards are eliminated.</p> <p><u>Sites:</u> CMW Landfill – Federal Road [oil, 8/1/1998] Facility No. 135 – Rte 58 [hazardous material, 3/15/1996] Lot 255 – 61 Cedar Drive [oil, 6/2/1994] No location aid – Rte 44 & Rte 58 [oil, 10/3/1993] No location aid – 68 Main Street [oil, 7/11/1994] No location aid – High St & Snappit St [7/8/1996] No location aid – 12 David Rd [oil, 2/12/1997] No location aid – 90 North Main St [oil, 12/15/2001] Roby's Gas – Rte 58 [oil, 11/11/1993] Rte 58 – 67 Main St [oil, 11/2/1996] Tom's Texaco Station – No. Main St/Rte 58 & 44 [oil, 7/11/1986] US Post Office – 171 Plymouth St [oil, 9/29/1995]</p>	12
<p>RTN Closed: Future response actions addressing the release associated with the Release Tracking Number (RTN) will be conducted as part of the response actions planned for the site under another "primary" RTN.</p> <p><u>Sites:</u> Carmichael's Mobil – 118 Main St [oil, 3/8/1995] Edaville Railroad – 7 Eda Ave [hazardous material, 12/26/2001] Monitoring Well – Off Mello Street [hazardous material, 12/27/2000] Ravenbrook Landfill – Plymouth Rd [hazardous material, 5/3/2001]</p>	4
<p>DEPNFA: DEP No Further Action means that response actions were conducted and DEP determined that no further action was needed at the site.</p> <p><u>Sites:</u> Lakeville Redi Mix – Tremont Street [oil, 1/15/1987] Woody's Texaco Station – Tremont St [5/9/1986]</p>	2
<p>Unclassified: A release that has not reached its Tier Classification deadline (usually one year after it was reported), and where an RAO statement, DPS Submittal, or Tier Classification Submittal has not been received by DEP.</p> <p><u>Sites:</u> Cumberland – 90 North Main [oil, 3/20/2002] No location aid - 5 Bisbee Dr [oil, 2/4/2002] No location aid – 344 Tremont Street [hazardous material, 6/7/2002]</p>	3

V. OPEN SPACE PROTECTION STRATEGY AND PARCEL INVENTORY

According to the open space vision established in the town's Master Plan, Carver will...

...protect its rich natural heritage of unique, endangered, and abundant ponds, rivers, wetlands, woods, forests, and agricultural lands in a manner to continue to offer residents diverse opportunities for an active outdoor lifestyle of swimming, hiking, hunting, fishing, and bike riding in an inter-connected network of resource areas and parks and a rural lifestyle of scenic views, open lands, and agricultural activity. New residential growth will be focused into existing village areas and new centers for planned growth where adequate infrastructure can be provided. Major resource areas including Myles Standish State Forest, Sampson's Pond, Edaville Railroad, and Rocky Gutter Wildlife Management Area will be linked in a regional system of trails and bogs which will extend north connecting the Great Cedar Swamp to South Meadow Brook, local ponds, and the Winnetuxit Riverway. Important secondary water resource areas, which about this regional pathway, will be protected, as will the adjacent bogs.

The Open Space Protection Strategy map shown in Figure 14 begins the task of looking at the linkages between environmentally sensitive private lands and town-owned lands and their relationship to other natural features. This map is a compilation of protection strategies found in the 1996 Open Space and Recreation Plan and the 2001 Carver Master Plan and it loosely indicates corridors, or greenbelts, in which the preservation of natural conditions would be particularly desirable. These corridors have been assigned three levels of priority according to their function. The highest priority is to link local and regional open space assets. These primary corridors connect critical regional open space parcels such as Myles Standish State Forest, the Great Cedar Swamp, and the Edaville area, as well as town-owned land. The second priority is to protect adjacent, secondary water and resource areas and views. These corridors link many of the town's wetlands, floodplains, ponds, streams, and wildlife habitat areas. The third priority, Buffer Bogs, seeks to retain important agricultural bogs and resources. This corridor encompasses the town's larger contiguous agricultural parcels.

Primary Corridor Features:

- 1) South Meadow Brook drainage area
- 2) Sampson's Pond area
- 3) Muddy Pond area
- 4) John's Pond and Public Beach
- 5) Great Cedar Swamp
- 6) Rocky Gutter Wildlife Management Area (Middleborough)
- 7) Myles Standish State Forest
- 8) Carver Sportsman's Club
- 9) Edaville area
- 10) King Richard's Faire
- 11) Savery Avenue
- 12) Shurtleff Park
- 13) Town Hall property
- 14) Carver High School lands

Carver Open Space Protection Strategy

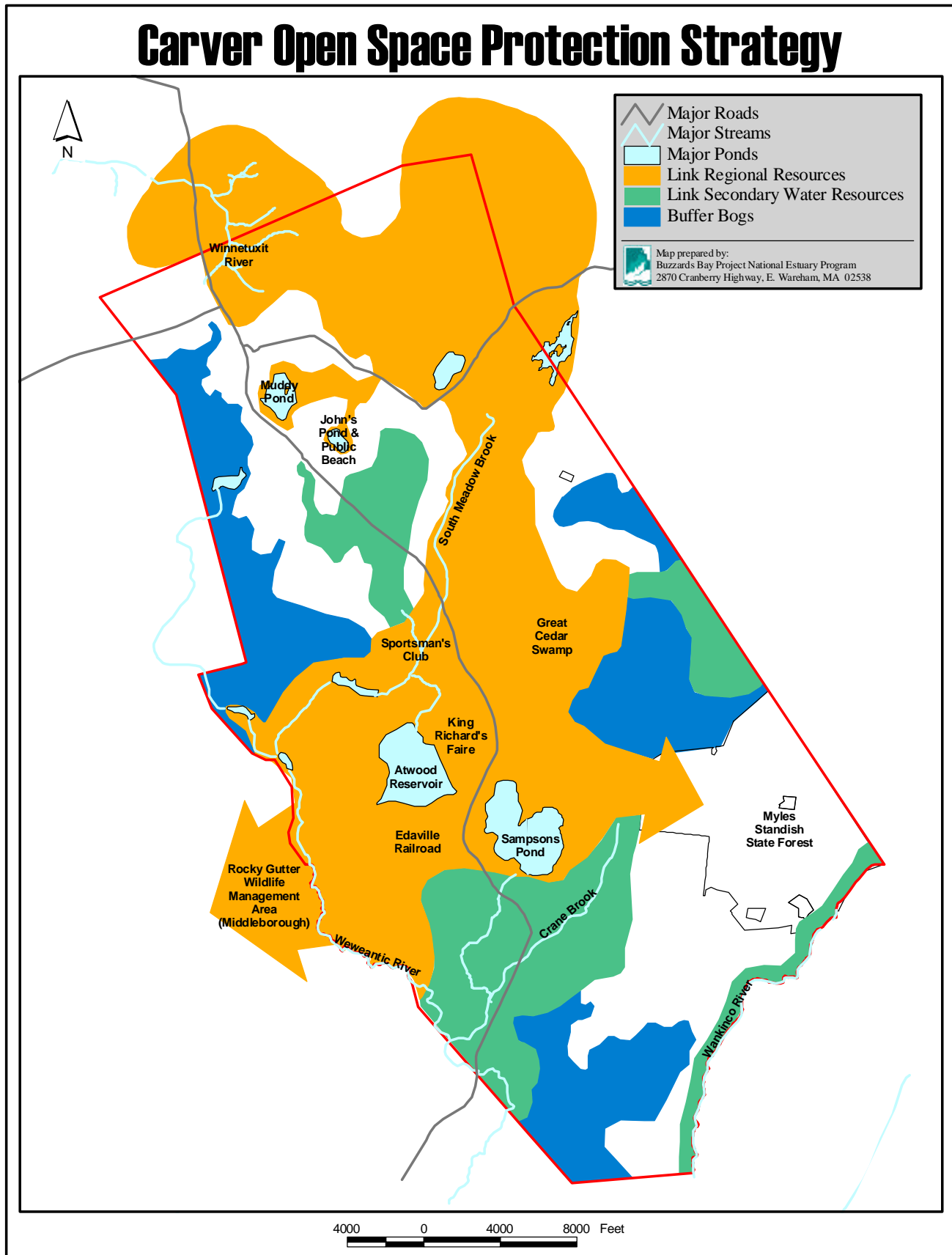


Figure 14. Carver Open Space Protection Strategy

Secondary Corridor Features:

- 15) Weweantic and Crane Brook Riverways
- 16) Winnetuxit Riverway
- 17) Wankinko Riverway
- 18) Protection of ponds and wetlands

Buffer Corridor Features:

- 19) Contiguous agricultural (cranberry bogs) and pond areas

Ranking of Individual Parcels for Protection

Open spaces can be thought of as any undeveloped land areas that have the potential to be used for conservation or recreation purposes. This land may be in the form of watershed protection areas, recreational land, conservation areas, agricultural lands, and other undeveloped, privately held parcels. However, many of Carver's open spaces have no protection against future development, and as the community continues to grow and change, these areas are becoming increasingly more at risk.

Approximately 78% of the total land in Carver is unprotected open space, with the greatest of that being cranberry land. Most of this land is enrolled in the 61A Program. Other big contributors to the town's current open space picture are approximately 2,300 acres of potentially developable residential land, and about 1,300 acres of potentially developable, privately owned forestry and recreation land. The only protected land in town consists of 1,833 acres of land in the Myles Standish State Forest and Carver State Forest, and some random parcels of land that have been deeded to the Conservation Commission over the years, most of which lie in the Great Cedar Swamp.

Unfortunately, the lack of a local land trust organization and limited town funds have had a negative affect on the protection of open space in Carver. The town should be especially supportive of the creation of a private non-profit land conservation organization that would be established to acquire and manage open space parcels in town. Additionally, Carver should adopt the Community Preservation Act. Adopting the Act will provide a source of much needed funding to protect critical open spaces from development.

The town's Master Plan recommends that Carver acquire 160-300 acres for active recreation purposes and secure the protection of an additional 2,500-5,000 acres for conservation and resource protection. Open space protection will provide economic, environmental, and recreational benefits to the town, as well as helping to preserve the town's rural character. Land can be protected through regulatory means such as cluster development or wetlands protection bylaws, private donations or purchase by a land trust organization, or acquisition by the town. None of these methods alone can succeed in achieving all of the town's open space protection goals. A combined strategy can effectively target limited funding to sites with the greatest open space value, while taking advantage of opportunities to protect as much land as feasible.

When considering parcels for permanent protection a ranking method is often helpful for determining the importance of a particular piece of land. The following values can be used to compare the merits of individual land protection projects:

Protects/Enhances Town Character

- Historically significant property
- Enhances scenic vistas on streets or trails
- Protects familiar, valued open parcels
- Provides active/passive recreation

Protects Natural/Agricultural Resources

- River, lake, stream frontage
- Well site recharge areas
- Unique ecosystems (rare/endangered species habitat)
- Other habitats: vernal pools, pine barrens
- Agricultural protection
- Multiple use areas

Connects New and Existing Open Space

- Links to existing and future open space
- Improves public access to existing open space
- Makes regional trail connections
- Makes local trail/sidewalk connections

Economic Impact

- High-risk liability or contamination
- High build-out potential

An aggressive open space acquisition strategy may pay off for local taxpayers, even in the short run, by reducing the cost of services the town must provide to new residents. Acquisition is also the most equitable and effective means of protecting the town's valuable natural resources. For every 100 acres of developable land that is protected, the build out is reduced by about 58 homes under the existing zoning, and 40 homes under two-acre zoning.

Agriculture, even more so than commercial uses is helping to keep down Carver's tax rates. For each \$1.00 of revenue raised by agricultural land uses, it costs the town \$0.31 to provide services to agricultural uses, compared with \$0.38/\$1.00 revenue to provide services to commercial/industrial uses and \$1.14 to provide services to residences. Agricultural uses currently comprise about 11% of the town's tax base, while commercial uses are about 8% (See Appendix, *Open Space Fiscal Impacts Analysis*).

Conservation Restrictions

Massachusetts General Laws chapter 184, sections 31-33, established conservation restrictions as a legal method of preserving open space. A conservation restriction is an enforceable agreement between landowners and a government body by which the owners agree to keep their land in the same state as it is at the time of agreement, reserving the right to conduct farming, forestry, or other designated uses. The restriction runs with the land, binding subsequent owners, and is enforceable in perpetuity. The title to the property remains with the owner and the public gains no rights to enter the property without permission. Conservation restrictions are recorded with the deed in a public restriction tract index in the Registry of Deeds and are subject to approval by the local selectmen and the Secretary of Environmental Affairs through the Division of

Conservation Services. Because the land is encumbered, the full and fair market value of the property is reduced.

Farmland, wetlands, forestland, golf courses, and campgrounds, qualify for conservation restrictions under the state guidelines. By restricting their land, owners forfeit the right to develop house lots. The community benefits by preserving open space without the expenses of purchase, insurance or maintenance, or outright loss of all tax revenue. When asked if the town should set aside and protect land for conservation and open space purposes, 90% of survey respondents said yes. When asked what method of conservation they preferred, 36% said conservation restrictions or encouraging donations of land. Currently, there are no recorded conservation restrictions in the town of Carver.

A. Open Space Inventory

An inventory of all parcels in Carver that were considered to have conservation or recreation value was performed in the winter of 2003. This inventory has been divided into two sections: Protected Lands and Unprotected Lands. Protected Lands includes only those parcels that are protected in perpetuity. Unprotected Lands includes unrestricted public and private recreation areas, and parcels in the Chapter 61 programs.

Protected Lands

Land is considered protected if it falls into one or more of the following categories:

- ◆ State land purchased with the use of federal funds, therefore covered by PL88-578
- ◆ State land owned by a state conservation agency, therefore covered by Article 97 of the Massachusetts Constitution
- ◆ Town land owned by or under the jurisdiction of:
 - a. Conservation Commission
 - b. Water Department
 - c. Any town department if dedicated to open space/conservation by a permanent deed restriction
- ◆ Private land:
 - a. Owned by a nonprofit organization dedicated to land conservation (i.e. land trust)
 - b. Protected in perpetuity by a conservation or deed restriction
 - c. Protected by the Agricultural Preservation Restriction (APR) program
 - d. Protected by a conservation restriction under the DEP's Wetland Restriction Program

Protected Public Parcels

Myles Standish State Forest

Acreage: 1,828 acres

Location: SE corner of Carver

Public Access: Yes

Zoning: Residential/Agricultural

Ownership: Commonwealth of MA

Managing Agency: DEM

Degree of Protection: Perpetuity

Comments: The State Forest contains approximately 1,828 acres of land in the town of Carver and an additional 12,000 acres in Plymouth. It is a major recreational facility with over 450 individual campsites and five group sites located in 17 different areas of the park. Picnic areas and swimming beaches with parking are available at College Pond and Fearing Pond. Canoeing is allowed at these ponds and several others. There are 20 miles of bridal paths, 38 miles of recreational vehicle trails (trail bikes and snowmobile) and 15 miles of hard-topped bicycle trails in the park. According to the recent Open Space survey, 72% of respondents use the State Park for some form of recreational activity.

Muddy Pond

Acreage: 72 acres

Location: North Carver

Public Access: Yes

Zoning: Residential/Agricultural

Ownership: Commonwealth of MA

Managing Agency: DFW

Degree of Protection: Perpetuity

Comments: Muddy Pond is the property of the Commonwealth of Massachusetts' Division of Fisheries & Wildlife. It has been contaminated by volatile organics seeping from the adjacent closed landfill. However, it is still used by locals for catch and release bass fishing.

Carver State Forest

Acreage: 5 acres

Location: South Meadow Road

Public Access: Yes

Zoning: Residential/Agricultural

Ownership: Commonwealth of MA

Managing Agency: DEM

Degree of Protection: Perpetuity

Comments: The Carver State Forest is a 5-acre wooded parcel on South Meadow Road next to the airport. It is managed by the Department of Environmental Management as part of the Myles Standish State Forest.

Savery Avenue

Acreage: 21 acres

Location: Savery Avenue

Public Access: Yes

Zoning: Residential/Agricultural

Ownership: Town of Carver

Managing Agency: Conservation Commission

Degree of Protection: Perpetuity

Comments: The Conservation Commission owns approximately 21 acres of land on Savery Avenue within the Savery Avenue Historic District, the first divided highway in the United States. This property is adjacent to the recreation lands of the King Richard's Faire and Edaville Railroad and the former Natural Balance environmental center.

Portions of the Great Cedar Swamp

Acreage: aprox. 80 acres

Location: Eastern/Central Carver

Public Access: Limited, very wet

Zoning: Residential/Agricultural

Ownership: Town of Carver

Managing Agency: Conservation Commission

Degree of Protection: Perpetuity

Comments: Within the Great Cedar Swamp, the Conservation Commission owns several parcels totaling about 80 acres. The town also owns an additional 50.5 acres scattered throughout the swamp. While this large wetland area is afforded some protection under the provisions of the Massachusetts Wetlands Protection Act there is no formal protection given to lands in the swamp not owned by the Conservation Commission. There are several different owners of land within the swamp and many are unknown. The Assessors' Office is currently attempting to clarify ownership within the Swamp and definitive ownership information was not available at the time this Open Space Plan was assembled. Therefore, the scattered town-owned parcels are not shown on Figure 15.

Unprotected Lands

The inventory of Unprotected Lands includes recreational areas in town, such as parks, beaches, and greens, and other lands which are under the jurisdiction of the Park Department, DPW, or School Department, cemeteries (which are often used for walking), private recreational areas, and private lands in the Chapter 61, 61A or 61B programs.

Land is considered unprotected if it falls into one or more of the following categories:

- ◆ Unrestricted federal land
- ◆ Unrestricted state land
- ◆ Town land:
 - a. Not owned by the Conservation Commission or otherwise restricted
 - b. Tax title properties
 - c. MGL Chapter 61, 61A, and 61B lands
 - d. Selected unrestricted privately owned open space

In addition to the town-owned and private recreational facilities listed in this inventory, there are also several set-aside lots in various subdivisions for playgrounds. These lots are privately owned by the developer and/or the residents. However, some have been taken by the town for non-payment of taxes. Carver should carefully look at each tax title parcel to assess whether there is the potential for the development of recreational facilities at these sites.

Chapter 61, 61A & 61B

Chapter 61 (Forestland Taxation Act) is administered by the Department of Environmental Management (DEM) for properties of contiguous forestland of ten acres or more. It is designed to give favorable tax treatment to a landowner interested in keeping forestland undeveloped and in wood production. Land that is certified under Chapter 61 is assessed at 5% of fair market value or at \$10 per acre, whichever is greater. An 8% wood products tax is paid at the time of harvest. Chapter 61 defers payment of a portion of the property taxes until timber is cut and income is realized. Landowners wishing to qualify for the program must have a 10 year DEM approved forestry management plan, which may include activities such as harvesting or timber stand improvements. The town of Carver currently has 147.5 acres of land enrolled in Chapter 61.

Chapter 61A (Farmland Assessment Act) is designed primarily for lands used for agricultural or horticultural purposes, and can cover both agricultural lands and woodlands of a single farmer. The property owner must have at least 5 acres of land in agricultural use, and must demonstrate minimum yearly gross sales of farm products, based on the number of acres requested for application. Required annual sales must be \$500 for the first 5 acres, and for each acre above the first five: \$5 for farmland and \$.50 for woodland. There is usually an 80% reduction in assessed value under the Chapter 61A program. Presently, there are 6,893 acres enrolled in Chapter 61A in Carver, the majority of which are cranberry bogs.

Chapter 61B (Open Space/Recreation Act) is designed to preserve open space and promote recreational uses, such as golf courses and hunting clubs. Property owners must have at least 5 contiguous acres to qualify and the land must be maintained in one of the following ways: 1) the land must be kept in a natural, wild or open condition and does not have to be open to the public or, 2) it must be used for recreational purposes and must be open to the public or to the members

of a nonprofit organization. The tax on the land is based on the commercial tax rate for that fiscal year applied to the value of the land for recreational purposes, rather than its fair market value. Parcels open to the public may be used for hiking, camping, or nature study. Carver has 245.5 acres of land enrolled in Chapter 61B.

All of the Chapter 61 statutes allow landowners to withdraw their property from classification at the end of the 10-year period. However, if removal is done before the end of the 10 year period or, if during the ten year period, the land is not maintained as it was classified, the landowner must either pay a conveyance tax or a rollback tax for that time period, whichever is higher. It also grants the town the right of first refusal on lands being sold for residential, commercial, or industrial purposes. The town must match a bona fide offer for conversion of the property from its forest, agricultural, or recreational use.

In 1986 and 1987, all the Chapter 61 laws were amended to allow towns to assign their right of first refusal option to nonprofit conservation organizations. Involvement of a land trust organization provides the town with greater flexibility to protect critical lands when town funds are not available or action needs to be taken quickly. Such a transfer of right of first refusal options requires a public meeting and the approval of the Board of Selectmen.

While it is not feasible to place any large portion of this land under protection, the town should be identifying parcels of particular importance due to size, beauty, endangered species habitat, or proximity to ponds, rivers, or recreational areas, and keeping alert to preservation opportunities. The town should also be looking at the connection between these parcels. Tracts of open land that are geographically linked are more effective at preserving habitat and protecting groundwater than isolated parcels. Lands that preserve these linkages should be given special priority; likewise, development that destroys linkages should be avoided when possible.

At the time this Plan was being developed, the Assessors' Office was working with a consultant to create a Geographic Information System (GIS) database for Carver. Maps showing the location of Chapter 61, 61A and 61B lands were not available and therefore are not included in this Plan. Once this GIS database is complete it will be important for the town to consider these parcels when making land conservation decisions.

Public Unprotected Parcels

Shurtleff Park

Acreage: 6.33 acres

Location: Main St., Carver Center

Public Access: Yes

Zoning: Village District

Comments: This park is used for general town-wide use, especially concerts and Old Home Day. The park has toilets and a bandstand.

Ownership: Town of Carver

Managing Agency: DPW

Degree of Protection: None

Savery Avenue

Acreage: 8.7 acres

Location: Savery Avenue

Public Access: Yes

Zoning: Residential/Agricultural

Comments: This is an unprotected parcel abutting the Conservation Commission land on Savery Avenue within the Savery Avenue Historic District. It should be transferred to the jurisdiction of the Conservation Commission to afford it the same protection as the contiguous Savery Avenue parcels.

Ownership: Town of Carver

Managing Agency: Board of Selectmen

Degree of Protection: None

King Property (Town Hall Recreation Area)

Acreage: 10 acres

Location: Main St, behind DPW/police

Public Access: Yes

Zoning: Village District

Comments: This property contains two little league fields and two adult softball fields with dugouts, two tennis courts, a basketball court, concession stand, field house, and bathrooms. One of the bathrooms was recently updated, new lighting and fencing were installed, and new nets were put on the tennis courts.

Ownership: Town of Carver

Managing Agency: Recreation Comm. & DPW

Degree of Protection: None

Forest Street Recreation Site (Shaw Street Field)

Acreage: 3.3 acres

Location: Forest Street

Public Access: Yes

Zoning: Residential/Agricultural

Comments: This site consists of two dirt practice fields (with no bleachers) for little league and girls softball. It is in extremely poor condition and needs a complete overhaul. Parking is limited, causing neighborhood complaints. It would also benefit from the installation of a tot lot with playground equipment, bike racks, storage sheds and picnic areas.

Ownership: Town of Carver

Managing Agency: Recreation Committee

Degree of Protection: None

Carver Community Playground (former Roby Hardware property)

Acreage: 1.5 acres

Location: Next to Library

Public Access: Yes

Zoning: Village District

Comments: This site contains a playground, picnic tables, and a ¼ mile wooded trail.

Ownership: Town of Carver

Managing Agency: DPW

Degree of Protection: None

Purchase Street Recreation Site

Acreage: approx. 9 acres

Ownership: Town of Carver

Location: Purchase Street

Managing Agency: Recreation Committee

Public Access: Yes

Degree of Protection: None

Zoning: Residential/Agricultural

Comments: This site contains one soccer field and one football field, plus parking. It was recently created and was used for the first time in the summer of 2002.

North Carver Green

Acreage: 0.46 acres

Ownership: Town of Carver

Location: North Carver

Managing Agency: DPW

Public Access: Yes

Degree of Protection: None

Zoning: Village District

Comments: Located at the intersection of Plymouth Road, Center Street and Main Street. This small town green contains a few benches and a memorial.

Governor John Carver Elementary School

Acreage: 22 acres

Ownership: Town of Carver

Location: Main Street

Managing Agency: School Department

Public Access: Yes, outdoor areas

Degree of Protection: None

Zoning: General Business

Comments: The elementary school has 2 gymnasiums (indoor basketball), 4 basketball courts (2 full courts, 2 half courts), 3 baseball fields (one in poor condition), and a playground with wooden climbing structures, slides, swings, and seesaws. A small outdoor playground was recently added. The indoor facilities are used only during the school year by students. The outdoor facilities are open to the public when school is not in session.

Benjamin Ellis Elementary School

Acreage: 0.8 acres

Ownership: Town of Carver

Location: Tremont Street

Managing Agency: School Department

Public Access: None

Degree of Protection: None

Zoning: Village District

Comments: The Ellis School has 1 basketball court, 1 swing set, 1 sea-saw, and monkey bars. This site is fenced in and locked. It is not available for public use.

Carver High School

Acreage: 125 acres

Ownership: Town of Carver

Location: South Meadow Road

Managing Agency: School Department

Public Access: Yes – outdoor areas

Degree of Protection: None

Zoning: Residential/Agricultural

Comments: The High School has 1 varsity softball field, 1 junior varsity softball field, 1 varsity baseball field, 1 junior varsity baseball field, 1 football field (also used for soccer and field hockey), 1 field hockey field, 1 soccer practice field, 4 tennis courts, and a track. All fields are used for youth and adult sports when they don't interfere with school activities. The tennis courts are open to the public, but the track is usually locked at off hours. There has been some recent talk of stopping all public access due to the extra cost of paying maintenance workers and vandalism.

Pond Street Recreation Site (adjacent to High School)

Acreage: approx. 6 acres Ownership: Town of Carver
Location: Pond St., behind HS Managing Agency: School Department
Public Access: Yes, by permission Degree of Protection: None
Zoning: Residential/Agricultural

Comments: This site was developed by the Youth Soccer League and has 2 soccer fields. It is available for public use with permission from the High School Athletic Director.

Lakeview Street Boat Ramp & Beach (McFarlin Parkway)

Acreage: 0.4 acres Ownership: Town of Carver
Location: Lakeview Street Managing Agency: DPW
Public Access: Yes, by permit Degree of Protection: None
Zoning: Residential/Agricultural

Comments: This site consists of a boat ramp and a very small beach of about 50 feet. Parking is very limited (about 9 cars) and restricted to residents or non-residents with purchased permits.

Atwood House and Sampson's Pond Beach

Acreage: 4.9 acres Ownership: Town of Carver
Location: Lakeview Street Managing Agency: Council on Aging, DPW &
Public Access: Yes Recreation Committee (swimming only)
Zoning: Residential/Agricultural Degree of Protection: None

Comments: The Atwood House is used by the elderly as a recreation/social/nutrition center. There is a small beach with parking, summer swimming lessons (no lifeguard), and a tennis court. Parking is limited and restricted to residents or non-residents with purchased permits. The beach is small for Craver's size (200 feet of pond frontage) and should be expanded where possible. The tennis court is completely overgrown and needs repair. In the past, it has been difficult to maintain nets because of vandalism.

John's Pond Public Beach

Acreage: 0.6 acres Ownership: Town of Carver
Location: Silva Street Managing Agency: DPW
Public Access: Yes Degree of Protection: None
Zoning: Residential/Agricultural

Comments: This is a small beach (116 feet of frontage) with limited parking. It has a lifeguard and a lifeguard chair. The beach and swimming area should be expanded. There is often garbage on the beach that needs to be cleaned regularly.

Dunham Pond Right-of-Way and Boat Ramp

Acreage: Ownership: Plymouth County Commissioners
Location: Tremont Street Managing Agency: DPW
Public Access: Yes Degree of Protection: None
Zoning: Residential/Agricultural

Comments: This boat ramp has parking for about five cars and is owned by the Plymouth County Commissioners. It is used frequently and has a trash barrel.

Plymouth Municipal Airport

Acreage: 23.6 acres

Location: South Meadow Road

Public Access: Yes

Zoning: Airport District

Ownership: Town of Plymouth

Managing Agency: Airport Commission

Degree of Protection: None

Comments: The airport, while primarily in Plymouth, extends into Carver on the west. There is private recreational flying and lessons in flying and gliding, as well as plane rides.

North Main Street – adjacent to Muddy Pond

Acreage: 21.7 acres

Location: Muddy Pond

Public Access: No

Zoning: General Business

Ownership: Town of Carver

Managing Agency: Board of Selectman

Degree of Protection: None

Comments: This 21.7-acre parcel is besides the North Carver Fire Station and adjacent to the state-owned Muddy Pond. This is the old capped Carver dumpsite and will need careful review if it to be developed as a recreational area in the future.

Lakenham Cemetery

Acreage: 4 acres

Location: Forest & Main Streets

Public Access: Yes

Zoning: Residential/Agricultural

Comments:

Ownership: Town of Carver

Managing Agency: DPW

Degree of Protection: None

Union Cemetery

Acreage: 5.4 acres

Location: Main Street

Public Access: Yes

Zoning: Planned Tourism Commercial District

Comments:

Ownership: Town of Carver

Managing Agency: DPW

Degree of Protection: None

Central Cemetery

Acreage: 4.5 acres

Location: Main Street

Public Access: Yes

Zoning: Village District

Comments:

Ownership: Town of Carver

Managing Agency: DPW

Degree of Protection: None

Private Unprotected Parcels

Edaville Railroad

Acreage: 1,080 acres

Ownership: Ellis D. Atwood Corporation

Location: off Rochester Road

Managing Agency: N/A

Public Access: Yes

Degree of Protection: None

Zoning: Planned Tourist Commercial Overlay District

Comments: Edaville Railroad is a popular tourist attraction. The park contains a train ride, museum, snack bar, amusement rides, picnicking, a swimming beach, and paddleboats. The park is also used for numerous special events, such as the Cranberry Harvest Festival, old car weekends, etc.

King Richard's Faire

Acreage: 70 acres

Ownership: Edaville Corporation

Location: Route 58

Managing Agency: N/A

Public Access: Yes

Degree of Protection: None

Zoning: Planned Tourist Commercial Overlay District

Comments: King Richard's Faire is an amusement and entertainment area open for a limited time in the early fall.

Carver Sportsman's Club

Acreage: 215.7 acres

Ownership: Club members

Location: off Main Street

Managing Agency: N/A

Public Access: Members only

Degree of Protection: None

Zoning: Residential/Agricultural

Comments: This site includes a fishing pond and target practicing. It also contains a large wetland area and frontage on the South Meadow Brook. It is currently enrolled in Chapter 61B. In the Club's bylaws it states that the land will be donated to the Division of Fisheries and Wildlife should the Club go out of business.

Shady Acres

Acreage: 71.5 acres

Ownership: J. Soares

Location: Main Street

Managing Agency: N/A

Public Access: Yes

Degree of Protection: None

Zoning: Residential/Agricultural

Comments: Shady Acres is adjacent to Myles Standish State Forest and includes 150 campsites, an 8-acre pond for swimming, boating and fishing, and hiking areas. Currently enrolled in Chapter 61B.

Pinewood Way

Acreage: 46.6 acres

Ownership: Paul Williams

Location: Across from Clear Pond

Managing Agency: N/A

Public Access: Yes

Degree of Protection: None

Zoning: Residential/Agricultural

Comments: Private campground with 80 campsites.

Beachfront on Bates Pond

Acreage: 4 acres

Location: Bates Pond

Public Access: Members only

Zoning: Residential/Agricultural

Comments: Private beach accessible to Association members only.

Ownership: Bates Pond Association

Managing Agency: Bates Pond Association

Degree of Protection: None

Camp Clear Bible Camp

Acreage: 2 acres

Location: Clear Pond

Public Access: None

Zoning: Residential/Agricultural

Comments: Two-acre bible camp on Clear Pond

Ownership: Finnish Evangelical Congregational

Church Mission on Clear Pond

Managing Agency: Church

Degree of Protection: None

Open Space & Recreational Lands in Carver

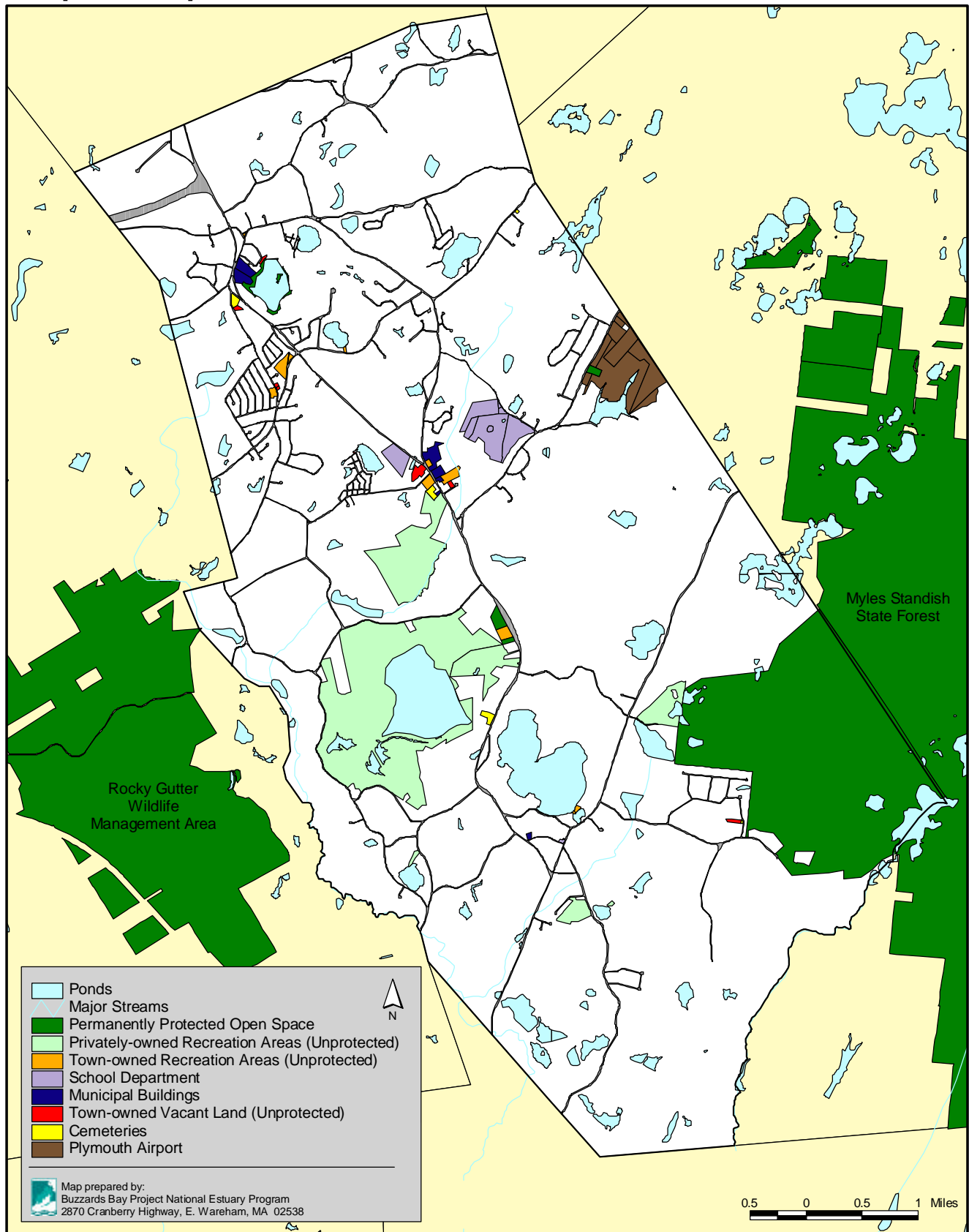


Figure 15. Open Space & Recreational Lands in Carver

VI. COMMUNITY NEEDS

A. Resource Protection Needs

Throughout this open space planning process there has been a strong focus on the community's desire to maintain its rural character. Seventy-three percent of the Carver residents who responded to a scientific open space survey stated that it is extremely important to them that the rural character of Carver is preserved. An essential component in the preservation of a community's rural character is the protection of its resources. The following statements illustrate Carver's needs as identified by the Open Space and Recreation Committee through the use of a survey and a public meeting.

Well fields and water supply areas need to be protected

In response to the community survey conducted during the revision process of the Carver Open Space and Recreation Plan, citizens of Carver expressed concern about a range of environmental issues. Foremost of these concerns was the protection of "well fields and water supply areas". Ninety-three percent of respondents feel the protection of wells is an issue that needs to be a high priority for the town. This sentiment reflects the very real threat that faces Carver's drinking water supply. Physical characteristics of the aquifer combined with the development pressure Carver is experiencing makes it essential that the town implement well planned, long-term programs, such as the creation of a multi-town watershed advisory board, that addresses drinking water supply issues. In addition, protection strategies such as land acquisition, conservation restrictions, and adopting appropriate zoning regulations are important methods to pursue.

Carver needs to pursue the acquisition of conservation restrictions and conservation lands in order to protect areas of environmental importance

Other than twenty-one acres of land on Savery Avenue and random parcels in the Great Cedar Swamp that the Conservation Commission owns, Carver has no other town-owned protected open space. The Open Space survey shows that citizens are concerned about the lack of town open space, with 79% of survey respondents rating "loss of natural habitats" a high priority. It was suggested in the town's Master Plan that 2,500-5,000 acres of land be acquired for conservation and resource protection. An Open Space Protection Strategy has been developed that begins to look at the importance of linking environmentally sensitive lands with existing open space to create greenbelts throughout the town. This strategy seeks to protect open spaces of regional significance, important water resources, and agricultural lands. The next step is to develop a methodology by which individual parcels can be evaluated for their open space value and then implement protection methods such as outright purchase, adoption of conservation restrictions, and encouraging land donations. To make sure this need is addressed, the town has to take a serious look at potential funding sources and determine how it will raise funds because currently no money is set aside for land protection. Serious efforts should be made to adopt the Community Preservation Act, and the town should strongly encourage the development of a land trust in Carver.

Agricultural land, especially cranberry acreage, needs to be protected

Cranberry production is one of Carver's major industries. Land used for cranberry agriculture represents a substantial portion of the town's unprotected open space. In FY2000, there were

approximately 6,800 acres enrolled in Chapter 61A, under approximately 80 different owners. Much of the forested upland owned by cranberry growers is developable land.

The current recession in the cranberry industry has caused some growers to sell off excess land. Increasing land values and a growing market for development in the region is also a significant impetus behind the trend to sell off land. According to the Master Plan, the amount of adjacent land per 1 acre of cranberry land has substantially declined in recent years from 3 acres to 2 acres. In addition, agricultural land isn't being used solely for agricultural purposes even though activities such as soil mining currently fall under the guise of agriculture. New bogs are being created despite the decline in the cranberry industry for the purpose of selling the soil that is excavated. The sandy soil is in high demand because it is useful for commercial, residential, and industrial development, mainly because it makes an excellent medium for septic systems. This soil mining leaves unsightly scars in the Carver landscape. Efforts need to be made not only to ensure land stays in agriculture but also to ensure that the land is used for legitimate agricultural purposes. The best way to do this is to make sure agriculture remains a viable economic activity. Local efforts to encourage cooperation between farmers and to minimize the negative impacts to farmers from environmental regulations while still protecting the environment are examples of the type of needed effort. In addition, clear regulations on soil mining need to be imposed so that the activity is regulated as a commercial enterprise not under the guise of agriculture. Protecting Carver's agricultural land equates to preservation of the town's rural character.

B. Community Needs

This section has several purposes:

1. to evaluate the amount of recreation land and facilities present in Carver,
2. to identify areas where needs exist today
3. to project needs for the year 2014 based on estimated population growth and changing demographics, and
4. to compare Carver's current and future resources and needs with those for the Southeastern Massachusetts region as a whole, as described in the Statewide Comprehensive Outdoor Recreation Plan.

It is important to note that the analysis that follows uses a combination of methods for determining need. First, existing and proposed recreation facilities were compared with quantitative standards based on population levels. Although this method is broad and subject to criticism because it doesn't reflect local preferences or budgets, it does provide a sense of how Carver's facility inventory compares with generally accepted averages for communities of similar sizes. Second, the surveys distributed by the Open Space Committee measured perceived need in the general population. Finally, the Open Space Committee through its own deliberations, a Community Meeting, and through work with the Buzzards Bay Project, developed its own understanding of the town's current and future needs. When pulled together, these three approaches produced an assessment of need that the Committee feels is subjective enough to reflect Carver's local preferences while being objective enough to give the town a clear sense of whether it is providing services that will keep the town within, or ahead, of service levels expected of municipalities in 2014.

Quantitative Assessment

According to the 2000 Census data, the current population in Carver is 11,163 people. The cap for residential building permits on newly created lots in Carver is 30. Assuming 2.7 persons per household and 30 units per year growth rate, Carver's population will climb to 12,216 by the year 2013. Given the current demand for housing and population trends, this level is within the scope of the population projections presented in the Population Characteristics section of this plan, and in all likelihood will become a reality.

In terms of long-term growth a buildout analysis of the town performed in the spring of 2000 by the Executive Office of Environmental Affairs (EOEA) indicated that there are 11,441 acres remaining of buildable land and the possibility of 7,641 residential units. This translates into an additional 21,574 people when the town reaches buildout, for a total population of 32,737.

For the purposes of this plan, the figure of 12,216 residents will be used for determining needs into the next decade.

Regional Recreation and Open Space Needs

The Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP), which was written in 1988 and updated in 1993, looked at open space and recreation needs all across Massachusetts and determined that the five major policies of most importance to the Southeastern Region, of which Carver is a part, were:

1. Development and expansion of recreation facilities,
2. Maintenance of recreation facilities,
3. Acquisition and protection of water supply areas,
4. Acquisition and protection of recreation areas, and
5. Acquisition and protection of conservation areas.

The SCORP identified the following specific needs for the southeastern Massachusetts region:

1. Developing and expanding water-based recreation facilities,
2. Acquisition and protection of wildlife habitats and scenic areas,
3. Development and expansion of handicapped access, and
4. Development of trail corridors

When reviewing the recreational needs for this region and comparing them with Carver's own needs, one can see that they are strikingly similar. In fact, all of the above regional needs were identified throughout this open space and recreation planning process as areas Carver needs to improve in. The following section, Summary of Recreational Needs, discusses these needs as well as others that were identified as the result of a scientific survey, a public meeting, and regular Open Space Committee meetings.

Summary of Recreational Needs

The National Recreation and Park Association (NRPA) has established a set of standards for assessing how communities compare in providing recreational opportunities to their citizens (see Table 10). According to these standards, Carver's largest deficiencies are in bicycle paths, nature/hiking trails, playgrounds, and volleyball and basketball courts. In addition, NRPA recommends that a town of Carver's size have an ice arena, which it does not. It is important to note that Myles Standish State Park provides the entire amount of equestrian, hiking, and bicycle trails located in Carver. The majority of the trails in Myles Standish are located in Plymouth but Table 10 lists only those trails, or portions of, that lie in Carver.

The activities Carver residents participate most in are walking, fishing, swimming and bird watching. Therefore, it makes sense that residents of Carver perceive a need for more trails and opportunities for passive, nature based recreation. In a survey asking residents to comment on which recreational facilities the town needs more of, protected open space with public access, and bike paths/trails received the most votes. Seventy-three percent of respondents would like to see a paved multi-use path for walking, biking, and jogging. In addition, residents feel the town needs more picnic areas and nature, hiking, and equestrian trails.

The town's Master Plan addressed the need for a system of bicycle trails by identifying alternatives for improving bicycle facilities in Carver. These alternatives include designating bicycle routes and bicycle paths, installing storage facilities in key locations, and disseminating information to the community through mapping and signage. The Historical and Open Space Committees of the Master Plan developed a possible town-wide bicycle network of trails based on the needs of both recreational bicyclists and commuters. See Figure 15 for an illustration of this potential network. The town should address this issue by creating a trail committee to investigate the creation of both paved and unpaved multi-purpose pathways for walking, hiking, biking, equestrian, and roller-blading.

Table 10. Carver Recreation Facilities, Needs and Supply

FACILITY	NRP ASSOC. STANDARD	PUBLIC SUPPLY	PRIVATE SUPPLY	DEMAND 2002 (pop 11,163)	DEMAND 2014 (est. pop. 12,216)	COMMENTS
<i>Trails</i>	(miles)	(miles)	(miles)	(miles)	(miles)	
Nature/Hiking	1 per 2,500	1.15	0	4.5	4.8	Myles Standish State Park (.9) ¹ Carver Community Playground (.25)
Equestrian	1 per 6,250	2.5	0	1.8	1.9	Myles Standish State Park ¹
Bicycle	1 per 2000	.9	0	5.6	6.1	Myles Standish State Park ¹
<i>Family Play</i>	(areas)	(areas)	(areas)	(areas)	(areas)	
Playgrounds, Tot Lots	1 per 1,000	3	0	11	12	Gov John Carver School (1) ² Benjamin Ellis Elem School (1) ³ Library (1)
Skateboarding	No standards available	0	0	N/A	N/A	
Rollerblading	No standards available	0	0	N/A	N/A	
Picnic Areas	1 table per 300	4	unknown	37	46	Carver Community Playground (2) Savery Avenue (2)
<i>Court Games</i>	(courts)	(courts)	(courts)	(courts)	(courts)	
Tennis	1 per 1,500	6		7	8	King Property (2) Carver High School (4)
Basketball	1 per 1,000	6		11	12	King Property (1) Gov John Carver School (4) ⁴ Benjamin Ellis Elem School (1) ³
Volleyball	1 per 3,000	0	0	4	4	
<i>Diamond Sports</i>	(fields)	(fields)	(fields)	(fields)	(fields)	
Baseball, Softball	1 per 3,000	14		4	4	King Property (4) Shaw Street Field (2) Gov John Carver School (3) ² Carver High School (4) Purchase Street (1)
<i>Ice Arena</i>	1 per 10,000	0	0	1	1	
<i>Field Sports</i>	(fields)	(fields)	(fields)	(fields)	(fields)	
Soccer	1 per 10,000	4		1	1	Purchase Street (1) ⁵ Carver High School (3) ⁵
Football	1 per 20,000	2		N/A	N/A	Carver High School (1) ⁵ Purchase Street (1) ⁵
Field Hockey	N/A	1				Carver High School (1) ⁵
<i>Golf Course</i>	(holes)	(holes)	(holes)	(holes)	(holes)	
NPS Standard	18 per 12,500	0	0	N/A	N/A	
<i>Swimming</i>	(facility)	(facility)	(facility)	(facility)	(facility)	
Pools	1 per 20,000	0	0	N/A	N/A	

Footnotes:

1. Myles Standish contains about 1,828 acres of land in the town of Carver and approximately 12,000 acres in Plymouth. The figures shown in this table are for the trails or portions of trails that are in the Carver section of Myles Standish.
2. Facilities are only open to the public when school is not in session.
3. Facilities can only be used by students.
4. Indoor facilities are used only during the school year by students.
5. Field is used for multiple sports.

Proposed Bicycle Routes

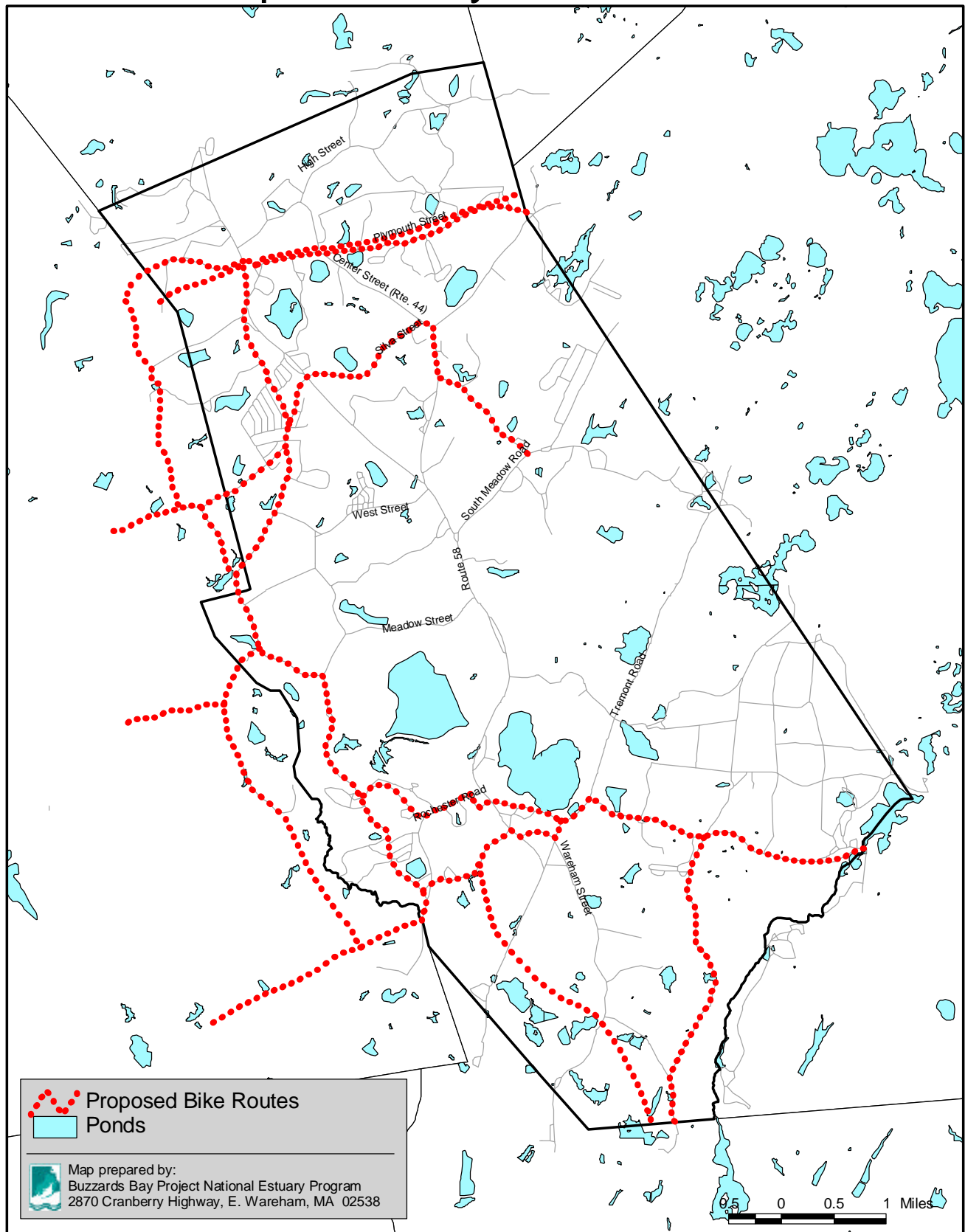


Figure 16. Proposed Bike Routes in Carver

Survey results indicate that there is a need for more public access to beaches. Seventy-four percent of survey respondents feel access to rivers, streams and ponds should be acquired. According to one study, a town our size should have 990 linear feet of beach shoreline and Carver has approximately 300 feet of usable beach shoreline. The majority of beaches in Carver are private, however there are two small public beaches in town. The main reason respondents gave for not using the beaches was a lack of parking. The town should look into acquiring more beach shoreline as well as space for additional parking. In addition, there was a significant amount of respondents who wrote in that poor water quality was the reason they didn't use the beaches. The town needs to address public concerns about water quality by regularly testing the ponds and communicating the testing results to residents through methods such as signs posted at the beach and household mailings. According to the NRPA, a town should have a pool for every 20,000 residents. The nearest pool to Carver is at the Middleboro Y, which is approximately 20 minutes away. Although Carver's population isn't close to this number yet, some residents expressed a desire for a town pool when responding to the survey.

The strong desire for picnic areas, hiking trails and beaches among Carver residents is interesting considering Myles Standish State Forest is well-supplied with these facilities. Although 72% of respondents indicated that they visited the State Forest, it appears residents would prefer to have their own picnic sites, trails, and beaches. Those respondents that don't use Myles Standish gave several reasons for not doing so; including that they don't feel safe there and that it is too far for them to travel. Myles Standish is located in South Carver and even driving across town is perceived to be too far to travel for some people who just want to go out for a quick stroll or bike ride and don't feel like driving to a location first. The town should consider developing the existing network of ancient roads through open land into a marked trail system for walking and mountain biking. Carver's small pond beaches should be expanded by careful land acquisition. The land at Savery Avenue should be developed into a park with hiking trails and picnic tables.

The National Recreation and Park Association suggests that a town like Carver, with a population of about 11,000, should have somewhere between 70 and 115 acres of *developed* park land, divided into units of varying sizes and distances from residences, equipped with playgrounds, playing fields, trails, beaches, etc. The town currently has about 39 acres for this purpose, with another 14 acres under development.

Field sports are very close to Carver's heart: about 80% of Carver's families are involved in some kind of team sport. Even though Carver meets or exceeds the national standards for the number of fields a town of its size should have, many of the fields are located on school property, where they can only be used after school hours or are used for more than one sport. The fields in Carver are barely able to accommodate the games and practices of the youth and adult sports teams, even with a great deal of juggling. It is clear that more fields will be needed soon, especially considering that in the last five years two soccer fields, a baseball field, and a football field that had been used for 25 years by Carver residents were lost when the private property owner who had allowed the town use of the fields sold the property. Although the town continues to work on replacing them on town-owned land, it currently lacks the money to finish the work.

Despite the apparent need for more playing fields to accommodate the popularity of organized sports teams, the majority of survey respondents indicated that they were satisfied with the

number of soccer, baseball, and softball fields. Residents seem to be more concerned about the poor condition of facilities. When asked to list the most important open space and recreation issues facing Carver, “maintaining and upgrading existing recreational fields, playgrounds, and parks” ranked 8th whereas “more fields” didn’t make the top ten list. The town needs to focus on taking care of its existing facilities before it starts taking on more maintenance responsibilities. For example, tennis courts and basketball courts have fallen victim to vandalism. Nets are ripped off soon after they are put up. These facilities need to be watched more closely by the appropriate authorities to discourage vandals from destroying them.

As to playgrounds and tot-lots: currently Carver, with a 2000 population of 240 pre-schoolers and approximately 1,125 children enrolled in grades K-6, has only 3 playgrounds, of which two are not available to the public during school hours. National standards state that Carver should have eleven playgrounds. The town has made strides in this department with the construction of a new playground at the library. However, playgrounds need to be strategically located in different areas of town so that everyone can benefit from their existence. Again, despite the fact that Carver is significantly deficient in the number of playgrounds it has according to NRPA, 212 survey respondents indicated they were satisfied with the playgrounds as opposed to the 65 people who felt more are needed and the 21 people who indicated the playgrounds need upgrading. These numbers may be indicative of the fact that 61% of the survey respondents don’t have any children under 18 and of the 41% who do, only a little more than half would be of playground age. If your children don’t use the playgrounds you probably wouldn’t see a need for more playgrounds.

The town already has many natural areas for outdoor skating (on the ponds and bogs), but weather patterns make them usable only a few days a year. The nearest indoor rinks are about twenty minutes away in Bourne and Plymouth. There are residents in town that feel there is a need for the reliability and safety of a man-made rink for hockey and recreational skating.

There are several golf courses in the region, and tennis courts in South Carver and at the high school. (Several respondents urged the town to better maintain the tennis courts in South Carver).

In a survey question asking residents to list the most important recreation issues facing Carver, the creation of a teen recreation center or a YMCA that would give teenagers a place to go after school was identified by a large number of respondents. It actually ranked second behind the creation of more trails for hiking, biking, etc. There is a feeling that, besides organized sports, there isn’t a lot for children, especially teenagers, to do in Carver. The town needs to explore the idea of developing a community center that would provide recreational and organized activities for children, mainly teenagers, and provide them with a meeting place after school and on the weekends.

Special User Needs

As of the 2000 U.S. Census, Carver is reported as having 903 persons with a physical disability living in town, which when compared to the town population in 2000, represented 8% of the population. Of those people with a physical disability, 416 are age 65 and over.

In 1990 the Americans with Disabilities Act (ADA) was federally adopted, placing strict regulations on schools, businesses, industry and government to meet compliance guidelines set

forth to ensure that no person shall be discriminated against based on a physical disability. As part of the process to create this Plan, each and every town conservation or recreation facility has undergone an evaluation for accessibility according to the guidelines set forth by ADA. The results of this evaluation can be found in the Appendix.

There is a playground adjacent to the town library that was just recently constructed and is in complete compliance with ADA Section 504 requirements. The two town beaches, Sampson Pond Beach and John's Pond Beach, do not meet ADA regulations.

C. Management Needs and Potential Change of Use

The following boards and committees are currently involved in protecting open spaces and providing recreational opportunities to residents:

- Open Space Committee (which has prepared this report)
- Master Plan Committee (which developed an overall vision for the town)
- Conservation Commission (which oversees wetlands)
- Board of Health (which grants site assignments and sets septic standards)
- Planning Board (which recommends zoning changes and administers the Water Resource Protection bylaw)
- Recreation Committee (which oversees organized sports),
- Department of Public Works (which maintains the park and recreational facilities)
- Historic District Commission (which protects the historic areas)
- Zoning Board of Appeals (which administers special permits for private recreational projects like golf courses and campgrounds)
- School Department (which oversees the school recreation facilities).

Open Space Acquisition Committee

The above loosely organized, decentralized system works pretty well to an extent. However, what is missing from this array of groups is an entity whose *primary mission* is to acquire and enhance open space, such as an open space acquisition committee. The absence of such a group is one reason Carver has a lack of publicly owned open space.

Funding Mechanism

Probably the main reason Carver has a lack of publicly owned land is because there is no funding mechanism in place to support open space and recreation needs. Adoption of the Community Preservation Act would generate funds that could then be put into a land bank. This, in conjunction with the creation of a committee to oversee acquisitions using land bank funds, would be a good start to addressing Carver's management needs.

Full-Time Grant Writer

The town does not currently employ a full-time grant writer. In the past, an outside grant writer has been hired on an as needed basis through the Board of Selectmen. And while the town recently hired a new Town Planner with grant writing skills, her main focus is not to function as the writer for all town grants. Carver would be better prepared to secure grant money for open space acquisition, as well as other town projects, if a full-time grant writer were to be employed by the town.

Conservation Agent

The town has a part-time conservation agent, but the heavy workload makes it more appropriate for the town to make this position full time.

VII. GOALS AND OBJECTIVES

A. Short-term vs. Long-term Objectives

In the short run, money, or the lack thereof, will largely determine Carver's course of action. Bluntly put, the town is strapped and doesn't have a budget for land acquisitions. However, the Community Preservation Act, which was adopted on September 14, 2000 by then Governor Cellucci, does offer Carver the ability to raise funds for open space protection and is probably the best chance Carver has for raising money. Under the Community Preservation Act, the town can establish a Community Preservation Fund through a ballot referendum, from which a large portion can be dedicated to open space and historic preservation. As an incentive, the State would provide matching funds of between 5% and 100%. Proponents of the Community Preservation Fund were unsuccessful in their attempt to get it passed last year because of the resistance by many Carver residents, and more importantly, the cranberry industry, to paying higher taxes, regardless of how it benefits the town. Hopefully in the future Carver residents will decide to take advantage of this funding opportunity.

In the meantime, a shortage of money doesn't mean that nothing can be done. We can start by looking at strategies that don't require much money, such as enacting zoning policies that protect open space and pursuing donations and conservation restrictions from landowners. At the same time, we should be keeping in mind long-term objectives and actions that can be taken when the money situation improves, either from an upswing in the town's financial health or from a change in the public's willingness to commit dollars to open space and recreation needs.

Both short-term and long-term lines of action are important. If we fail to look at low-cost short-term options, we are admitting that we will be doing nothing for the foreseeable future. And if we fail to have a long-range strategy, we will not be in a position to act if and when money becomes available.

Goal I: Maintain the rural character and scenic atmosphere of Carver.

Objective 1: Permanently protect open space in Carver.

- a. Adopt the Community Preservation Act in order to generate funds that can be used for open space acquisition.
- b. Support the formation of a non-profit Land Trust in Carver to accept donations of land.
- c. Prioritize land for open space protection, especially in the priority sensitive areas.
- d. Encourage land donation, adoption of conservation restrictions, tax title taking, and occasional purchase of critical lands.
- e. Acquire and protect distinctive areas of town that are critical to maintaining Carver's rural charm.
- f. Develop town policy to encourage transfer of the town's right of first refusal for Chapter 61, 61A, and 61B lands to a qualified conservation organization when the town is unable to act on acquisition of important lands.
- g. Start enforcing existing regulations that protect open space, the environment, and the scenic character of the town.

Objective 2: Protect the town's historic, cultural and scenic resources.

- a. Identify historic sites and cultural and scenic resources and develop tools to protect them.
- b. Investigate the idea of creating a scenic roads by-law and the feasibility of designating certain roads as scenic roads.

Objective 3: Support planning policies that control population growth:

- a. Develop town water and/or sewer only in limited areas such as industrial zones and village centers.

Objective 4: Modify existing zoning regulations to encourage open space in residential, commercial, and industrial development to protect open space, the environment and the scenic character of town.

- a. Increase minimum lot size to 2 acres.
- b. Allow for cluster subdivision by right rather than by special permit.
- c. Increase the minimum amount of contiguous open space required (currently 20%) for lots in conservation (cluster) subdivisions.
- d. Designate "sending" and "receiving" areas, and allow the sale of development rights from parcels in sensitive areas to increase the allowable density elsewhere. (Transfer of Development Rights)
- e. Designate critical resource areas and increase minimum lot sizes to 3 acres in these areas.
- f. Impose clear regulations, including site plan review, on soil mining and regulate it as a commercial enterprise not under the guise of agriculture.

Goal II: Preserve the quality of Carver's natural resources, including ground and surface waters, wetlands, and wildlife habitat.

Objective 1: Protect Carver's groundwater resources.

- a. Work with the towns of Plymouth and Wareham to protect the Plymouth-Carver Aquifer by participating in the formation of a watershed advisory board.
- b. Protect land (especially land over the Plymouth-Carver aquifer) by purchase or conservation restrictions, using state and federal funds whenever possible and assistance from land trusts.
- c. Identify and protect sites designated as potential sources of public water.

Objective 2: Preserve and restore water quality in Carver's rivers, streams, and ponds.

- a. Establish a monitoring program of major town water bodies to identify problem areas and oversee the correction of them by appropriate town agencies.
- b. Regulate and enforce stormwater management through the cooperative efforts of various town officials and boards.
- c. Encourage use of landscaping and agricultural practices that minimize erosion and nutrients from fertilizers entering surface and groundwater.

Objective 3: Support protection of wetland resources and areas bordering wetlands throughout Carver.

- a. Work with the school system and other interested groups to document and inventory vernal pools and other wildlife habitat in Carver.
- b. Amend zoning by-law to require a minimum upland area on new lots created in town to limit encroachment on wetlands.

Objective 4: Encourage retention of existing cranberry grower-owned lands as wildlife habitats, water recharge areas, etc.

- a. Encourage tax policies, such as a tiered tax, that will support the financial viability of the cranberry industry and tax each grower at the proper rate.
- b. Encourage State and Federally supported programs that help growers maintain their land as wildlife habitat, water recharge areas, etc.

Objective 5: Preserve critical wildlife habitats.

- a. Protect lands identified by the Natural Heritage and Endangered Species Program as critical habitat for rare and endangered species.

Goal III: Improve access to and enhance recreational opportunities for all Carver residents

Objective 1: Develop walking and equestrian trails, bike paths, and picnic areas on public lands.

- a. Establish a Trail Advisory Committee to research and study the feasibility of creating a multi-purpose pathway throughout town, and possibly connecting it to neighboring towns.
- b. Develop plan for location and design of a multi-purpose pathway.
- c. Create trails and/or picnic areas on existing town properties.

Objective 2: Expand and upgrade recreational opportunities on ponds and waterways.

- a. Improve public access to ponds; acquiring land if available.
- b. Improve the condition of the beaches and expand beach parking.
- c. Acquire land that gives the public access to the Weweantic and Winnetuxet Rivers and South Meadow Brook; develop fishing spots and canoe passages.
- d. Explore possible recreational uses for public land on Muddy Pond after cleanup is complete.

Objective 3: Expand and upgrade facilities for active recreation.

- a. Complete improvements to existing town recreational properties.
- b. Identify areas of town that are lacking playgrounds and parks and develop more facilities in these locations.
- c. Set aside land for playgrounds in subdivisions and assure that these areas are properly maintained.
- d. Develop mechanisms for maintaining properties and preventing vandalism.
- e. Develop rules and regulations, to be posted at town properties, informing the public on allowed and prohibited uses.
- f. Work towards attracting recreational business enterprises such as sport complexes, golf courses, skating rinks, etc.
- g. Develop a teen recreation center and other teen-related facilities, such as a skate park or basketball courts.

Objective 4: Ensure public facilities are accessible to all residents regardless of age or ability

- a. Improve access to all town facilities that are not currently in complete compliance with the Americans with Disabilities Act.

Goal IV: Develop definitive strategies that will affect change in town policy regarding open space and recreation issues in Carver.

Objective 1: Establish open space preservation and recreation planning priorities in all town decisions and actions.

- a. Seek endorsement of the Open Space and Recreation Plan by Town Meeting.
- b. Provide each town office and department with reference copies of the Open Space and Recreation Plan, specifically this Action Plan.
- c. Require all major town decisions and actions to be consistent with the Open Space and Recreation Plan.
- d. Mandate that all town offices and departments keep others informed of decisions/actions taken that impact the overall effectiveness of the plan.
- e. Educate town boards and officials concerning open space policies, practices, tools, resources, etc.

Objective 2: Increase community appreciation of the town's rich resources.

- a. Provide uniform signage throughout the town noting town boundaries, scenic roads and vistas, historic sites, town parks, stream crossings, etc.
- b. Use all available media, including speakers, for informing residents of open space, wildlife, and natural resources and recreational features in town.
- c. Continue to have an Open Space booth at Old Home Day.

Objective 3: Develop implementation and funding mechanisms to support open space and recreation needs.

- a. Create a permanent Open Space Committee to oversee implementation of the Carver Open Space and Recreation Plan for the next 5 years.
- b. Using the Community Preservation Act, seek the creation of a land bank in Carver. Establish a Committee to oversee acquisitions using land bank funds.
- c. Explore the possibility of dedicating money received from the sale of tax title lands to the fund.
- d. Establish a full-time Conservation Agent.
- e. Encourage and promote agricultural and natural resource based tourism in town.
- f. Make maximum use of state and federal funding and other programs to match town spending and protect open space.

5-Year Action Plan Map

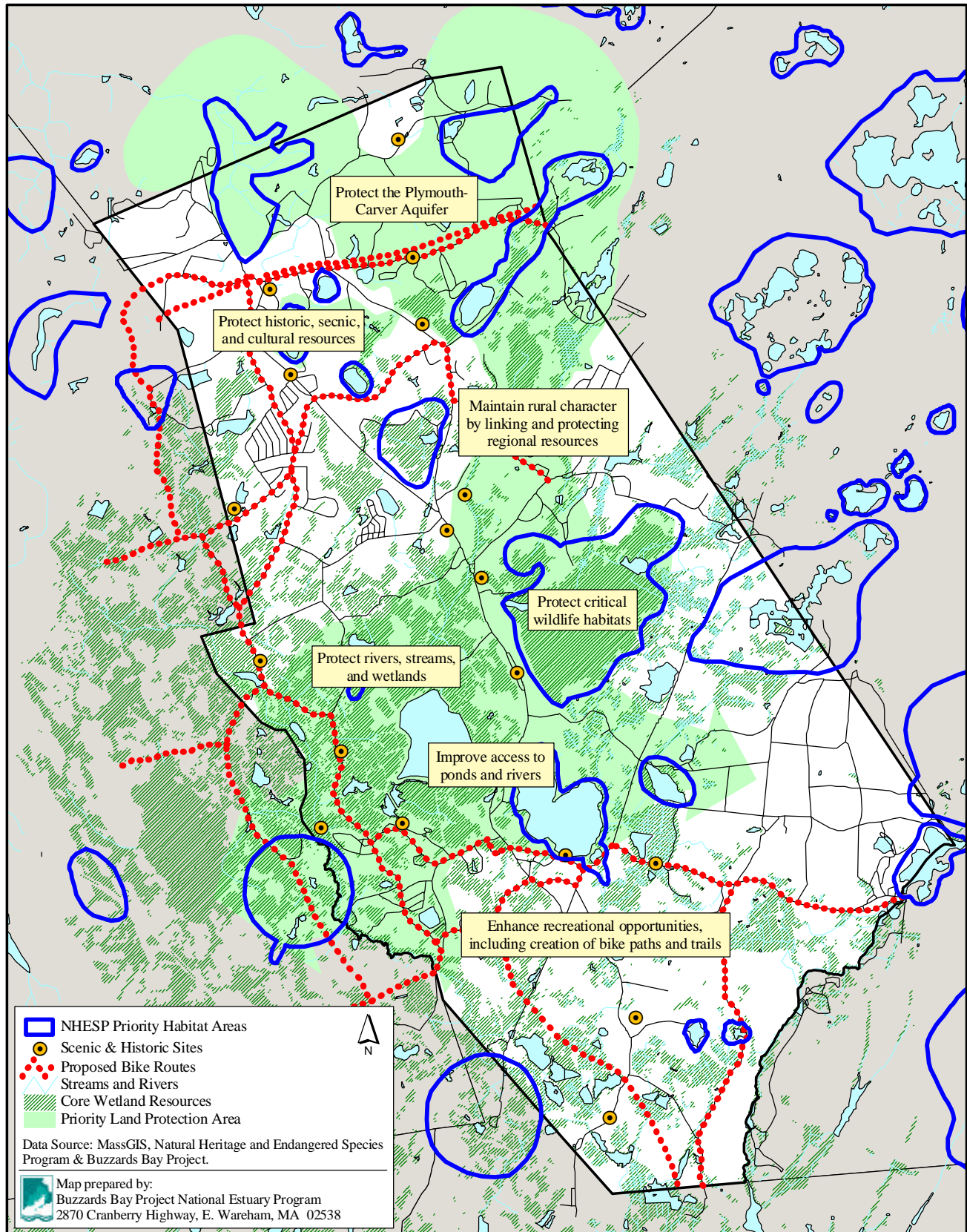


Figure 17. 5-Year Action Plan Map

2004 Carver Open Space and Recreation Plan

Five-Year Action Plan

Goal One: Maintain the rural character and scenic atmosphere of Carver.

Objective 1: Permanently protect open space in Carver.		
Actions	Responsible Parties	Implementation Year
1-1a. Adopt the Community Preservation Act in order to generate funds that can be used for open space acquisition.	Conservation Comm., Planning Board, Historic District Comm., Housing Authority, Open Space Committee	2004
1-1b. Support the formation of a non-profit Land Trust in Carver to accept donations of land.	Conservation Comm., Open Space Comm., Board of Selectmen	2004
1-1c. Prioritize land for open space protection, especially in the priority sensitive areas.	Open Space Comm., Conservation Comm., Planning Board, Historic District Comm., Assessors' Office	2005
1-1d. Encourage land donation, adoption of conservation restrictions, tax title taking, and occasional purchase of critical lands.	All town boards	2004-2008
1-1e. Acquire and protect distinctive areas of town that are critical to maintaining Carver's rural charm.	Board of Selectmen, Open Space Comm., Conservation Comm., Planning Board, Land Conservation Organizations	2004-2008
1-1f. Develop town policy to encourage transfer of the town's right of first refusal for Chapter 61, 61A, and 61B lands to a qualified conservation organization when the town is unable to act on acquisition of important lands.	Conservation Comm., Board of Selectmen	2004
1-1g. Start enforcing existing regulations that protect open space, the environment, and the scenic character of the town	Planning Board, Earth Removal Comm., Conservation Comm., Board of Selectmen	2004-2008
Objective 2: Protect the town's historic, cultural and scenic resources.		
Actions	Responsible Parties	Implementation Year
1-2a. Identify historic sites and cultural and scenic resources and develop tools to protect them.	Historic District Commission, Planning Board	2005
1-2b. Investigate the idea of creating a scenic roads by-law and the feasibility of designating certain roads as scenic roads.	Planning Board, Con Comm., Historic District Comm.	2006

Objective 3: Support planning policies that control population growth.		
Actions	Responsible Parties	Implementation Year
1-3a. Develop town water and/or sewer only in limited areas such as Industrial zones and village centers.	Department of Public Works, Board of Health, Planning Board, Board of Selectmen	2007
Objective 4: Modify existing zoning regulations to encourage open space in residential, commercial, and industrial development to protect open space, the environment and the scenic character of town.		
Actions	Responsible Parties	Implementation Year
1-4a. Increase minimum lot size to 2 acres.	Planning Board	2005
1-4b. Allow for cluster subdivision by right rather than by special permit.	Planning Board	2004
1-4c. Increase the minimum amount of contiguous open space required (currently 20%) for parcels within a conservation (cluster) subdivision.	Planning Board, Conservation Commission	2005
1-4d. Designate “sending” and “receiving” areas, and allow the sale of development rights from parcels in sensitive areas to increase the allowable density elsewhere. (Transfer of Development Rights)	Planning Board, Conservation Commission	2004
1-4e. Designate critical resource areas and increase minimum lot sizes to 3 acres in these areas.	Conservation Comm., Planning Board, Open Space Comm.	2006
1-4f. Impose clear regulations, including site plan review, on soil mining and regulate it as a commercial enterprise not under the guise of agriculture.	Planning Board, Board of Selectmen	2004

Goal Two: Preserve the quality of Carver's natural resources, including ground and surface waters, wetlands, and wildlife habitat.

Objective 1: Protect Carver's groundwater resources.		
Actions	Responsible Parties	Implementation Year
2-1a. Work with the towns of Plymouth and Wareham to protect the Plymouth Carver Aquifer by participating in the formation of a watershed advisory board.	Board of Selectmen, Conservation Comm., Planning Board, Open Space Comm.	2004
2-1b. Protect land (especially land over the Plymouth-Carver aquifer) by purchase or conservation restrictions, using state and federal funds whenever possible and assistance from local land trusts.	Board of Selectmen, Open Space Comm., Conservation Comm., Land Conservation Organizations	2004-2008
2-1c. Identify and protect sites designated as potential sources of public water.	Conservation Comm., Board of Selectmen, Planning Board, Board of Health	2005
Objective 2: Preserve and restore water quality in Carver's rivers, streams, and ponds.		
Actions	Responsible Parties	Implementation Year
2-2a. Establish a monitoring program of major town water bodies to identify problem areas and oversee the correction of them by appropriate town agencies.	Board of Selectmen, Board of Health	2004-2008
2-2b. Regulate and enforce stormwater management through the cooperative efforts of various town officials and boards.	Planning Board, Dept. of Public Works, Conservation Comm., Board of Health	2004-2008
2-2c. Encourage the use of landscaping and agricultural practices that minimize erosion and nutrients from fertilizers entering surface and groundwater.	Planning Board, Conservation Commission, Board of Health	2004-2008
Objective 3: Support protection of wetland resources and areas bordering wetlands throughout Carver.		
Actions	Responsible Parties	Implementation Year
2-3a. Work with the school system and other interested groups to document and inventory vernal pools and other wildlife habitat in Carver.	School Department, Conservation Commission	2004
2-3b. Amend zoning by-law to require a minimum upland area on new lots created in town to limit encroachment on wetlands.	Planning Board, Conservation Commission	2005

Objective 4: Encourage retention of existing cranberry grower-owned lands as wildlife habitats, water recharge areas, etc.		
Actions	Responsible Parties	Implementation Year
2-4a. Encourage tax policies, such as a tiered tax, that will support the financial viability of the cranberry industry and tax each grower at the proper rate.	Board of Selectmen, Assessors' Office	2004
2-4b. Encourage State and Federally supported programs that help growers maintain their land as wildlife habitat, water recharge areas, etc.	Conservation Commission	2004-2008
Objective 5: Preserve critical wildlife habitats.		
Actions	Responsible Parties	Implementation Year
2-5a. Protect lands identified by the Natural Heritage and Endangered Species Program as critical habitat for rare and endangered species.	Conservation Comm., Open Space Committee, Land Conservation Organizations	2004-2008

Goal Three: Improve access to and enhance recreational opportunities for all Carver residents.

Objective 1: Develop walking and equestrian trails, bike paths, and picnic areas on public lands.		
Actions	Responsible Parties	Implementation Year
3-1a. Establish a Trail Advisory Committee to research and study the feasibility of creating a multipurpose pathway throughout town, and possibly connecting it to neighboring towns.	Board of Selectmen	2006
3-1b. Develop a plan for location and design of a multi-purpose pathway.	Trail Advisory Committee, Recreation Committee, Dept. of Public Works	2007
3-1c. Create trails and/or picnic areas on existing town properties.	Trail Advisory Committee, Recreation Committee, Dept. of Public Works	2008
Objective 2: Expand and upgrade recreational opportunities on ponds and waterways.		
Actions	Responsible Parties	Implementation Year
3-2a. Improve public access to ponds; acquiring land if available.	Recreation Committee, Conservation Commission, Planning Board, Board of Selectmen	2005
3-2b. Improve the condition of the beaches and expand beach parking.	Dept. of Public Works, Recreation Committee	2004-2008
3-2c. Acquire land that gives the public access to the Weweantic and Winnetuxet Rivers and South Meadow Brook; develop fishing spots and canoe passages.	Open Space Committee, Board of Selectmen, Land Conservation Organizations	2004-2008
3-2d. Explore possible recreational uses for public land on Muddy Pond after cleanup is complete.	Recreation Committee, Open Space Committee, Board of Selectmen, Landfill Oversight Committee	2005
Objective 3: Expand and upgrade facilities for active recreation.		
Actions	Responsible Parties	Implementation Year
3-3a. Complete improvements to existing town recreational properties.	Dept. of Public Works, Recreation Committee	2005
3-3b. Identify areas of town that are lacking playgrounds and parks and develop more facilities in these locations.	Recreation Committee, Planning Board, Open Space Committee	2007
3-3c. Set aside land for playgrounds in subdivisions and assure that these are properly maintained.	Planning Board	2004

3-3d. Develop mechanisms for maintaining properties and preventing vandalism.	Dept. of Public Works, Open Space Committee	2004
3-3e. Develop rules and regulations, to be posted at town properties, informing the public on allowed and prohibited uses.	Dept. of Public Works, Recreation Committee, Pond Committee	2005
3-3f. Work towards attracting recreational business enterprises such as sports complexes, golf courses, skating rinks, etc.	Industrial Development Commission, Recreation Committee	2006
3-3g. Develop a teen recreation center and other teen-related facilities, such as a skate park or basketball courts.	Recreation Committee, Board of Selectmen, School Department	2007
Objective 4: Ensure public facilities are accessible to all residents regardless of age or ability.		
Actions	Responsible Parties	Implementation Year
3-4a. Improve access to all town facilities that are not currently in complete compliance with the Americans with Disabilities Act.	Dept. of Public Works, Board of Selectmen, Recreation Committee	2006

Goal Four: Develop definitive strategies that will affect change in town policy regarding open space and recreation issues in Carver.

Objective 1: Establish open space preservation and recreation planning priorities in all town decisions and actions.		
Actions	Responsible Parties	Implementation Year
4-1a. Seek endorsement of the Open Space and Recreation Plan by Town Meeting.	Open Space Committee	2004-2005
4-1b. Provide each town office and department with reference copies of the Open Space and Recreation Plan, specifically this Action Plan.	Open Space Committee, Conservation Commission	2004
4-1c. Require all major town decisions and actions to be consistent with the Open Space and Recreation Plan.	All town boards	2004-2008
4-1d. Mandate that all town offices and departments keep others informed of decisions/actions taken that impact the overall effectiveness of the plan.	Board of Selectmen, Town Administrator	2004
4-1e. Educate town boards and officials concerning open space policies, practices, tools, resources, etc.	Open Space Committee	2004-2008
Objective 2: Increase community appreciation of the town's rich resources.		
Actions	Responsible Parties	Implementation Year
4-2a. Provide uniform signage throughout the town noting town boundaries, scenic roads and vistas, historic sites, town parks, stream crossings, etc.	Dept. of Public Works, Historic District Comm., Planning Board, Conservation Commission, Open Space Committee	2006
4-2b. Use all available media, including speakers, for informing residents of open space, wildlife, and natural resources and recreational features in town.	Conservation Commission, Open Space Committee, Recreation Committee	2004-2008
4-2c. Continue to have an Open Space booth at Old Home Day.	Open Space Committee	2004-2008
Objective 3: Develop implementation and funding mechanisms to support open space and recreation needs.		
Actions	Responsible Parties	Implementation Year
4-3a. Create a permanent Open Space Committee to oversee implementation of the Carver Open Space and Recreation Plan for the next 5 years.	Board of Selectmen, Town Administrator, Conservation Commission	2004

4-3b. Using the Community Preservation Act, seek the creation of a land bank in Carver. Establish a Committee to oversee acquisitions using land bank funds.	Board of Selectmen, Planning Board, Historic District Commission, Housing Authority, Open Space Committee	2004
4-3c. Explore the possibility of dedicating money received from the sale of tax title lands to a land conservation fund.	Board of Selectmen, Conservation Commission, Open Space Committee, Town Meeting	2006
4-3d. Establish a full-time Conservation Agent.	Board of Selectmen, Conservation Commission	2006
4-3e. Encourage and promote agricultural and natural resource based tourism in town	Board of Selectmen, Industrial Development Commission	2004
4-3f. Make maximum use of state and federal funding and other programs to match town spending and protect open space.	Conservation Commission, Open Space Committee	2004-2008

XI. LETTERS OF SUPPORT

X. REFERENCES

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XI. APPENDIX

- ♦ Americans with Disabilities Act, Section 504 Self-Evaluation.
- ♦ Open Space and Recreation Survey and Introductory Letter. August 2001.
- ♦ Scientific Sample of Town Residents – Carver Open Space and Recreation Plan Survey Results. March 6, 2002.
- ♦ The Community Preservation Act : A Guide to Implementation and Answers to Frequently Asked Questions. December 2002.
- ♦ Biodiversity Days 2002 – Species List for Carver
- ♦ Letter and information from the Natural Heritage and Endangered Species Program. June 10, 2002.
- ♦ Public Land Protection: Massachusetts Constitution, Article 97 – Opinion of the Attorney General 1973.
- ♦ General Laws of Massachusetts - Chapter 40: Section 15C. Designation and improvement of scenic roads.
- ♦ Article: *Is Land Conservation Bad for the Tax Base?* 1993.
- ♦ Brochure: *Conservation Is A Community Investment: The Cost of Community Services in Middleborough, Massachusetts.*
- ♦ Open Space Fiscal Impacts Analysis (Appendix 4-1 of the 2001 Carver Master Plan).
- ♦ Flyer: Conservation Restriction Seminar held by the Open Space Committee. 2002.
- ♦ Newspaper articles announcing the release of the Carver Open Space Survey Results. The Enterprise and Carver Reporter, May 2002.
- ♦ Newspaper Article: *Towns are wise to organize to protect water.* The Standard-Times. August 27, 2002.

Town of Carver

Americans with Disabilities Act (ADA) Section 504 Self-Evaluation

In 1990, the Americans with Disabilities Act (ADA) was federally adopted, placing strict regulations on schools, businesses, industry and government to meet compliance guidelines set forth to ensure that no person shall be discriminated against based on a physical disability. As part of the process to create this Plan, each and every town conservation or recreation facility has been assessed according to the guidelines set forth by the ADA. Inspections were performed by Dan Fortier, Chairman of the Open Space Committee, Tom Lee from Butlee's Handicap Outdoor Adventures, and Thomas Dodd and Mike Guilbault from the New England Chapter of Paralyzed Veterans of America.

Carver has one brand new, completely accessible playground: the Carver Community Playground. The remaining recreation areas will all require some work to make them ADA compliant. Transition Plans for these facilities can be found in the following section.

The majority of land owned by the Conservation Commission exists in the Great Cedar Swamp in a natural undeveloped state, as either forestland or wetlands. No facilities of any kind exist on any of these parcels. In fact, the exact location of some of the parcels is still being determined. It is the intent of the Conservation Commission to preserve these areas in their natural condition, therefore, evaluations for the Great Cedar Swamp has been omitted.

The following Self-Evaluation includes details on administrative requirements, programs, and employment practices, in addition to a site-by-site inventory of all town-owned playgrounds, beaches, and public landings. It is the recommendation of the Open Space Committee that each of these site be brought into compliance as soon as the town has the ability to finance such projects. Grant funding is available to communities to meet the ADA regulations and should be sought by the town immediately.

Part I Administrative Requirements:

1. Designation of 504 Coordinator

The Carver Board of Selectmen designated Mr. Michael Mendoza, Building Commissioner, as the Town's 504 Coordinator on January 31, 2000.

2. Grievance Procedure

Attachment I includes copies of employee grievance procedures for both union and non-union employees, as well as procedures for the general public.

3. Public Notice Requirements

Attachment II is a written sample of a recruitment notice. These notices are publicized both on the Town Hall bulletin board and in local newspapers. In addition, if any potential candidate for a position is visually impaired, the staff of the Selectmen's Office will read the recruitment notice to the individual. The town does not have the capability of publishing documents in Braille. Vacancies on various committees, commissions and boards are announced at the Selectmen's meetings (televised on local cable TV) and in written form on agendas for meetings. All registered voters of the town are eligible to serve on committees, boards, commissions, etc.

4. Participation of Individuals with Disabilities or Organizations Representing the Disabled Community

Three persons representing the disabled community assisted with this Self-Evaluation:

Tom Lee - Butlee's Handicap Outdoor Adventures

Thomas Dodd - New England Chapter of Paralyzed Veterans of America

Mike Guilbault - New England Chapter of Paralyzed Veterans of America

Part II Program Accessibility

Transition Plan

The purpose of the Transition Plan is to identify those physical obstacles that inhibit the ability of disabled citizen to use public facilities to their fullest intended capacity, and to suggest ways to correct such problems. A Transition Plan is presented below for each site in non-compliance.

King Property

The King Property is a 10-acre town recreational area containing little league and softball fields, tennis courts, basketball courts, a concession stand, field house, and bathrooms.

Bathrooms: The bathrooms are not at all handicap accessible. They will need to be completely re-done.

Completion date: 2005

Responsible Party: Recreation Committee/Selectmen

Concession Stand: The concession stand window is too high. The stand needs a 3-foot wide by 6-inch high ramp in front of the window to make it accessible. Also, a gutter should be installed over the window.

Completion date: 2004

Responsible Party: DPW/Recreation Committee

Gates: The chain link gates need to be 6 inches wider.

Completion date: 2005

Responsible Party: DPW

Pathway: There is an existing solid pathway from the basketball court to the tennis court. The sand around the concession stand, picnic tables, and a path to the basketball court needs to be replaced with a material that will pack down, such as stone dust.

Completion date: 2004

Responsible Party: DPW

Picnic Table: Extend two picnic tables to allow wheelchairs to fit underneath.

Completion date: 2004

Responsible Party: DPW/Recreation Committee

Scorekeeper Stands: Scorekeeper stand need to have a ramp built to get to the doors and the doors need to be wider.

Completion date: At least one by 2005

Responsible Party: Recreation Committee/Selectmen

Purchase Street Recreation Site

This recently created 9-acre recreation site contains a soccer field, football field, and parking.

Parking: Designated handicap parking spaces need to be established. The wooden curb should be lowered in two areas or a permanent ramp (at least 3 feet wide) should to be built on both sides of the curb to allow wheelchair access. All stones should be removed from handicap parking area and pathways to ramps.

Completion date: 2004

Responsible Party: DPW

Port-a-Potty: Change existing port-a-potty to a handicap accessible port-a-potty.

Completion date: 2004

Responsible Party: Recreation Committee

Sampson's Pond

Sampson's Pond consists of a small beach with limited parking.

Beach access: This site requires a wooden ramp or some kind of mat leading from the parking lot down to the water.

Completion date: 2004 or 2005

Responsible Party: Recreation Committee

Fishing access: In the future the town should consider putting a dock at the boat ramp that is handicap accessible.

Parking: A handicap parking space must be designated.

Completion date: 2004

Responsible Party: DPW

Port-a-Potty: Change existing port-a-potty to a handicap accessible port-a-potty.

Completion date: 2004

Responsible Party: Recreation Committee

Savery Avenue

Savery Avenue is a 21-acre parcel located within the Savery Avenue Historic District. It contains the country's first divided highway. The parcel is wooded with the old divided highway running through the middle of it. It also has two picnic tables. There are no other facilities.

Picnic Tables: At least one picnic table needs to be extended six inches to allow a wheelchair to fit under it.

Completion date: Summer 2004

Responsible Party: Conservation Commission/DPW

Forest Street Recreation Site

This 3.3 acre property consists of two dirt practice fields. It is in extremely poor condition and there are no actual facilities on site. Should the town decide to rehabilitate this property, any new facilities should be made handicap accessible.

Part III Employment Practices

1. Recruitment

All job announcements include a non-discrimination statement. Announcements are made on town hall bulletin boards that are in accessible areas. Staff at the Town Administrator's/Selectmen's Office will read all job announcements to the visually impaired either in person or by telephone. Hearing impaired individuals can contact the department with their specialized phone equipment, or receive by mail the recruitment notice.

2. Personnel Actions

The town of Carver does not discriminate in the recruitment, selection, promotion, hiring, or upgrading of employees.

3. Leave Administration

The town does not discriminate in regard to leave administration. The town follows all state and federal laws in addition to having policies for granting leave in its written policies and agreements.

4. Training

All training provided by the town allows for equal participation by qualified employees with disabilities.

5. Tests

All tests administered by the town measure job skills and qualifications needed for a particular job opening.

6. Medical Examinations/Questionnaires

Medical examinations (if required) are only performed after pre-employment offer. The town does not have a medical history questionnaire in its employment applications unless required by statute.

7. Social/Recreational Programs

Any social or recreational programs sponsored by the town are made accessible to employees with disabilities.

8. Fringe Benefits

All employees regardless of disabilities receive the same fringe benefits as all other employees.

9. Collective Bargaining Agreements

Qualified employees with disabilities may participate in Collective Bargaining and there are no specific provisions for those with disabilities.

10. Wage and Salary Administration

Employees with disabilities receive the same rate of compensation as those employees without disabilities for the same position.