



2017 Duxbury

OPEN SPACE
& RECREATION PLAN



June 2017

In compliance with the Open Space and Recreation Plan Requirements
of the Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Division of Conservation Services

Acknowledgements

The Open Space and Recreation Plan Working Group gratefully acknowledges the many individuals and groups who contributed to the update of this Duxbury Open Space and Recreation Plan. Thanks particularly to the many local volunteers who generously shared their time and expertise helping us with research and editorial work. We would also like to offer thanks to the many members of Duxbury's Town Departments, committees, commissions and town organizations for their assistance and timely responses. The Duxbury Open Space and Recreation Plan Working Group wishes to especially thank Kathy Cross for her efforts compiling and formatting this document. In addition, the Committee recognizes that this Plan would only be words on paper were it not for the hard work and dedication of the numerous groups and individuals who strive all year long to preserve and protect the characteristics that make Duxbury a unique community. We thank them most gratefully for their persistence, year after year, in keeping our drinking water safe, our historic buildings preserved, our recreational facilities enjoyable, our conservation land well maintained and our town beautiful.

Duxbury 2017 Open Space and Recreation Plan Working Group

Joseph Grady Jr., Conservation Administrator

Valerie Massard, Planning Director

Kathy Cross, Chair, Open Space Committee

Holly Morris, Chair, Community Preservation Committee

Graeme Groombridge

Pat Loring

Table of Contents

STATEMENT OF PURPOSE.....	3
PLANNING PROCESS.....	3
REGIONAL CONTEXT.....	5
COMMUNITY HISTORY.....	7
POPULATION & SOCIAL CHARACTERISTICS.....	10
GROWTH AND DEVELOPMENT PATTERNS.....	15
GEOLOGY, SOILS & TOPOGRAPHY.....	22
LANDSCAPE CHARACTERISTICS.....	24
WATER RESOURCES.....	26
VEGETATION.....	31
FISHERIES AND WILDLIFE.....	34
SCENIC RESOURCES.....	39
ENVIRONMENTAL PROBLEMS AND STATISTICS.....	42
.....	46
OF CONSERVATION & RECREATIONAL INTEREST.....	46
NON-PROFIT LAND.....	48
TOWN OWNED LAND NOT PERMANENTLY PROTECTED.....	51
PERMANENTLY PROTECTED TOWN-OWNED LAND.....	57
PERMANENTLY PROTECTED WATER DEPARTMENT LAND.....	68
CONSERVATION RESTRICTIONS.....	69
CHAPTER 61 LAND PARCELS.....	71
RECREATION LAND.....	73
ADA SELF-EVALUATION.....	75
HOW THE GOALS WERE DETERMINED.....	77
2015 OPEN SPACE AND RECREATION PLAN EXECUTIVE SUMMARY.....	77
SUMMARY OF RESOURCE PROTECTION NEEDS.....	80
SUMMARY OF COMMUNITY NEEDS.....	Error! Bookmark not defined.
MANAGEMENT NEEDS.....	Error! Bookmark not defined.
GOAL 1: PROTECTION OF THE TOWN'S DRINKING WATER SUPPLY.....	89
GOAL 2: PRESERVATION OF DUXBURY'S UNIQUE CHARACTER.....	90
GOAL 3: PROTECTION AND ENHANCEMENT OF NATURAL RESOURCES AND ECOSYSTEMS.....	91

GOAL 4: MANAGEMENT OF THE TOWN'S RECREATIONAL OPPORTUNITIES WITH
 MINIMUM IMPACT TO THE ENVIRONMENT 93
 2015 PLAN SURVEY 114
 PLAN APPROVAL LETTERS 117

Appendices..... 1

Appendix - A..... 1

.....4
1
1

APPENDICES

- Appendix A: Conservation Land Field Data Sheets
- Appendix B: Maps

1 - PLAN

Summary

The 2017 Duxbury Open Space & Recreation Plan reviews the progress on the goals of the 2008 Plan and identifies 5 goals for the years ahead based on the results of the 2015 Open Space & Recreation Survey. Duxbury is an attractive seaside town with diverse natural resources and cultural activities that make it an appealing place to live and the resulting growth presents challenges to the community. Development puts strains on wetlands resources and wildlife corridors, and residents are concerned that development has a deleterious impact on the historic character of the town.

An Open Space & Recreation Survey was completed in 2015. Five goals have been identified in this 2017 OS&R Plan based on that survey. The survey was mailed to all residents and also placed in public locations throughout the Town. Four of the goals are similar to those from the 2008 plan, but a new fifth goal, Planning for Climate Change, was added.

The five goals for the 2017 Open Space & Recreation Plan are:

1. Protection of Duxbury's Aquifer and Water Resources
2. Preservation of Duxbury's Natural Areas and Environment
3. Preservation of the Unique Character of Duxbury
4. Management of the Town's Recreational Opportunities with Minimum Impact to the Environment
5. Planning for Climate Change

Protection of Duxbury's Aquifer and Water Resources. The protection of Duxbury's aquifer and water resources will require continual monitoring for nitrogen loading and contamination and public education on water conservation. There will be continued efforts to acquire land of significance, particularly land that buffers wellfields and wetlands. There will be a focus on developing effective stormwater management bylaws and rules and regulations for new and redevelopment moving forward.

Preservation of Duxbury's Natural Areas and Environment. Acquisition and permanent protection of land, such as salt and freshwater marshlands and their buffers, farmland, and scenic vistas will continue to be the most effective means of preserving Duxbury's natural areas. Town boards and committees will promote education, strengthening of bylaws and regulations, and stewardship of these resources.

In 2001, Duxbury adopted the Community Preservation Act (CPA) at the 3% surcharge level and adopted a goal for the protection of three of every ten acres of undeveloped land. Land that protects drinking water wells and future well sites, streams, and wetlands have been targeted for acquisition and have been strongly supported by the voters. Unfortunately, the downturn in the economy in 2008 and the tax burden of multiple capital projects in Duxbury resulted in a decrease in the CPA surcharge to 1% in 2012. The Town's CPA reserves are leaner, but acquisition of land of value continues to be a priority.

Results of the 2015 Open Space & Recreation Survey indicated that Duxbury Beach, which attracts many residents and visitors alike to Duxbury, is perceived as being negatively impacted by increased activity. Recreational access and protection of the piping plover and least tern is an annual challenge that is met by the Duxbury Beach Reservation, the Harbormaster Department, Massachusetts Audubon Society, and the Conservation Commission and is often addressed in this Plan.

Preservation of the Unique Character of Duxbury. To better preserve Duxbury's unique character, surveys of historic structures, landscapes and agricultural sites will continue. The development of Local Historic Districts will continue to be proposed by the Local Historic District Commission, and new guidelines for each village business area will be addressed as goals in the current update of the Comprehensive Plan. Recognizing that the success of this goal (and all other goals) is education, the Historical Commission and Duxbury Rural & Historical Society will continue to expand educational programs for the public and in the public schools.

Management of the Town's Recreational Opportunities with Minimum Impact to the Environment. Duxbury Beach Reservation, Inc., which is responsible for the ongoing maintenance and preservation of Duxbury Beach, will continue to balance public access with the protection of migratory birds and a diverse marine ecology. The Sidewalk and Path Committee has been actively engaged in the development of a town wide path. Town Committees, departments and non-profit organizations will continue with maintenance and improvements to the town's extensive trail network and improve ADA accessibility. In anticipation of the 400th anniversary of the founding of Plymouth Colony (2020), the town will seek better access to the Myles Standish Monument State Reservation, which is currently under the care of the Massachusetts Department of Conservation and Recreation. The Duxbury Bay Maritime School is expanding its offerings to persons of all ages and abilities and will offer more programs that promote an appreciation of our natural resources. Education and access to the Bay will serve to develop a better understanding of climate change and the importance of the Bay's water quality, which can have a direct impact on our community's economy.

Planning for Climate Change. Global warming and its effects on sea level rise and storm surges are of great concern, particularly in a coastal community. This could have very significant impacts on the beach, private and commercial property, infrastructure, utilities, and natural resources.

The proposed objectives of this goal are:

1. Identifying natural resources that are vulnerable to climate change
2. Assessing community vulnerabilities such as utilities; infrastructure; public, private and commercial property
3. Creating or amending local wetland and zoning bylaws to protect resources and recreation
4. Increasing public awareness and participation
5. Collaborating with neighboring communities to secure state support

Meeting these objectives will require collaboration between town committees and departments as well as non-profits that are actively engaged with open space planning and recreation. Coordination with state agencies, businesses, regional planning agencies and neighboring towns will continue to be important in meeting this challenge. Communication with residents and encouraging more public participation will facilitate this process. Non-profits and public and private schools could play a very important role in education.

2 - INTRODUCTION

STATEMENT OF PURPOSE

The Town of Duxbury's mission statement "to deliver excellent services to the community in the most fiscally responsible and innovative manner while endeavoring to broaden our sense of community and preserve the unique character of the town" is exemplified in this 2017 Open Space and Recreation Plan. An important part of Duxbury's uniqueness is its well managed open space, coastal resources and barrier beach, recreational opportunities and historic structures. This updated Open Space and Recreation Plan provides an outline for agencies, both municipal and private, to follow for the protection of Duxbury's natural resources, especially with the threats of climate change.

PLANNING PROCESS

This update utilizes traditional methods of information gathering: discussions with town boards and committees, meetings with leaders of local non-profit organizations and a town-wide citizen survey. In hopes of achieving a good response rate, surveys were mailed in January 2015 to households; placed in the Town Library, Senior Center and Town hall; and were accessible through the Town website. The results demonstrate that Duxbury residents' priorities have not changed significantly from the previous 2007 survey: residents continue to value the coastal residential character of the town, the balance of development to protected open space, the recreational opportunities offered by Duxbury Beach and Bay, the well maintained woodland trails, scenic vistas, historic and cultural resources and excellent school system.

This 2017 Open Space and Recreation Plan maintains its existing goals, with minor modifications, and adds a fifth and highly important goal **Goal 5. Planning for Climate Change**. This goal affects all the other goals: **Goal 1. Protection of Duxbury's Aquifer and Water Resources** calls for the assessment of expected inland and coastal flooding and sea level rise; **Goal 2. Protection of Duxbury's Natural Areas and Environment** determine impacts to salt water tidal zones and salt marshes, inland wetlands, woodlands, agricultural land and wildlife habitat and the need to protect natural systems; **Goal 3. Preservation of the unique Character of Duxbury** - assessing impacts of coastal erosion, especially to the barrier beach; **Goal 4. Management of the Town's Recreational Opportunities with Minimal Impact to the Environment** - sea level rise, rising temperatures and increasing storm surges will have a direct impact on town beaches and landings, playing fields and marine based businesses and organizations.

Duxbury is a member of the Metropolitan Area Planning Commission (MAPC) and active in the South Shore Coalition (www.mapc.org/ssc) of the MAPC. MAPC is currently updating *MetroFuture*, the 30-year greater Boston master plan (now dubbed *MetroCommon x 2050*) for 101 cities and towns, including Duxbury. It is a planning tool that addresses housing, education, environment, transportation, and the region's economy to name a few. Its vision is to bring this region's communities together to address common problems and develop solutions. Duxbury is also a member of the Old Colony Planning Council (OCPC) Regional Planning Agency, which has been an important facilitator for transportation concerns in the local region and has done

Bicycle and Pedestrian Planning for the region as well as assessments for safety along the Route 3 Corridor in 2016-17 for Duxbury.

The MAPC, through a Technical Assistance Grant, prepared the *South Shore Coastal Hazards Adaptation Study (2011)* for the towns of Duxbury, Marshfield and Scituate. MAPC awarded another grant for the *Sea Level Rise Study (Kleinfelder, 2013)* which demonstrated the impacts of sea level rise and vulnerability within these towns and some possible adaptation strategies. *The MAPC Metro Boston Climate Change Strategy* (June, 2015) and the *Massachusetts Wildlife Climate Action Tool* are additional resources for assessing climate change impacts, among others. Duxbury's regulatory boards and commissions will have to review and revise regulations accordingly and given the extent of this challenge, local planning should include scaling up to the next level, to regional planning, so that some adaptation strategies can be employed more effectively.

3 – COMMUNITY Setting

REGIONAL CONTEXT

Duxbury is a coastal community of approximately 24 square miles, located 35 miles southeast of Boston in Plymouth County. Incorporated in 1637, Duxbury is bordered by the Towns of Marshfield on the north, Pembroke on the west, Kingston on the south, and the Atlantic Ocean on the east. The easternmost part of the Town is a seven-mile-long barrier beach on Massachusetts Bay which shelters Duxbury Bay. Duxbury has 37 miles of tidal shoreline and the Duxbury Marsh with several tidal rivers.

Duxbury's climate is influenced by its coastal location. While the average January temperature is a chilling 26.5 degrees and the July norm a balmy 71.0 degrees, the temperatures can suddenly change as much as 30 degrees with a shift of onshore breezes. Prevailing summer winds are from the southwest, while winter winds tend to be from the northwest. The normal annual rainfall is 49.8 inches. Duxbury's average growing season is 176 days (usually from the end of April to the first frost in mid-October). Storm patterns are more similar to those on Cape Cod than those of metropolitan Boston.

Known for its coast, Duxbury also has important inland open space and visual character. Two-thirds of its acreage lies west of Tremont Street. The inland sections contain extensive wetlands and are dotted with scenic cranberry bogs, freshwater ponds and small farms. Unfortunately, escalating land prices, increased production costs, stiffer competition, and decreasing cranberry prices have forced growers to sell their bogs or scale back operations. Duxbury was one of the first towns in Southeastern Massachusetts to purchase cranberry bogs for open space and to preserve this unique landscape and agricultural heritage. The bogs are under the oversight of the Conservation Commission and most are still in production, providing work for farmers and attractive areas for passive recreation.

Commuter rail service from Boston to Kingston, Plymouth and Scituate opened prior to 2008. This, and the extension of Route 44, makes travel to Boston and Providence more convenient for local residents. Conversely, travel to Duxbury from these urban areas is easier, increasing development pressures on the Town.

Working residents, especially commuters to Boston and surrounding towns, and their families enjoy a variety of recreational opportunities. Water-based activities on the beach and the bay are important reasons people choose to live in Duxbury. The town's network of walking trails and open spaces are seeing more activity on weekdays, not just weekends. The Town will continue to improve its active and passive recreational opportunities while preserving its natural resources and historic character. Intensive recreational use presents a challenge for protecting threatened and endangered species.

Duxbury Beach, a four and a half mile long barrier beach owned by the Duxbury Beach Reservation, Inc. (a non-profit land trust) and leased to the town, is the most heavily used recreation area in town. It is also one of the largest shared resources on the South Shore, getting visitors from all around the region. The Beach not only provides recreational opportunities, but plays a major role in increasing shorebird populations, especially the piping plover, a “threatened” species, and the least tern, a “species of concern.” A public parking lot at the north end of the beach is accessed through the town of Marshfield and there is a residents’ parking lot at the east end of the Powder Point Bridge in Duxbury. The Reservation is actively seeking grants and donations as it is currently undertaking the tremendous task of building an extensive sacrificial dune that is vital for the protection of the bay from destructive wave action through a grant from Coastal Zone Management and through private donations. The Reservation is also raising beach roadways as sea level rise is repeatedly threatening access, and working to protect this resource as a sheltering barrier beach protecting Snug Harbor and Duxbury Bay from destructive wave action.

Like many barrier beaches in Massachusetts, the beach is an attractive destination for four-wheel drive owners, attracting people from the South Shore and beyond. The growing number of permits sold to both residents and non-residents each year places increasing strain on protection of endangered species, beach maintenance, police and fire rescue and enforcement. During the peak summer season, four-wheel drive vehicle access is limited to 500 vehicles which is enforced by the Duxbury Harbormaster’s Department.

Duxbury Bay is another shared resource surrounded by the Towns of Duxbury, Kingston and Plymouth. Known for pleasant sailing and boating conditions, fishing and shellfishing resources, and its beauty, Duxbury Bay provides a variety of summer recreational opportunities. Massachusetts Audubon Society has designated Duxbury Bay as an “Important Bird Area,” with essential habitat for breeding, wintering and migratory birds. Shellfish farming has gained popularity due to the favorable water quality and tidal fluctuations. Limited deep water moorings and increasing boat traffic continue to place pressure on town services and natural resources. The increasing number of private piers has also raised safety, environmental and view degradation concerns.

Residents of all ages find Duxbury attractive because of its physical beauty, absence of industry, outstanding schools, library, and cultural and recreational opportunities. Open space and recreation areas have been key to the town’s planning process for many years (Refer to the Open Space Map). Since its founding in 1883, the Duxbury Rural & Historical Society has acquired key parcels of land to maintain the historic and natural resources, and is believed to be the first organization in the country to do so. The Duxbury Conservation Commission, established in 1963, began an aggressive land acquisition campaign the following year. As a result, the Commission owns more than 3,000 acres of land. An additional 676.51 acres (as of May, 2018) are permanently protected with conservation and agricultural restrictions, and some additional acreage has been set aside as open space within private cluster subdivisions. Therefore, nearly 3,700 acres of land are permanently protected in Duxbury which represents roughly 24% of the total land acreage. The Conservation Commission, working with the Open Space Committee and the Community Preservation Committee, intends to acquire more land to protect drinking water, inland wetlands and their buffers, tidal marshes, beaches, and endangered species; to maintain a balance between development and open space; to preserve farming, such as cranberry cultivation; to protect views; and to provide passive recreation. Some of the land that has been acquired with CPA funds may have historic features, such as a mill site or house foundation, or is suitable for affordable housing or recreation.

Active recreation is alive and thriving in Duxbury, especially for the school-aged residents. Tennis, football, soccer, basketball, baseball, ice hockey, sailing, crew, yoga and local gyms and dance studios provide many outlets and opportunities for organized and semi-organized team and individual sports. Off-road bicycling and walking trails are abundant.

COMMUNITY HISTORY

One of Massachusetts' earliest communities, Duxbury was incorporated in 1637. Its first European inhabitants were Pilgrims who moved here from Plymouth Colony to establish family homesteads. John Alden, Elder Brewster and Myles Standish were among Duxbury's early settlers, establishing family farms near the shore. The John Alden House, owned by the Alden Kindred of America, Inc., is now a museum open during the summer months. Myles Standish's waterfront home site, the Elder Brewster lilacs (which are protected by the Duxbury Rural & Historical Society), and the gravesites of the Aldens, Standishes, and other notable early residents attract many visitors (Refer to the Historic and Cultural Sites Map).

At the beginning of the eighteenth century, shipbuilding and fishing became Duxbury's major enterprises, as in many other New England towns. Duxbury was able to build ships at a lower cost than in England because of its abundant timber supply and sheltered harbor. One prominent local shipbuilder and sea merchant, Ezra Weston, known locally as "King Caesar", established a large shipbuilding operation on Powder Point. Today his elegant home is owned by the Duxbury Rural & Historical Society and is maintained as a museum. The Society also acquired the Nathaniel Winsor Jr. home, another shipbuilding family, and it serves as the Society's headquarters.

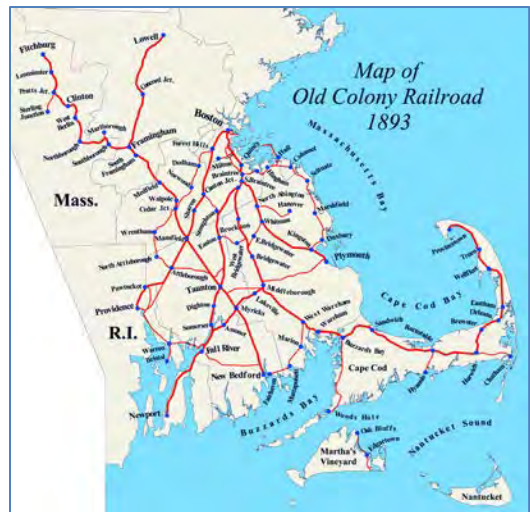
As ships grew larger, they could no longer be accommodated by the shallow waters of Duxbury Bay and timber supplies were dwindling. By the mid-1800s other modes of transportation, such as steamships and railroads, made sailing vessels obsolete. Workers and master shipbuilders began moving away and all of the town's ship building enterprises either closed or relocated elsewhere, severely depressing the town's economy. The shipbuilders' legacy, however, remained in the 'four square' homes along Washington Street, built by ships' carpenters in their spare time. Duxbury's only National Register Historic District, the Old Shipbuilders Historic District, includes 212 houses and 287 acres along Washington Street and Powder Point Avenue (refer to the Historic Shipbuilders map). The District includes modest cottages, many of which were built for mariners, and grand Georgian-style residences built for sea captains and shipbuilders. While this district is recognized for its national significance, this recognition does not afford any protection to the district's structures.

Cranberries were either grown or harvested wild in the early 1800s. Tony Kelso, the Town Historian, delved into the development of this industry and found an 1833 map showing "Cranberry Pond" near Chandler and Mayflower Streets, an early indication that cranberries were being grown or at least were wild in that area. Sarah Mac, a local Duxbury character is credited with this rhyme, probably written circa 1810:

I'm an old woman, seventy-one;
 Cranberry law has just begun
 Men make laws, but I won't mind 'em;
 I'll pick cranberries wherever I find 'em."

The South River watershed, having favorable soil and water conditions, became the focus for cranberry farming. Stephen Gifford is credited with the development of the earliest bog at the corner of Temple and Church Streets between 1845-1856. The first historical records indicate four acres of cranberries producing a crop worth \$244 in 1855. By 1879 three cranberry meadows were mapped and an 1885 news clipping reports the Gifford bog was projected to produce 500 barrels of cranberries and George Hobart was expecting to pick 12 barrels. The Giffords and the Lorings, who developed the bogs on Route 3A near Screenhouse Lane, created a profitable industry which shifted the industry of the town to light agriculture.

In the 1870s the rural character and unspoiled bay began to attract “summer people” and in 1871 a railroad line to Duxbury and Cohasset brought large numbers from the Boston area. Boarding houses and summer cottages cropped up and the Myles Standish Hotel was developed to meet the demand, providing much needed employment. By bringing “summer people” to Boston’s South Shore and employing many townspeople, it had a major social and economic impact on the town. Although the rail line stopped operations in 1893, the summer destination was established.



By Marabela - Own work, CC0, <https://commons.wikimedia.org/w/index.php?curid=14842104>

The completion of Route 3 in 1963 and the resumption of Old Colony Railroad service in 1997, changed the complexion of Duxbury. The Town became a year-round home for many working in and around Boston. Town services and schools were expanded and upgraded to meet demand:

- To accommodate burgeoning growth in the 1960s and 1970s, existing schools were remodeled and three new schools, Chandler Elementary School, the Middle School, and the High School, were built.
- In the late 60s and 70s the Central Fire and Police Stations were constructed as well as a new Town Hall, the Transfer Station and the Percy Walker Pool.
- After 10 years of planning and reconstruction of the 1905 Duxbury High School, a new \$6.3 million Duxbury Free Library opened in 1997.
- Further growth and the demand for more cultural activities led to additional renovation/construction at the Chandler and Alden Schools, including the construction of the Performing Arts Center in 2004.
- Again, population growth and advances in technology compelled the voters to approve three major building projects in 2011, a \$130 million school building project, a new \$6.25 million Police station, and \$3.7 million for the renovation/expansion of the Central Fire Station. The fire station was completed in 2011, the police station in 2013 and the co-located middle school and high school was opened in the fall of 2014.

Plymouth, Kingston and Scituate (railheads of the Old Colony Railroad), and other surrounding towns, are experiencing increasing pressure from developers to build on remaining marginal land. Rising land prices and falling cranberry prices have forced some cranberry growers to downsize their operations or offer their land for developments. Cranberry farmers in this region typically own an average of 3 acres of upland to 1 acre of bog, freeing up significant tracts of land for development. The few remaining farms are under similar pressures. Fortunately, the largest operating dairy farm on the South Shore, the 145 acre O'Neil Dairy Farm, was preserved in 2005 through a combined effort of the Town of Duxbury, the Wildlands Trust, the Commonwealth of Massachusetts and private donations. Now, more than ever, Duxbury needs to achieve a balance between residential development and open space to protect natural resources, historic landscapes and structures and the quality of town services.

Duxbury's proximity to Boston and Providence and access to commuter rail lines has increased its attractiveness to affluent residents, as evidenced by a growing tax base and escalating housing prices. The average single family assessment for FY 2019 is \$727,000, a 6.88% increase over FY 2018. The median single family assessment for FY 2019 is \$579,100, which is a 5.97% increase. The 2017 average price for a home in Duxbury was \$680,000 (2017, Town of Duxbury CAFR). Zillow reported the median sales price of single-family homes in December, 2018 as \$652,900. The tax base is predominately residential, 73% of total revenue, and tax collections have averaged 99% over the past five years (2017 Standard & Poor's). The average single family tax bill for FY 2019 is projected to be \$10,672, an increase of 3.5% over FY 2018. The median single family tax bill for FY 2019 is \$8,501.

Proposals to establish light industrial zones in town have generally been defeated because of concerns regarding the protection of the aquifer and community character. However, growing economic pressures for residential development may ultimately reshape the community and place a heavy demand on natural resources. Recognizing the value of Hall's Corner to the town's economy, the Duxbury Economic Advisory Committee, Planning Board, Planning Department and Town Manager engaged both the Old Colony Planning Council and the Metropolitan Area Planning Council through Technical Assistance Grants to undertake studies of market conditions and traffic patterns. Both studies presented a number of recommendations to retain and attract business and to improve the overall condition of this area with consideration of the character of the community. It is paramount that Duxbury achieves a long term plan that addresses its residents' needs and desires in a fiscally responsible and environmentally sound manner, both in its commercial districts and throughout its vast residentially-zoned areas. Next steps to prioritize and localize these recommendations are ongoing through the efforts of these groups and the local businesses and property owners.

POPULATION & SOCIAL CHARACTERISTICS

The following demographic factors provide the foundation for long-range planning for Duxbury's open space and recreational needs. At the 2017 Annual Town Meeting the voters approved Article 18 - funding an update of the Comprehensive (Master) Plan. Additional Technical Assistance Grants from MAPC, and a grant from the Commonwealth Compact, have gotten the update underway. Entitled *Envision Duxbury*, the document will lay out the shared vision for Duxbury's future, and act as a guidepost for decisions in areas such as land use (including zoning to guide such use), economic development and transportation. The Plan will develop a shared vision statement and resulting goals for job creation, open space, housing and transportation while maintaining the town's character and aesthetics. The Plan is referenced here for some summary information relative to demographics, as determined by MAPC.

DUXBURY RESIDENTS - A PROFILE

Duxbury's attractive location and its proximity to Boston have drawn an affluent population, many of whom commute to Boston and neighboring cities. As of the 2015 ACS 5-year estimates, Duxbury's civilian employed population aged 16 or older consists of 7,168 workers, more than half of which work in management, business, science and art occupations. Another 23% work in sales and office occupations, and 9% work in service occupations. A quarter of the labor force population works in the educational services, health care and social assistance industry, 16% work in the professional, scientific and management industry, and 14% work in the finance, insurance and real estate industry. All of these industries are associated with higher than average incomes. (Source: *Envision Duxbury*).

The 2013-2017 ACS 5-yr estimate report a median household income of \$123,613, and unemployment in 2017 at 3.1%. The projected per capita effective buying income is reported as 189% of the national level (2018 Standard & Poors Rating Report). Four percent of the population is reported as below poverty. Business is limited, the largest non-government employers are Bay Path Rehabilitation and Nursing Center, Village at Duxbury, and Duxbury Yacht Club.

Duxbury citizens have high expectations of town services and amenities, and have demonstrated strong support for the protection of open spaces and the development of recreational facilities. In 2001 the voters approved the Community Preservation Act to address the need for open space, the preservation of historic resources, recreational needs and the need for affordable housing. However, in 2012, the downward spiral in the economy, an increased tax burden for large capital projects, and a reduction in the state CPA matching funds compelled voters to reconsider the 3% of real estate taxes surcharge. Voters approved a significant decrease in the CPA surcharge from 3% to 1% and an exemption of \$100,000 of residential property. The median single family CPA surcharge for FY 2019 is \$70.33.

The 2010 U.S. Census reports Duxbury's population as 15,059 and the 2013-2017 American Community Survey (ACS) 5-year estimate is 15,572. The 25-34 and the 35-44 age groups have been declining and this may be attributed to lack of housing choices (2014 Town of Duxbury Housing Production Need Assessment, LDS Consulting) and/or employment opportunities in the area. The 65 and older groups have had substantial growth, especially among the 65-74 age group, and this trend appears to be continuing as reported in the 2013-2017 ACS 5-yr estimate. The median age has risen from 40.0 to 44.8 (2010 U.S. Census).

There continues to be little racial and ethnic diversity; the 2010 U.S. Census reports the racial makeup of the population as 98% White, 1.4% Asian, 0.8% two or more races, 0.6% Black or African American, 0.5% other races, 0.3% Native American, and 0.1% Pacific Islander. This is much less racially and ethnically diverse than Plymouth County or the Commonwealth.

Duxbury residents are well educated. The 2013-2017 ACS 5-year estimate reports 98.9% of the population attaining a high school degree or higher. Seventy-two percent of residents aged 25 and older have completed an associate's degree or higher, compared with County and State reporting of 44% and 49%, respectively. The 2013-2017 ACS reports a median household income of \$123,613, considerably higher than other communities in Plymouth County (\$82,081) and the Commonwealth (\$74,167).

Residents are deeply committed to preserving and improving the community. Hundreds of volunteers serve on more than 40 town administrative, planning and advisory boards and committees; for the Council on Aging; the public schools; and for numerous non-profits throughout Duxbury. Many more have indicated their willingness to serve by registering their names, interests and qualifications with the town's Talent Bank.

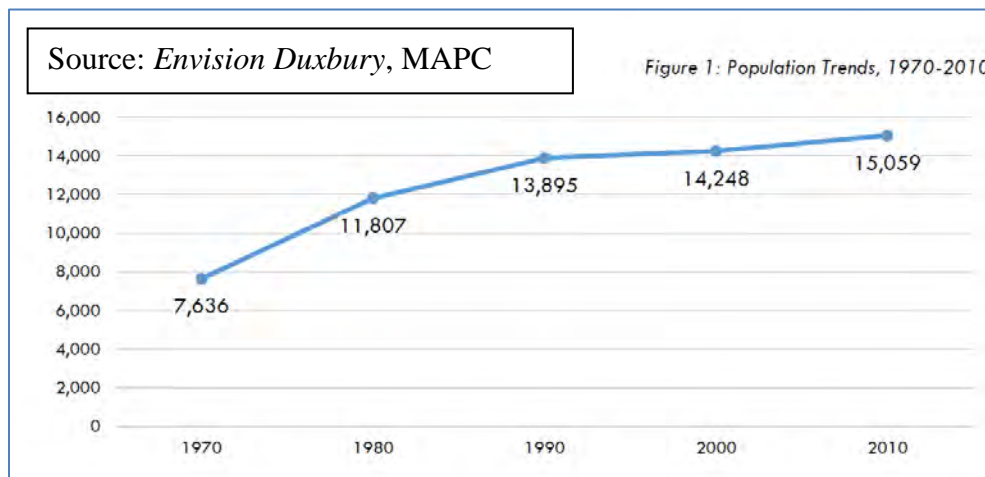
POPULATION SIZE AND DENSITY

Most of Duxbury's residents live in single family houses. 49% of the Town is developed as residential, with another approximately 24+% land use as open space. 9% of the land is used for roads or is occupied by water, with about 3% of land used for commercial purposes, and the commercial land is built out with the exception of less than 1 acre of vacant land. The remainder is agricultural or open land. The land use generally follows the zoning, which calls for 1 unit per acre and is over 90% zoned for residential use. Over land contributing to the drawdown of the public wells (aquifer protection areas), density cannot exceed 1 unit per 60,000 square feet in order to dilute nitrates from septic systems in those areas. 15,572 residents over 15,360 acres is nearly a 1:1 ratio.

POPULATION GROWTH

Duxbury's population grew dramatically from 1960 to 1990, far exceeding the Commonwealth's growth, largely due to the completion of Route 3 in 1963. Duxbury's growth has slowed since then, and is projected to remain stable (*Envision Duxbury*). The Old Colony commuter rail service between Boston and neighboring Kingston and Plymouth, and not too distant Scituate, has also increased accessibility. Significant highway improvements or commercial development along the Route 3 and Route 44 corridors, however, may propel another wave of development and population growth.

YEAR	POPULATION	% CHANGE	MA	% CHANGE
1960	4,727		5,148,578	
1970	7,636	61.5%	5,689,170	10.5%
1980	11,813	54.7%	5,737,037	0.8%
1990	13,895	17.6%	6,016,425	4.9%
2000	14,248	2.5%	6,349,097	5.5%
2010	15,059	5.7%	6,547,629	3.1%
2013-2017 ACS 5 YR Estimates	15,572	3.4%	6,859,819	4.8%



The 2010 U.S. Census reports 5,532 housing units in Duxbury and 5,344 occupied year round.

According to the 2014 Housing Production Needs Assessment (prepared by LDS Consulting Group, LLC), the town largely consists of single family homes (90%) and the majority of housing units (89%) are ownership units. The Assessment also reports that in 2010 1.3% of homes and 5.4% of rental units were vacant, indicating a shortage of housing supply. In addition, 3.4% of the town's housing stock, or 188 units, is considered to be subsidized (Massachusetts Department of Housing and Community Development, 2013), which leaves Duxbury vulnerable to MGL Chapter 40B housing developments. Chapter 40B allows developers of 40B projects to circumvent local zoning in communities that have less than 10% of their housing inventory considered affordable. Unfortunately, there are a number of rentals throughout town that are affordable, but do not meet the criteria set forth by the Department of Housing and Community Development's Chapter 40B regulations and are not counted. Island Creek Village is currently undergoing expansion which will include multi-family rental apartments. Affordable rental units in Duxbury are located at scattered sites, at the Duxborough Village (Duxbury Housing Authority), 75 Merry Ave, and Island Creek Village. There are currently thirteen affordable homeownership units in four developments:

Duxbury Farms, Merry Village, The Reserve at Duxbury and a single family home on Chandler Street.

According to *Envision Duxbury*, while the population is expected to remain relatively stable, the number of households are projected to grow 20% (1,043 households) by 2030 from 2010, above and beyond the 8% growth in households seen between 2000 and 2010 (US Census, *Envision Duxbury*). This growth will mainly come from increases in older households, especially over age 75. 78% of households in Duxbury in 2019 are families (2015 ACS 5-7 year estimates), higher than the county, surrounding communities or the state. The number of building permits for demolition, additions/alterations, and single family construction strongly reflect the national economy; stable growth in development prior to 2007, a significant decline in 2009 to 2011 due to the recession. As the economy has improved, the number of permits has rebounded, with a significant portion of that related to tear downs and reconstruction. Duxbury has experienced a 6% growth in the last 5 years in new dwelling unit construction primarily related to the buildout of the Island Creek Village 40B Comprehensive Permit development (source: Planning and Building Departments). Despite the Demolition Delay Bylaw, which is intended to provide an opportunity to encourage property owners to preserve structures which reflect distinctive architectural, cultural, economic, or social historical features of the town, demolitions are often needed due to the age and condition of the structure and compliance with code. Duxbury loses about three significant structures annually, as reflected by the delays imposed.

AGE DISTRIBUTION

- The 2010 U.S. Census lists the median age at 44.8, up from 40 in 2000, and the 2013-2017 ACS 5-yr estimate reports the median age at 45.5. The 2010 census data indicates significant growth in population above age 10, with the exception of 25-34 year olds and 35-44 year olds, decreasing 33.6% and 21.4%, respectively. The 2013-2017 ACS 5 yr. estimate may indicate a bit of a rebound of the 25-34 year old group, but this will be better defined in the 2020 census. The Duxbury Housing Production Needs Assessment (2014, LDS Consulting Group, LLC), suggests that this may indicate a lack of housing choice for young professionals. The highest population growth from 2000 to 2010 was among residents aged 60-74 years, accounting for 16% of the total population, up from 9.9%. Residents aged 65 and older, accounting for 12% of the population in 2000, increased to 16.3% in 2010. The 2013-2017 ACS 5 yr. estimate further supports this trend, implying a growing demand for housing choices and services for seniors.
- The Senior Center, which was completed in 2001, has been an invaluable resource for Duxbury's older population; offering continuing education, dining services, exercise and numerous social activities.
- The 2010 census indicates there are 292 fewer children under the age of 5 years than reported in 2000. The 2013-2017 ACS 5 yr. estimate reports a modest upswing in this group, however the 5-9 year group continues to show a decline in numbers, though not as steep.

AGE	POPULATION 2000	POPULATION 2010	2000/2010 CENSUS COMPARISON	ACS 2013-2017 ESTIMATES	2010/2017 ACS 5 YR Est. Comparison
TOTAL	14248	15059	5.7%	15572	3.4%
Under 5 years	1001	709	-29.2%	732	3.2%
5-9 years	1230	1,220	-0.8%	1074	-11.97%
10-14 years	1260	1,475	17.1%	1390	-5.7%
15-19 years	996	1,148	15.3%	1143	-0.4%
20-24 years	376	454	20.7%	829	83%
25-34 years	1037	688	-33.6%	871	26.6%
35-44 years	2394	1,883	-21.4%	1559	-17.2%
45-54 years	2658	2,720	2.3%	2849	4.7%
55-59 years	996	1,232	23.7%	1061	13.9%
60-64 years	593	1,076	81.5%	1074	-0.2%
65-74 years	810	1,332	64%	1809	35.8%
75-84 years	586	674	15%	700	3.9%
85 years and older	311	448	44%	490	9.4%

BIRTH RATES AND SCHOOL ENROLLMENTS

The number of households has increased from the 2010 U.S. census of 5,344 to 5,427 in 2017 (2013-2017 ACS 5-yr estimate) and the average number of persons per household has increased from 2.79 to 2.85, respectively.

School enrollments have remained fairly stable; from 2000 to 2010 enrollments increased 6%, but lost most of this gain by 2018. Both the 3rd- 5th grade and middle school populations, which saw increases in enrollments from 2000 to 2010, have been steadily declining since 2010. The high school reported a 15% increase in students from 2000 to 2010 and a modest increase (5%) by 2018. It should be noted that Duxbury has the highest percentages of residents under age 18 over total population on the South Shore and in the State. According to *Envision Duxbury*, demographic trends and anecdotal observations suggest that the school age population and households remain relatively constant in the town due to a transitioning of families into and out of Duxbury around educational milestones. Since Duxbury's population is overall aging, school enrollment would likely decline further if not for this pattern of in and out migration of families.

In 2011 the voters approved the construction of a new co-located middle school and high school. Construction began on the \$130 million project in 2012 and the new building admitted students in the fall of 2014. A new field house was built on the site of the former high school and more playing fields were developed. The campus is designed to integrate the use of the Performing Art Center, the Duxbury Free Library, the Percy Walker Pool and the Wright Building which houses the Duxbury Rural & Historical Society Drew Archives as well as the Student Union. The surrounding wetlands and fields are being used as an outdoor classroom to expose students to the ecosystems in this area.

GROWTH AND DEVELOPMENT PATTERNS

PATTERNS AND TRENDS

General Statistics

- Duxbury's population increased 2.5% (1990-2000), 5.7% (2000-2010) is beginning to stabilize (2013-2017 ACS 5 yr. estimate)
- Single family dwellings account for 90.3% of all dwelling units

Duxbury is a unique and unusually beautiful coastal community. The coastal area reflects the once vibrant maritime industry, with its sea captains' homes, granite piers and tradesmen's homes. Inland forests provided wood for the hulls and spars and ships built in Duxbury and remnants of its water-powered saw mills still remain. As you move inland, the landscape transforms into farmland with open fields, cranberry bogs and historic farmhouses and barns. However, development, especially west of Route 3, has grown. Some fields have been subdivided, homes enlarged, and new developments have appeared.

Conscientious zoning has preserved the pattern of residential neighborhoods clustered around commercial village centers (Refer to the Zoning Map). In the 1970s a concerted effort was mounted to acquire cranberry bogs and forests to maintain the visual character and agricultural heritage unique to Southeastern Massachusetts. The desirability of Duxbury, development along Route 3 and Route 44, and the reintroduction of commuter rail lines have led to significant growth and development in the last fifty years.

During the 70s and 80s, 250 acres, or nearly 16% of the Town's entire land area (consisting of soft and hardwood forest, agricultural land, and abandoned fields) gave way to residential development. Between 1981 and 1985 during the regional building boom almost one hundred seventy "Approval Not Required (ANR)" plans were filed, adding a significant number of new buildable lots where frontage on public ways was available, which spurred additional land protection activity and review of the zoning bylaws to better control future growth. Massachusetts is the only remaining state in the US that allows Approval Not Required (essentially by-right land division) under its state zoning legislation. Between 2010 and 2013 19 ANR plans were filed, and two small-scale definitive subdivisions and one residential conservation cluster (which was withdrawn) were endorsed by the Planning Board.

One acre zoning, adopted by the Town to allow individual on-site septic systems, has created a uniformity of lot sizes, which detracts from the older, village-centered settlement pattern. The 1973 Comprehensive Plan attempted to address this problem. With a negotiated development option, builders were permitted to plan higher density clusters of homes served by fewer roads if they

allocated a designated amount of open space and demonstrated that these changes would not negatively impact the environment or tax rate, and this was successful for a period of time. Zoning changes have been made since that era, and these planned development options have not been used (perhaps once) in about two decades; additionally, land zoned for Planned Development has been built upon. . The Town reviewed and recommended amendments to the Zoning Bylaw to reduce potential buildout density in the 1990s and 2000s, making specific recommendations to add controls for residential development, and adopted those changes in 2012. These recommendations included: restrictions on wholesale clear cutting of large tracts of land, ground and surface water protection regulations, a redefinition of the Wetlands Protection Overlay District to limit growth, Administrative Site Plan Review for commercial uses, and a more thorough review of planned developments. The committee also added an Inclusionary Housing Bylaw, which requires developers to include at least some affordable housing in every subdivision plan over six units. Chapter 40B developments have been the most intensive use since the zoning revisions, and it appears that more work is needed to develop local zoning that will comprehensively address some of the land use issues facing the community, such as alternative housing options and incentives to the market to provide affordable housing choices that will afford protection from Chapter 40B proposals, as vacant buildable land is not abundantly available.

A newer challenge in the community is the value of marginal land, which has become more buildable with improvements in waste treatment technology and the recent approval of mounded systems by the Board of Health.

During the 60s and 70s the demand for additional services to meet a growing population resulted in the construction of an impressive number of facilities. They include the High School, Chandler Elementary School, Percy Walker Pool renovations, a New Town Hall and Central Fire Station, the Ashdod Fire Station, and the Police Station. The Alden School also underwent renovation. In 2000 the new Duxbury Free Library was completed and in 2002 the expansion of the Chandler and Alden Schools and the construction of the new Performing Arts Center was completed. The new Senior Center was completed in 2001. In 2007 the Wright Building, which houses the Rural & Historical Society archival materials and a new Student Union was complete using CPA funds. Four decades later population growth and advances in technology drove even more development and the Central Fire Station was expanded, a new police station was constructed and a new co-located middle and high school and field house was built.

Commercial development has been limited in order to maintain Duxbury's semi-rural residential character. Approximately eighty acres is commercially zoned land, with Halls's Corner as the largest area. The Duxbury Economic Advisory Committee, Planning Board, Planning Department and Town Manager engaged both the Old Colony Planning Council and the Metropolitan Area Planning Council to undertake studies of market conditions and traffic patterns in 2014. Both studies presented a number of possible recommendations to retain and attract business and to improve the overall condition of this area with consideration of the character of the community. Some suggestions were to develop market branding to stand out among competing business districts and shopping centers, improve the area's appearance, preserve ground level space for retail use only, expand sewage capacity, and improve pedestrian and bicycle infrastructure and parking. More outreach with the community was recommended by the two planning agencies to evaluate alternatives, and these efforts are ongoing through the Planning Department and Economic Advisory Committee.

Open space is preserved most successfully through outright purchase and subsequent restrictions on the land. The Land Acquisition Task Force in Duxbury determined that for each dollar in taxes generated by new residential construction, it cost the town more to provide services.

Supply and demand forces also come into play. Removing land from development limits the supply of homes, thereby increasing home values and also helps maintain the semi-rural character the community and protects increasingly scarce natural resources, thus increasing the desirability of the town. Land values have risen significantly, however, and the ability to purchase land outright is a challenging obstacle with limited resources. The Town could be exploring other opportunities, such as through new or improved zoning tools (transfer of development rights, or open space cluster subdivisions with flexible dimensional standards, for example) in order to find ways to preserve land if it is committed to development.

Housing has become increasingly expensive in Duxbury; the average single family home assessed value for FY 2019 is \$727,000, a 6.88% increase from FY 2018. The median single family home assessed value is \$579,100, a 5.97% increase. The tax rate is \$14.68 per \$1,000 assessed valuation. The average single family tax bill for FY2019 is projected as \$10,672.36, an increase of 3.5% over FY 2018. The median single family tax bill is projected as \$8,501.19. The 2017 Town of Duxbury CAFR reports the average price of a single family home as \$680,000 and Zillow reports the median sale price in December 2018 as \$652,900. The median household income in 2017 (ACS 5 Year Estimate) was \$150,625, exceeding county and state medians. The price of an affordable home for a low-income family of four is \$218,000 for a single-family home and \$170,000 for a condominium; a sizable affordability gap. In 2010 owner occupancy of 5,875 housing units was 91%. Of the vacant units, roughly two-thirds are seasonal, recreational or occasional use, which may indicate a strong demand for permanent housing.

Market rate housing for seniors and people with low and moderate incomes is very limited. The Village at Duxbury offers a continuum of care for seniors, but it only offers market rate apartments and garden homes for sale in the price range of \$450,000 to \$569,000. Based on occupancy rates, multi-year waiting lists and the growth of an older population, there is a need for affordable rental housing and housing with supportive services.

Housing is considered affordable if a household pays no more than 30% of its income toward housing costs according to federal and state guidelines. Duxbury is located in the Boston-Cambridge-Quincy Primary Service Area which sets the Area Median Income (AMI). A household qualifying for 80% of AMI can earn no more than \$53,900 for two-person household or \$67,350 for a four-person household. According to the 2010 Census 1,733, or 35.6% of owner households in Duxbury pay more than 30% of their income toward housing costs. This is nearly a 100% increase since 2000 in the number of owner households that are burdened by housing costs. Over half of the owners in Plymouth County nearly 63% of homeowners in Massachusetts are burdened by housing costs.

There are two private subsidized rental housing developments in Duxbury: Island Creek East and Island Creek Village West with a total of 99 units. Island Creek North, a proposed expansion of the Island Creek Village Development, will include 94 assisted living units and 120 multi-family rental apartments; 25% of these units will be dedicated to households earning at or below 80% of AMI. There are four homeownership developments that have recently been completed or nearing completion that will add 25 income restricted units to households earning at or below 80% of AMI. The Duxbury Housing Authority owns/manages 71 affordable housing units including a family rental property, a home for individuals with special needs and an elderly/disabled rental property. Residents may qualify if they earn less than 50% of AMI and pay 30% of their income towards rent. There is a long wait list.

Duxbury adopted the Community Preservation Act in 2002, which dedicates at least 10% of surcharge collections and matching funds from the Commonwealth to affordable housing. CPA

funds have been used to purchase land for affordable housing and housing for handicapped adults. Two homes were constructed with CPA funds and volunteers through Habitat for Humanity and another single family home is slated to go forward. CPA funds were also used for the development of a Housing Production Needs Assessment, a Homeownership Program to buy down mortgages, and the development of plans for affordable homes.

INFRASTRUCTURE

TRANSPORTATION SYSTEM

Duxbury is situated in the Greater Boston Metropolitan Area, which has rail, air and highway facilities. Principal highways connecting the town to other metropolitan areas are Routes 3, 3A, 14, 53 and 139.

Duxbury's internal roadway system is a mixture of state and county roads and town streets. Primary traffic distribution roads include Routes 3A, 53 and 14 and Chandler and Tobey Garden Streets. Franklin and Lincoln Streets have also assumed the qualities of secondary distributor streets. Principal feeder streets are Saint George, Harrison, Depot, Chestnut, Elm and Congress Streets, Soule Avenue and King Phillips Path. Lincoln Street serves as a connector to Marshfield (heavy trucks have been banned from this route). Church Street, previously classified as a feeder road, has joined Franklin Street in functioning as a distributor, mostly on a seasonal basis, to channel summer traffic toward Marshfield's Canal Street, where non-resident beach goers gain access to Duxbury Beach. All other roads are considered "local," and in keeping with long held planning objectives, they are usually tree-lined, winding, and in some cases, narrow by the standards of their communities.

According to *Envision Duxbury*, 22.4% of Duxbury residents travel more than 60 minutes to work (down from 27% in 2010), exceeding Plymouth County and Massachusetts, which reported 16.68% and 9.72%, respectively in the 2010 Census. Forty nine percent of all households had at least two vehicles in 2010. Public transportation service to Boston includes Plymouth & Brockton Bus line from Kingston, MBTA Red Line from Braintree, and the Old Colony Railroad from Plymouth, Kingston and Scituate to South Station. In 2008 Greater Attleboro-Taunton Regional Transit Authority (GATRA) began providing service to Duxbury along Route 3A, Halls Corner and the Kingston corridor. A fairly high portion of the town's workforce works from home (11.6%) - higher than the rest of the state, and over a third have a travel time of 20 minutes or less (*Envision Duxbury*).

Increased traffic is a sign of Duxbury's growth. There is less seasonal variation to the traffic patterns and more cars are moving at higher speeds. Traffic congestion is especially noticeable during rush periods, school hours and weekends in the commercial districts at major intersections. There has also been a noticeable increase in traffic on Lincoln, Franklin and Congress Streets as commuters make their way to the Old Colony railroad stations.

Unsafe conditions exist at a number of intersections and at sites of commercial activity. The Route 3A Corridor Study done by OCPC in 2016-17 indicates that some of the intersections along this corridor are the most dangerous in the community, and the town officials need to coordinate, fund, design and implement improvements in conjunction with the State if safety improvements are to be made. A traffic circle (roundabout) was completed in 2001 at the Lincoln Street and West Street Intersection and another roundabout was constructed at Winter Street and Route 53 in 2016. Pedestrian improvements along major streets to certain destinations have been identified as a priority through the *Envision Duxbury* survey of residents.

There are walking areas and off road bike trails scattered throughout the town on land overseen by the Conservation Commission and on land held by non-profit organizations. Major trails systems include Round Pond trails and North Hill Marsh trails off Mayflower Street, Lansing Bennett Forest trails off Union Bridge Road, Camp Wing trails off Franklin Street, Bay Farm trails off Loring Street, and Duxbury Bog trails off East Street. In addition, the Bay Circuit Trail runs through several of these areas and connects the western conservation lands to the Bay on one trail (refer to the Open Space Map). Other connections between conservation lands are lacking, however, the town is continually pursuing land purchases that expand and connect these lands for conservation and recreation benefits.

Pedestrian improvements along major streets to certain destinations have been identified as a priority through the *Envision Duxbury* survey of residents. Although the town has an extensive walking trail system in open spaces, safe spaces for traveling along roads on foot or bike are lacking. The Town Path Council, a volunteer organization formed in 1997, presented a proposal for a pedestrian-bicycle pathway at the 1999 Annual Town Meeting. The proposal was defeated for a variety of reasons despite the considerable support for the overall concept. The Sidewalk and Bike Path Committee took up the charge and reported in 2001 that while the Planning Board requires that new subdivision must have sidewalks, there are no planning guidelines for constructing sidewalks on existing streets and no dedicated funds or staffing to construct sidewalks or walking paths in these areas. Citing safety as a primary concern, the Committee also recommends preservation of the historical and rural nature of the town. In 2000 Town Meeting voters authorized the construction of a sidewalk along Chestnut Street. There is currently a plan being developed by the Sidewalk and Bike Path Committee to develop a multi-use path to connect the school campus to local businesses and other facilities.

Water Supply and Sewage Disposal Systems

Duxbury's twelve municipal gravel packed wells serve approximately 90% of the town's residents. In recent years, the Water Department has implemented a public education program and other water conservation measures aimed at reducing water use among residents and businesses. The Massachusetts Water Management Act limits the amount of water withdrawn from the ground to 65 gallons per day per person. In 2015 Duxbury residents used 80 gallons per day, primarily due to lawn and garden watering. The Water Department reviews the water usage annually to determine whether to implement a water ban. Typically they institute a voluntary water ban from June to September, however, in 2016, the Water Department called for a mandatory water ban due to the drought conditions. The annual newsletter from the Water Department reports the usage and analysis of the water. It also reports Duxbury's susceptibility of drinking water to contamination as 'High' for all wells because they are located in an aquifer with an absence of a hydro geologic barrier (i.e. clay) that can prevent contaminant migration. Community Preservation Act funds have been used to acquire land to buffer existing well sites and land that may be developed for future well sites if needed.

Distribution of water and disposal of sewage have both influenced the town's development pattern. Although a small section of Duxbury is sewered and several areas are served by small, shared disposal systems, most properties are served by individual onsite sewage disposal systems. More community disposal systems are planned in an effort to alleviate identified areas of pollution.

Two shared sewage disposal systems were complete in 1996 on Washington Street, one at the Snug Harbor commercial area and the second at the Bluefish River. In the Snug Harbor business district, eleven buildings, including the Duxbury Yacht Club, Duxbury Bay Maritime School and Bayside Marine, are connected to a shared system with a leaching facility located under the Duxbury Yacht Club golf course on Harrison Street, away from the harbor area. Three buildings on the edge of the Bluefish River and the municipal buildings at the school complex are similarly connected to a shared sewage disposal system with the leaching facility located at the Ellison Center for the Arts on St. George Street. In both of these cases, the leaching sites were provided by private non-profit organizations. The systems are being paid for by betterments to the owners while the engineering water quality studies and project oversights were provided by the town using a combination of state grant monies and town meeting appropriations. The town acted as a facilitator for both projects.

A third shared sewage disposal system was constructed in 2002 to serve 30 residents on Bay Road. The leaching field is located under the Wadsworth Field at the corner of Tremont Street and Wadsworth Lane. The shared systems were all necessary to improve the water quality of Duxbury and Kingston Bays. Gurnet Road in Duxbury, located at the north end of Duxbury Beach adjoining the town of Marshfield, is connected by municipal sewer to the town of Marshfield Sewerage Treatment Plant. Sewage from the Duxbury Town Pier boat pump out station is transported to Marshfield for treatment for which Duxbury pays Marshfield a user fee.

The town has received ten grants totaling nearly one million dollars to reduce pollution from entering the bay. One grant, from Massachusetts Office of Coastal Zone Management, awarded the Conservation Commission \$124,115 to construct best management practice solutions to the Bay Road drainage system to reduce pollution from the roadway. The goal is to identify and reduce pollution from entering into the Nook area of Kingston Bay, reduce swimming beach closures and keep shellfish beds open for harvest.

LONG TERM DEVELOPMENT PATTERNS

Duxbury's zoning controls have always emphasized residential development, limited commercial projects and have not provided for industrial uses.

The land use generally follows the zoning, which calls for 1 unit per acre and is over 90% zoned for residential use. Forty nine per cent of the Town is developed as residential, with another approximately 24+% land use as open space. Nine per cent of the land is used for roads or is occupied by water, with about 3% of land used for commercial purposes, and the commercial land is nearly built out with the exception of less than 1 acre of vacant land. The remainder is agricultural or open land, with limited marginal lands remaining undeveloped. Over land contributing to the drawdown of the public wells (aquifer protection areas), density cannot exceed 1 unit per 60,000 square feet in order to dilute nitrates from septic systems in those areas. Pressures from 40B comprehensive proposals continue to exist due to the need for housing alternatives not currently provided.

The Old Colony Planning Council and the Metropolitan Area Planning Council studies of Halls Corner (2014) market conditions and traffic patterns presented a number of recommendations to retain and attract business and to improve the overall condition of this area with consideration of the character of the community. Some suggestions were to develop market branding to stand out among competing business districts and shopping centers, improve the area's appearance,

preserve ground level space for retail use only, expand sewage capacity, and improve pedestrian and bicycle infrastructure and parking. The study also made some recommendations for mixed use (housing and retail). The report acknowledged past town studies and the recurring goal to maintain the residential character by limiting commercial and industrial zoned land. Ongoing efforts to engage the community to evaluate the most suitable options for the commercial areas are being undertaken by the Planning Department and Economic Advisory Committee, as was recommended by these studies.

After the 1999 Comprehensive Plan's buildout predictions, the Land Acquisition Task Force recommended that the town adopt the Community Preservation Act in 2001 and set its sights on the protection of a third of the remaining undeveloped land as a means of controlling growth. To date the town has acquired over 800 acres of land with CPA funds. Land donations and conservation fund acquisitions are helping to move closer to the goal of 1,500 acres. It is a challenging process that takes time to negotiate the terms with the landowners and to secure the funding through town meeting. Furthermore, a vote to reduce the CPA surcharge from 3% to 1% of the real estate tax and a \$100,000 real estate exemption will slow this effort and make it more difficult to compete with developers.

Chapter 40B developments have been the most intensive use since the 2013 zoning revisions, and it appears that more work is needed to develop local zoning that will comprehensively address some of the land use issues facing the community, such as reducing the threat of Chapter 40B developments by providing alternative housing incentives. .

One example of the impact of development is the loss of long-standing scenic vistas to housing development, a situation that negatively impacts the semi-rural and open feeling embedded in the Town's character. Another example is neighborhoods where older small houses are being demolished to make way for extremely large new homes. The scale of these very large houses compromises the character of the small house neighborhoods and increases assessments in those neighborhoods. As developable land shrinks and land values increase, more of this activity can be expected. The Historical Commission has proposed to strengthen the Demolition Delay Bylaw, which was enacted in 1998, to try to encourage property owners to preserve historic structures where economically feasible. Community Preservation Act funds were used to acquire waterfront land near a town landing to preserve access and enjoyment of the beautiful viewscape of Kingston Bay.

These and other adverse aspects of increased growth are of concern to Duxbury's land use boards and committees, and ongoing efforts are attempting to address these effects. As the town moves forward, departments and committees are seeking to balance any future development needs with the essential task of protecting the town's valuable open space and cultural resources.

4 – ENVIRONMENTAL Inventory & Analysis

GEOLOGY, SOILS & TOPOGRAPHY

An understanding of the interrelationships between geology, soils and topography provides a necessary basis for comprehensive planning, particularly in coastal towns such as Duxbury. Knowledge of the inherent potential and limitations of each of these physical components can help channel future land use into patterns that will avoid environmental damage and degradation. Impacts of land development to natural resources should be carefully considered when identifying potential areas for open space preservation. Continued protection of these resources is crucial to the overall welfare of the town and continues to strongly influence Duxbury's open space planning.

The Town of Duxbury Conservation Commission, Planning Board and other engaged citizens, with consultants, evaluated its soils, wetlands and topography in the 1970s, and planned its zoning and development carefully around the capacity of the landscape to handle development. Existing commercial districts have generally remained unchanged in size for decades, with few exceptions. School grounds, recreational facilities and active recreation are generally located outside of sensitive areas and flood hazard areas, with the exception of Duxbury Beach, which is actively managed to balance recreation and preservation. Open space and passive recreation is abundant in the landscapes that have been preserved through decades of both zoning in keeping with resource capacity and through active acquisition of land to protect more sensitive areas such as wetlands, ponds and streams, with trails developed away from the sensitive habitat and limited parking at various trailheads. Sandy soils make up a significant base for the areas that are used for recreation both passive and active, and topography is preserved through using contours for trails and for using flatter areas for active fields.

GEOLOGY

Duxbury's land features are a function of its underlying surficial geological deposits. Its physical characteristics are derived from two distinct periods - the Proterozoic bedrock from several billion years ago and the gravel, sand, silt and clay from the Pleistocene glacial period. The sand and gravel layer contains Duxbury's aquifer. Duxbury's topography gently slopes down from small hills to Duxbury and Kingston Bays. Bedrock outcroppings can be seen in the bay at Cripple Rock and Bay Farm as well as along Temple Street near the Pembroke town line. The geologic deposits overlying this bedrock base resulted from the late Wisconsinian stage of glacial activity.

The 1985 Aquifer Protection Study conducted by IEP, Inc. identifies three distinct geologic areas in Duxbury: upland till in the western portion of town, with shallow depths to bedrock and hummocky topography in the western portion of town; stratified drift with greater depth to bedrock throughout the middle of town; and a deltaic zone along Duxbury Bay.

Duxbury's landscape is further defined by ecological features such as: salt marsh, swamp, beach, and dune deposits. Unique among these is an isolated lake-bottom deposit on the coastline near

the Kingston border. Known locally as Bay Farm, the forty-four-acre parcel has been owned by the Town for many years. Its fields, composed primarily of clay and compacted soil is unsuitable for residential development. In 1989, another twenty-nine acres was bought by the Kingston Conservation Commission and a third strip of nearly eight acres was bought by the MA Department of Environmental Management. Its extensive field and shoreline on Duxbury and Kingston Bays serve as one of the Town's favorite passive recreation areas and the southern terminus of the Bay Circuit Trail.

SOILS

Soil types define land use potential (Refer to the Soils Map). Duxbury's soils are mostly well to excessively drained. The land slopes range from level to very steep. The town's primary soil types are Scituate-Essex-Merrimac and Hinckley-Merrimac-Muck. A small but critical 3% of the land consists of Hinckley-Carver Association soils on extremely steep slopes. These provide the most favorable groundwater recharge conditions.

The two principal classes of geologic deposits or soils found in Duxbury are till and stratified drift. The till deposits, composed of dense poorly sorted packed sand, silt and clay are of interest to the town because of their relationship to groundwater. Delineation of till districts is useful in defining the boundaries of Duxbury's aquifer formations, as was done for the Town in 1994. In some cases, till deposits form elongated hills called drumlins. Captain's Hill, surmounted by the Myles Standish Monument and Gurnet Point are notable examples. Other large areas of till deposits surround the Phillips Brook lowlands.

Stratified drift, a result of glacial outwash, is an especially important deposit classification as the coarse stratified material is extremely permeable. It contains and transmits Duxbury's only source of drinking water. These deposits are found throughout the central, eastern, and southwestern sections of town. They are identified in the Greenbelt Land Protection strategy and are considered among the most important areas to protect. Mining of sand and gravel could negatively impact both groundwater and the environment and bylaws were adopted to prohibit removal of this material in Aquifer Protection Overlay Districts.

A primary concern of land preservation strategies is to protect and preserve adequate uncontaminated water supplies. Much of this land, roughly 4,000 acres, directly influences existing and future well sites in Duxbury because of its groundwater recharge characteristics.

TOPOGRAPHY

Distinct variations in Duxbury's topography account for many areas of scenic, ecological, and historic importance. Collectively, they provide a range of opportunities for public enjoyment and appreciation.

The glacial activity that occurred during the last ice age produced a slightly varied terrain in Duxbury, with slope gradients ranging from zero to thirty five percent. The land surface is level to gently rolling, with its highest elevation at 196 feet above mean sea level. Captains Hill, the site of the Myles Standish Monument and State Park is the highest point in town. Low lying areas occur along the coast and salt marshes in the east, Powder Point, the southeast section of town, the Bluefish River, the Back River, and various inlets on Kingston Bay.

Duxbury's 1,149 acres of freshwater wetlands, which are important habitat for wildlife, are also essential for the preservation and protection of the town's aquifers. Their relatively permeable

floors allow for recharge of the aquifer, storage and a more controlled discharge of water when the water table is high, thus protecting public and private property.

LANDSCAPE CHARACTERISTICS

Duxbury's landscape has been described as a picturesque, rural, residential, and agricultural New England seacoast community. The town has several distinct, yet mutually dependent landforms.

Duxbury Beach, a four and a half mile long narrow barrier beach, is no more than a few hundred yards at its widest point. Defined as a glacial drumlin, it consists of coastal beaches, dunes, and salt marshes. It stretches southeasterly from the Marshfield shore towards Manomet. With Plymouth Beach, it encloses and protects Duxbury, Kingston and Plymouth Bays. The beach is constantly changing; building itself up during the summer when the waves are low and long, and narrowing and flattening during the fall and early spring when storms produce steep waves. The integrity of the beach is threatened from time to time by severe northeast storms, especially those that coincide with higher than average tides. Extensive beach and dune erosion may result in over wash which causes the beach to migrate landward. Sea level rise is at an approximate average annual rate of one foot per 100 years, however, this is expected to accelerate due to global warming. This rise will produce more frequent overtopping and more rapid landward migration of the beach, leading to speculation that the beach will move past Gurnet and attach to Clarks Island.

Development on Duxbury Beach is limited to the small year-round communities of Gurnet and Saquish, both part of the Town of Plymouth, and a cluster of homes along Gurnet Road in Duxbury. Duxbury Beach is frequented by walkers, often with dogs, joggers, birdwatchers and bathers/surfers year-round. The beach is accessible via a half mile long wooden bridge from Duxbury's Powder Point and directly from the town of Marshfield.

Duxbury Bay (with tides that can exceed 10 feet) is another dominant landscape feature. The Bay provides seasonal recreational activities including shellfishing, boating, sailing, and windsurfing. At low tide, it is predominantly mud flats with three deep channels and deep water anchorages at Howlands Landing, Two Rock Channel, and the Snug Harbor Basin. Snug Harbor is home to major Duxbury maritime facilities, including the Town Pier, Duxbury Yacht Club, Duxbury Bay Maritime School, Bayside Marine and Island Creek Oyster headquarters. Duxbury Harbor and the channel is federally authorized and dredging is required to maintain navigable depth. A nearly \$5 million dredging project was completed in January, 2016.

Another landscape feature is Duxbury Marsh, which extends over one thousand acres, one of the largest in the Commonwealth. Island Creek and Eagles Nest Creek, which feed Duxbury Bay, also have wide salt marshes that provide significant fish, shellfish, mammal, and waterfowl habitat. Protection of this resource from development and pollution is becoming more urgent as Duxbury has become a more desirable location for families who enjoy water based activities.

Another defining landscape feature of town is the cranberry bog. Both the Conservation Commission and the Water Department own cranberry bogs and others are privately owned. The Conservation Commission has management agreements with growers which keeps its bogs in production and maintains the agricultural heritage of the region. These colorful bogs, which vary in size from a few to several hundred acres, dot the landscape and provide splendid views. Town owned bogs are frequented by walkers, joggers, mountain bikers and horseback riders.

The working and non-working farm is another important historical and open space feature of town. While their numbers are small, farms are the most susceptible to development, so protection of these areas is vital. In 2005, the Historic O'Neil Farm, one of the last working dairy farms on the south shore, was permanently protected with an Agricultural Preservation Restriction on 122 acres of its farmland and a Conservation Restriction on the remaining 18 acres containing farm buildings. A public/private partnership between the Wildlands Trust, the Massachusetts Department of Agricultural Resources, the Town of Duxbury, and many private donors and volunteers was a tremendous success. A total of \$4.3 million was raised to accomplish this project. A Board of Directors manages policy issues, holds an annual Farm Day and strives to educate the public about dairy farming in New England and maintains recreational trails.

A final landscape characteristic is the forest, which constitutes much of Duxbury's existing inland open space. The Town of Duxbury, Duxbury Rural & Historical Society, and Massachusetts Audubon Society maintain a forest of approximately one thousand acres around the North Hill Marsh. This and other wooded areas provide hiking, biking, cross country skiing, equestrian trails, as well as access to fishing and canoeing at nearby ponds. Duck hunting and bow hunting of deer is limited to specific Conservation lands. Most importantly, these forest tracts protect watersheds and the town's aquifer. They also serve as valuable wildlife habitat and corridors for wildlife movement. Furthermore, these forests act as buffers between residential areas and commercial districts, heavily traveled intersections, and Route 3.

Duxbury has a long history of careful planning for commercial areas and municipal buildings which have added greatly to the character of the town. Six small separate commercial areas maintain a village atmosphere and reduce cross-town traffic. St. George Street area integrates, in a single campus setting, the new co-located Duxbury Middle and High Schools; the Duxbury Performing Arts Center; the newly constructed Field House and playing fields; the Duxbury Free Library; the Percy Walker Pool; and the Wright Building, which houses the Drew Archives of the Duxbury Rural & Historical Society and the Duxbury Student Union. The Chandler St. School has numerous playing fields and a study was undertaken to assess the need and feasibility of more fields at this site.

Duxbury's diverse and beautiful landscape makes it especially attractive for development. Therefore, the town must incorporate sound planning to balance development with land and resource protection.

WATER RESOURCES

SURFACE WATER

Freshwater bodies (lakes, ponds, bays, rivers) fall into six watersheds (Refer to the Water Resources Map).

WATERSHEDS

SOUTH RIVER WATERSHED (CENTRAL AND WESTERN GREENBELT)

Phillips Brook, Keene Brook, and an unnamed branch originating in the Loring cranberry bogs off East Street, along with water from inland marshes, bogs and reservoirs converge near Temple Street in Camp Wing to become the South River. This River then courses through Marshfield where it joins the North River. Camp Wing is comprised of 459 acres of town owned land and nearly 145 acres of land owned by Crossroads Inc. It is a mix of woodland and wetland along Keene and Phillips Brooks. Camp Wing owns and uses Keene Pond on the western side of Keene Street and has access to Peterson's Saw Mill Pond at the Congress Street-Union Street-Franklin Street triangle for fishing and passive recreation. The watershed is part of the Aquifer Protection Zoning District for a Marshfield drinking well. Massachusetts Division of Fisheries and Wildlife designates much of this watershed as a Priority Habitat of Rare Species and Estimated Habitats of Rare Wildlife. Pressure for development is increasing in this locality as it contains the largest remaining tracts of undeveloped land in town. Protection of Camp Wing and other land that have important conservation values is critical to the protection of the South River Watershed.

GREEN HARBOR RIVER WATERSHED (EASTERN GREENBELT)

The headwaters of the Green Harbor River originate at the Wright Reservoir, cranberry bogs and marshes in North Duxbury. The river flows into Marshfield and winds through the scenic Green Harbor Marsh. Much of this watershed is within the Aquifer Protection District for Duxbury and Marshfield municipal wells and is listed as Priority Habitat of Rare Species and Estimated Habitat of Rare Species. CPA funds were used to acquire the 33 acre Delano Farm for open space, a well field and modest affordable housing. The 60 acre Crowell Bogs, which are under the control of USDA Wetlands Reserve Program, were also acquired. In 2015 CPA funds were used for the acquisition of 277 acres of land from the Merry family, which includes working bogs and a portion of the Wright Reservoir.

BACK RIVER WATERSHED (EASTERN GREENBELT)

West Brook originates in the kettled lowlands of the North Hill Marsh, flows into a pond off Tremont Street, and becomes Duck Hill River as it enters Duxbury Marsh. Further downstream it becomes the scenic Back River and flows into Duxbury Bay. The watershed is part of the Aquifer Protection Zoning District for drinking water supplies for Marshfield and Duxbury. The saltwater areas are suitable for shellfish harvesting. CPA funds were used to acquire the Jaycox Tree Farm, which buffers West Brook and the Damon Wells from development.

North Hill Marsh is an important and actively used recreational area for birding, biking, horseback riding, cross country skiing and walking. Of historical significance, a portion of the Green Harbor Path, a trail laid out in the 1620s from Plymouth to Green Harbor, runs along its eastern upland. North Hill Marsh is surrounded by the Duxbury Town Forest, the Massachusetts Audubon North

Hill Wildlife Sanctuary, the town's North Hill Country Club, and other town conservation land. Collectively, these areas comprise nearly 1,000 acres of contiguous open space. The Massachusetts Division of Fisheries and Wildlife designates the entire area as Estimated Habitat of Rare Wildlife and Priority Habitat of Rare Species. Access is restricted on small portions of land that contains the Mayflower wells and the Millbrook water supply.

ISLAND CREEK WATERSHED (EASTERN GREENBELT)

Originating at Island Creek Pond, a stream flows south to Mill Pond and exits through the salt marsh near Hicks Point into Kingston Bay. Island Creek Pond, accessed from Tobey Garden Street, is the only Great Pond in Duxbury (a naturally occurring body of water of more than 10 acres on which all Commonwealth citizens have the right to fish, fowl, and navigate). It is actively used for fishing, boating and skating. The pond is subject to invasive weed infestations which are controlled by a volunteer operated weed harvester. Island Creek is one of two anadromous fish runs in Duxbury and contains two fish ladders which were reconstructed in 2007 with CPA funds under the guidance of the Duxbury Bay Management Commission, the MA Division of Fisheries, and the Duxbury Conservation Commission. In hopes of developing a robust fishery, the MA Division of Marine Fisheries stocks the pond with river herring and herring counts are managed by the Conservation Commission and volunteers. The upper end of the watershed is part of the Aquifer Protection Overlay District for Duxbury's drinking water supply.

JONES RIVER WATERSHED (WESTERN GREENBELT)

Pine Brook, which flows from Upper and Lower Chandler Mill Ponds, along with Hall's Brook, Bassett Brook and Mile Brook are on the southerly portions of the town and feed the Jones River. Mile Brook is part of the Aquifer Protection Zoning District for drinking water supplies for the Town of Kingston. Much of this Kingston watershed is listed as a Priority Habitat of Rare Species. This river provides habitat for fish, aquatic life and wildlife, and is also used for recreation. These waters have consistently good aesthetic value.

BLUEFISH RIVER (EASTERN GREENBELT)

The three branches located in the Millbrook, Hounds Ditch and Depot Street areas, converge into one stream, the Bluefish River runs behind the St. George Street School Complex and courses through Wright's Dike (a former ice pond for the Wright Estate that was once located on the former High School property). From here, the Bluefish mixes with saltwater from Duxbury Bay and terminates between Long Point and Bumpus Wharf. The River is listed as an anadromous fish run, with a privately owned fish ladder south of Harrison Street. The three headwaters of the Bluefish are located within the Aquifer Protection Zoning District for Duxbury's drinking water supply and much of the river is regarded as Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife.

DUXBURY MARSHES (EASTERN GREENBELT)

The Duxbury Marsh comprises over 1,000 acres in Duxbury and Marshfield. This highly productive marsh serves as both a food source and habitat for shellfish, fish, birds and mammals. Twice daily tides bring nutrients and oxygen to the marsh and remove waste and debris. Despite an annoyance to humans, insects are dependent upon the marsh for food and shelter and are vital to the overall food chain. Duxbury's marshes are identified by the U.S. Fish and Wildlife Service as an important wintering site for diving ducks, Canada goose and Atlantic brant.

Duxbury Bay, accessed by fourteen town landings, supports both hard and soft shell clams, blue mussels, and oysters. Shellfish harvesting is a popular activity; 963 resident and non-resident recreational shellfish permits and 57 commercial permits were sold in FY 2017, generating \$77,315. Over 82 acres of tidal flats are leased for shellfish farming, which provides employment to over 200 individuals over the summer. Boating, swimming, windsurfing, and fishing are very important recreational activities that support local businesses, such as the Duxbury Bay Maritime School, Bayside Marine Corporation and Long Point Marine. Waterfowl hunting is also a popular winter activity as the bay supports mallard, common eider, goldeneye, bufflehead and red breasted merganser.

Protection of the bay and marshlands is vital to wildlife, the economy, and the quality of life that the citizens of Duxbury enjoy. Development is regarded as one of the greatest threats to this system and the U.S. Fish and Wildlife recommends land acquisition and protection. The Conservation Commission is actively acquiring marshland either through tax title or donation. The Duxbury Beach Reservation, Inc. also owns some marshland.

AQUIFER RECHARGE AREAS

Duxbury is entirely dependent on groundwater for its drinking water supply, therefore, preserving and protecting the recharge areas is vital in open space planning. Duxbury's primary aquifer is wholly confined within the town's boundaries. The quality and reliability of our water supply must not be underestimated. An uncontaminated water supply not only enhances our quality of life, it augments the desirability of our town.

Groundwater is derived from a relatively thin stratified drift aquifer underlying the central part of Duxbury and secondary aquifers that are scattered throughout the town. The aquifer is integrally connected with, and flows into and out of lakes, streams, and coastal estuaries. Stressors, such as drought, sewage, and contaminants can affect the entire system.

In 2008 Duxbury retained Whitman & Howard to delineate zones of contribution to the town's wells and later hired IEP, Inc. to develop a comprehensive aquifer protection program. The studies found that the uplands in the northern and western regions of town are comprised of compact drumlin till, which yield little or no water to wells. The principal aquifer in town is supported by stratified drift and underlies most of the low terraces along North Hill Marsh, West Brook, and the swampy lowland areas bordering Island Creek Pond. The zone of contribution underlying the North Hill Marsh is the most productive, supplying eight of the Town's twelve gravel packed wells. Unfortunately, the highly porous soils and the favorable hydraulic characteristics of the stratified drift also make it highly vulnerable to contamination. In 1986 the town established the Aquifer Protection Overlay Districts (APOD) to address the problem of groundwater protection.

Twelve gravel packed wells are in operation. The two Damon Wells and the Birch Street water tank are the newest additions. To ensure supply and redundancy within the system in the event

of contamination, additional land with the potential to support a well field, has been acquired with CPA funds. The Water Department reimbursed the town's CPA fund and gained better control of those parcels.

The Massachusetts Water Management Act limits the amount of water that the town may withdraw from the ground, which is 65 average gallons per day per residential customer. In 2014 Duxbury residents used an average of 80 gallons per capita and the maximum daily demand was 3.4 million gallons. Strict mandatory water restrictions have been issued in 2016 in order to meet the Massachusetts regulations.

As a growing residential community, Duxbury's most obvious measurable contaminant threats are from sewage waste, herbicides, and fertilizers. Accordingly, aquifer studies have focused on minimum lot size requirements to ensure that the groundwater system is capable of diluting nitrates to keep nitrogen concentrations under 10 parts per million. Expansion of pre-existing housing, commercial and municipal structures must also be adequately regulated. High density development on Gurnet Road, Bay Road, and portions of Washington Street in the Bluefish and Snug Harbor areas has necessitated the installation of costly public sewer projects. It is likely that additional shared systems will be constructed.

Protection of the aquifer has been the primary rationale behind open space planning because of the town's dependence on groundwater. Misuse or contamination of this supply will have a direct impact on the residents of Duxbury. Remedial actions are costly and land valuations may slide. Therefore, development within aquifer recharge zones must be well controlled to ensure the quality of our most precious resource.

FLOOD HAZARD AREAS

Some Duxbury residents participate in the National Flood Insurance Program administered by the Federal Emergency Management Agency. Flood hazard areas are depicted as zones A, AO and VE on flood risk maps. The coastal flood zone maps continue to be revised by Federal Emergency Management Agency (FEMA) and the Town has drafted zoning bylaws to address proposed construction in those areas.

The *Sea Level Rise Study* (Kleinfelder, 2013) reports that the towns of Marshfield, Duxbury and Scituate received \$78.3 million flood insurance related claims, or 23% of total Massachusetts claims between 1978-2013. The primary contributions to global sea level rise are thermal expansion as a result of increased sea surface temperatures and the contribution of fresh water from the melting of glacier ice. The primary source of local mean sea level change is attributed to geologic factors that cause vertical land movement due to tectonics (land subsidence or uplift). The projected relative sea level rise values for 2038, 2063 and 2088 are 1.08 feet, 2.80 feet, and 5.16 feet, respectively. The Study notes that sea level rise, combined with the possibility of stronger storms, including greater winds, increasing storm surge and greater amounts of precipitation will potentially increase inundation, flooding and erosion in our coastal areas. The definition of the current 100 year flood plain will change and the current average 100 year base flood elevation of 9.5 feet will rise to 10.58 feet, 12.3 feet, and 14.66 feet for the next 25, 50, and 75 years.

Tidal salt marshes, which are an important ecosystem that provides wildlife habitat, essential elements of the food web, and protection from storm surges, will experience higher tidal ranges as sea levels rise. The survival of the marsh is dependent upon the balance of the vertical growth of the marsh and the forces that cause deterioration. If sedimentation and salt marsh elevations

cannot keep pace with sea level rise then plants will die and the marsh will convert to mudflat or sub tidal open water.

The *Kleinfelder Study* presents a candid forecast for beaches along the town's coastline, including Duxbury Beach, Shipyard Lane Beach and the other smaller beaches and landings. If the beaches are not nourished with sand and increased in elevation there could be partial or complete loss of beach at high tides. The potential for storms to increase in frequency and intensity will further exacerbate the erosion. Duxbury Beach is an important nesting site for least tern, which is listed as "a species of concern" and the piping plover, which is both federally and state listed as "threatened." Rising sea levels could potentially destroy nesting habitat and decrease the fledge rates of these birds. Other coastal birds will lose important tidal salt marsh habitat.

Duxbury Bay supports a thriving commercial and recreational shellfish industry. The major shellfish species include soft-shell clams, quahogs, oysters, mussels, and razor clams. The aquaculture industry is focused primarily on oysters. The possible impacts of rising sea levels and water temperatures include: reduced time to access and work shellfish beds; reduction in optimal growing areas on leased plots; increased exposure to predation; shifts in growth patterns and timing; and increased disease. Rising sea levels that alter tidal salt marshes could change the nutrient levels in the water, which would in turn affect shellfish growth.

The Sea Level Rise Study notes that a number of roads along the coast will be affected by higher tides and storm events, especially at the 75-year scenario. This would include Washington Street in the Snug Harbor area, Powder Point Avenue and King Caesar Road leading to Powder Point, sections of Bay Road, Pine Point Road, Marginal Road, Gurnet Road, the access road to Gurnet and Saquish. The Powder Point Bridge and the Eagles Nest Bridge appear to be above the 75-year flood and storm surge level, however the approach roads to these bridges will be inundated.

The Study reports that many seawalls experience overtopping during coastal storms and, in some instances, they intensify the wave energy as the waves hit them which speeds up erosion. These and other coastal stabilization structures, such as stone revetments, groins and breakwaters, will succumb to more damage as sea levels rise and more over-topping occurs due to storm wave action. Deeper water depths in front of stabilization structures during high tides will increase the force of wave impacts and the frequency of wave energy, causing further erosion of the beach. This has been observed in structures constructed in the 1930s-1950s, where little or no beach is left in front of these seawalls, compared to wide stretches of beach at the time of construction. Increasing the height is not effective, however, raising the structure and recreating a landform in front of the structures to help absorb wave energy is a better solution.

Duxbury Beach, which serves as a major storm control structure for the town, acts as a natural breakwater that prevents ocean waves from reaching the mainland. The Duxbury Beach Reservation, Inc., which owns and leases the beach to the town of Duxbury, maintains an engineered "sacrificial" dune along the entire length of the beach. As sea levels rise and ocean storms have become more frequent and intense, the dune has not proven to be of sufficient height and \$800,000 of repairs were needed in 2013. A \$5 million fundraising campaign is currently underway to raise this natural defense.

Rising sea levels will also cause more flooding of roads and buried utilities, including sewer lines, storm sewer, water, and gas. Electrical, telephone and cable systems are presently pole-mounted on all coastal roadways that are subject to flooding. Nearly all homes and businesses in Duxbury have septic systems, which could be affected by rising sea levels and ground water levels. Septic systems adjacent to the coast could potentially fail and contaminate these areas. Three shared

septic systems, which collect waste and pump it to leaching fields away from the coast, were constructed along Washington Street at the Bluefish River, at Mattakeeset Court in Snug Harbor, and along Bay Road. Rising sea level could potentially affect the power supply to the pumps in these systems.

Flooding is also expected to impact emergency access, especially to areas such as Powder Point and the Duxbury Beach Access Road to Gurnet and Saquish. This is of great concern as this is the emergency evacuation route for the Pilgrim Nuclear Power Plant. A protocol is in place to manage emergency access, however, this will add further strain on public safety departments.

The Sea Level Rise Study suggests that roadways, parking lots and associated underground utilities that are within flood zones could be raised. Existing sea walls could be rebuilt and raised. The possibility of constructing an offshore floating breakwater or other wave attenuation device to absorb wave energy, thereby mitigating the construction of higher sea walls, may warrant further investigation. A home buy-back plan in areas susceptible to sea level rise and storm damage, thus removing the need to construct higher sea walls, could be investigated. The Study also suggests further investigation of a Rolling Easement Program, whereby the town would purchase the rights to a property so that if a home is damaged beyond repair in a storm, it would not be rebuilt. The Study also recommends a study to assess the health of tidal salt marshes and to determine salt marsh restoration strategies. A long-term beach nourishment plan and raising the elevation of the sacrificial dune on Duxbury Beach is also recommended. Obviously, the greatest challenge to these options is the expense and removal of homes from tax rolls, and the uncertainty of their effectiveness.

WETLANDS

Duxbury has nearly 3,000 acres of wetlands, including freshwater ponds and wetlands and saltwater marshes. The magnificent Duxbury marsh, located in the northeastern section of town, is the largest of the wetland areas. Cranberry bogs, which are located inland are one of the most distinctive features in the Duxbury landscape, providing seasonal aesthetic, agricultural, and wetland values to the community (Refer to the Water Resources Map).

VEGETATION

GENERAL INVENTORY

Duxbury possesses an extraordinary variety of habitats; from coastal dunes at its eastern shore to inland forest, freshwater ponds, and cranberry bogs. Duxbury's plant inventory is understandably extensive and diverse. Duxbury is also proud to report that it has received the Tree City USA award for 26 consecutive years.

Duxbury Bay supports one of the most important aquatic resources, eelgrass (*Zostera marina*). Eelgrass grows in mud and muddy sand in estuarine waters that are protected from wave action and can be found in both lower intertidal and sub-tidal areas. The Bay Management Commission Report (2009) emphasizes that the eelgrass beds are significant to the marine environment because they facilitate sediment disposition and water quality, they provide substrate for epiphyte algae and micro-invertebrates, and they serve as a nursery for many species of fish and shellfish. Eelgrass also serves as an important food source for Atlantic brant, black duck, bufflehead and other waterfowl. In 1995 aerial surveys measured 958.4 acres of grass, in 2010-2013 the survey reported an alarming coverage of only 401 acres. The cause for this loss is not fully understood; possible explanations are increased turbidity and reduced light penetration, natural cyclical

changes, disease, and boat props increasing wave action and uprooting the grass. Bay scallop harvesting (reported in the 1954 Duxbury Clipper newspaper as a \$1,000 per day bonanza and drawing the attention of Life Magazine) has disappeared, possibly due to habitat loss.

American beach grass is the predominant dune vegetation and is planted annually by volunteers to protect against wind and water erosion. *Rosa rugosa*, dusty miller, and poison ivy are also common. Two small forested areas on the barrier beach contain red cedar, cherry, pitch pine, beach plum, and bayberry. Japanese knotweed is a vigorous and problematic invasive that is removed annually.

Growing on the large expanse of Duxbury salt marsh is *Spartina patens* (the shorter cordgrass species) and *Spartina alterniflora* (the higher form of cordgrass). Interspersed with the spartina are sea lavender, seaside goldenrod, seaside *gerardia*, sedges and rushes. The tall phragmites is found along the shore where freshwater intrusion or disturbance of the land has changed the water and soil chemistry. Areas in which harbor dredge material was deposited or other disturbance has occurred are often completely covered with phragmites.

Several freshwater ponds, most of them man-made reservoirs for the lumber and cranberry industries, are bordered by pond wildflowers and shrub swamps. Red maple swamps and one white cedar swamp can be seen in inland areas when traveling south on Route 3 between exits 12 and 11. The most visible invasive species is purple loosestrife (*lythrum salicaria*). Of economic, agricultural and aesthetic importance are the cranberry bogs located throughout Duxbury. Their autumnal red berries are a major Massachusetts crop. Despite weakening in the price of cranberries, the industry has contributed significantly to state and local economy.

FOREST LAND

The early settlers cut and cleared the forests for shipbuilding, fuel, and homes. In the late 1800s and early 1900s, the town's landscape changed to open fields that supported farming and livestock. Eventually, agricultural land was allowed to go fallow and consequently much of the forest and any remaining fields have been lost to residential development.

Duxbury's inland forest areas are comprised mainly of two tree species, white pine and red oak. Today's forests are almost entirely second growth trees. The Conservation Commission initiated an aggressive land acquisition campaign in the 1960s and continues to secure land that has important conservation values. The largest uninterrupted blocks of woodland are the North Hill Wildlife Sanctuary (1,000 acres of land and wetlands), Camp Wing Conservation Land (459 acres), the Lansing Bennett Forest (344 acres), which is contiguous with 39 additional acres of the Black Friar Swamp and Swanson Conservation Land, and the Ashdod Forest (316 acres). Invasive plants are becoming a growing concern as they compete with native plants that are beneficial to migrating songbirds. Oriental honeysuckle, Asiatic bittersweet, multiflora rose, and Japanese honeysuckle are among the invasive species.

PUBLIC SHADE TREES

Recognizing the value of shade trees, the town has a Tree Department staffed with both a full-time Tree Warden and Deputy Tree Warden who are certified arborists. The Department is equipped with a bucket truck and undertakes aggressive planting and removal of hazardous material. The Lucy Hathaway Fund is a tremendous asset for the funding of this work. Furthermore, every road in Duxbury is considered a scenic road and removal of large shade trees along these roads requires a public hearing.

RARE, THREATENED AND ENDANGERED SPECIES

The NHESP lists variable sedge (*Carex polymorpha*) as endangered and strigose knotweed (*Persicaria setacea*) as threatened plants.

NHESP BioMap2 denotes Core Habitat as key areas necessary to ensure the long-term persistence of species of conservation concern, exemplary natural communities, and intact ecosystems across the Commonwealth. Critical Natural Landscape is identified as larger landscape areas that are better able to support ecological processes, disturbances, and wide-ranging species. NHESP estimates the Core Habitat in Duxbury covering 2,315 acres and Critical Natural Landscape comprising 4,387 acres. There is much overlap of Core Habitat and Critical Natural Landscape throughout the town, primarily in the entire northwestern area of town, and around water features in North Hill. Core Habitat alone covers much of Duxbury Beach and Bay, Ashdod Forest, North Hill and Waiting Hill.

The most effective way to protect biodiversity is to protect habitats from adverse human impacts. This is accomplished through land conservation, protection of upland buffers, and the protection of streams and ponds and their riparian areas (areas of land adjacent to water bodies).

Duxbury's salt marsh is part of the largest estuarine intertidal marsh between Boston and Cape Cod. The sheer size of the salt marsh community assures an abundance of microhabitats that are important for plants and animals. Given its vulnerability to both natural and anthropogenic forces, protection of this ecosystem is vital.

North Hill Marsh and its surrounds, portions of which are owned by the town and the Massachusetts Audubon Society, encompass forested uplands, scattered wetlands, and vernal pools. It is a significant habitat for the spotted turtle (*Clemmys guttata*), eastern box turtle (*Terrapene carolina*), and great blue heron (*Ardea herodias*). It is also important breeding habitat for forest birds native to the southern New England Coastal Plain. Portions of West Brook, which flows from North Hill Marsh to the Back River Marsh and eventually to Duxbury Bay, were protected from encroaching development with the acquisition of the Jaycox Tree Farm and the Merry property.

Another Core Habitat, which extends into Pembroke, is the South River, its tributaries and surrounding uplands. The Town's purchase of 353 acres of Camp Wing in 1998 and an additional 106 acres in 2008 protected a significant corridor along the South River, including the watershed and habitat of several rare and common plants and animal species. These include the American bittern (*Botaurus lentiginosus*), eastern box turtle, and variable sedge. Further protection of this area will require a coordinated effort between the two communities.

FISHERIES AND WILDLIFE

The marine and terrestrial habitats in and around Duxbury, Kingston and Plymouth Bays support some of the State's most important wildlife and fisheries. The ecological value of the region has been generally well understood in Duxbury, however it is imperative that its citizens be reminded of these values and engage in activities or educational programs that heighten awareness and hopefully develop more of a commitment to resource protection

MARINE FISHERIES

Management and protection of the bay, salt marsh, tidal flats, beach and brackish tidal marsh pose a challenge, yet this is critical in order to protect the biodiversity and marine fisheries in our region.

Shellfishing has both commercial and recreational value in Duxbury; harvest species include soft shell clams (*Mya arenaria*), quahogs (*Mercenaria mercenaria*), mussels (*Mytilus edulis*), razor clams (*Ensis directus*), sea clams (*Spisula solidissima*), and oysters (*Crassostrea virginica*). In fiscal year 2017, 963 residential and non-residential shellfish permits and 57 commercial permits were granted, generating \$77,315; an increase of \$4,789 from the prior year. Recreational harvesting of soft-shell clams is often extended past the traditional limits of April-May and September-October seasons.

Quahogs have become another important shellfish, a result of transplanting and seeding. The recreational harvest of quahogs has consistently exceeded that of soft shell clams.

Blue mussel, once eradicated in Duxbury Bay, became highly popular and sizable harvests were enjoyed from the early seventies to early eighties. Unfortunately, in 1985, a hurricane and hard freeze destroyed most of the mussels and the industry took a tailspin.

Historically, razor clams were harvested primarily for bait. They eventually became a popular food in the domestic Asian market and have now gained favor in other markets.

Eighty-two acres of leased tidal flats or 1.5% of 5,563 acres of Duxbury Bay and the Duxbury portion of Kingston Bay support shellfish farming. The leaseholders must be Duxbury residents, who in turn hire high school and college students. Grant sites are scattered throughout the Bay in areas that avoid near shore shellfish beds, navigation channels and eelgrass beds. The industry has proven to be very successful and Duxbury oysters are shipped throughout the U.S. and Asia. Annual oyster festivals have been very popular, often serving as fundraisers for academic scholarships and sustainable aquaculture in other countries.

Balancing recreational demands, residential and commercial development, and shellfish farming called for the development of a sound management plan. The Duxbury Aquaculture Management Plan, which was adopted by the Selectmen in 2009, outlines the economic and environmental aspects of the shellfish aquaculture industry. Some of the benefits listed in the Plan are as follows:

Economic

- Local residents are employed year round
- Economic multipliers for shellfish aquaculture have been estimated by state agencies range between 4.5 and 7.0 in Massachusetts
- Shellfish farming contributes to local businesses

Environmental

- Clearance of suspended particles from the water column creates conditions conducive to eelgrass survival
- Removal of organic matter from the water column and denitrification; which limits and/or reverses the undesirable effects of nutrient enrichment in shallow coastal embayments
- Increased structure (from the farming of shellfish) in normally featureless muddy bottoms has also been shown to support more diverse food webs and provides habitat for juvenile crustaceans and fishes

Community Infrastructure

- A strong commercial presence increases the opportunity for state and federal funding for projects such as dredging (recently completed in January 2016) of the federal entrance, channel, and basin

Environmental Monitoring

- Shellfish growers have been participating in water quality monitoring in association with the Southeastern Massachusetts Aquaculture Center and the Jones River Marine Ecology Center
- The Duxbury Shellfish Growers Association were awarded grants to deploy water quality sensors to aid in shellfish disease forecasting efforts and overall water condition assessments

Recreational

- Shellfish growers have been working with the Harbormaster to develop a recreational oyster fishery that will provide revenue to the town

Numerous scientific studies provide supporting evidence that estuarine systems along developed shorelines are healthier. Increased shellfish abundance and the introduction and enhancement of shellfish populations mitigate the undesirable effects of nutrient enrichment (i.e. fertilizers and sewage) and habitat loss. It was noted that aquaculture structures have the added benefit of providing shelter in formerly unproductive areas for immature lobsters, eels and finfish.

The health of the bay is of primary importance to the shellfish growers and the Plan recommends the continued support and development of a water quality monitoring and assessment program in coordination with a number of outside entities such as MA Division of Marine Fisheries, MA Department of Environmental Protection, UMASS, Center for Coastal Studies, and Jones River Ecology Program. The monitoring of shellfish diseases should also be conducted and a long-term project to determine the carrying capacity of the bay would be beneficial.

Public safety, resource protection and the security of public and private property are of highest priority with regard to the bay. The Duxbury Bay Management Commission recommends enhancement of public awareness with a guide that indicates public access areas; describes aquaculture lease areas, practices and laws; and delineates areas of caution, i.e. shallow waters, eelgrass beds, aquaculture lease areas, and high traffic zones. The Commission also endorses improving boater education of these areas.

Duxbury Bay also supports significant fin fishing. Important commercial and recreational species include striped bass, bluefish, tautog and fluke. A few fin fish charter boats operate from the harbor.

The MA Division of Marine Fisheries listed three rivers as fish runs for anadromous fish in 2004: Island Creek, Bluefish River and West Brook. In 2004 and 2006, Duxbury voters supported a project to restore the Island Creek Herring Run and appropriated \$105,000 from CPA funds. This project was developed through a partnership of the Conservation Commission, Duxbury Bay Management Study Committee, DPW, Massachusetts Division of Marine Fisheries, U.S. Fish and Wildlife, the Corporate Wetlands Restoration Project, Battelle Memorial Institute, Fish America Foundation, The Gulf of Maine Council, and the Duxbury Bay Maritime School. It included the reconstruction of fish ladders to enable herring to pass from Kingston Bay, through Island Creek, up to Mill Pond, and eventually into Island Creek Pond. The goal is to restore an historic alewife and rainbow smelt fish run and provide an educational and recreational resource for the community. Annual fish counts are undertaken by volunteers.

The Massachusetts Division of Marine Fisheries oversees regular sampling of Duxbury Bay water for fecal coliform bacteria and the Massachusetts Department of Health tests the water quality of public beaches. Red tide (*alexandrium*) can be a problem, especially to shellfish farmers and recreational harvesters, during periods of heavy rain and northeast winds.

Water quality has improved in the Bluefish River and along Snug Harbor due to the installation of shared septic systems that removes waste from the shoreline. Shellfish harvesting is conditional in the Bluefish River and the upper river continues to have water quality problems. The possible sources of pollution may be road runoff; herbicide/pesticide runoff from the Duxbury Yacht Club Course, and waterfowl feces. The Bayside Marine area was closed in 1994 to shellfishing and is not expected to be reopened despite improved storm drains.

Kingston Bay was closed for decades due to the discharge of untreated sewage from Plymouth and from houses along the bay. Water quality improved as more than 350 houses were connected to a new wastewater system in Kingston, and Duxbury installed a shared system along Bay Road. Improvements in Plymouth's wastewater treatment have also eliminated significant quantities of untreated sewage from entering the bay. In 2003 restrictions on shellfishing in Kingston Bay were eased and an area was reclassified as conditionally approved.

In FY 2015 the Massachusetts Office of Coastal Zone Management awarded its 11th grant to the Conservation Commission for the stormwater runoff mitigation project in the Halls Corner area. Totalling more than one million dollars, this will reduce pollution entering the bay and hopefully open additional shellfish beds for harvesting and eliminate closure of swimming areas.

WILDLIFE

Duxbury's extensive and often interconnected forest habitat provides important feeding and nesting areas for a variety of wildlife. Opossum, skunk, raccoon, fox, rabbit, deer and coyote are commonly found in the fields and woodlands. Wetland areas support otter, mink, fisher, muskrat and beaver, black duck, wood duck, mallards, and swans. Some streams and ponds provide fishing opportunities for brown and brook trout, white perch, pickerel and black bass. The eastern box turtle (Species of Concern) has been recorded at a number of locations in woodlands, near streams and wetlands, in marshy meadows and pastures, and in cranberry bog swales and bracken fern thickets. The few remaining fields and edge zones support ruffed grouse, eastern bluebird, turkey, bobolink, red-tailed hawk, pheasant and great horned owl.

Bird watching is a popular pastime for many Duxbury residents. A weekly column in the Duxbury Clipper newspaper, reports on winter bird populations, seasonal sightings, arrival of songbirds in the spring, activity of birds of prey, and annual migrations of coastal waterbirds. In any given year bird sightings continue to be numerous and extensive. During the summer, Massachusetts Audubon Society conducts natural history programs at Duxbury Beach for children and adults. The programs are funded by the Beach Reservation, Inc. Audubon also works with the Duxbury Conservation Department, erecting nesting platforms for Osprey and banding chicks.

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) has proclaimed Duxbury Beach, its adjacent salt marsh, flats and shallow bay a "High Priority Site for Protection" of piping plovers (federally and state listed as "Threatened,") least terns (Species of Concern) and Arctic terns (Species of Concern). All three species nest on Duxbury Beach and protection of these birds is under the coordinated oversight of the Conservation Commission and the Harbormaster. In the 2014 season 26 nesting pairs of piping plovers were reported, up from 9 pair in the prior season and 10 pair in the 2012 season. Twenty-four (24) chicks fledged; a fledge rate of .92 chicks per nesting pair. There were more nests lost in 2014 than 2013 due to abandonment, depredation, and over-wash. One nest was destroyed when an individual ventured into the fenced off area. The count of least tern pairs in 2014 was 57 pairs, down from 133 pairs in 2013 and 217 pairs in 2012. Productivity was extremely low due to predation, primarily by coyotes, and disturbance from people going into fenced areas. The bay and its extensive marsh also provides habitat to other nesting coastal waterbirds and resting and feeding grounds for migratory birds, such as black duck (*anas rubripes*), common eider (*somateria mollissima*), goldeneye (*bucephala clangula*), bufflehead (*bucephala albeola*), red breasted merganser (*mergus serrator*), and snowy owls (*nyctea scandiaca*). The monarch butterfly (*danaus plexippus*) frequents this area on its migratory flight from Canada to Mexico.

Duxbury's extensive sand and mud flats provide excellent feeding habitat and also acts as an important resting and foraging site for southward migrating shorebirds, particularly from mid-July through October. At high tide shorebirds must depend upon undisturbed portions of Duxbury Beach and the salt marsh to feed and rest; it is imperative that they be protected from pedestrians, off road vehicles, boats, and dogs.

Migratory birds that are heading toward breeding sites feed on enormous quantities of horseshoe crab (*Limulus polyphemus*) eggs deposited on the flats during May and June. Declines in the horseshoe crab population resulted in regulations [322(CMR) 6.34 Horseshoe Crab Management] to reduce the number of crabs taken for bait and harvested for medical purposes (horseshoe crab blood contains amebocytes which release a protein when bacterial endotoxin is encountered in

medical laboratories), and disallow harvest during spawning periods. The red knot Sandpiper (*calidris canutus*), one of many shorebirds that feeds on horseshoe crab eggs in Duxbury, migrates from its winter habitat on the southern tip of South America to the Canadian tundra for breeding in the summer. This bird was just listed in January 2015 as “Threatened,” and its precipitous decline in recent years is attributed to overfishing of the horseshoe crab and climate change. Massachusetts Division of Marine Fisheries will continue to monitor the crab populations to determine effectiveness of the regulations.

NHESP lists the following animals as Endangered, Threatened, Species of Concern, and SWAP (an acronym for State Wildlife Action Plan, species most in need of conservation):

Birds

American Bittern (*Botaurus lentiginosus*) E
Piping Plover (*Charadrius melodus*) T
Roseate Tern (*Sterna dougallii*) E
Common Tern (*Sterna hirundo*) SC
Arctic Tern (*Sterna paradise*) SC
Least Tern (*Sternula antillarum*) SC
Red Knot (*Calidris canutus*) T
Sanderling (*Calidris alba*) Non-listed SWAP
Short-billed Dowitcher (*Limnodromus griseus*) Non-listed SWAP

Insects

Mocha Emerald Dragonfly (*Somatochlora linearis*) SC

Reptiles

Eastern Box Turtle (*Terrapene carolina*) SC
Eastern Hognose Snake (*Heterodon platirhinos*) Non-listed SWAP
Eastern Ribbon Snake (*Thamnophis sauritus*) Non-listed SWAP
Spotted Turtle (*Clemmys guttata*) Non-listed SWAP

WILDLIFE MIGRATION CORRIDORS

Duxbury’s contiguous forested areas, its six watersheds, and associated upland serve as corridors for wildlife in search of food, mates, and spawning grounds. The South River, its tributaries and uplands, are cited by the Massachusetts Division of Fisheries and Wildlife as one of these important corridors. Housing and commercial developments and roadways (especially highways) fragment this habit. The Duxbury Conservation Commission considers the protection of these corridors as a high priority.

Duxbury Beach and Duxbury Bay, with its tidal flats and marshes, constitute significant migratory areas. They provide nesting, feeding and resting areas for many species of migratory birds and waterfowl on the Eastern Flyway. Designated by Massachusetts Audubon as an “Important Bird Area,” Duxbury, Plymouth and Kingston Bays are considered one of the Commonwealth’s largest natural embayments. These bays once supported one of the largest tern colonies in New England and they continue to support a sizable population of the Commonwealth’s wintering black ducks, as well as a large number of brant, bufflehead and mergansers which feed on the small shellfish, shrimp, crabs, fish eggs, and eelgrass.

WILDLIFE PROTECTION

The town relies on data from NHESP and the Massachusetts Department of Fisheries and Wildlife. The Bio Maps are useful tools for targeting areas that should be protected and they are an invaluable reference for board and committee hearings and at the annual town meeting when gaining approval for land protection.

In the 1970s, the Conservation Commission, under Chairman Dr. Lansing H. Bennett, created the Duxbury Greenbelt Land Protection Plan. The Plan was intended to protect surface water, groundwater and wildlife corridors that generally follow streams and rivers. Much of the town's currently owned open space was acquired during this period. In the late 1990s, the land protection program was reactivated and since then 1,000 acres, including cranberry bogs and farmland has been protected. Strategies for land protection have included acquisition, conservation restrictions, and public/private partnerships with the Wildlands Trust, state and federal agencies, and private donors.

At the 2005 Annual Town Meeting, the Duxbury Bay Management Commission was established. The Commission is charged with collecting and tracking data relative to the condition of the bay and to provide a basis for regulatory and management decisions, and to resolve conflicts between bay resources and uses of the bay. The Commission drafted the 2009 Duxbury Aquaculture Management Plan and the 2009 Duxbury Bay Management Plan.

SCENIC RESOURCES

SCENIC LANDSCAPES

New England coastal towns are known worldwide for their scenic qualities. Duxbury is among the many South Shore towns that values historic buildings, coastal character, and scenic roadside views (refer to the Unique Features Map). Water views of Kingston and Duxbury Bays are visible from many local streets, particularly Standish, Marshall, Crescent, Washington, St. George, and King Caesar. Many other smaller residential roads that connect to these feeder streets also offer exceptional harbor views. Mattakeesett Court, which leads to the Town Pier, offers views of the boat basin and lively harbor activity. Rewarding vistas of cranberry bogs are available from Route 14 and Temple and High Streets. Freshwater ponds and adjacent swamps can be seen from Tobey Garden Street and Route 3. Bay Farm Field, an open meadow owned by the town, is in full view from the Duxbury-Kingston Town line. From the top of the Myles Standish Monument on Captain's Hill one can occasionally see the Pilgrim Monument in Provincetown, 17 miles to the east. Mariners traveling along the Massachusetts coast use the monument as a navigational guide. Recurring roadside views of farmhouses, cranberry bogs, harbors, salt marshes, boats on their moorings, historic houses, shellfish farmers working on the tidal flats, and rowing shells skimming the water are among the attractions that draw tourists to Duxbury throughout the warmer seasons.

At the 2002 Annual Town Meeting, voters established a Pier Access and Shoreline Study Committee to address pier regulations along Duxbury's waterfront. Among their recommendations was the designation of Waterfront Scenic Areas. The recommendations, as amended by the Town Meeting, were incorporated into the Town Zoning Bylaws (refer to the Zoning Map). In 2012 the voters approved the acquisition of the Blairhaven retreat center, a five-acre parcel adjacent to Howlands Landing on Standish Shore. As more private landowners erect

barriers to the views of the surrounding bays, this property now affords access and viewscapes in perpetuity.

ARCHEOLOGICAL AND GEOLOGICAL FEATURES

The Massachusetts Historical Commission cites thirty-three recorded Native American sites in Duxbury and three archeological sites. Many are situated on protected or semi-protected land and are less vulnerable to development. At Bay Farm, a town-owned property, a Native American site exists near the banks of the Jones River. Other Native American sites have been reported in the North Hill and Millbrook areas and it is not unusual to find an arrowhead in town.

The foundation of the original John Alden House, located on the Alden Elementary School property, was the site of an archeological dig in the 1950s. Resulting research yielded valuable information about the present Alden House, which recently received National Historic Landmark Status. The Myles Standish Cellar Hole property on Standish Shore has attracted much interest from historians researching Mayflower descendants. In 2015 the Duxbury Historical Commission requested CPA funding to apply for its listing on the National Register of Historic Places. Throughout town there are historic mill sites along steam banks and tidal rivers where waterpower was used to grind grain, saw lumber and irrigate cranberries. The former Tide Grist Mill was located off Washington Street at the Bluefish River. The site of Howland's Mill and the remains of a former trout farm are still standing in the Lansing Bennett Forest on Union Bridge. The stream was recently cleared of the fallen rocks, finally allowing passage of trout. CPA funds were used to acquire Camp Wing land along with the former Keene Mill Site, which was used for the construction of cranberry boxes. Restoration of the mill foundation is currently underway.

The Duxbury Rural & Historical Society organized an important archeological dig at the 1634 Brewster Homestead. Volunteers participated in the dig and a catalog of findings was published. CPA funding enabled ground penetrating radar in the search for the town's First Meeting House at the Myles Standish Graveyard and the creation of the Duxbury Online Historic Archives.

The Duxbury Historical Commission is charged with identifying the town's historic resources such as archeological sites, planning for their protection, and implementing protective procedures. The Commission has identified over one hundred and thirty historical properties and is continuing an historic survey using CPA funds. The Shipbuilder's District was recently mapped and signage is posted along Washington and St. George Streets, and Powder Point Avenue (Refer to the Shipbuilders District Map). The Commission also administers the Duxbury Demolition Delay Bylaw, which allow a six-month delay before demolition of historically significant structures is allowed.

Geological sites include cranberry bogs, many of which were originally peat bogs and kettle holes. The bogs were cleared and leveled, sand was added and cranberry vines were planted. Kettle holes, because of their protective slopes from high winds, were once used to grow timber for the masts of sailing ships. Drumlins and eskers can be found throughout a number of conservation lands.

Duxbury beach is one of several Massachusetts glacial outwash barrier beaches that began forming during the last Ice Age, known as the Wisconsin. On the Duxbury-Marshfield line is a small circular hill of glacial drift, or kame. High Pines consists of glacial till deposited 15,000 to 20,000 years ago, and Gurnet Point to the south, is an elongated hill of glacial till.

CULTURAL AND HISTORIC AREAS

People are drawn to Duxbury for its cultural and historic resources (Refer to the Historic and Cultural Sites Map). The town provides many unique cultural opportunities. The Art Complex Museum, built and endowed by the Weyerhaeuser family, features rotating art exhibits and houses an extensive research library and a Japanese Tea House and garden. The Duxbury Free Library, moved to a new building in 2000, has an extensive collection of books and documents on Duxbury history. The library also contains the Helen Bumpus Art Gallery. The Ellison Center for the Arts offers a variety of art classes and hosts a number of art shows that attract artists throughout New England. The South Shore Conservatory of Music offers music and ballet lessons, and performances are held throughout the year.

The Duxbury Performing Art Center, which is within the St. George St. school campus, seats over 1,000 people. It provides modern facilities for town meetings, theatrical productions and concerts. The two-week summer music festival, sponsored by the South Shore Conservatory, draws instructors and musicians from around the world. Concerts are given at different locations, some are free and others charge for a gala fundraising event.

The Duxbury Cultural Council provides funding for programs in the arts, sciences and humanities. Their goal is to fund programs that serve all ages and enrich varied interests. For FY 2015 they have provided funding for the Choral Art Society of the South Shore, The Duxbury High School Theatre, The Duxbury Student Union Girls and Boys Empowerment Program, the Duxbury Free Library Drum to the Beat Program, the Murder Mystery Dinner Theatre of the Friends of the Duxbury Senior Center, the Japanese Tea Ceremony at the Duxbury Art Complex, and the Snug Harbor Community Chorus. They have also provided some funding for cultural programs in other communities. The Japanese Tea Ceremony was given the Gold Star Award by the Massachusetts Cultural Council in 2006.

Native Americans used well-traveled trails for hunting and traveling from inland winter camps to summer camps on the shore. The European settlers found these to be convenient routes for traveling along the shoreline. The Green Harbor Path (1623) was used by the Pilgrims to travel from Plymouth to Green Harbor in Marshfield. The Path entered Duxbury at the Jones River near the present railroad bridge, travelled through Stoney Brook Hill in Kingston and approached Island Creek where Bennett's Store now stands. It continued north of the Mill Pond, by Soule's Bear on Mayflower Street, through the Town Forest, on to Cox's Corner and Careswell Street, and finally to Green Harbor. Sections of this trail can still be enjoyed through the Town Forest.

Duxbury's rich historic heritage stretches back nearly four centuries to the time of the Plymouth Colony. Sites reflecting this period include the John Alden House; the Alden and Myles Standish cellar holes; the gravesites of John and Priscilla Alden, Elder Brewster, Myles Standish, and other notable figures; and the Elder Brewster lilacs that were said to have arrived on the Mayflower.

The Duxbury Rural & Historical Society was formed in 1883 to "improve and ornament" the town in response to the deteriorating condition of the community as a result of the collapse of the shipbuilding industry. Trees were planted, street lamps installed, and fences and signs were erected. The Society became one of the first, possibly the first, organization in the country to acquire land for conservation. The Society owns and maintains the King Caesar House, built in 1809, as a museum. The 1808 Capt. Gershom Bradford House was given to the Society and serves as a museum in the summer months. The 2015 annual town meeting approved the expenditure of \$23,900 of CPA funds for a condition and structural assessment of the Museum so that it may better serve as center for learning and exploration into the 19th century. The

Nathaniel Winsor, Jr. House, built in 1807, was acquired in 2001 and restored with donated time and money, and craftsmen and artisans contributed their skills. The Massachusetts Historical Commission honored this accomplishment with the prestigious Preservation Award. This acquisition sparked renewed interest in historic lectures series, new exhibits, social gatherings at its historic homes, the annual Clark's Island picnic, and recently the annual croquet tournament. The Society also maintains the Drew Archival Library, which contains a collection of historic documents and photographs, located in the 1909 Wright Building. As the archival holdings continue to grow the Society is ensuring that standards for collections management and museum interpretation are met. All four of these buildings are listed on the National Register of Historic Places.

In 2005 Town Meeting appropriated nearly \$3 million of CPA funds for reconstructing and rehabilitating the historic Wright Building which houses the Drew Archives. Designed by esteemed architect Joseph Everett Chandler in 1907 as a public library, the Wright Building is among the most architecturally significant structures in Duxbury. The Building also houses the Duxbury Student Union for students in grades 6 through 12.

Several former one-room school houses have been restored by private owners. The Capt. Cushman House, once owned by the Wildlands Trust, is now a private residence, however, the Trust maintains the nearby field as a preserve. The Trust's collection of Capt. Cushman's memorabilia is on loan to the Duxbury Rural & Historical Society for the public to enjoy. The Alden House (c. 1672) is owned and maintained as a museum by the Alden Kindred of America, Inc. and recently received National Historic Landmark status. The Cable House, privately owned, was the site of the first transcontinental cable connecting Duxbury to Brest, France in 1869.

CPA funds were used to restore the roof and wharf of the King Caesar House, the Alden House windows, the historic First Parish church windows (built 1840, listed on National Register Historic Places), historic gravestones at the Mayflower and Standish Burial Grounds, the Nathaniel Winsor, Jr. House chimneys, and to stabilize the foundation of the Isaac Keene Barn (c. 1870).

Restoration of the 1906 Bluefish River Firehouse was accomplished with generous donations of materials and funds, volunteer labor, and CPA money. In 2005, the Duxbury Historical Commission spearheaded the restoration project of the Tarkiln Building, which housed two one-room schoolhouses dating from 1871. CPA funds, donations and many hours of volunteer labor brought this building back to use as a community center. Plymouth and neighboring towns, including Duxbury, are preparing for the 400th anniversary of the landing of the Pilgrims and their relationship with the Wampanoag tribe. The Duxbury Selectmen recently appointed a committee in preparation for this important event.

ENVIRONMENTAL PROBLEMS AND STATISTICS

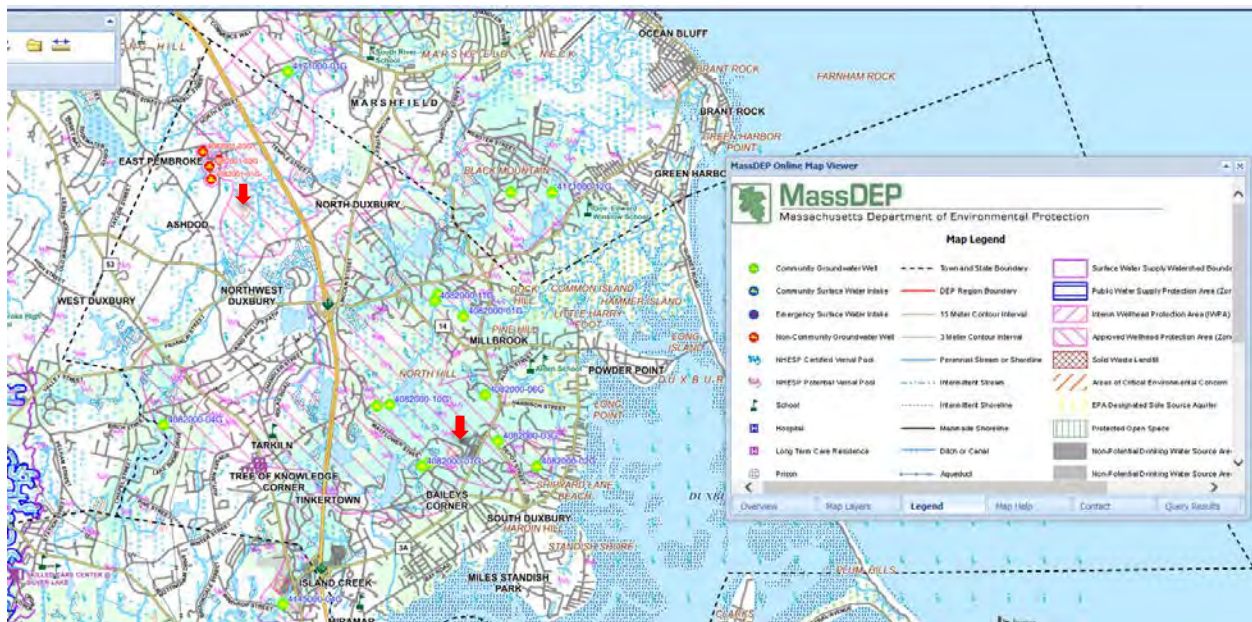
In the 1960s the Duxbury Conservation Commission recognized the threat of uncontrolled development to the environment and to the taxpayers. Greenbelts were planned along watercourses: the Eastern Greenbelt running from the Great Marsh to Island Creek, the Western Greenbelt stretching from the South River and Witton Woods to Chandler's Pond, and the Central Greenbelt connecting these two areas. Salt marshes, cranberry bogs, and reservoirs were targeted for protection and a new town forest was created in an area that was facing increasing pressure from development. Greenbelts also serve to control the development of houses and septic systems in areas with drainage problems. The greenbelts provide the framework for land

acquisition and resource protection; allowing environmental equity throughout the town, however, as was predicted nearly a half of a century ago, as there is less developable land there is more pressure to develop marginal Land.

HAZARDOUS WASTE SITES

Duxbury is fortunate to have been spared significant environmental problems. There are no hazardous waste disposal sites in the community. The former landfill (formerly known as the Town Dump), a twelve-acre site on Mayflower St., was closed and capped in 1976 and replaced with a transfer station. Three acres of the site are used for solar power generation (700,000 kWh). Two former private landfill sites (see red arrows on map below), the McNeil Dump for demolition debris and a regional stump dump on Keene Street are no longer in operation. The McNeil Dump is within Zone II of an Aquifer Protection Overlay District and needs to be capped. The Keene Street site needs to have the stumps removed or the site capped. There are documented 21E sites that have all been cleaned up to required standards.

The Duxbury Transfer Station is adjacent to the McNeil Dump, and has drop off for household trash, separated construction debris, brush, and recyclables. There is an area for paint collection, a “take it or leave it” area for household items, and a book swap shack. Hazardous waste collection occurs bimonthly and appliances, used tires, batteries and oil are received.



GROUND AND SURFACE WATER POLLUTION

The distribution of water and disposal of sewage have influenced the town’s development. Most properties are served by individual onsite sewage disposal systems. A small section of Duxbury is sewered and several areas are served by small shared disposal systems. The shared systems are on Washington Street in the Snug Harbor and Bluefish River areas. Waste is pumped away from the bay to leaching facilities under the Duxbury Yacht Club property on Harrison Street and the Duxbury School Complex. A third shared sewage disposal system serves thirty residences

on Bay Road and the leaching field is located at Wadsworth Field, away from the bay. Residences on Gurnet Road on the north end of Duxbury Beach are connected to Marshfield's sewerage treatment plant.

Given that most homes have septic systems, there is a great concern that sizable residential subdivisions will impact the drinking water supplies. Septic systems encroaching upon the zones of contribution to municipal wells are a threat as they can discharge nitrogen, phosphates and other undesirable chemicals into the groundwater. Duxbury's wetland regulations for the siting of septic systems exceeds the Commonwealth's regulations, however, mounded septic systems have been recently approved by the Duxbury Board of Health. This may require further review by the Conservation Commission.

The Water Department and Conservation Commission have worked together to acquire land that supports well sites and zones of contribution, thus providing redundancy in the system. CPA funds and Water Department revenue are often used for this purpose. In years past the presence of MBTE, a gasoline additive, was discovered in one well and forced a shutdown of that site.

Stormwater management systems were installed along Bay Road to reduce runoff contamination from Hall's Corner to the Nook and Kingston Bay. This was made possible with State grants. The Duxbury Bay Maritime School also installed a state of the art stormwater management system at Snug Harbor. Management of stormwater is critical given that the bay supports a sizable aquaculture industry and recreation to the Town.

FORESTRY

Generally speaking, there is no known challenge to forestry management and no broad disease issue in the Town for the trees that make up the forested layer. Active land management of open space is undertaken through the Conservation Department, as well as coordinated efforts with the Department of Public Works Tree Warden to avoid introduction of invasive species, remove diseased trees, and keep debris clear of trails. Some Chapter 61 lands are actively managed forest areas. A close eye is kept on tree health throughout the year and after significant storms which can lead to downed trees and limbs. Invasive species management for Oriental honeysuckle, Asiatic bittersweet, multiflora rose, and Japanese honeysuckle is ongoing.

FLOODING AND SEA LEVEL RISE

Flooding in the coastal areas of town is a recurring problem and is becoming more of a concern with rising sea levels. Higher risk areas in the FEMA Flood Risk Map lower areas along the bay are typically flooded during high lunar tides and major storm events. These zones include lowlands adjacent to the Bluefish River and Gurnet Road and along King Caesar Road, and they are becoming chronic problems. The Town is investigating opportunities to plan long-term improvements to infrastructure or alternatives and solutions to managing these issues.

Duxbury Beach serves as a protective barrier for Duxbury, Kingston and Plymouth Bays. The northerly section of the barrier is heavily populated with 300 homes that are subjected to property damage during significant coastal storms, and are protected by an aging sea wall which has lasted long past its designed life. To the south, the undeveloped barrier repeatedly suffers extensive damage to the dune structure. In the 1990s the beach was heavily damaged by two major storms, seriously threatening Duxbury Bay and a sacrificial dune had to be constructed. Again, in 2013

the beach was slammed by another storm that incurred nearly a million dollars in damages. The Beach Reservation, Inc. is undertaking a \$5 million fundraising campaign to elevate the height of the sacrificial dune.

Planning for climate change will be an important challenge for Duxbury as well as the entire Commonwealth. As reported in the 2013 Kleinfelder Sea Level Rise Study, Duxbury, Marshfield and Scituate are particularly vulnerable to sea level rise due to geography. Further study on coastal and inland flooding are needed, including an assessment as to how this will impact private and public property, infrastructure, forests, beaches, wildlife, agriculture and fisheries. All of these factors play a critical role in the economy of the Town. A regional approach may be more efficient and cost effective. Further discussion on this topic is addressed in the Analysis of Needs section.

EROSION

Other than temporary sedimentation from construction, there are no chronic areas of erosion. This is due to the relatively level topography of the town. One constant sedimentation problem is that of air borne sand from the barrier beach blowing into Duxbury Bay. This is one source of material accumulation that necessitates recurring dredging of the harbor and channels.

ENVIRONMENTAL EQUITY

Land owned and managed by the Town for conservation and open space is located throughout the town. There are no environmental justice communities in or within a one-mile radius of the Town. Access to the ocean and to fresh water is maintained for fishing, walking, horseback riding, off-road non-motorized bicycling, limited hunting, recreational boating, and picnicking. Parking is deemed to be adequate at the trail heads and is located at varying locations around various points on larger land areas to make access easy to areas suited for these activities. Ballfields, courts and active recreational facilities are centrally located at Tarklin Community Center and the school campus, as well as other active parks scattered along major routes in the town.

There is a demand for more walking access on streets and for the elderly. The town is exploring provisions for a walking loop that could set an example for the community of this type of walkway, to help kick off the conversation, and in the Comprehensive Planning process will be seeking more input on where these walkable areas should be located. Additionally, safe bicycle access throughout town has been described as a desired commodity in the *Envision Duxbury* comprehensive planning process, and will be addressed through that plan.

5 - INVENTORY Of Lands

OF CONSERVATION & RECREATIONAL INTEREST

Alarmed by the rate of development and concern for the character of Duxbury, the 1970 Town Meeting unanimously voted a “Commitment to Conservation”. Land acquisition and resource protection was set in motion and remains an important responsibility to this day. But the challenges continue, as they do throughout the region. Land that had been farmed or consisted of a larger tract with a single family home has, over time, in many cases transformed into subdivisions or has changed hands. Development in remaining marginal areas threatens natural resources, such as the town’s aquifer, wetlands and scenic vistas. Older homes which had made up the landscape of structures are being torn down for more modern structures or because of structural problems related to age, building code and maintenance issues, and approximately 3 significant historic structures are lost annually. Luckily land values remain high enough that these older structures are transformed rather than left in unkempt condition. There is some interest in allowing conversions of older structures into age-restricted or community housing, while preserving the integrity of the historic structure. The Town must also address climate change and sea level rise and possibly consider some options such as taking land out of development and strengthening zoning regulations.

Open Space in Duxbury is owned by many government and non-government agencies (refer to the Open Space Map). The inventory is divided into five broad categories: Non-profit land, Town-owned land not permanently protected, Town-owned land permanently protected, Land permanently protected with Conservation Restrictions, and Chapter 61 land. Permanently protected land includes 642.89 acres protected with Conservation Restrictions, 122 acres protected with an Agricultural Preservation Restriction and land owned by the Duxbury Conservation Commission and the Duxbury Water Department. All other land that is currently serving as open space but is not permanently protected is vulnerable to change in use.

The groups owning land listed in the inventory have provided the Town of Duxbury with open space for many years. The Massachusetts Department of Conservation and Recreation owns and manages the Myles Standish Reservation, a state park with a granite tower topped with a large statue of Myles Standish facing seaward. The monument and its 26.68 acres of wooded open space are located at the top of Captain’s Hill. On a clear day the monument is visible from Provincetown, 19 miles to the east. The monument is often used as a navigational mark for local boaters. The first organization to work for land preservation in Duxbury was the Duxbury Rural and Historical Society. As early as the 1880s, the Society began to acquire land for preservation. In 1919, the Duxbury Beach Association acquired Duxbury Beach, a six mile long barrier beach which creates Duxbury Bay on its landward side. In 1975, the title to the Beach was transferred to the Duxbury Beach Reservation, Inc. in order to preserve the beach as a geological barrier, wildlife habitat, and recreational resource consistent with the Corporation’s primary ecological objective. In the 1960s and 1970s, the Duxbury Conservation Commission, under the leadership of Dr. Lansing Bennett, acquired over 2000 acres of land which is under the control of the Conservation Commission today. In 1974, Massachusetts Audubon Society acquired the North Hill Wildlife Sanctuary and finally, the Wildlands Trust also began acquiring open space in

Duxbury in the 1980s. All of these public and non-profit organizations are included in the inventory as owners of Duxbury open space.

The Town of Duxbury currently has 3,184 acres of land under the control of the Conservation Commission. Land that is not under the control of the Conservation Commission, but is permanently protected with Conservation Restrictions totals 183 acres. The Water Department controls 237 acres of land. Conservation Restrictions are approved by the Massachusetts Secretary of Energy and Environmental Affairs and are recorded in the Plymouth County Registry of Deeds. Conservation Restrictions are also required of all land funded with Community Preservation Act funds.

Duxbury is fortunate to have many high quality town owned recreation facilities, including a nine-hole golf course and the recently updated Percy Walker indoor swimming pool. The town's tennis courts and playing fields, including a School Department turf field, are well maintained and heavily used. During the summer months, Duxbury's boat ramps, town landings, neighborhood beaches and Duxbury Beach are enjoyed by local residents and out of town visitors alike. Two non-profit organizations, the Duxbury Bay Maritime School, a community boating facility, and the Duxbury Yacht Club, members only, offer many recreational opportunities, including sailing, power boating, rowing, stand up paddle boarding, kayaking and marine ecology. Also, many private companies are associated with maritime recreation - local boatyards and marinas, launch services and charter fishing boats.

Duxbury Assessors' maps, recently updated and renumbered, utilize a unique numbering system which identifies the map, parcel and owner with a nine-digit number. For example, a lot numbered 036-502-006 would be located on map 036, be owned by the Conservation Commission ("502") and be parcel 006. Each town department is assigned a "500" number and each non-profit is assigned a "400" number. This method enables Assessor map users to quickly determine private or public ownership and which department or organization is the owner. The Parcel ID (PID) and the Parcel ID (PID) columns on the tables below are the permanent unique parcel id assigned to the property by the Assessor's Office.

Also included is a list of the town's many recreational facilities, their amenities, and whether they are handicapped accessible.

NON-PROFIT LAND

(as of May 2018 – Map, Block, and Lot refer to Assessor's Parcel number)

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
7066	145	400	000	0	DUX BEACH HIGH PINES	DUXBURY BEACH RESERVATION INC	214.00
1162	007	401	006	0	PINE BROOK WAY	JONES RIVER WATERSHED ASSOC INC	9.90
5586	106	401	000	105	ALDEN ST	ALDEN KINDRED OF AMERICA	2.45
5587	106	402	000	189	ALDEN ST	ART COMPLEX INC THE	14.79
575	010	403	006	119	MYRTLE ST	CROSSROADS, INC	7.01
573	023	403	001	47	MYRTLE ST	CROSSROADS, INC	1.04
574	023	403	002	0	KEENE ST	CROSSROADS, INC	3.61
572	024	403	000	742	KEENE ST	CROSSROADS, INC	132.85
1645	024	403	004	0	KEENE ST	CROSSROADS, INC	16.10
2178	027	403	007	0	CONGRESS ST	CROSSROADS, INC	0.58
5170	105	403	012	0	TREMONT ST	WILDLANDS TRUST INC	17.04
5171	105	403	017	0	TREMONT ST	WILDLANDS TRUST INC	11.99
5820	109	403	092	0	SURPLUS ST	WILDLANDS TRUST INC	4.00
1646	027	404	013	0	CONGRESS ST	DUXBURY RURAL & HIST SOC INC	0.14
3089	045	404	050	0	SUMMER ST	DUXBURY RURAL & HIST SOC INC	0.25
2766	058	404	025	0	MAYFLOWER ST	DUXBURY RURAL & HIST SOC INC	50.68
2768	058	404	067	0	MAYFLOWER AVE	DUXBURY RURAL & HIST SOC INC	0.88
2767	075	404	057	0	ELM ST	DUXBURY RURAL & HIST SOC INC	10.60
4719	080	404	000	0	TREMONT ST	DUXBURY RURAL & HIST SOC INC	2.50
5172	106	404	028	0	ST GEORGE ST	DUXBURY RURAL & HIST SOC INC	0.35
5174	106	404	117	0	TREMONT ST	DUXBURY RURAL & HIST SOC INC	0.10
5821	107	404	000	931	TREMONT ST	DUXBURY RURAL & HIST SOC INC	9.79
5822	108	404	006	0	TREMONT ST	DUXBURY RURAL & HIST SOC INC	13.56
5823	108	404	010	0	DEPOT ST	DUXBURY RURAL & HIST SOC INC	22.71
5824	110	404	039	0	CHESTNUT ST	DUXBURY RURAL & HIST SOC INC	0.40
6555	113	404	003	28	CRESCENT ST	DUXBURY RURAL & HIST SOC INC	12.64
5173	115	404	078	0	TREMONT ST	DUXBURY RURAL & HIST SOC INC	5.00
5588	117	404	020	0	ST GEORGE ST	DUXBURY RURAL & HIST SOC INC	0.10
5589	117	404	021	0	ST GEORGE ST	DUXBURY RURAL & HIST SOC INC	1.16
5590	117	404	024	0	WASHINGTON ST	DUXBURY RURAL & HIST SOC INC	0.30
5591	117	404	068	0	POWDER POINT AVE	DUXBURY RURAL & HIST SOC INC	1.32
5594	117	404	142	0	POWDER POINT AVE	FOX PW PT RLTY TRUST (TAX)1/9	2.14

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
5595	118	404	174	0	WASHINGTON ST	DUXBURY RURAL & HIST SOC INC	1.70
6557	122	404	079	0	MARSHALL ST	DUXBURY RURAL & HIST SOC INC	0.85
6556	123	404	059	0	STANDISH ST	WILDLANDS TRUST INC	3.94
6558	126	404	085	0	MARSHALL ST	DUXBURY RURAL & HIST SOC INC	0.75
5592	134	404	095	120	KING CAESAR RD	DUXBURY RURAL & HIST SOC INC	1.32
5593	134	404	096	0	KING CAESAR RD	DUXBURY RURAL & HIST SOC INC	0.72
6851	141	404	941	0	PINE PT	DUXBURY RURAL & HIST SOC INC	2.18
6123	119	405	148	0	WASHINGTON ST	BATTELLE MEMORIAL INSTITUTE	9.07
5175	106	407	107	40	ALDEN ST	ELOISTS INC THE	0.26
3090	032	416	000	144	WINTER ST	HISTORIC ONEIL FARM INC	75.44
5596	117	418	000	40	ANCHORAGE LN	HOLBROOK GUY C IV	2.49
8032	117	418	001	0	ANCHORAGE LN	WILDLANDS TRUST INC	23.06
6808	141	421	900	435	GURNET RD	DUXBURY BEACH RESERVATION INC	66.43
3920	072	424	000	0	WEST ST	MASS AUDUBON SOCIETY INC	137.69
4721	062	425	020	183	PARKS ST	BAY FARM MONTESSORI ACADEMY INC	1.84
4720	063	425	003	145	LORING ST	BAY FARM MONTESSORI ACADEMY INC	3.77
4722	063	425	042	163	LORING ST	BAY FARM MONTESSORI ACADEMY INC	1.00
4723	084	425	113	0	NATHAN DR	BAY FARM MONTESSORI ACADEMY INC	1.00
4724	084	425	114	0	NATHAN DR	BAY FARM MONTESSORI ACADEMY INC	1.00
4725	084	425	115	0	NATHAN DR	BAY FARM MONTESSORI ACADEMY INC	0.05
576	022	435	000	0	NORTH ST	ARNOLD HALL INC	38.21
1163	031	435	000	0	AUTUMN AVE	HISTORIC ONEIL FARM INC	70.32
5176	116	436	121	0	GREAT HARRY FOOT ISLAND	WILDLANDS TRUST INC	10.00
3091	034	439	000	267	WINTER ST	BERRYBROOK SCHOOL	27.13
5598	118	440	161	585	WASHINGTON ST	DUXBURY MASONIC BLDG ASSOC	0.71
3687	090	442	049	5	WEST ST	DUXBURY AMERICAN LEGION	0.90
3688	090	442	051	0	TREMONT ST	DUXBURY AMERICAN LEGION	1.03
6809	142	445	000	0	SKIRT MEADOW ST	DUXBURY BEACH RESERVATION INC	21.95
1647	027	448	041	622	CONGRESS ST	STANDISH HUMANE SOC INC	0.98
4726	062	450	031	243	PARKS ST	FIRST CHURCH OF CHRIST SCIENTIST	0.33
999	005	451	000	0	HIGH ST	HIGH STREET UNITED METHODIST CHURCH	1.05
3092	046	451	002	0	KINGS TOWN WAY	CHURCH OF THE NAZARENE	1.82
3093	046	451	003	136	SUMMER ST	CHURCH OF THE NAZARENE	2.31
3095	061	452	001	0	TREMONT ST	FIRST BAPTIST CHURCH	4.61
8296	061	452	002	0	TREMONT ST	ISLAND CREEK PROPERTIES LLC	0.53
3097	061	452	003	36	POST RD	ISLAND CREEK PROPERTIES LLC	4.87

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
3098	061	452	004	30	TREMONT ST	ISLAND CREEK PROPERTIES LLC	1.79
8297	061	452	005	32	TREMONT ST	ISLAND CREEK PROPERTIES LLC	6.67
8298	061	452	006	0	TREMONT ST	ISLAND CREEK PROPERTIES LLC	2.09
8595	061	452	007	2	MILE BROOK RD	ISLAND CREEK PROPERTIES LLC	9.26
3094	062	452	000	2	TREMONT ST	FIRST BAPTIST CHURCH	2.52
6559	127	452	033	344	STANDISH ST	CEDAR HILL RETREAT CENTER INC	12.23
3921	092	453	018	842	TREMONT ST	FIRST PARISH CHURCH	3.27
6810	132	453	000	0	SKIRT MEADOW ST	DUXBURY BEACH RESERVATION INC	1.89
839	026	454	078	425	KEENE ST	FREE CHRISTIAN SOCIETY	1.04
840	004	455	000	298	HIGH ST	HIGH STREET UNITED METHODIST CHURCH	0.48
3099	047	457	015	74	BUCKBOARD RD	PILGRIM CHURCH OF DUXBURY	0.98
6124	119	457	073	404	WASHINGTON ST	PILGRIM CHURCH OF DUXBURY	0.56
6125	119	457	074	404	WASHINGTON ST	PILGRIM CHURCH OF DUXBURY	1.25
3100	046	458	005	365	KINGS TOWN WAY	ST PAULS CHURCH OF THE NAZARENE	0.21
3101	046	458	006	0	KINGS TOWN WAY	ST PAULS CHURCH OF THE NAZARENE	0.76
5828	093	458	003	601	TREMONT ST	ROMAN CATHOLIC ARCHBISHOP	1.01
5829	093	458	004	601	TREMONT ST	ROMAN CATHOLIC ARCHBISHOP	7.54
5825	094	458	000	601	TREMONT ST	ROMAN CATHOLIC ARCHBISHOP	0.92
5826	094	458	001	601	TREMONT ST	ROMAN CATHOLIC ARCHBISHOP	1.02
5827	094	458	002	601	TREMONT ST	ROMAN CATHOLIC ARCHBISHOP	2.11
4115	094	458	048	5	EVERGREEN ST	ROMAN CATHOLIC ARCHBISHOP	0.92
5599	117	458	027	64	ST GEORGE ST	SOUTH SHORE CONSERVATORY OF MUSIC	1.54
2179	056	460	001	0	LINCOLN ST	SOCIETY OF THE DIVINE WORD	1.05
3102	046	461	003	339	KINGS TOWN WAY	CHURCH OF THE NAZARENE	0.92
6560	110	461	063	21	HARDEN HILL RD	SOCIETY OF ST MARGARET	1.80
5830	121	461	219	50	HARDEN HILL RD	SOCIETY OF ST MARGARET	4.71
5831	121	461	221	60	HARDEN HILL RD	SOCIETY OF ST MARGARET	1.16
5832	108	463	004	915	TREMONT ST	FIRST PARISH CHURCH	1.40
841	026	464	077	420	KEENE ST	FREE CHRISTIAN SOCIETY	1.32
6126	119	466	073	410	WASHINGTON ST	PARISH ST JOHN EVANGELIST	3.23
4727	063	472	001	0	PARKS ST	SOCIETY OF THE DIVINE WORD	32.10

TOWN OWNED LAND NOT PERMANENTLY PROTECTED

as of November 2018

Map, Block, and Lot refer to Assessor's Parcel number

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
1001	001	500	020	0	HIGH ST	DUXBURY TOWN OF	1.91
1000	005	500	005	0	HIGH ST	DUXBURY TOWN OF	12.37
1002	006	500	022	0	HIGH ST	DUXBURY TOWN OF	1.78
849	012	500	066	0	DINGLEY DELL LN	DUXBURY TOWN OF	3.44
842	013	500	005	785	CONGRESS ST	DUXBURY TOWN OF	3.51
845	014	500	022	0	KEENE ST	DUXBURY TOWN OF	1.11
843	015	500	009	0	FRANKLIN ST	DUXBURY TOWN OF	0.68
1250	017	500	008	0	LAKE SHORE DR	DUXBURY TOWN OF	3.12
1182	017	500	087	0	LAKE SHORE DR	DUXBURY TOWN OF	2.11
1183	018	500	121	0	LAKE SHORE DR	DUXBURY TOWN OF	0.70
1184	018	500	156	0	CHANDLER POND	DUXBURY TOWN OF	15.00
1166	019	500	012	0	PINE ST	DUXBURY TOWN OF	0.36
1169	019	500	017	0	CHANDLER MILL DR	DUXBURY TOWN OF	1.49
583	021	500	043	0	NORTH ST	DUXBURY TOWN OF	12.38
579	022	500	007	0	HUNT FARM DR	DUXBURY TOWN OF	0.14
484	022	500	053	0	NORTH ST	DUXBURY TOWN OF	0.25
581	023	500	013	0	KEENE ST	DUXBURY TOWN OF	0.92
1649	025	500	006	0	KEENE ST	DUXBURY TOWN OF	3.66
844	025	500	016	0	ASHDOD LN	DUXBURY TOWN OF	2.65
584	025	500	051	0	UNION ST	DUXBURY TOWN OF	0.98
1648	026	500	002	0	UNION ST	DUXBURY TOWN OF	3.82
852	026	500	087	0	UNION ST	DUXBURY TOWN OF	5.28
848	027	500	048	0	UNION BRIDGE RD	DUXBURY TOWN OF	0.53
851	027	500	085	0	CONGRESS ST	DUXBURY TOWN OF	0.15
1003	029	500	049	0	CROSS ST	DUXBURY TOWN OF	0.54
2450	030	500	011	0	UNION BRIDGE RD	DUXBURY TOWN OF	2.10
2451	030	500	012	0	UNION BRIDGE RD	DUXBURY TOWN OF	11.00
2452	030	500	014	0	SUMMER ST	DUXBURY TOWN OF	0.88
1181	030	500	042	0	OLD FORGE RD	DUXBURY TOWN OF	2.54
2457	030	500	118	0	PIONEER DR	DUXBURY TOWN OF	4.75

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
1187	031	500	949	0	AUTUMN AVE	DUXBURY TOWN OF	0.07
1164	032	500	009	0	CLEARWATER DR	DUXBURY TOWN OF	0.95
1165	032	500	010	0	CLEARWATER DR	DUXBURY TOWN OF	0.92
1172	032	500	023	0	CLEARWATER DR	DUXBURY TOWN OF	0.92
1173	032	500	024	0	CLEARWATER DR	DUXBURY TOWN OF	0.92
1177	032	500	029	0	HALLS BROOK WAY	DUXBURY TOWN OF	1.00
1178	032	500	031	0	HALLS BROOK WAY	DUXBURY TOWN OF	1.00
1179	032	500	032	0	HALLS BROOK WAY	DUXBURY TOWN OF	0.98
1180	032	500	033	0	CLEARWATER DR	DUXBURY TOWN OF	0.93
1167	033	500	015	0	HITTY TOM RD	DUXBURY TOWN OF	0.93
1168	033	500	016	0	HITTY TOM RD	DUXBURY TOWN OF	0.93
1174	033	500	026	0	CLEARWATER DR	DUXBURY TOWN OF	0.98
1175	033	500	027	0	CLEARWATER DR	DUXBURY TOWN OF	0.93
1176	033	500	028	0	CLEARWATER DR	DUXBURY TOWN OF	0.96
1170	034	500	020	0	MEADOW LN	DUXBURY TOWN OF	0.96
1171	034	500	021	0	MEADOW LN	DUXBURY TOWN OF	1.11
1186	034	500	920	0	HITTY TOM RD	DUXBURY TOWN OF	0.36
578	036	500	004	0	HILLSIDE LN	DUXBURY TOWN OF	0.71
1871	041	500	023	0	S RIVER LN E	DUXBURY TOWN OF	0.93
1872	041	500	024	0	S RIVER LN E	DUXBURY TOWN OF	0.94
1873	041	500	025	0	S RIVER LN E	DUXBURY TOWN OF	1.12
1874	041	500	026	0	S RIVER LN E	DUXBURY TOWN OF	0.94
2182	042	500	003	0	LEWIS FARM RD	DUXBURY TOWN OF	1.16
2181	043	500	002	0	BUTTERNUT DR	DUXBURY TOWN OF	1.33
2456	043	500	064	0	CHANDLER ST	DUXBURY TOWN OF	0.06
2453	044	500	020	0	CHANDLER ST	DUXBURY TOWN OF	0.98
2454	045	500	023	245	SUMMER ST	DUXBURY TOWN OF	5.76
2769	046	500	017	0	MAYFLOWER ST	DUXBURY TOWN OF	0.98
3103	047	500	029	0	KINGS TOWN WAY	DUXBURY TOWN OF	0.14
3105	047	500	039	0	BASSETT BROOK LN	DUXBURY TOWN OF	5.40
3106	047	500	040	0	TROUT FARM LN	DUXBURY TOWN OF	5.19
3104	048	500	036	0	KINGS TOWN WAY	DUXBURY TOWN OF	0.79
3380	052	500	001	0	CORDWOOD PATH	DUXBURY TOWN OF	0.03
3381	052	500	002	0	LINCOLN ST	DUXBURY TOWN OF	1.00
3382	052	500	008	0	CORDWOOD PATH	DUXBURY TOWN OF	0.35
1865	053	500	002	0	WEST ST	DUXBURY TOWN OF	7.30
1867	053	500	017	0	LINCOLN ST	DUXBURY TOWN OF	1.01

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
1875	053	500	031	0	LINCOLN ST	DUXBURY TOWN OF	2.34
1879	053	500	173	0	WEST ST	DUXBURY TOWN OF	0.38
1876	054	500	058	0	CONGRESS ST	DUXBURY TOWN OF	8.56
1877	054	500	060	0	CONGRESS ST	DUXBURY TOWN OF	5.30
2180	055	500	001	0	CHANDLER ST	DUXBURY TOWN OF	1.35
2185	055	500	038	0	OTTER ROCK RD	DUXBURY TOWN OF	0.08
2186	055	500	046	0	LINCOLN ST	DUXBURY TOWN OF	0.03
2187	055	500	047	0	CHANDLER ST	DUXBURY TOWN OF	1.62
2188	055	500	048	0	CHANDLER ST	DUXBURY TOWN OF	0.66
2189	055	500	055	0	LINCOLN ST	DUXBURY TOWN OF	0.79
2191	055	500	072	0	LINCOLN ST	DUXBURY TOWN OF	0.16
3694	055	500	301	0	LINCOLN ST	DUXBURY TOWN OF	0.08
3939	056	500	029	0	MAYFLOWER ST	DUXBURY TOWN OF	0.73
2190	056	500	058	0	LINCOLN ST	DUXBURY TOWN OF	1.00
2192	056	500	158	0	LINCOLN ST	DUXBURY TOWN OF	0.60
2455	057	500	055	0	MAYFLOWER ST	DUXBURY TOWN OF	1.31
1866	069	500	006	0	ALEXANDER WAY	DUXBURY TOWN OF	4.88
2770	073	500	024	0	MAYFLOWER ST	DUXBURY TOWN OF	1.89
3945	073	500	082	0	MAYFLOWER ST	DUXBURY TOWN OF	27.22
2771	074	500	065	0	MAYFLOWER ST	DUXBURY TOWN OF	11.75
4729	080	500	037	0	PARKS ST	DUXBURY TOWN OF	0.63
4945	081	500	094	0	PRENCE ST	DUXBURY TOWN OF	0.14
4946	081	500	095	0	PRENCE ST	DUXBURY TOWN OF	0.13
4947	081	500	099	0	BARTLETT AVE	DUXBURY TOWN OF	0.02
4728	084	500	025	0	BAY RD	DUXBURY TOWN OF	44.10
4730	084	500	039	0	BAY RD	DUXBURY TOWN OF	1.10
3925	091	500	004	0	TREMONT ST	DUXBURY TOWN OF	0.99
3929	091	500	008	0	TREMONT ST	DUXBURY TOWN OF	0.92
3930	091	500	009	0	TREMONT ST	DUXBURY TOWN OF	0.92
3938	091	500	027	47	MERRY AVE	DUXBURY TOWN OF	332.81
3940	091	500	033	0	TREMONT ST	DUXBURY TOWN OF	9.26
3941	091	500	034	0	TREMONT ST	DUXBURY TOWN OF	5.61
3942	091	500	053	0	MAYFLOWER ST	DUXBURY TOWN OF	4.09
3935	092	500	014	0	TREMONT ST	DUXBURY TOWN OF	18.66
3936	092	500	015	0	TREMONT ST	DUXBURY TOWN OF	0.92
3937	092	500	016	878	TREMONT ST	DUXBURY TOWN OF	6.19
4116	092	500	039	155	MAYFLOWER ST	DUXBURY TOWN OF	18.99

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
3944	092	500	080	0	MAYFLOWER ST	DUXBURY TOWN OF	14.89
4117	093	500	041	0	MAYFLOWER ST	DUXBURY TOWN OF	7.07
3946	093	500	096	10	MAYFLOWER ST	DUXBURY TOWN OF	3.49
4119	093	500	431	0	MAYFLOWER ST	DUXBURY TOWN OF	2.60
4120	093	500	432	0	TREMONT ST	DUXBURY TOWN OF	1.22
6564	094	500	000	0	TREMONT ST	DUXBURY TOWN OF	1.82
6566	098	500	109	0	PRISCILLA ST	DUXBURY TOWN OF	0.10
4810	099	500	193	0	SOULE AVE	DUXBURY TOWN OF	0.83
5600	106	500	009	175	ST GEORGE ST	DUXBURY TOWN OF	6.37
3922	107	500	001	0	TREMONT ST	DUXBURY TOWN OF	1.12
3923	107	500	002	0	TREMONT ST	DUXBURY TOWN OF	0.92
3924	107	500	003	0	TREMONT ST	DUXBURY TOWN OF	0.94
3926	107	500	005	0	TREMONT ST	DUXBURY TOWN OF	0.96
3927	107	500	006	0	TREMONT ST	DUXBURY TOWN OF	0.92
3928	107	500	007	0	TREMONT ST	DUXBURY TOWN OF	0.92
3931	107	500	010	0	TREMONT ST	DUXBURY TOWN OF	0.92
3932	107	500	011	0	TREMONT ST	DUXBURY TOWN OF	0.92
5601	107	500	012	0	HARRISON ST	DUXBURY TOWN OF	0.27
3933	108	500	012	0	TREMONT ST	DUXBURY TOWN OF	0.94
3934	108	500	013	0	TREMONT ST	DUXBURY TOWN OF	0.93
3949	108	500	114	0	TREMONT ST	DUXBURY TOWN OF	0.92
5833	109	500	015	155	DEPOT ST	DUXBURY TOWN OF	1.25
5834	110	500	037	0	PILGRIM BYWAY	DUXBURY TOWN OF	0.37
5835	110	500	136	28	WASHINGTON ST	DUXBURY TOWN OF	0.82
5836	110	500	461	0	WASHINGTON ST	DUXBURY TOWN OF	1.29
6565	111	500	008	0	CRESCENT ST	DUXBURY TOWN OF	0.08
8065	112	500	053	23	HOWLANDS LANDING	DUXBURY TOWN OF	2.83
8073	112	500	054	0	CRESCENT ST	DUXBURY TOWN OF	0.94
8074	112	500	055	0	CRESCENT ST	DUXBURY TOWN OF	0.94
5602	117	500	019	0	ST GEORGE ST	DUXBURY TOWN OF	0.03
6812	131	500	903	0	DUCK HILL RD	DUXBURY TOWN OF	8.00
6813	131	500	904	0	DUCK HILL RD	DUXBURY TOWN OF	5.70
6852	139	500	073	0	PINE PT	DUXBURY TOWN OF	0.05
6853	139	500	935	0	MARGINAL RD	DUXBURY TOWN OF	0.03
853	026	501	079	0	KEENE ST	DUXBURY TOWN OF	1.09
1881	052	501	011	0	LINCOLN ST	DUXBURY TOWN OF	0.03
1882	053	501	022	0	WEST ST	DUXBURY TOWN OF	0.49

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
3950	092	501	019	774	TREMONT ST	DUXBURY TOWN OF	87.28
5837	110	501	038	0	CHESTNUT ST	DUXBURY TOWN OF	1.49
1655	027	503	016	794	FRANKLIN ST	DUXBURY TOWN OF	1.10
4125	093	503	040	668	TREMONT ST	DUXBURY TOWN OF	1.83
4121	093	503	433	0	MAYFLOWER ST	DUXBURY TOWN OF	0.38
5603	117	503	149	645	WASHINGTON ST	DUXBURY TOWN OF	0.59
2462	046	504	027	0	SUMMER ST	DUXBURY TOWN OF	0.30
1492	066	504	043	0	ACORN ST	DUXBURY TOWN OF	0.06
5839	094	504	026	0	TREMONT ST	DUXBURY TOWN OF	0.05
4734	099	505	973	0	LANDING RD	DUXBURY TOWN OF	0.21
5605	116	505	065	0	POWDER POINT AVE	DUXBURY TOWN OF	0.30
5202	116	505	093	0	COVE ST	DUXBURY TOWN OF	1.24
5604	117	505	019	0	ST GEORGE ST	DUXBURY TOWN OF	0.21
5951	118	505	140	25	MATTAKEESET CT	DUXBURY TOWN OF	1.06
6127	120	505	212	0	SHIPYARD LN	DUXBURY TOWN OF	1.23
5606	133	505	077	0	POWDER POINT AVE	DUXBURY TOWN OF	0.24
5607	143	505	226	0	POWDER POINT AVE	DUXBURY TOWN OF	1.00
5608	106	506	010	147	ST GEORGE ST	DUXBURY TOWN OF	0.68
2463	045	508	038	93	CHANDLER ST	DUXBURY TOWN OF	63.51
5609	106	508	007	71	ALDEN ST	DUXBURY TOWN OF	64.00
5203	116	508	057	130	ST GEORGE ST	DUXBURY TOWN OF	37.88
590	025	510	026	0	KEENE ST	DUXBURY TOWN OF	7.99
591	025	510	027	0	KEENE ST	DUXBURY TOWN OF	0.45
1886	053	510	017	0	LINCOLN ST	DUXBURY TOWN OF	12.23
6571	094	510	000	495	TREMONT ST	DUXBURY TOWN OF	3.31
5610	106	510	007	0	TRAIN FIELD	DUXBURY TOWN OF	4.63
6572	127	510	102	0	MAYFLOWER AVE	DUXBURY TOWN OF	1.04
883	025	511	099	748	UNION ST	DUXBURY HOUSING AUTHORITY	0.93
3964	090	511	001	75	MERRY AVE	DUXBURY HOUSING AUTHORITY	1.06
6573	110	511	033	16	BAY RD	DUXBURY HOUSING AUTHORITY	0.10
5843	110	511	040	59	CHESTNUT ST	DUXBURY HOUSING AUTHORITY	3.23
5844	110	511	044	15	CHESTNUT ST	DUXBURY HOUSING AUTHORITY	0.12
592	037	512	001	0	TEMPLE ST	DUXBURY TOWN OF	2.91
1887	053	512	036	0	LINCOLN ST	DUXBURY TOWN OF	12.84

PID	Map	Block	Lot	Street #	Street Name	Owner	Acres
1888	053	512	037	0	LINCOLN ST	DUXBURY TOWN OF	8.44
3392	067	512	010	16	CORDWOOD PATH	DUXBURY TOWN OF	2.76
2783	075	598	057	0	TOBEY GARDEN ST	DUXBURY TOWN OF	1.10
2464	046	599	044	113	SUMMER ST	COMMONWEALTH OF MASS	1.00
2465	046	599	045	0	CHANDLER ST	COMMONWEALTH OF MASS	3.80
6574	112	599	043	0	CRESCENT ST	COMMONWEALTH OF MASS	28.68

501 = Cemetery	508 – School Department
503 – Fire Department	509 – Water Department
504 – Highway Department	510 – Parks and Playgrounds
505 – Town Landings	511 – Housing
506 – Wright Building	512 – Housing Authority

PERMANENTLY PROTECTED TOWN-OWNED LAND

All Permanently Protected Town Owned "502" land is managed by the Conservation Commission, allows public access and is used as Open Space. Deeds for all Conservation parcels have been researched and found to provide strong permanent protection. Refer to the Field Data Sheets in the Appendix for further details. Map, Block, and Lot refer to Assessor's Parcel number Valid as of January 1, 2019.

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
858	004	502	008	SUMMER ST	10.03	3	Wooded wetland & brook		No	PD	0
860	005	502	011	SUMMER ST	4.76	5	Swanson Cons. Land		Walking & Picnicing	RC & PD	0
8275	006	502	014	HIGH ST	7.50		Keiser Cons. Land		Hiking	PD	WPOD & FH
1006	006	502	023	HIGH ST	22.46	9	50% upland,50% wetland	S-H #13	Hiking	PD	WPOD
1009	006	502	050	VALLEY ST	1.11	10	Valley St. Bogs		Fishing & Canoeing	RC	WPOD & FH
8139	008	502	031	NORTH ST	18.46		Wooded swamp		No	RC	WPOD & FH
8137	009	502	001	KEENE ST	0.18		6		No	RC	0
580	009	502	008	KEENE ST	9.71		Wooded swamp		No	RC	WPOD & FH
855	011	502	003	UNION ST	58.66	8	Forest & wetland	S-H \$6, 17, 18	Hiking & Hunting	RC	WPOD & FH
862	011	502	017	ASHDOD LN	2.40	8	Forest & wetland		Hiking & Hunting	RC & PD	WPOD & FH
875	011	502	089	CONGRESS ST	5.97	8	Forest & wetland		Hiking & Hunting	PD	0
876	011	502	096	UNION ST	11.28	8	Forest & wetland		Hiking & Hunting	RC & PD	0
877	011	502	098	UNION ST	4.19	8	Forest & wetland		Hiking & Hunting	RC & PD	WPOD & FH
878	011	502	101	UNION ST	10.18	8	Forest & wetland		Hiking & Hunting	RC & PD	WPOD & FH
879	011	502	102	UNION ST	1.00	8	Forest & wetland		Hiking & Hunting	RC	WPOD & FH
866	012	502	021	CONGRESS ST	53.49	9	Hamadeh/forest & brook	CPA	Hiking & Hunting	RC	WPOD & FH
850	012	502	071	BROOK RD	32.40		Hamadeh/forest & brook	CPA	Hiking & Hunting	RC & PD	WPOD & FH
874	012	502	073	KEENE ST	4.49	9	Cons. Land with trails		Hiking & Hunting	PD	0
882	012	502	171	CONGRESS ST	0.71	9	Cons. Land with trails		Hiking & Hunting	RC	WPOD
859	013	502	010	SUMMER ST	2.77	4	Overgrown field & wetland		Hiking & Hunting	RC & PD	0
865	013	502	020	KEENE ST	86.28	7	Keene St. Cons, Land	S-H #10	Hiking & Hunting	RC	WPOD & FH
868	013	502	029	CONGRESS ST	9.86	4	Overgrown field & wetland	S-H #20	Hiking & Hunting	RC	WPOD
869	013	502	030	CONGRESS ST	34.94	4	Overgrown field & wetland	S-H #24	Hiking & Hunting	RC	WPOD

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
847	013	502	039	CONGRESS ST	10.01		Merlet/Open Space & Trails	CPA	Hiking & Hunting	RC & PD	WPOD & FH
854	014	502	002	KEENE ST	1.10		Wetland		Hiking & Hunting	RC	0
856	014	502	004	FRANKLIN ST	24.54	2	Cons. Land with trails	S-H #7	Hiking & Hunting	RC	WPOD & FH
857	014	502	007	SUMMER ST	1.66	3	Wetland		No	PD	0
7072	014	502	013	SUMMER ST	27.61		BF Swamp/ forest & trails	CPA	Fishing	RC & PD	WPOD & FH
861	014	502	015	SUMMER ST	1.94		Swanson Corner Lot		Walking & Picnicing	RC	0
863	014	502	018	SUMMER ST	7.32	6	50% upland,50% wetland	S-H #10	Walking & Picnicing	RC	0
864	014	502	019	SUMMER ST	0.92	6	50% upland,50% wetland	S-H #10	Walking & Picnicing	RC	WPOD
846	014	502	033	FRANKLIN ST	11.52		Swanson Cons. Land	CPA	Walking & Picnicing	RC	WPOD & FH
870	014	502	034	FRANKLIN ST	1.03	7	Keene St. Cons, Land		Hiking & Hunting	RC	WPOD & FH
871	014	502	036	FRANKLIN ST	4.06	7	Keene St. Cons, Land		Hiking & Hunting	RC	WPOD & FH
880	014	502	114	KEENE ST	0.93	7	Keene St. Cons, Land		No	PD	0
881	014	502	118	SUMMER ST	1.85	3	Wetland		No	PD	0
1004	015	502	000	VALLEY ST	9.50	10	Thadeus Chandler Sanctuary		Hiking	RC	WPOD & FH
1007	015	502	038	SUMMER ST	14.08	11	Lansing Bennett Cons. Land		Hiking	RC	WPOD
1008	015	502	049	CROSS ST	3.50	11	Lansing Bennett Cons. Land		Hiking	PD	0
1011	015	502	056	SUMMER ST	1.32	10	Valley St. Bogs		Hiking	RC	WPOD & APOD
1010	016	502	051	BIRCH ST	104.28	10	Thadeus Chandler Sanctuary	S-H #25	Hiking	RC & PD	WPOD, FH, APOD
1190	018	502	032	LAKE SHORE DR	1.10	13	Public access to pond		Fishing, ice skating, canoeing	RC	WPOD & FH
1192	018	502	051	LAKE SHORE DR	9.00	14	Wetland		No	RC & PD	WPOD
586	022	502	001	NORTH ST	2.20	1	Feinberg Bog Cons. Land	S-H #16	No	RC	APOD
587	022	502	002	NORTH ST	0.10	1	Feinberg Bog Cons. Land	S-H #16	No	PD	APOD
588	023	502	003	KEENE ST	91.85		Camp Wing Cons. Land	CPA	Hiking & Hunting	RC & PD	WPOD, FH, APOD
589	023	502	005	KEENE ST	2.47		Keene Mill Foundation	CPA	Historical Interest	RC	WPOD, FH, APOD
	023	502	022	TEMPLE ST	1.14		Wooded swamp		No	RC	WPOD, FH, APOD
867	027	502	022	UNION BRIDGE RD	5.19	7	Lansing Bennett Cons. Land	S-H #22	Hiking	RC	WPOD
2197	027	502	027	UNION ST	0.80	19	Wetland on pond	S-H #10	No	RC	WPOD & FH
872	027	502	042	CONGRESS ST	9.10	2	Matthews working bog		Hiking	RC	WPOD & FH
873	027	502	044	UNION BRIDGE RD	4.91	7	Lansing Bennett Cons. Land		Hiking	RC	WPOD

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
2196	028	502	026	UNION ST	65.93	18	Lansing Bennett Cons. Land	part of S-H #12	Hiking	RC	0
1005	029	502	005	UNION ST	122.60	11	Lansing Bennett Cons. Land	S-H #12	Hiking	RC	WPOD & FH
2461	030	502	917	FORDVILLE RD	8.57	21	Wetland		No	RC	WPOD & APOD
	031	502	047	SUMMER ST	27.23		Delorenzo, upland field and forest	CPA	No	RC & PD	WPOD & APOD
1189	032	502	030	AUTUMN AVE	3.59	13	Wetland		No	RC	WPOD & FH
1191	032	502	034	AUTUMN AVE	4.22		Wetland		No	RC & PD	0
3108	033	502	001	WINTER ST	13.34		Berrybrook hay fields	CPA	Hiking	RC & PD	WPOD, FH, APOD
1188	033	502	026	AUTUMN AVE	2.92	12	Wetland		No	RC & PD	FH
3107	034	502	000	WINTER ST	10.47		Berrybrook hay fields	CPA	Hiking	RC	0
1486	036	502	006	NORTH ST	99.58	1	Feinberg Bog Cons. Land	S-H #16	Hiking & Hunting	RC & PD	WPOD
1651	038	502	005	TEMPLE ST	2.66		Merry/Cedar Crest	CPA	Hiking	RC	WPOD, FH, APOD
8757	038	502	023	TEMPLE ST	3.59		Merry/Cedar Crest	CPA	Hiking	RC & PD	WPOD, FH, APOD
8758	038	502	030	TEMPLE ST	33.95		Merry/Cedar Crest	CPA	Hiking	RC & PD	WPOD, FH, APOD
1654	038	502	900	TEMPLE ST	4.76		Wetland		No	RC & PD	WPOD, FH, APOD
1650	039	502	004	KEENE ST	353.75		South River headwaters & Trails		Hiking	RC & PD	WPOD, FH, APOD
1652	039	502	014	WINDWARD WAY	5.57	17	South River headwaters		No	RC & PD	WPOD, FH, APOD
1653	039	502	018	FRANKLIN ST	11.70	17	South River headwaters		No	RC	WPOD & APOD
1883	041	502	000	FRANKLIN ST	61.00	17	Abandoned bog		Hiking	RC	WPOD & FH
1884	041	502	004	S RIVER LN W	3.67		Easement to bog		Hiking	RC	WPOD & FH
1885	041	502	008	CONGRESS ST	8.78	18	Pond		No	RC	WPOD & FH
2193	042	502	003	LEWIS FARM RD	1.09		Upland with trails		Hiking	RC	0
2198	042	502	028	KING PHILLIPS PATH	9.62	19	Wooded upland	S-H #14	No	RC	0
2184	042	502	037	CHANDLER ST	24.67		Garside Reservoir		No	RC	FH
2199	043	502	032	VINE ST	22.12	21	Wooded upland with Bay Circuit T		Hiking	RC	FH
3111	048	502	056	SOUTH ST	0.03		Wetland		No	RC	WPOD, FH, APOD
1488	050	502	010	AMADO WAY	6.11		Bog, wetland & upland		No	RC & PD	WPOD, FH, APOD
1489	050	502	024	LAUREL ST	11.90	16	Wetland	S-H #15	No	RC	WPOD, FH, APOD
1490	050	502	025	LAUREL ST	4.00	16	White cedar swamp	part of S-H #15	No	RC	WPOD & FH

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
8759	050	502	032	TEMPLE ST	22.30		Merry/Cedar Crest	CPA	No	RC & PD	WPOD, FH, APOD
1487	051	502	007	TEMPLE ST	32.48	15	Whitton Woods Cons. Land	S-H #5	Hiking	RC	FH
1491	051	502	032	TEMPLE ST	0.07		Whitton Woods Cons. Land	S-H #5	Hiking	RC	FH
8761	051	502	033	TEMPLE ST	0.66		Merry/Cedar Crest	CPA	Hiking	RC & PD	0
8762	051	502	035	TEMPLE ST	38.50		Merry/Cedar Crest	CPA	Hiking	RC & PD	FH
8760	051	502	040	TEMPLE ST	1.79		Merry/Cedar Crest	CPA	Hiking	RC	WPOD & FH
3385	052	502	008	LINCOLN ST	1.65		Upland, land swap		Hiking	PD	0
8136	054	502	020	S RIVER LN E	0.85		Wetland		No	RC	WPOD & FH
8135	054	502	021	S RIVER LN E	2.92		Wetland		No	RC	WPOD & FH
8141	054	502	022	S RIVER LN E	1.26		Wetland		No	RC	WPOD & FH
8140	054	502	122	S RIVER LN E	0.71		Wetland		No	RC	WPOD & FH
3691	055	502	005	CONGRESS ST	39.89		Crowell Bog & Trails	CPA	Hiking	RC	WPOD, FH, APOD, CE
3692	055	502	007	LINCOLN ST	3.88		Crowell Bog & Trails	CPA	Hiking	RC	WPOD, FH, APOD
2194	055	502	009	CHANDLER ST	0.44		Wetland	S-H #21	No	RC	FH
8138	055	502	036	CONGRESS ST	5.90		Wetland		Fishing	RC	FH & APOD
3695	056	502	001	LINCOLN ST	14.01		Crowell Bog & Trails		Hiking	RC	WPOD, FH, APOD
3696	056	502	009	MODOC ST	7.64	27	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	RC & PD	WPOD, FH, APOD
2195	056	502	010	CHANDLER ST	23.65	20	East St. Bog & trails	part of S-H #21	Hiking	RC	WPOD, FH, APOD
3956	056	502	038	MAYFLOWER ST	4.93	29	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	RC & PD	WPOD, FH, APOD
3961	056	502	100	MAYFLOWER ST	0.97	29	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	RC	APOD
2458	057	502	033	MAYFLOWER ST	173.85	22	East St. Bog & trails	S-H #21	Hiking	RC	WPOD, FH, APOD
2773	058	502	037	EAST ST	23.90		Nudd Bog & Trails	CPA	Hiking	RC & PD	FH & APOD
2774	058	502	038	EAST ST	17.36		Loring Bog & Trails	CPA	Hiking	RC & PD	WPOD, FH, APOD
2459	058	502	061	EAST ST	0.25		Access to East St. bog		Walking	RC	APOD
2460	058	502	330	EAST ST	0.26		Wetland		No	RC	APOD
2775	059	502	041	ELM ST	0.05	23	Abandoned bog		No	RC	WPOD, FH, APOD
2776	059	502	043	SUMMER ST	40.43	23	Abandoned bog		No	RC	WPOD, FH, APOD
3109	061	502	042	SOUTH ST	20.48	25	Dead Swamp		No	RC	WPOD, FH, APOD

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
3110	061	502	053	FORGE WAY	17.10	25	Dead Swamp		No	RC	WPOD,FH,APOD
3112	061	502	057	STATE HWY ROUTE 3	0.51		Wetland		No	RC	WPOD,FH,APOD
3384	067	502	007	LINCOLN ST	19.80		Este Bog		Hiking	PD	APOD
3383	067	502	012	OLD CORDWOOD PATH	19.56		Delano Farm Cons. Land	CPA	Hiking	RC & PD	WPOD,FH,APOD
#N/A	067	502	017	OLD CORDWOOD	12.75		Delano, Wetland		No	RC & PD	WPOD & APOD
8746	068	502	018	TEMPLE ST	77.00		Wright Reservoir	CPA	Hiking, fishing,hunting	RC & PD	WPOD & APOD
8755	069	502	044	TEMPLE ST	20.90		Merry/Gifford Bog	CPA	Hiking	RC & PD	WPOD & APOD
8756	069	502	945	CHURCH ST	2.70		Merry/Gifford Bog	CPA	Hiking	RC	WPOD & APOD
3697	070	502	016	CONGRESS ST	4.79	27	Waiting Hill Cons. Land		Hiking	RC & PD	WPOD & APOD
3698	070	502	017	MODOC ST	5.17	27	Waiting Hill Cons. Land		Hiking	RC & PD	WPOD & APOD
3699	070	502	018	MODOC ST	8.52	27	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	PD	APOD
3954	070	502	020	MODOC ST	16.69	27	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	RC & PD	WPOD,FH,APOD
3702	070	502	024	MODOC ST	4.78	27	Waiting Hill Cons. Land		Hiking	PD	APOD
3951	071	502	001	MODOC ST	30.00	28	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	RC & PD	WPOD,FH,APOD
8763	071	502	002	MODOC ST	56.50		Merry/North Hill	CPA	Hiking	RC & PD	WPOD,FH,APOD
3700	071	502	022	MODOC ST	6.77	27	Waiting Hill Cons. Land		Hiking	RC & PD	WPOD,FH,APOD
3701	071	502	023	MODOC ST	12.92	27	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	RC & PD	WPOD,FH,APOD
3703	071	502	025	MODOC ST	2.35	27	Waiting Hill Cons. Land		Hiking	RC & PD	WPOD,FH,APOD
3704	071	502	026	MODOC ST	11.51	27	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	RC & PD	WPOD,FH,APOD
3705	071	502	027	MODOC ST	2.36	27	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	RC & PD	WPOD,FH,APOD
3706	071	502	028	MODOC ST	3.00	27	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	PD	APOD
3707	071	502	029	MODOC ST	3.42	27	Waiting Hill Cons. Land		Hiking	PD	WPOD,FH,APOD
3957	071	502	039	MODOC ST	13.80	28	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	PD	WPOD,FH,APOD
3955	071	502	223	MODOC ST	8.75	28	Waiting Hill Cons. Land	S-H #26, ALA #7	Hiking	PD	WPOD,FH,APOD
8765	072	502	045	WEST ST	5.30		Merry/North Hill/wetland	CPA	No	RC & PD	WPOD,FH,APOD
8766	072	502	064	HATCHES BAR RD	2.96		Merry/North Hill	CPA	Hiking	RC	WPOD & APOD
	072	502	065	off MAYFLOWER ST	0.88		Merry/North Hill	CPA	Hiking	RC	WPOD & APOD

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
8768	072	502	066	off MAYFLOWER ST	1.52		Merry/North Hill	CPA	Hiking	RC	WPOD & APOD
8769	072	502	067	L	0.50		Merry/North Hill	CPA	Hiking	RC	WPOD & APOD
8770	072	502	068	MAYFLOWER ST	0.45		Merry/North Hill	CPA	Hiking	RC	WPOD & APOD
3960	072	502	073	MAYFLOWER ST	4.99	29	part of North Hill Reservoir	CPA	No	RC	WPOD,FH,APOD
2772	073	502	011	MAYFLOWER ST	30.66	24	Mayflower St. Cons. Land		Hiking	RC	APOD
3952	073	502	012	MAYFLOWER ST	20.75	30	Mayflower St. Cons. Land	S-H #9	Hiking	RC	APOD
3953	073	502	013	MAYFLOWER ST	34.59	28	Mayflower St. Cons. Land		Hiking	RC	APOD
2780	073	502	074	MAYFLOWER ST	3.10	24	Mayflower St. Cons. Land		Hiking	PD	APOD
2777	074	502	062	ISLAND CREEK RD	6.78	24	Island Creek Pond frontage		Hiking	PD	WPOD,FH,APOD
	074	502	063	ISLAND CREEK RD	10.66	24	Island Creek Pond frontage		Hiking	PD	WPOD,FH,APOD
2778	074	502	064	MAYFLOWER ST	2.18	24	Island Creek Pond frontage		Hiking	PD	WPOD,FH,APOD
2779	074	502	066	CHERRY LN	54.90	25	Cherry St. Bog		Hiking	RC & PD	WPOD,FH,APOD
2781	074	502	630	MAYFLOWER ST	10.66	24	Island Creek Pond frontage		Hiking	PD	WPOD,FH,APOD
4123	075	502	018	ELM ST	4.48		Cushing/Mill dam site		No	RC	WPOD,FH,APOD
4124	076	502	019	CUSHING DR	8.23		Pond		No	RC	WPOD & FH
4122	078	502	014	TREMONT ST	0.42	30	Cushing Ice House		Fishing & Skating	RC	WPOD & FH
4732	079	502	015	TREMONT ST	0.13		Island Creek Pond dam		Fish Ladder	RC	W[OD
4948	081	502	015	MAYFLOWER RD	0.08		Upland		No	RC	0
4731	082	502	004	GLASS TER	2.15	31	Island Creek Frontage		Fish Run	RC	WPOD & FH
4733	084	502	027	BAY RD	0.98	31	Island Creek Frontage		Fish Run	PD	WPOD,FH, Scenic Overlay
3314	086	502	012	OLD CORDWOOD PATH	18.90		Delano, upland	CPA	Hiking	PD	APOD
3386	087	502	104	CORDWOOD PATH	2.69	26	Wetland with cart path		No	RC	APOD
	088	502	022	CHURCH ST	18.08		Williams, upland with Trails	CPA	Hiking	RC & PD	APOD
	088	502	038	CHURCH ST	1.08		Williams, upland with Trails	CPA	Hiking	RC	APOD
3689	089	502	001	WEST ST	8.38		Jaycox, Xmas Tree Farm	CPA	Christmas Trees	RC & PD	WPOD,FH,APOD
3690	089	502	002	WEST ST	1.92		Jaycox, Xmas Tree Farm	CPA	Christmas Trees	RC	APOD
3708	089	502	039	WEST ST	14.23		Wetland & Upland	S-H #27	Hunting	RC & PD	WPOD,FH,APOD
8764	089	502	104	WEST ST	0.83		Merry/ North Hill	CPA	Hunting	RC	WPOD,FH,APOD

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
3958	091	502	054	MAYFLOWER ST	3.27		O'Brien Bog & Trials	CPA	Hiking	RC & PD	WPOD,FH,APOD
3959	092	502	055	MAYFLOWER ST	16.39		O'Brien Bog & Trials	CPA	Hiking	RC & PD	WPOD,FH,APOD
6568	094	502	014	TREMONT ST	6.90	35	Upland with trails		Hiking	RC	WPOD & FH
6569	094	502	114	PINEWOOD LN	1.79	35	Upland with trails		Hiking	RC	0
5177	104	502	003	OFF TREMONT ST	6.48	33	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
#N/A	104	502	038	off DUCK HILL RD	4.94		Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
	104	502	040	off DUCK HILL RD	4.86		Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5191	104	502	076	DUCK HILL RD	6.44	34	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5178	105	502	012	ST GEORGE ST	1.65	33	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5180	105	502	025	ST GEORGE ST	3.68	33	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5181	105	502	031	DUCK HILL RD	3.53	33	Back River salt marsh	S-H #29 ??	Hunting, fishing, shellfishing, birding	RC	WPOD & FH
#N/A	105	502	040	off DUCK HILL RD	4.86		Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
	105	502	041	0 DUCK HILL	20.53		Old Hunting Camp		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5182	105	502	042	DUCK HILL RD	4.12	33	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5183	105	502	043	TREMONT ST	0.20	22	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5184	105	502	047	DUCK HILL RD	0.89	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5185	105	502	048	DUCK HILL RD	0.59		Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5186	105	502	049	DUCK HILL RD	0.19		Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5187	105	502	050	DUCK HILL RD	2.40	33	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5188	105	502	056	PINE HILL AVE	2.00	33	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5838	109	502	015	DEPOT ST	1.16	34	Isabelle Freeman small pond		Picnicing	RC	APOD
6567	111	502	013	STANDISH ST	0.88	35	Open field, Stookey Overlook		Open Space	RC	0

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
5179	115	502	016	ABRAMS HILL	1.16	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
	115	502	073	ABRAMS HILL	3.00	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5192	115	502	077	BOURNE WHARF RD	2.59	34	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
	115	502	078	ABRAMS HILL	5.00		Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5193	115	502	079	ABRAMS HILL	12.46	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5194	115	502	080	ABRAMS HILL	1.36	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5195	115	502	081	ABRAMS HILL	0.92	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5196	115	502	082	ABRAMS HILL	1.80	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5197	115	502	083	DUCK HILL RD	2.62	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5198	115	502	085	DUCK HILL RD	8.47	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5199	115	502	088	DUCK HILL RD	1.81	32	Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5201	115	502	121	COMMON ISLAND	113.69	33	Common Island		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5189	116	502	069	ABRAMS HILL	4.25		Back River salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5190	116	502	073	ABRAMS HILL	3.00	32	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
5200	116	502	120	LITTLE HARRY FOOT ISLAND	3.00	32	Little Harry Foot Island		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
8067	118	502	003	HARRISON ST	0.93		Wetland		No	RC	WPOD & FH
6830	131	502	065	FLAT CREEK SAL ST	6.00	36	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6831	131	502	066	SALT MARSH	3.00		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6832	131	502	068	SALTMARSH CANAL RIVER	2.80	36	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6833	131	502	069	CANAL RIVER	15.00	36	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
6834	131	502	070	DUXBURY MARSH	11.44	36	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6835	131	502	073	CANAL CREEK	4.10	36	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6836	131	502	074	CABLE HILL WAY	7.50	36	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6837	131	502	084	PARISH MEADOW	6.00	36	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6826	132	502	052	PINE POINT RD	9.05	36	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6828	133	502	061	SCAT ISLAND	4.00	36	Scat Island		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6979	136	502	033	GURNET RD	0.17		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6838	136	502	090	GURNET RD	0.45		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6977	137	502	003	GURNET RD	0.50	38	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6978	137	502	004	GURNET RD	0.19	38	salt marsh		Hunting, fishing, shellfishing, birding	RC	FH
#N/A	137	502	007	GURNET RD	0.73		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6980	137	502	085	GURNET RD	4.60	38	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6981	137	502	093	GURNET RD	0.60		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
#N/A	137	502	095	GURNET RD	0.82		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6816	138	502	010	NEAR CANAL RIVER ST	6.78		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6817	138	502	011	GURNET RD	4.44	37	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6818	138	502	012	GURNET RD	3.06	37	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6819	138	502	013	GURNET RD	1.27		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6822	138	502	021	GURNET RD	1.41		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6827	138	502	060	GURNET RD	2.77		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH

PID	Map	Block	Lot	Street Name	Acres	Field Data Sheet See Appendix A Page A-	CONDITION	TYPE OF GRANT	Recreation Potential	Zoning	Overlay District
6814	139	502	001	GURNET RD	1.50	37	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6815	139	502	002	GURNET RD	1.00	37	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6821	139	502	018	GURNET RD	2.53		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6823	139	502	022	GURNET RD	0.35		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6839	139	502	421	PINE PT	6.69		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6820	141	502	017	SKIRT MEADOW ST	3.06	37	salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6824	141	502	030	SKIRT MEADOW ST	4.00	36	salt marsh	S-H #19??	Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6854	141	502	048	PINE POINT	0.66	37	Dune		Hunting, fishing, shellfishing, birding	RC	FH
6855	141	502	050	PINE POINT	0.50	37	Dune		Hunting, fishing, shellfishing, birding	RC	FH
	141	502	941	PINE POINT	2.18		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6825	142	502	046	SKIRT MEADOW ST	6.03		salt marsh		Hunting, fishing, shellfishing, birding	RC	WPOD & FH
6829	142	502	062	LONG ISLAND	4.25	36	Long Island		Hunting, fishing, shellfishing, birding	RC	WPOD & FH

PERMANENTLY PROTECTED WATER DEPARTMENT LAND

All Permanently Protected Water Department Owned "509" land is managed by the Water Department. Valid as of January 1, 2019

PID	Map	Block	Lot	Street Name	Acres
1012	16	509	59	BIRCH ST	1.9
1193	17	509	14	LAKE SHORE DR	10.63
1194	17	509	16	LAKE SHORE DR	2.04
3388	67	509	11	OLD CORDWOOD PATH	10.49
8276	70	509	20	LINCOLN ST	16.52
3963	72	509	12	MAYFLOWER ST	27.91
2782	73	509	74	MAYFLOWER ST	16.37
3389	88	509	18	CHURCH ST	17.74
3390	88	509	25	CHURCH ST	24.88
3711	88	509	40	CHURCH ST	23.76
5204	89	509	16	TREMONT ST	1.41
3710	89	509	39	CHURCH ST	0.03
3712	89	509	56	TREMONT ST	32.34
4126	93	509	33	EVERGREEN ST	21.98
3962	107	509	11	HOUNDS DITCH LN	16.18
5840	108	509	10	DEPOT ST	0.99
5841	109	509	106	S STATION ST	0.54
5842	109	509	116	PARTRIDGE RD	2.39
6570	111	509	43	CRESCENT ST	5.7
	088	509	022	CHURCH ST	2.75

TOTAL CONSERVATION ACRES (502)	3184.71
TOTAL WATER DEPT. ACRES (509)	236.55
TOTAL ACRES	3421.26

CONSERVATION RESTRICTIONS

(as of November, 2018)

CR Ref #	Grantor	Grantee	Acres	Address	Parcel #
1	Vera Realty Trust	DCC	8.57	off Fordville Rd.	030-502-917
2	(application withdrawn)				
3	19 Bluefish River Property Owners	DRHS	NA	Wetlands along Bluefish River	Multiple parcels
4	Trout Farm (Hall's Corner Assoc).	DCC	17.67	Trout Farm Lane	047-223-037
5	(application withdrawn)				
6	Winthrop B. Coffin	DRHS	1.09	Washington St.	118-171-000
7	Gordon & Ruth Berg	DCC	10	Western Way	119-980-003
8	Christmas Tree Farm Realty Trust	DCC	18.83	Christmas Tree Farm Rd.	Multiple parcels
9	Mary Winslow	WTSM	3.37	Marshall St.	122-078-009
10	Charles & Kay Foster	WTSM	0.94	Surplus St.	108-065-403
11	Town of Duxbury/Town Green	WTSM	1.29	Washington St.	110-500-461
12	Richard & Sheila Morse	DCC/ WTSM	0.65	Washington St.	Part of 121-218-461
13	Society of St. Margaret	DCC/ WTSM	1.04	Washington St.	Part of 121-461-219
14	Jones River Watershed Assoc.	DCC	9.9	Pine Brook Way	007-401-006
15	Kelso Family	WTSM	19+	Off Marshall St.	125-085-058, 124-092-000, 126-085-060, 126-107-000
16 & 30	Cedar Hill (UU Church)	WTSM	12.23	Crescent St.	127-452-033
17	Kelso Family	WTSM	5.87	Beach Plum Lane	125-085-034
18	Hart/never completed	WTSM		Standish St.	
19	Delano (CPA CR)	WTSM	19.56	Old Cordwood Path	067-502-007
20	Merlet (CPA CR)	WTSM	10	off Congress St.	013-500-005
21	Hamadeh (CPA CR)	WTSM	32.4	off Congress St.	012-502-071
22	Historic O'Neil Farm Inc.	DCC	18	Winter St.	Part of 032-416-000
23	Swanson (CPA CR)	WTSM	11.48	off Franklin St.	014-502-033
24	Jaycox Tree Farm (CPA CR)	WTSM	10.29	West St.	089-502-001, 089-502-002
25	Andresen/Duxbury Bay Cranberries Realty Trust	DCC	29.91	Wamsutta Way	027-018-040
26	Dingley Dell Estates, Inc.	WTSM	16.2	Dingley Dell Ln.	011-067-001
27	O'Brien Bog (CPA CR)	WTSM	19.66	Mayflower St.	092-502-055, 091-502-054
28	Loring Bog (CPA CR)	WTSM	17.36	Mayflower St.	058-502-038
29	Nudd Bog (CPA CR)	WTSM	23.9	Mayflower St.	058-502-037

CR Ref #	Grantor	Grantee	Acres	Address	Parcel #
30	Same as #16				
31	Allen Property/DRHS	WTSM	12	Crescent St.	113-404-003
32	Berrybrook (CPA CR)	WTSM	40.77	Winter St.	033-502-001, 034-502-000 & Kingston Map 5, lot 24
33	Camp Wing (CPA CR)	WTSM	94.32	Temple, Keene, North Sts.	023-502-003,023-502-005
34	Unknown				
35	Crowell Bog (CPA CR)	WTSM	43.4	Congress & Lincoln St.	055-502-005,055-502-007
36	Howlands Landing Park (CPA CR)	JRWA	4.71	Crescent St. & Howlands Landing Rd.	112-500-053, 054, 055
37	Vose	DCC	.25.	281 Powder Point Ave.	134-104-002
38	Black Friar Swamp (CPA CR)	WT	27.6	Summer Street	014-502-013
39	Giosioso			Rte 139	
40	Philbrick	WT	3.3	West Street	
41	Amendment to CR #12	DCC/WT		Washington St.	Part of 121-218-461
42	Merry/Cedar Crest	WT	100.63	Temple Street (6 parcels)	038-502-023,030; 050-502-032; 051-502-032,035,040
	Total (12/2018)		642.89		
	Agricultural Preservation Restriction				
	Historic O'Neil Farm, Inc.	MDAR	122	Winter St. & Autumn Ave.	

Key

DCC = Duxbury Conservation Commission
DRHS = Duxbury Rural and Historical Society
JRWA = Jones River Watershed Association
MDAR = Massachusetts Department of Agriculture
WT & WTSM = Wildlands Trust

CHAPTER 61 LAND PARCELS

(as of November, 2018 – Map, Block, and Lot refer to Assessor's Parcel number)

PID	Map	Block	Lot	Location	Use Description	Special Use
676	003	014	000	0 CONGRESS ST	Prod Wood	61A
676	003	014	000	0 CONGRESS ST	Nonprnecl	61A
676	003	014	000	0 CONGRESS ST	Prod Wood	61A
647	004	003	000	0 TAYLOR ST	Pasture	61A
648	004	003	001	35 TAYLOR ST	Prod Wood	61A
648	004	003	001	35 TAYLOR ST	Pasture	61A
648	004	003	001	35 TAYLOR ST	Pasture	61A
671	004	012	000	53 TAYLOR ST	61B Nature	61B
672	004	013	000	1065 SUMMER ST	Prod Wood	61A
673	004	013	001	0 SUMMER ST	61b Nature	61B
673	004	013	001	0 SUMMER ST	61b Nature	61B
700	014	023	000	0 KEENE ST	C61 Ten Yr	61
700	014	023	000	0 KEENE ST	C61 Ten Yr	61
700	014	023	000	0 KEENE ST	C61 Ten Yr	61
703	014	027	000	0 HIGH ST	C61 Ten Yr	61
704	014	028	000	0 KEENE ST	C61 Ten Yr	61
1083	019	001	200	9 ROLLING PINE DR	Prod Wood	61A
1091	019	004	000	68 PINE ST	Cranberry	61A
1091	019	004	000	68 PINE ST	Nonproductive	61A
1104	019	010	000	0 PINE ST	Nonproductive	61A
1104	019	010	000	0 PINE ST	Nonproductive	61A
1104	019	010	000	0 PINE ST	Pasture	61A
555	021	052	000	0 NORTH ST	C61 Ten Yr	61
562	022	057	005	80 NORTH ST	Nonproductive	61A
562	022	057	005	80 NORTH ST	Prod Wood	61A
562	022	057	005	80 NORTH ST	Tr Crp Veg	61A
1665	026	918	040	676 FRANKLIN ST	61B Hike	61B
1665	026	918	040	676 FRANKLIN ST	61B Hike	61B
1665	026	918	040	676 FRANKLIN ST	Prod Wood	61A
1424	037	019	003	109 LAUREL ST	Prod Wood	61A
1433	037	022	000	761 TEMPLE ST	Pasture	61A
1433	037	022	000	761 TEMPLE ST	Field Crps	61A
9016	037	022	002	0 LAUREL ST	Pasture	61A
9016	037	022	002	0 LAUREL ST	Pasture	61A
9017	037	022	003	0 LAUREL ST	Pasture	61A

PID	Map	Block	Lot	Location	Use Description	Special Use
9017	037	022	003	0 LAUREL ST	Pasture	61A
2929	048	038	000	6 KINGS TOWN WAY	Pasture	61A
2929	048	038	000	6 KINGS TOWN WAY	Pasture	61A
2929	048	038	000	6 KINGS TOWN WAY	Pasture	61A
2929	048	038	000	6 KINGS TOWN WAY	Cranberry	61A
1435	050	026	000	0 ACORN ST	Prod Wood	61A
1435	050	026	000	0 ACORN ST	Orchards	61A
1436	050	028	000	0 LAUREL ST	C61 Ten Yr	61
1447	050	033	001	0 ACORN ST	61b Golf	61B
1447	050	033	001	0 ACORN ST	61b Golf	61B
1446	051	033	000	0 ACORN ST	61b Golf	61B
1446	051	033	000	0 ACORN ST	61b Golf	61B
1746	052	012	001	0 FRANKLIN ST	Till Forag	61A
1760	052	017	001	602 LINCOLN ST	Tr Crp Veg	61A
1760	052	017	001	602 LINCOLN ST	Til Forag	61A
2425	057	032	001	0 EAST ST	Pasture	61A
2721	058	021	000	0 EAST ST	Cranberry	61A
2721	058	021	000	0 EAST ST	Nonproductive	61A
2721	058	021	000	0 EAST ST	Nonproductive	61A
2788	059	901	039	0 EAST ST	Nonprnecl	61A
2952	061	046	000	0 OAK ST	Cranberry	61A
2952	061	046	000	0 OAK ST	Nonproductive	61A
2967	061	056	001	0 SOUTH ST	Cranberry	61A
2967	061	056	001	0 SOUTH ST	Pasture	61A
2967	061	056	001	0 SOUTH ST	Pasture	61A
1469	066	044	001	0 FRANKLIN ST	61b Golf	61B
1469	066	044	001	0 FRANKLIN ST	61b Golf	61B
3302	067	013	000	221 ENTERPRISE ST	C61 Ten Yr	61
3316	067	015	015	228 OLD CORDWOOD PATH	C61 Ten Yr	61
3320	067	015	019	0 OLD CORDWOOD PATH	Christmas Trees	61A
3320	067	015	019	0 OLD CORDWOOD PATH	Till Forag	61A
3320	067	015	019	0 OLD CORDWOOD PATH	C61 Ten Yr	61
3320	067	015	019	0 OLD CORDWOOD PATH	Nonprnecl	61A
3330	067	018	005	0 TEMPLE ST	C61 Ten Yr	61
3416	067	812	004	78 CARR RD	Prod Wood	61A
3416	067	812	004	78 CARR RD	Prod Wood	61A
3331	068	018	006	301 TEMPLE ST	C61 Ten Yr	61
3332	068	018	007	0 TEMPLE ST	C61 Ten Yr	61

PID	Map	Block	Lot	Location	Use Description	Special Use
4411	080	041	000	175 TREMONT ST	C61 Ten Yr	61
4415	080	044	000	536 BAY RD	Prod Wood	61A
4433	081	051	000	0 BAY RD	Prod Wood	61A
3308	086	015	005	0 ENTERPRISE ST	C61 Ten Yr	61
3309	086	015	006	0 ENTERPRISE ST	Pasture	61A
3309	086	015	006	0 ENTERPRISE ST	Cranberry	61A
3309	086	015	006	0 ENTERPRISE ST	Nonproductive	61A
3310	086	015	007	0 ENTERPRISE ST	C61 Ten Yr	61
3311	086	015	008	142 OLD CORDWOOD PATH	C61 Ten Yr	61
3339	087	018	101	0 CHURCH ST	Nonprnecl	61A
3339	087	018	101	0 CHURCH ST	Cranberry	61A
3344	087	020	003	0 OLD CORDWOOD PATH	Pasture	61A
3344	087	020	003	0 OLD CORDWOOD PATH	Cranberry	61A
3345	088	022	000	0 CHURCH ST	C61 Ten Yr	61
3345	088	022	000	0 CHURCH ST	C61 Ten Yr	61
3588	088	042	009	1398 TREMONT ST	Prod Wood	61A
3588	088	042	009	1398 TREMONT ST	Nursery	61A
4091	093	024	000	293 MAYFLOWER ST	Nonproductive	61A
4091	093	024	000	293 MAYFLOWER ST	Cranberry	61A
4091	093	024	000	293 MAYFLOWER ST	Nonproductive	61A
5273	107	008	003	106 HARRISON ST	61B Golf	61B
5273	107	008	003	106 HARRISON ST	61B Golf	61B
5273	107	008	003	106 HARRISON ST	61B Golf	61B
5625	108	001	000	70 FAIRWAY LN	61B Golf	61B
5625	108	001	000	70 FAIRWAY LN	61B Golf	61B
5625	108	001	000	70 FAIRWAY LN	61B Golf	61B

RECREATION LAND

Recreation land and facilities in Duxbury, in addition to town-owned recreational fields, include The Percy Walker Pool, which offers year-round indoor swimming programs for all ages; and North Hill (342 acres), a nine-hole golf course which also offers cross country skiing, hiking, picnicking, and horseback riding. Many other recreational programs are offered by the Duxbury Recreation Department.

The Town of Duxbury has a number of recreation facilities; some School Department owned and other Town owned. The School, Lands and Natural Resources, and Recreation Departments are involved in the management of facilities and the development of their budgets. All three municipal entities recommend that these facilities, especially the playing fields, be managed by

a single department. The following is an inventory of the School and Recreation Departments' facilities, presently in active use [Refer to the Historic and Cultural Sites Map].

There are many private recreational facilities in Duxbury. Many families report that they moved to a coastal community to experience recreational opportunities within their town.

A small portion of the Marshfield Country Club is located in Duxbury, off Acorn Street.

Camp Wing, owned and managed by Crossroads for Kids, Inc. is situated on 153 acres in West Duxbury. The camp offers overnight and day camp experiences for inner-city and local children during the summer. Boating, hiking, pool swimming, and archery are included in their programs. Older campers can participate in Maritime Adventures, a program at the Duxbury Bay Maritime School (DBMS) that exposes campers to sailing, shellfishing, rowing, and marine ecology. The program is free to Camp Wing, underwritten by corporate and private grants.

The Duxbury Yacht Club also offers sailing programs to its members and hosts weekly races that are open to the public as well as annual regattas. The Club, DBMS and the Duxbury Rural & Historical Society host the Classic Boat Weekend in September.

The Duxbury Beach Reservation's 280 acres of barrier beach provides opportunities for walking, salt water swimming, jogging, bird and nature observation, picnicking, and shell and fin fishing to Duxbury residents and the general public. A beach sticker is required for vehicular access to the beach over the Powder Point Bridge, with non-Duxbury residents paying higher fees than residents. Over the Sand stickers allow access to the outside of the barrier beach, where 500 four-wheel-drive vehicles are allowed per day. On hot summer days, vehicles are frequently turned away because the 500 capacity has been reached. The number of beach stickers issued each year stays relatively constant.

The Harbormaster Department oversees the mooring fields in the bay and oversees the protection of wildlife on the Beach, particularly nesting piping plovers and least terns.

One of the most significant changes to Duxbury Bay has been the establishment of the Duxbury Bay Maritime School (DBMS). Started in 1997 as a community sailing school, DBMS now offers 80 different educational and recreational classes in sailing, rowing, marine ecology, ACCESSAIL (for handicapped sailors), navigation, windsurfing, boating safety, paddle board rowing and kayaking. The school has partnered with the highly successful Duxbury High School Sailing and Rowing teams and provides water activities to inner city campers at Crossroads for Kids. The Annual Opening of the Bay in the spring and sailing regattas in the summer are highlights of the seasons.

Also along Duxbury's waterfront, Bayside Marine Corp has a large site that includes Bayside's offices, retail store, powerboat showroom and maintenance department, boat storage, launch service and fuel dock. Bayside Marine also offers classes in boating safety and is one of the largest Grady White dealers in New England.

Throughout the summer season, waterfront festivals are held, starting with Opening of The Bay on Memorial Day weekend. Sponsored by the Duxbury Bay Maritime School, Opening of the Bay always includes a visiting tall ship. The ship is open to the public during the weekend. Throughout the summer many sailboat races and regattas are hosted by Duxbury Yacht Club and DBMS. In September, Classic Boat Weekend rounds out the summer season, sponsored by Duxbury Bay Maritime School, Duxbury Yacht Club, Duxbury Rural & Historical Society, and Duxbury Art Association.

Shellfishing is an important commercial and recreational activity in Duxbury due to the tidal flushing of the bay and a 9-foot average tide. In fiscal year 2017, shellfish licenses generated \$77,315 for the town. Oyster aquaculture has become a very successful industry and 1.5% of Duxbury and portions of Kingston Bay are leased to farmers. Annual oyster festivals are highly popular and often serve as charitable fundraisers. The Duxbury Bay Management Committee has drafted the Duxbury Bay Management Plan and The Duxbury Aquaculture Management Plan to address the increasing use of the bay for recreational and commercial activity which has a direct impact on the natural resources.

At the 2006 Town Meeting, the Bay Management Committee was officially designated the Duxbury Bay Management Commission and charged with continuing their work in inventorying and providing draft management policies for the many bay uses. Such uses being looked at include: piers, aquaculture grants, moorings, shellfish beds, town landings and beaches, and the management concerns these activities generate.

ADA SELF-EVALUATION

DUXBURY BYLAW: 5.1 AMERICANS WITH DISABILITIES ACT POLICY

The Town of Duxbury does not discriminate on the basis of disability in admission to, access to, or operations of its programs, services or activities. The Town does not discriminate on the basis of disability in its hiring or employment practices. Individuals who need auxiliary aids for effective communications in programs and services in the Town of Duxbury are invited to make their needs and preferences known to the ADA Compliance Officer/Town Manager.

GRIEVANCE PROCEDURE FOR AMERICAN WITH DISABILITIES ACT COMPLAINTS:

The following Grievance Procedure is established to meet the requirements of the American with Disabilities Act. It may be used by anyone who wishes to file a complaint alleging discrimination on the basis of disability in employment practices and policies of the provision of services, activities, programs and benefits by the Town of Duxbury.

The complaint should be in writing and contain information about the alleged discrimination such as name, address, phone number of complainant and location, date and description of the problem. Reasonable accommodations, such as personal interviews or tape recording of the complaint, will be made available for persons with disabilities who are unable to submit a written complaint.

The complaint should be submitted by the grievant and/or his/her designee as soon as possible but no later than 60 calendar days after the alleged violation to:

Town Manager Town Office 878 Tremont Street Duxbury, MA 02332

Within 15 calendar days after receipt of the complaint the Town Manager will meet with the complainant to discuss the complaint and possible resolution. Within 15 calendar days after the meeting, the Town Manager will respond in writing, and, where appropriate, in a format accessible to the complainant such as audiotape. The response will explain the position of the Town of Duxbury and offer options for substantive resolution of the complaint.

If the response by the Town Manager does not satisfactorily resolve the issue, the complainant and/or his/her designee may appeal the decision of the Town Manager within 15 calendar days after receipt of the response to the Board of Selectmen or their designee.

Within 15 calendar days after receipt of the appeal, the Board of Selectmen or their designee will meet with the complainant to discuss the complaint and possible resolutions. Within 15 calendar

days after the meeting the Board of Selectmen or their designee will respond in writing, and, where appropriate, in a format accessible to the complainant such as audiotape, with a final resolution of the complaint.

All complaints received by the Town Manager, appeals to the Board of Selectmen or their designee, and responses from the Town Manager and the Board of Selectmen or their designee, will be kept by the Town of Duxbury for at least three years.

Adopted by the Board of Selectmen 4/3/95

Please see associated letter from ADA Coordinator in the Appendix.

6 - Community VISION

HOW THE GOALS WERE DETERMINED

The goals of the 2017 Open Space and Recreation Plan were derived from meetings with town boards and departments and from the results of the 2015 Duxbury Open Space and Recreation Plan Survey. The goals are similar to those of the 2008 Open Space and Recreation Plan, however, in light of global warming and climate change there is the addition of a fifth goal: Planning for Climate Change.

Results from the 2015 Open Space and Recreation Plan Survey again demonstrated that the protection of open space is very important to the residents for a number of reasons. The preservation of land to protect drinking water was of primary importance, closely followed with the preservation of land for the protection of wildlife habitat and surface waters. Despite the frequent comments on taxes, the majority of respondents were in favor of maintaining CPA funding at its current 1% surcharge or returning to a higher rate. Community preservation funds have served as the primary source of revenue, often with matched private, state and federal funds, for land acquisitions since 2002.

2015 OPEN SPACE AND RECREATION PLAN EXECUTIVE SUMMARY

In 2014 members of the Duxbury Open Space Committee, Community Preservation Committee and the Conservation Department embarked on the update of the Duxbury Open Space and Recreation Plan to assess residents' knowledge, use and concerns about open space and the role of the Community Preservation Act (CPA). Surveys were mailed in January 2015 and residents were asked to mail back the forms, drop them off at any one of several locations, or complete the survey online through the town's website. The response rate was lower than the 2007 survey; 6,762 mailings were sent out and 812 responses were received, whereas in 2007, 7,366 mailings were sent and 1,300 responses were received. The results were used to determine the goals for the 2015 Open Space and Recreation Plan.

The Open Space Survey addressed residents' priorities for land preservation and recreation; perceived level of use of town owned properties, Duxbury Bay and Duxbury Beach; funding for future acquisitions for open space, recreation, historic preservation and community housing; and factors that attracted residents to Duxbury. Space was provided for any comments.

The results of the survey presented some interesting findings and the responses were equally divided by gender. Reflective of the age distribution of the population, 47.4% of the respondents were within the 31-60 age group. Many Duxbury residents older than 60 years of age are actively engaged in town activities and governance and 51% of the respondents were from this age group. Only 1.8% of the respondents were within the 18-30 age group.

When asked to rank various types of land in relation to preservation importance, the majority of respondents ranked the protection of land to protect drinking water as the highest priority (84.5%) This was surprisingly lower than the results of the 2007 Open Space Survey which reported drinking water protection as a priority among 96% of the respondents. Preserving land for the protection of wildlife habitat and surface waters and preserving land for trails were also considered a high priority; 69% and 51% of the respondents, respectively. Agricultural land was given a high priority among 32% of the respondents, and medium priority among 45% of the respondents. Similar to the 2007 survey, athletic fields were given less priority; 48% of respondents ranked athletic fields as a low priority, 36% medium priority.

When residents were questioned about the source of funding for future land acquisitions, historic preservation and community housing (all currently addressed in Duxbury with CPA funding) 68% of the respondents favored banking the current 1% CPA surcharge. Surprisingly 222 residents (31% of the total respondents) were in favor of returning to a higher CPA surcharge rate. Temporary tax increases (debt exclusion) was favored by 18% of the respondents.

The value of open space preservation was reflected in the number of respondents (80%) using town resources. The more favored sites are Duxbury's beaches, North Hill, Round Pond, East Street Bogs and Bay Farm Field. Duxbury Bay received fewer responses, perhaps due to access or ownership of watercraft. Athletic fields were chosen by only 6% of the respondents. Other sites frequently noted were Lansing Bennett Forest, Howlands Landing/Blairhaven, Camp Wing, Standish monument, O'Neil Farm and Wildlands Trust Preserves. Roughly 6% of the respondents, of whom the majority were within the 60+ age population, indicated that they don't use any open spaces, however, one respondent noted that they drive to these areas.

Residents were asked about the level of use of athletic fields, Duxbury Bay, Duxbury Beach, town landings, and trails. Echoing the concerns frequently given at annual town meetings, 50% of respondents consider Duxbury Beach as overused and 48% noted adequate use. With the exception of the Beach, over 70% of the respondents reported adequate use at the other sites. Only 18% and 26% of the respondents reported landings and trails, respectively, underused.

The majority of respondents reported that they chose to live in Duxbury because of the Beach, character of community, the bay, and schools. Nearly 50% and 40% of respondents favored conservation land and limited commercial development, respectively, in their decision. The residents were also asked if they would still be living in Duxbury in 10 years. Despite the comments reflecting concerns with taxes, fixed incomes and not enough commercial activity, 84% of the respondents believe that they will remain in town.

Additional space was provided for a number of questions and at the conclusion of the survey for comments. The responses indicated that taxes are an increasing burden for many, especially those on a fixed income. Some respondents cited high municipal debt, uncontrolled spending and the high cost of living. A few respondents in the 60+ age group suggested tax breaks for seniors.

Respondents frequently commented on the need to balance development with natural resource protection. Some called for more land acquisitions, more education on land protection, better protection of drinking water, and more education on farming. A few mentioned the need for more commercial activity such as restaurants and shops. Some called for an increase in the CPA surcharge, others were against any increase, and a few felt that enough has been accomplished with CPA.

There were frequent recommendations for better access to trails, trail surfacing, and benches near parking areas for people with mobility issues and strollers. The demand and appreciation for the town's extensive trail network was clearly demonstrated; a number of respondents called for

improved parking, maintenance, and better trail maps and markers. A number of residents drew attention to the growing need for dog waste disposal and control of dogs.

Access to the beach remains an ongoing concern. A few respondents expressed their frustration with the restrictions to protect plovers and terns. A number of respondents wanted more access for Duxbury residents and higher fees and less access for out of town beachgoers. Some expressed their frustration with the number of vehicles parked on the beach. Landings also received some attention, perhaps due to a recent town meeting article sponsored by the Bay Management Commission for improved landing signage. A few asked for better maintenance and access to landings, and some didn't know where the landings were.

The need for safe sidewalks and bike paths was often commented upon. Some highlighted Washington and Harrison Streets, Bay Road, Powder Point and areas west of Route 3 as areas of concern. A few suggested connectors to school and commercial areas.

There were few comments regarding athletic facilities. Five respondents mentioned the overuse and poor condition of playing fields, the need for more fields, the need for improved parking at the Keene and Lincoln fields, and the need for more outdoor basketball courts.

A few respondents wanted the survey to address housing. A few comments favored more housing for the 60+ age group, one comment was against the use of CPA funding for any housing, and a couple of comments discouraged 40 B housing. The town drafted and approved the Housing Production Plan in April 2014.

Overall, the community's support for the preservation of open space and protection of our resources was clearly demonstrated with this survey. In addition, the 2015 Annual Town Meeting overwhelming supported the acquisition of 267 acres of land, consisting mostly of cranberry bogs and wetlands. Furthermore, a number of respondents thanked the town for protecting its land, keeping it maintained and preserving its beauty.

7 - Analysis Of Needs

SUMMARY OF RESOURCE PROTECTION NEEDS

The Town of Duxbury contains approximately 15,454 acres, of which 15,021 acres are land and 432.9 acres are water bodies. Developed land accounts for nearly two-thirds of the Town's total area, and approximately ½ of the town's land use is residential. This includes residential, commercial, public/semi-public and transportation land. Public /semi-public land is land owned by the public or institutions such as churches and non-profit organizations. Since the adoption of the Community Preservation Act in 2002, 817 acres have been permanently protected as open space (which is included in the "public/semi-public" category). Some of the land was formerly owned by non-profit organizations and churches and less than 10% of private land is actively farmed, but not permanently protected under Chapter 184. The Conservation Commission, which manages the Town's open space, intends to continue the farming practices on the agricultural lands.

Duxbury's location, natural resources, cultural amenities, and the development of a new middle and high school campus make it very desirable for all age groups. To emphasize what has been stated in all of Duxbury's Open Space and Recreation Plans, open space preservation must keep pace with development in order to maintain the Town's historical character. The Community Preservation Act was adopted in 2002 with the goal of protecting 3 out of every remaining 10 acres of undeveloped land in town. The CPA provides a funding mechanism through which open space can be acquired or protected [Refer to the Community Preservation Projects Map]. The 2007 and 2015 Duxbury Open Space and Recreation Plan Surveys identified several types of land that are of the highest priority in open space acquisition and conservation. The Conservation Commission and the Community Preservation Committee refined this list and developed a list of criteria to determine which parcels should be protected.

Parcels needing protection:

- Land protecting drinking water supplies
- Parcels that link open space land for wildlife corridors and/or trail connections. This includes public ways and access to the bay, ponds and streams.
- Land protecting wildlife habitat, especially rare plant and animal habitat.
- Land that encompasses surface waterways and riparian areas, especially land along the six watersheds and their upland buffers.
- Land that enhances and preserves the town character, including cranberry bogs, farmland, fields, coastal areas, historical landscapes and scenic landscapes.

The 2015 Open Space and Recreation Survey results again demonstrated the popularity of the extensive network of trails through woodlands and cranberry bogs. The majority of respondents indicated that the level of trail use was adequate, largely due to a dedicated group of staff and volunteers who maintain these areas. Erosion control, parking, signage, flood control, protection of nesting habitat, and dog waste are just some of the challenges the Town must address. Furthermore, much of the open space is actively farmed, which may present some challenges for the farmers when pedestrians, dog walkers, and bicyclists share their workspace.

The 2015 Survey also highlighted the bay and beaches as the most important recreational resources, and notably, fifty percent of the respondents considered the beach overused. The 2012 Duxbury Beach Management and Habitat Conservation Plan cites the challenges of increased usage of the beach, its importance as a nesting and resting area for endangered and common birds and marine mammals, and the maintenance of the access route to the Gurnet-Saquish community. The Duxbury Beach Reservation, Inc. owns the beach, annually leases it to the Town, and in turn Duxbury's Harbormaster & Coastal Resources Department manages the beach.

The ongoing effort to strengthen the barrier beach against the threat of sea level rise and higher storm surges presents a sizable financial commitment. Annually, the Reservation undertakes dune reconstruction, repairs the back road to Gurnet-Saquish, creates habitats for piping plovers, and replants vegetation with the assistance of the Conservation staff and volunteers. Currently, the Reservation is conducting a capital campaign to raise funds for a considerably larger project. The elevation of the beach is to be raised with the addition of quarry sand to the dune structure and back road to Gurnet-Saquish. It is believed that this will thwart over-washes and breaches that make repairs even more costly.

Duxbury Bay is also facing increasing recreational and commercial activity and development pressure along the shore. The 2011 Duxbury Bay Management Plan provides historical and existing data on water quality, eelgrass, shellfish, endangered species, moorings, recreational boating, and Harbormaster activity. The Plan recommends future monitoring and additional data collection, given the level of activity and the variety of resources. One recommendation of the Management Plan was the continual update of the Aquaculture Management Plan which was originally drafted in 2009. The Duxbury Aquaculture Management Plan provides recommendations for the success and sustainability of the shellfish aquaculture industry and presents guidelines for grant siting and administration, including use conflict analysis.

In 2015 The Duxbury Bay Management Commission received CPA funding for signage to promote and inform residents of public access to Duxbury Bay and the ecology of the Bay, and to provide important information regarding navigation and safety in the Bay. Demands on the Bay's resources and encroachment by private homeowners on public town landings prompted this action and it is anticipated that some enforcement will be necessary. The Management Plan also noted that educational programs and lectures promoting environmental protection are to be developed.

SUMMARY OF RECREATIONAL FACILITIES NEEDS

POPULATION

Duxbury's demographics and public input on the *Envision Duxbury* Comprehensive Plan indicate that the underserved population in the community are on-road bicyclists, and other populations seeking safer packed or hard-surface walking connections along roads and in natural areas including the beach (such as senior citizens, people with disabilities such as Alzheimer's or who may be wheelchair bound and their caretakers, school-aged children, and individuals without access to motor vehicular transportation).

The Old Colony Planning Council's 2013 Bicycle and Pedestrian Connectivity and Livability Study, (which did not include Duxbury but looked at Plymouth, Kingston and Plympton which abut the Town), finds that there is a need to widen and mark travel lanes to make bicycle transportation safer in the region. During the current update to that plan, Duxbury participated heavily in the 2016 survey, and the lack of safe infrastructure in Duxbury were cited as the top two reasons cyclists and walkers did not get out more often.

The population shifts from the time of the 2000 study to the 2010 Census are as follows:

- Population growth is following predicted trends, with an aging overall demographic.
- Increase in people age 20-24 years (from 2.6% to 4.1%, or 253 additional), fewer adults age 25-44 years, and an increase in adults age 60-75. Fewer children under 5 years of age, over 1,000 fewer adults age 25-44 than in 2000 (a 46.5% decrease), while the age 60-75 population has increased from 1403 to 2545 (an 81.4% increase). These trends are continuing at the present time.

Total Population Sex and Age	2000 Census	Percent	2010 Census	Percent	2005-2014 ACS American Factfinder (July 1, 2014*)	Duxbury Percent	Plymouth County Percent
Total	14,248		15059		15,208		500,772
Male	6,840	48	7,241	48	7377	48.5	48.6
Female	7,408	52	7,818	52	7831	51.5	51.4
Under 5 years	1001	7.0	709	4.7	822	5.4	5.4
5 to 9 years	1230	8.6	1,220	8.1	1251	8.2	6.5
10 to 14 years	1260	8.8	1,475	9.8	1376	9.0	6.9
15 to 19 years	996	7.0	1,148	7.6	1069	7.0	6.9
20 to 24 years	376	2.6	454	3.0	629	4.1	5.8
25 to 34 years	1037	7.3	688	4.6	581	3.8	10.0
35 to 44 years	2394	16.8	1883	12.5	1761	11.6	12.9
45 to 54 years	2658	18.7	2720	18.1	3074	20.2	16.3
55 to 59 years	996	7.0	1232	8.2	1016	6.7	7.2
60 to 64 years	593	4.2	1076	7.1	1049	6.9	6.6
65 to 74 years	810	5.7	1332	8.8	1496	9.6	8.6
75 to 84 years	586	4.1	674	4.5	651	4.3	4.4
85 years and over	311	2.2	448	3.0	433	2.8	2.1
Median age	40.3		44.8		45.4		41.8

*Published December 2015.

Environmental Justice Communities. No Environmental Justice areas are mapped in the State's GIS layer, and none are known to be within 1000 feet of town boundaries.

The population is projected to continue to age in place, as demonstrated in the graphic above, unless there is an unexpected change in the demographics.

FACILITIES

The Town of Duxbury last did a committee-based study of its recreational facilities needs in 2000. Since 2000, a comprehensive study of the needs for recreational facilities town-wide has not been updated; however, many incremental studies have been undertaken with the following recommendations, according to the Director of Recreation:

FIELDS There is a need for more field space in the town as every field is in constant use and no opportunity exists to take a field out of rotation and rehabilitate it for any growing seasons.

Possible expansion of recreational facilities using land owned by the school adjacent to Chandler School. A study was completed in 2015 with \$30,000 of CPC funds by Gayle Associates to investigate field/court expansion opportunities, which proposed tennis courts/ basketball courts and several multi use fields and baseball/softball fields with parking and related facilities with an estimated \$3,000,000 implementation budget. The plan has not yet been implemented. One of the issues identified here is the lack of adequate water for field maintenance – recent work to create more water availability was completed here and is described in Chapter 8 of this plan.

COURTS

Pickle ball is a relatively new sport to this area. Current plans are to convert two tennis courts located at Tarkiln to 6 permanent pickle ball courts. CPC has approved this project, \$50,000, approved at Annual Town Meeting 2019.

The Recreational Advisory Committee has made it known they want an additional outdoor basketball court in Town as there is only one in the entire Town.

Ongoing rehabilitation of tennis courts to fix and fill cracks and sealcoat is always planned.

PERCY WALKER POOL

The pool is constantly challenged by various HVAC and corrosive atmospheric issues, even after the renovations. The town is considering feasibility of replacing the roofing and doing a complete natatorium HVAC overhaul. New State-allowed sanitization procedures (such as UV) of pool water should be explored as well as changing the current PH delivery system from dry acid to CO₂. The ADA lift to assist patrons enter the water is in need of replacement soon.

NORTH HILL COUNTRY CLUB

For the future, possible expansion from 9 to 18 holes, with practice facility is a topic of discussion. In addition, future projects should include replacement of the current above ground chemical storage facility, as well installation of a state of the art wash down/ water

purification discharge system for maintenance vehicles.

SIDEWALKS

The Recreational Advisory Committee and the Recreation Department has not become involved in this discussion yet, but sees a great need and benefit of this.

INDOOR RECREATION FACILITY /OFFICE LOCATION

We have long desired an indoor facility of our own to operate and offer programs and space to our residents. We are quite dependent on the School Department for this currently.

STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN

The Town's recreational inventory of needs both passive and active reflect those of the 2017 Statewide Comprehensive Outdoor Recreation Plan (SCORP). This Plan identifies Goal One the need for access for underserved populations, which for Duxbury includes all generations who desire safe walkability and bicycling routes in their community. Goal 2 of the SCORP is support of the Statewide Trails Initiative. Duxbury is part of the Bay Circuit Trail, and has acquired and protected open space throughout the town along major greenbelts which are within a short distance of every neighborhood in Duxbury, and is now working with the Senior Center to build the first ADA-accessible walking loop. Improving trail-based activities and linking to broader regional and statewide trails and greenways that include walking, biking, and running. It addresses the need for inter-community loops that access parks, water resources, community agricultural land, and playgrounds without the need for a car. The SCORP promotes additional land protection for wildlife corridors and the preservation of forested areas to protect groundwater resources. The Open Space Committee and the Sidewalk and Bike Path Committee have taken a more proactive role in educating the public and in the development of these activities. Goal 3 of the SCORP is to increase the availability of water-based recreation. The Duxbury Plan includes goals and objectives of identifying and improving on public access. The town has proactively added to its waterfront land with public access, and plans to work on Snug Harbor's access and climate resiliency, supporting the proposed improvements to the DBMS rowing facility and boat storage building. In this inventory, the Town of Duxbury quantified its conservation land which supports wetlands, drinking water supply protection and fishing, small boating and beach front access. The goals of this plan have been broadened to reflect the need to continue to protect water resources. Goal 4 of the SCORP includes creation and renovation of neighborhood parks. Duxbury actively maintains its conservation lands and open space (both active and passive) for recreational use, and many volunteers support these activities as described in the Implementation Plan and other sections of this report. The Town is undergoing a Comprehensive Planning effort for the first time since 1999, and walkable connectivity of these abundant natural areas consistent with preservation of habitat and water quality are important aspects of this planning process. The Appendix regarding wetlands in the SCORP is in keeping with the Town of Duxbury's active acquisition of these habitat areas and continued goals to protect and improve salt marshes as well as continued protection of water quality remain high priorities in the Town's plan, consistent with the SCORP.

Barriers to outdoor recreation are primarily related to the need for more fields and the safety of walkable and bike-able trails/paths as described in the preceding paragraphs. Parking needs could be reduced if alternative safe routes were introduced for both passive and active recreation. The Planning Department and the Council on Aging have teamed up in 2018-2019 to receive a

grant from AARP MA with a series of donor contributions and matching grants in order to build an ADA-accessible ¼-mile walking loop around the Senior Center to help serve the needs of all individuals who need these facilities, with the proximity to parking, bathroom facilities, the Fire Station, Police Station and snacks/water. This trail is intended to spark the interest in continuing to provide similar walkable trails in other neighborhoods where suitable, and will be used by Alzheimer's patients and their caretakers, as well as other caretakers and those they are assisting.

SUMMARY OF COMMUNITY NEEDS

Duxbury Beach is facing intense recreational use at a time when there are expensive maintenance needs, including the management and monitoring of endangered bird species. Activity in Duxbury Bay demands attention as it is increasingly being used for recreation and commercial shellfishing. Increasing development along waterfront and wetlands, often by homeowners for recreation and protection from erosion and sea level rise, is compelling the Conservation Commission to review and revise regulations to protect wetlands and buffers.

The Duxbury Agricultural Commission drafted the Duxbury Right to Farm Notification in 2008. The Notification states "it is the policy of the community to conserve, protect and encourage the maintenance and improvement of agricultural land for the production of food and other agricultural products, and for its natural and ecological value." The Agricultural Commission promotes farming and the permanent protection of farmland, and supports local farmers in the event of conflicts or farm related diseases. The Commission has also provided invaluable support for the protection of both agricultural and non-agricultural open space.

The Historical Commission also plays an important role in the protection of natural resources. In their effort to maintain the historic character of the town they have undertaken an inventory of historic properties and historic agricultural and archaeological sites, they support the protection of agricultural land, and they are reviewing and revising the Demolition Delay Bylaw.

Planning for climate change is the newest challenge for Duxbury and the Commonwealth as a whole. The 2013 Kleinfelder Sea Level Rise Study notes that Duxbury, Marshfield and Scituate are particularly vulnerable to sea level rise because of their geography. Historically, the three towns have experienced extensive damage from storm-related flood damage during 1978-2013. The three towns received \$78.3 million in flood related claims during this period; Duxbury's share was \$4.7 million. The report draws attention to the potential negative impacts to tidal salt marsh which serves as a buffer to storm surge and an important habitat for water fowl and mammals. If the vertical growth of the tidal salt marsh cannot keep pace with rising sea levels the anticipated result will be more flooding of marshes which will cause plant die off and eventual conversion to an intertidal mudflat or sub-tidal open water. The Study adds that there is a need to study impacts of coastal and inland flooding on water resources, salt marshes, forests and barrier beaches. In addition, research on the impact to fisheries and shellfish, wildlife populations, and agriculture would be equally important.

MANAGEMENT NEEDS

The management of open space is largely undertaken by an active stewardship program which requires cooperation among the many town departments and between the town and local non-profit organizations. Regional collaboration must also be pursued to preserve watersheds and open space areas that cross town borders. A dedicated group of volunteers work closely with the Conservation Commission to clear and mark trails, remove hazardous structures, and help with

the development of trail maps. In addition, well drafted newspaper articles drawing attention to a number of sites and trail networks serve to gain support for more land protection and interest in volunteering.

Mass Audubon Society, which owns land in the North Hill Marsh Sanctuary, plans to certify vernal pools, monitor the water withdrawal reports to ensure compliance with the WMA permit, and work with the Duxbury Conservation Commission to reduce erosion around the North Hill Marsh pond.

Proper management of Duxbury Beach and Duxbury Bay is increasingly challenging as the diverse ecosystems are met with mounting recreational, shellfishing, fishing, and development activities. In addition, sea level rise and higher storm surges are taking a toll on the barrier beach and this presents an enormous financial challenge.

The Kleinfelder Study recommends a number of strategies to tackle rising sea level. Protective barriers, such as sea walls, dikes, revetments could be considered, however these structures may need to be massive, costly and difficult to get permitted under current regulatory systems. Another recommendation is accommodation, or the raising of structures above flood elevation and the construction of sacrificial dunes and structures that are designed to absorb the impact of large storms. This would allow flood waters to penetrate developed areas, damage would be presumed minimized. A third strategy would be the removal of structures and infrastructure from harm and relocating them away from the ocean. The affected areas would then become natural barriers. This strategy includes property buyouts, relocation of roads and buildings, and new zoning and regulations that would limit construction. In sum, this is a daunting task that requires extensive planning, enormous amounts of capital, and public support. It has been suggested that this effort would be better served by collaboration with other communities and at the state and federal level.

8 – GOALS & Objectives

The following comprehensive set of goals and objectives should provide clear guidelines for Duxbury's open space and recreation planning for the next seven years. Goals 1 through 4 have been derived from the 2015 Open Space and Recreation Plan Survey and are listed in order of priority (Protection of Duxbury's Aquifer and Groundwater are of highest priority). A fifth goal has been added to address the increasing concerns with climate change and the need for research and planning.

GOAL 1.

PROTECTION OF DUXBURY'S AQUIFER AND WATER RESOURCES

- Protect drinking water quality by preventing contamination, runoff, and diversion of water that directly contributes to aquifer recharge.
- Pursue a variety of land acquisition strategies for protecting sensitive groundwater recharge areas.
- Continue to educate residents about the influence of surface water on the town's groundwater
- Develop and implement stormwater management strategies.
- Evaluate climate change impacts on the aquifer and develop long term strategies to protect this resource.

GOAL 2.

PROTECTION OF DUXBURY'S NATURAL AREAS AND ENVIRONMENT

- Continue to acquire and protect land based upon the 1969 Greenbelt Plan and the 2000 Land Acquisition Task Force Plan.
- Preserve, through acquisition and/or local regulation, ecologically valuable habitat and natural resources.
- Minimize habitat fragmentation to help protect Duxbury's species diversity.
- Preserve the connectivity of inland wetlands and riparian corridors.
- Protect Duxbury's coastal resources, ponds and their frontage.

**GOAL 3.
PRESERVATION OF THE UNIQUE CHARACTER OF DUXBURY**

- Continue to identify and protect important areas, vistas, historic buildings, archaeological sites, and open spaces that contribute to Duxbury's community character.
- Protect and preserve agricultural land.
- Support and preserve agriculture, horticulture, silviculture, and aquaculture in Duxbury.
- Continue to protect the aesthetic character of Duxbury's scenic roads and landscapes.
- Continue the Land Acquisition Task Force strategy of preserving three acres of every ten remaining undeveloped acres to maintain the semi-rural character of the town.
- Educate town residents on how the CPA contributes to and protects the unique characteristics of Duxbury.

**GOAL 4.
MANAGEMENT OF THE TOWN'S RECREATIONAL OPPORTUNITIES WITH
MINIMUM IMPACT TO THE ENVIRONMENT**

- Increase awareness of passive and active recreational opportunities
- Develop and implement a long-range regional plan to provide safe walking and biking.
- Strive to improve access to Duxbury's natural resources and recreational facilities for the physically challenged.
- Work to establish a balance between recreational facilities and environmental concerns.
- Support a maintenance and improvement program for the Town's open spaces, recreation areas, athletic facilities and programs.
- Promote communication and cooperation with organizations and neighboring communities regarding natural resource protection projects.

**GOAL 5.
PLANNING FOR CLIMATE CHANGE**

- Identify natural resources, such as fisheries, shellfish and wildlife; farmland; woodlands; and water supplies that are vulnerable to climate change factors such as temperature, precipitation, changes in hydrology, changes in seasons, sea level rise, storms and floods.
- Assess community vulnerabilities such as public and private water supplies, utilities, roadways, dams and culverts, septic systems, stormwater systems and private and commercial property
- Create or amend local wetland and zoning bylaws to protect water resources; fisheries and shellfish; wildlife; woodlands; farmland; riparian corridors; plant and animal biodiversity; and recreation.
- Increase awareness and climate literacy and encourage community participation.
- Collaborate with neighboring communities to secure state support.

9 – PAST SEVEN-YEAR Review

GOAL 1: PROTECTION OF THE TOWN'S DRINKING WATER SUPPLY

The results of the 2015 Open Space and Recreation Survey continue to demonstrate the value that Duxbury residents place on the quality of the town's drinking water supply. Purchasing land for the protection of existing and future wells is a high priority. Meeting the growing demand for water and adding redundancy in the system to protect water quality is an ongoing concern of the Water Department. In FY 2009, CPA funds were used to purchase 106 acres of Camp Wing property, which protects two miles of the South River which is a priority habitat for rare species, and will provide additional protection to the neighboring town of Marshfield's Mt. Skirgo well. In FY 2011 the 60 acre Congress St. bogs, which are under the USDA Wetland Reserve Program, were acquired to protect a future drinking well site, to preserve the scenic vista at a major gateway to Duxbury, and to expand the trail network throughout town. The well field was transferred to the care and control of the Water Department. In FY 2016, CPA funds were used to acquire the Merry properties which allows for better control of water courses and waterways for flood control and to maintain the level of water in the North Hill Marsh. The water elevation at the North Hill dam regulates the operation of Mayflower I and II drinking wells. Five of the Merry parcels buffer these wells and a former cranberry bog will be allowed to go fallow to allow for better recharge and protection of the water supply. The Merry Gifford Bog also abuts another town owned well site, thus protecting this area from possible development.

To ensure that the existing water sources remain healthy, several maintenance projects were completed. Divers conducted an interior inspection of the Captain's Hill two-million-gallon water storage tank and removed accumulated sediment on the floor surface. New pumps, motors and variable frequency drives were installed at Evergreen #1 and #2, Mayflower #1 and #2 and Lake Shore Drive Pump Station. The Supervisory Control and Data Acquisition System (SCADA) was installed to allow for more accurate data. New water mains and connections were installed and the PCE Pipe Replacement Program continues as planned. Construction of the Damon Wells and the Birch Street tank were completed in 2009.

GOAL 2: PRESERVATION OF DUXBURY'S UNIQUE CHARACTER

In 2002, upon recommendation of the Land Acquisition Task Force, the town adopted the Community Preservation Act (CPA) at the maximum 3% surcharge. This enabled the town to benefit from multiple rounds of state matching funds. Despite a challenging goal, the Community Preservation Committee (CPC) strives to protect three of every ten acres of undeveloped land as open space. Unfortunately, the economic downturn and sizable capital projects, such as the combined Middle and High Schools, police station and addition to the fire station, resulted in the reduction of the surcharge to its current 1% and an exemption of the first \$100,000 of taxable real estate.

Despite the reduction in the surcharge, the town has been supportive of CPA projects that preserve land and scenic resources, restore historic properties, develop recreational sites, and develop affordable housing. The CPC printed an informative brochure explaining the Act and highlighting CPA funded projects. We are pleased to note that this will require updating as there are more than four dozen projects. Recognizable CPA signage is posted throughout the community and non-profit organizations who have received CPA funds for restoration projects have acknowledged the town's generosity with plaques.

Historical Preservation Projects

Duxbury is home to a number of sites that are listed on the National Register of Historic Places and the Alden House (c. 1653-1700) has received the prestigious designation as a National Historic Landmark. Over the past seven years, a number of historical restoration projects were completed using CPA funds which, in most instances, were matched by private donations. A summary of the projects is listed below.

Restoration projects included the Tarkiln Schoolhouse (c. 1871), thanks to the Friends of Tarkiln and many volunteers and craftsmen who donated time, money and services; the WWI Memorial, which received donations through the sale of memorial bricks; the Isaac Keene Barn (c. 1870), the largest barn at the time; fourteen of the First Parish Church windows (1840) were refurbished; and the restoration of the granite foundation of the Keene Mill on Temple St. which had an up and down saw used for the construction of cranberry boxes for the 5C Cranberry Co..

Other CPA funded projects were the Old Town Hall (c.1840) restoration, 215 gravestones at the Mayflower and Standish Burial Grounds (one of the oldest cemeteries in the country) were properly preserved; ground penetrating radar was used to locate the first meetinghouse site; and the Nathaniel Winsor House (1807) chimneys were restored, one of the more prominent houses within the Old Shipbuilders Historic District. Structural and condition assessments were completed on the Capt. Gershom Bradford (1808) and Alden Houses, which are owned the Duxbury Rural & Historical Society and the Alden Kindred of America, Inc., respectively. The front entrance to the Duxbury Free Library, formerly the Duxbury High School (1926) was restored; the Myles Standish House site is to undergo an archaeological overview and assessment and an application for designation on the National Register of Historic Places will be developed. The Duxbury Historical Commission has undertaken a multi phased historical survey of houses, barns and other structures and the Duxbury Online Historic Archives Committee is creating a database of historic items. The Historic Commission is also mapping historic neighborhoods, oversees the

Demolition Delay Bylaw, and meets with landowners and developers to pursue alternatives to demolition of historically significant homes.

Land Acquisition Projects

Several important land acquisitions with outstanding views include the 5 acre Blairhaven property with 390 feet of frontage on Kingston Bay; the 40 acre Berrybrook fields, which offer an expansive streetscape along Winter Street and provides hay for the Historic O'Neil Farm; the 32 acre Black Friar Swamp which is comprised of two ponds, wetlands and upland adjacent to the 155 acre Lansing Bennett Forest and is designated as priority habitat for rare species and estimated habitat for rare wildlife. The 60 acre Crowell Conservation Area, with a former bog incorporated into the USDA Wetland Reserve Program, affords a scenic view at the entrance to Duxbury and links important wildlife corridors and trails.

The most recent and highly significant town purchase is the 277 acres of land from the Merry family, with actively farmed cranberry bogs, ponds, wetlands, marshland and forest. The acquisition allows for the continuation of cranberry farming, which played an important role in Duxbury's agricultural history; ground water protection; flood control and recreation.

GOAL 3: PROTECTION AND ENHANCEMENT OF NATURAL RESOURCES AND ECOSYSTEMS

CPA funds have often been used to restore the Conservation Fund for acquisition of smaller parcels of land and ancillary expenses. In 2012 Town Meeting approved the transfer of nearly 65 acres of land taken for back taxes to the Conservation Commission. To date, the total acreage of land under the control of the Conservation Commission is 3,058 acres.

Duxbury Beach, a four and a half mile long narrow barrier beach owned by the Duxbury Beach Reservation is annually leased to the town. The Harbormaster Department and the Conservation Commission oversee the protection of piping plovers (federally and state listed "threatened") and least terns ("species of concern") and Massachusetts Audubon provides monitors to track nesting and chick populations.

The weather conditions on the beach can be severe at times, resulting in wash-overs, erosion of dunes, loss of fencing and damage to roadways. Each year the Reservation spends hundreds of thousands of dollars planting beach grass, beach nourishment, dune restoration and fencing. Volunteers of all ages assist in the planting during the spring and beach cleanup in the fall.

The Duxbury Bay Management Commission, as stated in the 2009 State of the Bay report (released in 2011), was charged with the collection and tracking of data relative to the health of the bay, to identify trends, to provide a basis for regulatory and management decisions concerning the bay, and to resolve conflicts between the bay resources and uses of the bay. The Commission, in collaboration with the Shellfish Advisory Committee, completed the Duxbury Aquaculture Management Plan in 2009. The Plan suggested that the existing moratorium on new aquaculture licenses be continued and that licenses with less than three acres be permitted to seek approval for expansion to three acres. The Plan also recommended that water quality monitoring continue, that a boater's guide to aquaculture be prepared and winter storage for aquaculture equipment be explored. The Plan is regarded as a living document warranting regular review and amended as needed.

The Commission also received CPA funding for the development and posting of signs at popular landings, to provide navigational aids, location of shellfish grants, and important flora and fauna in the area. The Commission will also post markers indicating the location of a number of lesser known town landings, some of which have been encroached upon by neighbors.

The Duxbury Bay Maritime School opened their new “green” building in May, 2009. Some of the green building features exceeded the minimum required guidelines including upgraded windows, increased insulation and extensive recycling. Other environmentally friendly changes included replacing all outboard motors with 4 stroke engines and upgrading programs to highlight protection of the ocean and the environment. The school developed several new educational programs adding an ecology educational program for youths ages 13 to 15; creating a school program for Bay Farm Montessori Academy; and establishing an on-the-water program for seniors living at the Village of Duxbury.

To improve storm water runoff, the Duxbury Maritime School completed the installation of a state-of-the-art sand filtration drainage system. The filtration system filters storm water for the Snug Harbor business area through the DBMS private storm water system.

The Duxbury Bay Maritime School also established a strong partnership with Island Creek Oysters and their Foundation for environmental education and fostered partnerships with Duxbury Business Association, the Garden Club of Duxbury and Duxbury Bay Management Commission.

The Conservation Commission continued the process of identifying and reducing sources of pollution entering Kingston Bay in hopes of ending swimming beach closures and keeping the shellfish beds for open harvest. The award of ten grants, totaling over \$1 million from the Massachusetts Office of Coastal Zone Management, and additional funding and assistance from the Duxbury DPW resulted in the installment of three roadway catchment systems on Crescent St. and Bay Road.

Each year the MA Division of Marine Fisheries stocks the Island Creek Pond with herring in hopes that this will stimulate the declining herring populations. Volunteers participate in the annual herring count at the Historic Island Creek Fish Ladder which was restored with CPA funds, donations, and state and federal grants.

The osprey restoration project continues to be a great success story. Each spring, with the help of Norman Smith, Director of the MA Trailside Museum, the Conservation Commission bands osprey chicks. Since 1990, over 20 nesting poles have been built and 350 chicks have been banded throughout the South Shore of Massachusetts.

Since 2008, CPA funding made it possible for the town to acquire of over 500 acres of land under the care of the Conservation Commission. Land is selected for its conservation values: protection of drinking water supplies, wildlife habitat, surface waters, wildlife corridors, and scenic vistas. Prospective properties are also considered on the basis of their recreational value and if they can be integrated into the extensive trail network throughout the town. The purchase of 106 acres from Camp Wing enabled protection of 2 miles of the South River and priority habitat for rare species. The purchase of the Merry properties was strategically important; some of the land that was once farmed for cranberries buffers well sites and has been allowed to go fallow to help with water quality and recharge. Much of the land abuts existing conservation land with trails systems, and the ownership of a dam controlling the water level in the North Hill Marsh helps to regulate

the operation of two important town wells. Furthermore, the cranberry bogs are under management agreements to preserve the town's agricultural history.

The Duxbury Agricultural Commission (DAC) continues to examine productive uses for town owned land. The Commission was pleased to see the Duxbury Farmers Market open in 2009 with great success, however, it was disbanded due to competition from neighboring towns. The Commission also met with the Community Garden Society to discuss location options. To educate the community, the Commission worked with the Police Chief to notify residents on the protocol for farm animals on town roads and drafted a notice to local realtors that Duxbury is a Right to Farm town. The Commission is in the process of developing informational brochures for distribution to residents and other interested individuals.

GOAL 4: MANAGEMENT OF THE TOWN'S RECREATIONAL OPPORTUNITIES WITH MINIMUM IMPACT TO THE ENVIRONMENT

In 2010 Town Meeting approved \$ 2.2 million to complete the rehabilitation of the Percy Walker Pool. The renovations were extensive. New windows were installed which let in more natural light and all interior and exterior windows and doors were replaced. The men's and woman's locker rooms were completely refurbished including new tiled floors, sinks, toilets, changing areas, and shower stalls. In addition, low flow faucets, toilets and sinks as well as suit spinners and energy efficient hand dryers were added.

Another new and exciting improvement to the facility was the addition of a family locker room which allows families with young children to use the bathroom, shower and changing area without having to interact with the general public in the main locker room areas. The Pool also received a new filtration system and many upgrades to the pool operation. The project also installed a new set of stairs into the pool area which can now be used by patrons of all ages. The pool re-opened to the public on June 1, 2010. A new diving board stand/handrails and waffle board were installed using both Town funds and a grant from the Ellison Fund in 2017.

Several improvements totaling tens of thousands of dollars were completed to the town owned North Hill Golf Course. The enhancements included an aggressive tree pruning and removal of hazardous trees, installation of new ladies' tees and three sand traps were completely renovated. Additionally, a \$95,000 trap and tee restoration project was also completed and all 9 holes at North Hill now have new forward tees. The club received a new pump and pump station and controls in 2017 for irrigation at a cost of \$200,000. The above ground fuel depot was renovated in 2017.

In 2012 funds from the Ellison Fund were used to repair and update the Ellison Playground, located next to the Duxbury Public Library, which continues to be a popular play area for children of the community. The Lincoln Street field parking lot was paved and marked with handicap accessible parking spots. The Alden Street, Wadsworth and Tarklin tennis courts were completely rehabilitated. All structural and non-structural cracks were filled, new posts, net hardware and

nets were installed and the courts were resealed, painted, and relined. Pickle ball lines were also added to one of the Alden Street tennis courts.

The Duxbury Middle-High School Project called for the demolition of the older High School and reconstruction of the combined school on the former Middle School site. The displaced Middle School field was reconstructed at the site of the former High School. In addition, a baseball field was restored and a 3/4 practice field and basketball court was constructed.

As part of the new Duxbury Middle–High School project, a recreational field house was built in 2013. The Field House was named in honor of Lt. Timothy Steele, a 2004 Duxbury High School graduate and a 2009 West Point Military Academy graduate who was killed in action in 2011. The facility provides much needed space for sports teams and cheerleaders and features a gym, locker rooms, concession area, school and community event space, storage areas and restrooms. The building is well insulated, enjoys a state of the art heat recovery system and has the most efficient air handler available. Sustainable Duxbury was responsible for the installation of environmentally friendly hydration stations.

The Sidewalk and Bike Path Committee continues to formulate a long-term pathways plan to provide a mode of transportation that is environmentally-friendly, creates a sense of community, enhances commerce and adds to the attractiveness of our town. In 2014, conversations with the Art Complex Museum and the Alden House sparked an inquiry into creating a safe pedestrian pathway for walking, jogging, and biking along Alden Street. Once the new Middle/High School was open more students were heading to the Millbrook business area to participate in recreational programs at the DuxPlex and visit other establishments. The town is looking into the construction of a sidewalk to better serve these activities.

In 2016 a joint effort by many different Municipal Departments and donations from local youth sports groups installed a 15,000 underground water storage tank at the Chandler fields to alleviate wells running dry. This tank enables the irrigation of several fields at Chandler Street.

The Open Space Committee continues to sponsor events to promote the use of Duxbury's conservation areas and works with the DPW on land cleanup projects and the semi-annual volunteer town litter sweep. Also members, acting individually not as a committee, worked to maintain the exiting 3% CPA surcharge. This was defeated at town meeting and the rate was reduced to 1%. Committee members also participated in the update of the Open Space and Recreation Plan.

10 – SEVEN-YEAR GOALS

Action Plan

GOAL 1 - PROTECTION OF DUXBURY'S AQUIFER AND WATER RESOURCES				
Objective	Action	Responsible Party	Funding Source	Time Frame
Water Quality Protection	Continue to monitor and assess nitrogen loading and contamination in groundwater	Water Department	Staff Time	Annual
	Support efforts by the Water Department to update the Water Master Plan	Land use boards, department heads and committees	Volunteer time	Ongoing
	Develop a set of town-wide Stormwater Management Guidelines for consistency across various Boards and specific to Duxbury	Land Use Department Heads	Staff Time, Town Meeting appropriation	2020
Land Purchases	Request appropriation from the CPA for land purchases for aquifer and water resources protection	Conservation Commission	Staff Time	Annual
	Continue to acquire aquifer land in recharge areas	Conservation Commission	CPA Funds Grants	Ongoing
	Explore adapting the Wetland Protection Overlay district into a climate resiliency district	Conservation Commission Planning Department	Staff Time Technical Assistance from MAPC, grants	2022

GOAL 1 - PROTECTION OF DUXBURY'S AQUIFER AND WATER RESOURCES				
Objective	Action	Responsible Party	Funding Source	Time Frame
Education and Outreach	Continue to educate residents on water conservation measures, including demand reduction	Water Department, Water Advisory Board	Town Meeting appropriation, Staff and Volunteer Time	Ongoing
	Educate residents on best practices for stormwater best practices and lawn care, pet waste and litter	DPW Land Use Boards Conservation Commission	Staff and volunteer time, stormwater permit funding	Ongoing

GOAL 2 - PROTECTION OF DUXBURY'S NATURAL AREAS AND ENVIRONMENT				
Objective	Action	Responsible Party	Funding Source	Time Frame
Land Protection	Promote an appropriation to the Conservation Fund at a sufficient level to enable the Conservation Commission to protect small properties and meet ancillary costs	Conservation Commission	CPA	Ongoing
	Identify land taken for back taxes and transfer to appropriate town department	Conservation Department	Staff Time	Annual
	Continue to provide support for CPA projects	Wildlands Trust, Open Space Committee	Staff and Volunteer Time	Ongoing
	Identify all active Duxbury farms, including "backyard" farms and municipal agricultural land	Agricultural Commission	Volunteer Time	2020
	Promote permanent protection of farmland as an ongoing town-wide objective	Agricultural Commission Conservation Commission	Volunteer Time	Ongoing
	Continue protection of land surrounding North Hill Marsh and buffers to that land	Mass Audubon Society	Staff Time	Ongoing
	Explore ways to protect scenic vistas through zoning changes, Conservation Restrictions, easements and other mechanisms	Planning Board, Planning Department, Conservation Commission, Open Space Committee, Community Preservation Committee	Staff and Volunteer Time	Ongoing

GOAL 2 - PROTECTION OF DUXBURY'S NATURAL AREAS AND ENVIRONMENT

Objective	Action	Responsible Party	Funding Source	Time Frame
	Continue to encourage and assist private landowners in protecting their land	Wildlands Trust	Staff and Volunteer Time	Ongoing
	Encourage non-profit land owners to permanently protect their properties through CRs or other appropriate mechanism	Non-profit boards	varies	Ongoing
Resource Protection	Strengthen environmental protection provisions of local bylaws and rules and regulations	Land Use Boards & Departments	Staff Time	2020
	Identify unprotected salt marsh and freshwater wetland areas for protection and their buffers	Conservation Department, Open Space Committee	Staff Time	2020
	Improve protection of wetlands and their buffers through improvement of regulatory storm water design guidelines	Conservation Commission, Planning Board and Planning Department	Town Meeting, Staff Time	Ongoing
	Explore additional dam removal projects along the Greenbelt Corridor	Conservation Commission Grants, Town Meeting	Grants, Town Meeting	2020
	Continue to acquire land along the Greenbelt Corridors including upland buffers	Conservation Commission	Grants, Town Meeting	Ongoing
	Continue dam removal along the South River to achieve restoration of natural connectivity between fresh water and salt water systems.	Conservation Commission	Grants, Town Meeting	2021
	Continue to acquire land for wildlife and wildlife corridors, especially for rare and endangered species	Conservation Commission, Community Preservation Committee	Staff Time, CPA Funds, Volunteer Time	Ongoing

GOAL 2 - PROTECTION OF DUXBURY'S NATURAL AREAS AND ENVIRONMENT

Objective	Action	Responsible Party	Funding Source	Time Frame
	Support best management practices for shoreline protection as identified through MVP planning and implementation	Land Use Boards and Departments	Staff Time, Grants, Volunteer Time	2021
	Continue to review and update the Endangered Species Monitoring Program for least terns and piping plovers, administered by the Town of Duxbury in accordance with Duxbury Beach Reservation, Inc.'s Duxbury Beach Management and Habitat Conservation Plan	Duxbury Beach Reservation, Inc.	DBR	Ongoing
	Continue to promote environmental protection of our ocean and estuary ecosystems through educational programs and lectures	Local non-profits such as Duxbury Bay Maritime School, North and South River Watershed Association and support of Island Creek Oysters	Varies	Ongoing
	Develop a plan for a Duxbury tree nursery	Agricultural Commission	Volunteer Time	2019
	Advocate for farmers in the event of conflicts or controversies	Agricultural Commission	Volunteer Time	Ongoing
	Certify Vernal Pools at North Hill Marsh Sanctuary	Mass Audubon Society	Staff	2020
	Acquire land that contain vernal pools	Conservation Commission Community Preservation Committee	Staff and Volunteer Time	Ongoing

GOAL 2 - PROTECTION OF DUXBURY'S NATURAL AREAS AND ENVIRONMENT

Objective	Action	Responsible Party	Funding Source	Time Frame
	Review water withdrawal reports from Town of Duxbury to ensure compliance with the WMA permit and to monitor water quality	Mass Audubon Society	Staff	Annual
	Continue to monitor Conservation Restrictions held by the Town of Duxbury	Open Space Committee	Volunteer Time	Annual
	Seek to extend Order of Conditions that expired in 2018	Duxbury Beach Reservation, Inc.	DBR	2018
	Develop training and data collection protocols, share current research information, and make recommendations in order to assist in recovery of least tern and piping plover populations	Duxbury Beach Reservation, Inc.	DBR	2017
	Educate residents on resource protection and stewardship	Open Space Committee	Volunteer Time	Ongoing
	Develop a cooperative Watershed Protection Plan with neighboring communities	Planning Department, Planning Board, Conservation Commission	DLTA funds, Staff and Volunteer Time	2020
	Improve communication about the Community Preservation Act's purpose and process	Community Preservation Committee	Volunteer Time	Ongoing
Resource Management	Implement the Duxbury Beach Management Plan to protect the beach, including dune, intertidal areas and wildlife habitat	Duxbury Beach Reservation, Inc.	DBR	Annual

GOAL 2 - PROTECTION OF DUXBURY'S NATURAL AREAS AND ENVIRONMENT

Objective	Action	Responsible Party	Funding Source	Time Frame
	Continue measurements of eight geomorphic transects to track dune height and barrier width	Duxbury Beach Reservation, Inc.	DBR	Annual
	Carry out planting and fertilization of beach grass and other types of beach and dune vegetation	Duxbury Beach Reservation, Inc.	DBR	Annual
	Continue to maintain and where possible, create additional artificial piping plover nesting habitat	Duxbury Beach Reservation, Inc.	DBR	Annual
	Continue work with Duxbury Beach Reservation, Inc. to protect and monitor listed species on Duxbury Beach	Mass Audubon Society	Staff Time	Annual
	Continue volunteer maintenance and monitoring program for herring and alewife at the Island Creek fish ladder.	Conservation Department	Staff and Volunteer Time	Annual
	Work with the Duxbury Conservation Department to reduce erosion around North Hill Marsh pond edge and enforce regulations	Mass Audubon Society	Staff Time	2020
	Conduct beach cleanup	Mass Coastal Zone Management	Volunteer Time	Annual
	Update field data sheets	Conservation Department	Volunteer Time	Ongoing
	Create new field data sheets	Conservation Department	Volunteer Time	2020
Floodplain Management	Continue to implement the Hazard Mitigation Plan	Planning Department, DPW, Conservation	Staff Time	2020

GOAL 2 - PROTECTION OF DUXBURY'S NATURAL AREAS AND ENVIRONMENT

Objective	Action	Responsible Party	Funding Source	Time Frame
		Department, Fire Department		
	Participate in South Shore Coastal Coalition to implement regional planning efforts regarding flooding and coastal storms	Planning Department	Staff Time	2020
Education and Outreach	Continue to offer organized outdoor activities on Duxbury's open land	Open Space Committee, Duxbury Beach Reservation, Inc.	Volunteer Time	Semi-annual
	Continue outreach and education to landowners and residents on environmental and land protection issues	Conservation Commission, Open Space Committee	Staff and Volunteer Time	Ongoing
	Collaborate with the Duxbury Middle and High School Outdoor Nature Center program to educate younger residents of the importance of protecting and preserving open space.	Conservation Commission	Volunteer Time	Ongoing
	Promote partnerships among town government and non-profit organizations	Wildlands Trust, Open Space Committee, Duxbury Rural & Historical Society, Planning Board, Planning Department	Staff and Volunteer Time	Annual
	Improve educational signage regarding beach and bay	Duxbury Bay Management Commission	Volunteer Time	Ongoing

GOAL 2 - PROTECTION OF DUXBURY'S NATURAL AREAS AND ENVIRONMENT

Objective	Action	Responsible Party	Funding Source	Time Frame
	Publish results of Island Creek fish counts	Conservation Commission	Staff Time	Annual
	Continue community outreach programs at Duxbury Beach and Duxbury Free Library	Mass Audubon Society	Staff Time	Ongoing
	Explore Duxbury Cultural Council funding for additional educational programs	Mass Audubon Society	Staff Time	2017
	Continue to educate membership on community projects that are relative to Duxbury's History	Duxbury Rural & Historical Society	Staff Time	Ongoing

GOAL 3 - PRESERVATION OF THE UNIQUE CHARACTER OF DUXBURY

Objective	Action	Responsible Party	Funding Source	Time Frame
Land Protection	Target properties for purchase that fall within the Greenbelt Plan and/or meet established criteria, i.e. linking parcels, habitat corridors, trail networks, and contiguous open space	Conservation Department, Planning Department	Staff and Volunteer Time	Semi-annual
	Increase awareness of Conservation Restrictions and other means of land protection	Conservation Department, Open Space Committee	Staff and Volunteer Time	Ongoing
	Develop a list of town-owned agricultural land.	Agriculture Committee	Volunteer Time	2019

GOAL 3 - PRESERVATION OF THE UNIQUE CHARACTER OF DUXBURY				
Objective	Action	Responsible Party	Funding Source	Time Frame
	Explore methods to ensure agricultural land purchased by the town remains in agriculture	Agriculture Committee	Volunteer Time	2018
Community Preservation	Advocate for continued Duxbury support of CPA	Community Preservation Committee, Open Space Committee	Volunteer Time	Ongoing
	Recommend establishment of new Neighborhood Business District design guidelines for each of the village business areas in the Comprehensive Plan	Planning Board, Planning Department, Economic Advisory Committee	DLTA and planning grants, Staff and Volunteer Time	2020
	Improve Duxbury's sign bylaw to enhance visual streetscape, particularly in Neighborhood Business Districts	Planning Board, Planning Department, Economic Advisory Committee	Staff and Volunteer Time, grants, DLTA funds, Town Counsel	2020
Historic Preservation	As an outcome to the Comprehensive Planning process, support activities towards preparing a town-wide comprehensive Historic Preservation Planning effort to target and prioritize historic preservation activities	Planning Department, Historical Commission, Local Historic District Commission, Duxbury Rural & Historic Society, Community Preservation Committee	DLTA, CPA, State Grants, Staff and Volunteer Time	Ongoing
	Continue inventory of historic properties and survey of historic agricultural and archeological sites	Historical Commission	CPA, Volunteer Time	Ongoing
	Promote the development of Local Historic Districts to further protect the historic character of the Town	Local Historic District Commission, Historical Commission	Staff and Volunteer Time	Ongoing

GOAL 3 - PRESERVATION OF THE UNIQUE CHARACTER OF DUXBURY				
Objective	Action	Responsible Party	Funding Source	Time Frame
	Work toward establishing Tinkertown neighborhood as a National Historic District	Historical Commission	CPA, Volunteer Time	2019
	Nominate the Myles Standish cellar hole for placement on the National Register of Historic Places	Historical Commission	CPA funds approved 2015	Ongoing
	Review Demolition Delay Bylaw for increased effectiveness and clarity.	Planning Board, Planning Department, Building Department, Historical Commission	Staff and Volunteer Time, Town Counsel	2019
	Determine which historical properties have not been surveyed and generate lists for future work	Historical Commission	Volunteer Time	2021
	Research and apply to have Mayflower Cemetery placed on the National Register of Historic Places	Historical Commission	Volunteer Time	2018
Affordable Housing	Support and promote affordable housing with open space purchases	Conservation Department, Duxbury Affordable Housing Trust (DAHT) Community Preservation Committee	Staff and Volunteer Time	Ongoing
	Pursue options for adaptive reuse of existing residential and municipal buildings for affordable housing while maintaining historic character	Duxbury Affordable Housing Trust (DAHT)	Staff and Volunteer Time	Ongoing
Education and Outreach	Educate the community on the Community Preservation Act	Community Preservation Committee	Volunteer Time	Ongoing

GOAL 3 - PRESERVATION OF THE UNIQUE CHARACTER OF DUXBURY

Objective	Action	Responsible Party	Funding Source	Time Frame
	Continue to offer free environmental education programs at Duxbury Beach during the months of July and August	Duxbury Beach Reservation, Inc. and Massachusetts Audubon Society	DBR	Annual
	Offer environmental education programs at North Hill Marsh Wildlife Sanctuary	Massachusetts Audubon Society	MAS	Annual
	Develop outreach opportunities and programs on local history	Duxbury Rural and Historical Society	DRHS	Annual
	Continue program of lectures promoting the historic character of Duxbury	Duxbury Rural and Historical Society	DRHS	Annual
	Continue school programs at the 3rd, 4th, 5th and 10th grade levels, including high school internship programs	Duxbury Rural and Historical Society	DRHS	Annual
	Continue to disseminate information that illuminates the history of the community	Duxbury Rural and Historical Society	DRHS	Ongoing
Agriculture Preservation	Enhance educational programming and increase farm events at the Historic O'Neil Farm	Historic O'Neil Farm, Inc.	Staff and Volunteer Time	2018
	Continue to participate in regional Agricultural Commission events	Agricultural Commission	Volunteer Time	Annual
	Position Agricultural Commission as municipal contact in case of bird flu and other farm related diseases	Agricultural Commission Board of Health	Volunteer Time	Ongoing

GOAL 3 - PRESERVATION OF THE UNIQUE CHARACTER OF DUXBURY				
Objective	Action	Responsible Party	Funding Source	Time Frame
	Promote and participate in local farm related events	Agricultural Commission	Volunteer Time	Ongoing
	Promote farming as a viable career	Agricultural Commission	Volunteer Time	Ongoing
	Encourage and support local farmers in their endeavors	Agricultural Commission	Volunteer Time	Ongoing
	Identify and classify all active farms in Duxbury	Agricultural Commission	Volunteer Time	2020

GOAL 4 - Management of Town's recreational opportunities with minimum impact to the Environment				
Objective	Action	Responsible Party	Funding Source	Time Frame
Recreational Opportunities	Continue to provide a recreational beach for residents of Duxbury and the general public within the limits of the Reservation's primary ecological objective to restore and preserve Duxbury Beach as host to marine life, native and migratory birds and indigenous vegetation	Duxbury Beach Reservation, Inc.	DBR	Ongoing

GOAL 4 - Management of Town's recreational opportunities with minimum impact to the Environment

Objective	Action	Responsible Party	Funding Source	Time Frame
	As an outcome of the Comprehensive Planning Process and the Open Space and Recreation Plan, develop a town wide recreational pathway plan to connect historical, cultural, recreational, conservation and commercial areas	Planning Department, Open Space Committee, Sidewalk and Bike Path Committee	Staff time, DLTA funds, Volunteer Time, Town budget & Grants, CPC, Private donations, Foundations	Ongoing
	Continue trail maintenance on town-owned and conservation land, including the Bay Circuit Trail	Conservation Department	Staff	Ongoing
	Add digital trail markers to major recreational trails	Open Space Committee	Volunteer Time	2020
	Increase ADA accessibility to town-owned properties.	Open Space Committee, Conservation Department, Department of Public Works, Facilities Manager	Staff and Volunteer Time	2020
	Continue to cooperate with Duxbury Conservation Department to maintain trails and regulate use	Mass Audubon Society	Staff	Ongoing
	Utilize weed harvester on Island Creek Pond	Conservation Department	Town Budget Volunteer Time	Annual
	Broaden adult participation in DBMS programs: Grow the Adult Sailing Program Provide opportunities for senior citizens	Duxbury Bay Maritime School	DBMS	Ongoing

GOAL 4 - Management of Town's recreational opportunities with minimum impact to the Environment				
Objective	Action	Responsible Party	Funding Source	Time Frame
	Expand Family Programming: Expand opportunities for high school rowers	Duxbury Bay Maritime School	DBMS	Ongoing
	Expand on water programs for disabled persons	Duxbury Bay Maritime School	DBMS	Ongoing
	Provide new on-the-water programs for non-racing youth	Duxbury Bay Maritime School	DBMS	Ongoing
	Pursue increased access to Myles Standish Monument State Park	Board of Selectmen, Open Space Committee, Duxbury 2020 Committee	Volunteer Time	2020
	Encourage developers to include small passive recreational opportunities	Planning Board	Staff and Volunteer Time	Ongoing
	Develop Recreational Facilities Plan that will analyze current usage and determine future needs	Recreational Department	DLTA funds, Grant funding, staff and Volunteer Time	2020-2024 for inclusion in update to Open Space & Recreation Plan
Education and Outreach	Continue to fund Massachusetts Audubon Society's summer education programs at Duxbury Beach	Duxbury Beach Reservation, Inc.	DBR	Annual
	Improve all educational and on-the-water programming	Duxbury Bay Maritime School	DBMS	Annual

GOAL 4 - Management of Town's recreational opportunities with minimum impact to the Environment

Objective	Action	Responsible Party	Funding Source	Time Frame
	Provide better education for boaters of all ages	Duxbury Bay Maritime School, Bayside Marine	DBMS, Bayside Marine	Annual
	Continue to develop community partnerships	Duxbury Bay Maritime School	DBMS	Ongoing
	Continue to increase community access to Duxbury Bay through programming and rentals	Duxbury Bay Maritime School	DBMS	Quarterly
	Continue to promote environmental protection of our oceans and estuary ecosystems through educational programs and lectures	Duxbury Bay Maritime School	DBMS	Quarterly
	Increase winter programming and lecture series	Duxbury Bay Maritime School	DBMS	Annual
	Promote safer boating practices, including improved signage	Duxbury Bay Management Commission, DBMS, Bayside Marine	Town Budget, DBMS, Bayside Marine, grants	Annual
	Create, improve, and maintain trail signage to identify location, provide historical and agricultural information, and interpretive signage	Conservation Department, Open Space Committee	Staff Time	2022
	Create and distribute maps which highlight existing and proposed recreational paths	Planning Department (GIS), Sidewalk and Bike Path Committee, Open Space Committee	Staff and Volunteer Time	2020

GOAL 4 - Management of Town's recreational opportunities with minimum impact to the Environment				
Objective	Action	Responsible Party	Funding Source	Time Frame
Resource Management	As a future outcome of the Comprehensive Plan implement the plan	Land Use Boards, Town Committees and Departments	Staff and Volunteer time, Town Budget, DLTA funds, CPA, Grants, Private Funds	Ongoing
	Develop a plan for trail improvement on town-owned and conservation land, including the Bay Circuit Trail, and continue to publish trail guides and revised open space parcel maps.	Conservation Commission, Open Space Committee, Planning Department	Staff Time, CPA, DLTA Funds	2020

GOAL 5 - Planning for Climate Change				
Objective	Action	Responsible Party	Funding Source	Time Frame
Assessment	Support becoming a designated Municipal Vulnerability Preparedness Community and further implement the recommendations	Land Use Boards, Town Committees and Departments	DLTA funds, grants, Staff and Volunteer Time	2019
	Continue to assess the erosion of Duxbury Beach, including the High Pines salt Marsh and develop an effective management plan	Duxbury Beach Reservation	Volunteer Time	2022

GOAL 5 - Planning for Climate Change				
Objective	Action	Responsible Party	Funding Source	Time Frame
	Collaborate with neighboring towns to develop a regional assessment of sea level rise, water quality monitoring in the Duxbury, Kingston, Plymouth Bay, stormwater and flooding impacts and infrastructure challenges, salt marsh migration lands to be protected	Conservation and Planning Departments	Staff Time	Ongoing
Planning	Identify and support adaptation strategies to mitigate long term effects of sea level rise, stormwater and flooding on public infrastructure	Planning Department and DPW	Staff Time, Grants, Volunteer Time, DLTA funds	Ongoing
	Educate public on the importance of maintaining vegetation along inland waterways and water bodies to maintain ecosystem health		Staff Time, Volunteer Time	Ongoing
	Support efforts to implement the Town's Energy Reduction Plan and support the use and development of renewable energy options where feasible	Facilities Manager, Planning Department, Schools, Alternative Energy Committee,	Staff Time, Volunteer Time	Ongoing
	Encourage student participation to assess effects of climate change, participate in field work, and review best management practices for erosion control on the shore and inland	Duxbury Middle-High School	Staff Time, Volunteer Time	Annual

GOAL 5 - Planning for Climate Change				
Objective	Action	Responsible Party	Funding Source	Time Frame
	Encourage students to develop educational material regarding climate change	Duxbury Middle-High School	Staff Time, Volunteer Time	Annual
	Restore the High Pines salt marsh	Duxbury Beach Reservation, Conservation Commission	Staff Time, Grants, Volunteer Time	ongoing
	Explore and develop a marsh system on the bay side of Duxbury Beach to provide erosion control	Duxbury Beach Reservation	Staff Time, Grants, Volunteer Time	2023
	Undertake an eelgrass study in the Duxbury / Kingston Bay	Mass Bays Program	Staff Time, Grants, Volunteer Time	2020
	Explore adapting the Wetlands Protection Overlay district into a climate resiliency district	Conservation Commission, Planning Department	Staff Time, Technical Assistance from MAPC	2022

11 - PUBLIC Comments

2015 PLAN SURVEY

The goals of the 2017 Open Space and Recreation Plan were derived from meetings with town boards and departments and from the results of the 2015 Duxbury Open Space and Recreation Plan Survey. Surveys were mailed in January 2015 and residents were asked to mail back the forms, drop them off at any one of several locations, or complete the survey online through the town's website.

Below is a sample of the survey that was sent to all Duxbury residents.

DUXBURY OPEN SPACE AND RECREATION PLAN SURVEY

January 2015

Welcome to the Duxbury Open Space and Recreation Plan Survey.

Please answer the following questions; there is space for additional comments on the back panel of the brochure.

1. In 2000 the appointed Duxbury Land Acquisition Task Force recommended that 30 percent of the town be protected open space to ensure balanced growth and quality of life. Please indicate what priority you give to acquiring the following:

	High	Medium	Low
Agricultural Land (cranberry and other farming)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Athletic Fields	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land for trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land to protect drinking water supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land protecting wildlife habitat and surface waters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Do you spend time at any conservation/open space areas in Duxbury? If yes, which areas do you visit most often? _____

3. What is your opinion about the level of use of the following:

	Underused	Adequate Use	Overused
Athletic fields	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. If future acquisitions are made for Open Space, Recreation, Historic Preservation, or Community Housing, how should they be funded? (you may choose more than one)

- Temporary tax increase (debt exclusion) to pay for one project at a time
 Bank current 1% Community Preservation Act (CPA) surcharge funds for large projects
 Return to higher Community Preservation Act (CPA) surcharge rate

If you are in favor of returning to a higher surcharge rate, what percentage up to 3%?

5. Which of the following factors are the most important in your decision to live in Duxbury (you may choose more than one):

- | | |
|---|---|
| <input type="checkbox"/> Bay | <input type="checkbox"/> Cultural Amenities |
| <input type="checkbox"/> Beach | <input type="checkbox"/> Limited Commercial Development |
| <input type="checkbox"/> Character of Community | <input type="checkbox"/> Schools |
| <input type="checkbox"/> Conservation Land | <input type="checkbox"/> Other _____ |

6. Please provide some information to help interpretation of results:

Under Age 18 Age 18-30 Age 31-60 Age 60+

How many children under 18 are in your household? _____

7. Gender: Male Female

8. Do you think you will still be living in Duxbury in 10 years? Yes No

9. Please use the space on the back of this form for comments and suggestions

Please use this space for any additional comments or suggestions:

Duxbury Open Space & Recreation Plan
 c/o Conservation Department
 878 Tremont Street
 Duxbury, MA 02332

STANDARD MAIL
 U.S. POSTAGE
 PAID
 PERMIT NO. 2
 DUXBURY, MA 02332

RESIDENT
DUXBURY, MA 02332

The Town of Duxbury is updating its Open Space and Recreation Plan. This Plan, required by the Commonwealth of Massachusetts, enables the Town to qualify for State funds for a variety of purposes and helps guide decision making about protecting open space, enhancing resources, and maintaining and improving these areas.

These surveys are to be filled out by Duxbury residents only, one survey per person.

Please complete the Duxbury Open Space and Recreation Plan Survey either online or using the paper form:

- **Paper Form:** Completed surveys may be returned to the drop boxes at the Town Hall, Duxbury Free Library, or Senior Center; or may be mailed to the Duxbury Conservation Department at 878 Tremont Street, Duxbury, MA 02332. Additional copies may be printed out at the Town's website www.town.duxbury.ma.us under 'Town News' on the home page.
- **Online:** The link to the online version may be found at the Town of Duxbury website: www.town.duxbury.ma.us under 'Town News' on the home page.

Surveys must be returned by Friday, January 30, 2015.
Thank you for participating in this survey.

PLAN APPROVAL LETTERS

Several town departments and committees were instrumental in creating the plan. Below are their approval letters.

Town of Duxbury, Massachusetts

OFFICE OF THE BOARD OF SELECTMEN AND TOWN MANAGER



December 20, 2016

Mr. Joe Grady
Conservation Administrator
878 Tremont ST
Duxbury MA 02332

RE: Review and Approval of the Open Space and Recreation Plan

Dear Joe:

In accordance with the instructions received I did distribute copies of of the DRAFT Open Space and Recreation Plan to the Selectmen and requested that they review it and feedback to me any comments or suggestions for changes or additions.

On behalf of the Duxbury Selectmen and myself this is to confirm that we have reviewed the DRAFT Open Space and Recreation Plan and have no recommendations for changes or additions. The only feedback received was that the document was well prepared. Given that, please accept this as the formal endorsement by the Board of Selectmen and the Town Manger for adoption of the Open Space and Recreation Plan as presented.

Please extend the thanks of the Selectmen and the Town Manager to those who have worked so diligently on behalf of the Town in the preparation of the Plan.

Should you have any questions or require anything further please do not hesitate to let me know by telephone to 781-934-5400 or by email to read@town.duxbury.ma.us.

Sincerely yours,

A handwritten signature in cursive script that reads "René J. Read".

René J. Read
Town Manager

RJR:cam

878 Tremont Street, Duxbury, MA 02332 Telephone: 781-934-1100 x6016 Fax: 781-934-9011



**TOWN OF DUXBURY
CONSERVATION COMMISSION**

78 Tremont Street, Duxbury, Massachusetts 02332-4499
(781) 934-1100 ext. 134
FAX (781) 934-1137

February 7, 2017

Mr. Joseph Grady
Open Space & Recreation Plan working group
878 Tremont Street
Duxbury, MA 02332

Dear Joe,

The Conservation Commission has on several occasions participated in the drafting of the 2017 Open Space and Recreation Plan for the Town of Duxbury. The document contains the latest information relating to open space and natural resources within the Town of Duxbury. The maps have been updated and will assist anyone interested in understanding present-day open space issues in Duxbury. The Conservation Commission supports the goals and objectives of the 2017 Plan and will do its best to carry out its part of the Action Plan.

Congratulations on the update of this outstanding document. The Commission wishes to thank all of the individuals who have worked on the Open Space and Recreation Plan. The Plan is a valuable resource to all town officials and committees as well as the residents of the Town.

Very truly yours,

DUXBURY CONSERVATION COMMISSION

By *Corey Wisneski*

Corey L. Wisneski
Chairman

"The Mission of the Town of Duxbury is to deliver excellent services to the community in the most fiscally responsible and innovative manner while endeavoring to broaden our sense of community and preserve the unique character of our town"



Duxbury
Bay
Maritime
School

Charles R. (Chuck) Leonard
President

Edward M. (Ted) Lawson
Executive Director

BOARD OF DIRECTORS

Frederic M. Clifford, *Chairman*

Alastair R. Elliott, *Treasurer*

Ann F. Mullins, *Vice Chairman & Secretary*

Tony Chamberlain

David P. Corey, PhD

Shawn Dahlen

Darryl M. Demos

Edward P. Devnew, Jr.

Daniel Haas

Charles C. Hewitt, III

Guy C. Holbrook, IV

F. Sherman Hoyt

Charles F. (Cap) Kane, Jr.

Jackson S. Kent, Jr.

Mary Wood (Woody) Lawson

Veronica Ploude McCarthy

Peter A. Quigley

Orin R. Smith

Donald Beers, *Ex Officio*

EMERITUS DIRECTORS

Samuel Dennis (†)

Charles H. Fargo

Michael Horn

Edward F. Lawson

Patricia Loring

Powell Robinson, Jr.

Kenneth F. (Mike) Safe, Jr. (†)

FOUNDERS

The names of DBMS

Founders appear on the reverse side.

1/23/17

Joe Grady
Conservation Administrator
Town Of Duxbury
878 Tremont Street
Duxbury, MA 02332

Dear Joe,

Thank you for allowing DBMS to be a part of your 2016 Open Space and Recreation Plan. I was delighted that DBMS was included in the plan and that I was invited to review and offer input.

Our goals are very closely aligned with yours in many ways. We are always looking for more methods of connecting people with Duxbury Bay without any negative impact on our natural coastal environment. We have so many educational and recreational classes that, collectively, offer us many opportunities to educate the public about being good stewards of the Bay.

I have reviewed the draft plan and of course I approve! Also, I applaud your efforts and the countless hours that you have put into this document. It's clearly a plan with great ideas and goals that will keep Duxbury growing responsibly.

Many thanks to your committee as well: Holly Morris, Cathy Cross and Pat Loring for helping you put this together - What a great team!

Sincerely,

Chuck Leonard

*Dedicated to stimulating the values of leadership, self-reliance, sportsmanship, and an enduring love and appreciation of Duxbury Bay.
Located on the William P. Ellison Campus*

Post Office Box 263A • Duxbury, Massachusetts 02331
Telephone: 781-934-7555 • Email: dbms@dbms.org • www.dbms.org



Town of Duxbury
Historical Commission



Jan 5TH 2017

Dear Joe;

My computer is down and I had to change pers.
The Duxbury Historical Commission was very impressed
with your new Open Space and Recreation Plan at our last
evening's meeting.

My only change would be for the Shipbuilder's District
which has 212 houses and 287 acres in it.

What an amazing PLAN!

Best,
Robert Kosette (Serge)

RECEIVED
JAN 05 2017
DUXBURY
CONSERVATION COMMISSION

Old Colony Planning Council

Frank P. Staffier
President
70 School Street
Brockton, MA 02301-4097



Pasquale Ciaramella
Executive Director
Telephone: (508) 583-1833
Fax: (508) 559-8768
Email: information@ocpcrpa.org
Website: www.ocpcrpa.org

February 1, 2017

Joseph Grady, Conservation Administrator
Open Space and Recreation Plan Update Committee
878 Tremont Street
Duxbury, MA 02332-4499

Dear Mr. Grady:

The Old Colony Planning Council has closely read the October, 2016 Draft Duxbury Open Space and Recreation Plan and supports approval of the completed Plan by the Division of Conservation Services.

The Council is extremely impressed by the Draft Plan's scope, detail and thoroughness, and by its focus on water resource protection and on response to the potential effects of climate change along with basic open space and recreation values and needs.

With this breadth and depth, the plan should well serve the town in dealing with the challenges and opportunities in meeting open space and recreation needs and in protecting key resources over the long term.

Again, the Council strongly supports the Plan's approval by the Division of Conservation Services, and we hope to be able to assist the Town with some of the proposed actions.

Sincerely,

A handwritten signature in cursive script, reading "Pasquale Ciaramella".

Pasquale Ciaramella
Executive Director

cc: Valerie Massard, Delegate
George D. Wadsworth, Alternate



Town of Duxbury, Massachusetts

Open Space Committee

Date: March 8, 2017

Joe Grady
Conservation Agent
Town of Duxbury
878 Tremont Street
Duxbury, MA 02332

Joe,

The Open Space Committee was pleased to have had the opportunity to participate in creating the 2016 Open Space and Recreation Plan. In addition to providing information related to the Open Space Committee past achievement and future goals, the Committee also worked with several town department and boards to solicit their input to the plan.

Several members of the Open Space Committee have reviewed the plan and provided feedback which has been incorporated as needed.

I would also like to take this opportunity to thank the Open Space Committee, the Open Space and Recreation Plan sub-committee, and the Planning Board for creating this roadmap for future recreational projects and the continued protection of Open Space.

Please let me know if you have any questions or if we can do anything to help.

Regards,

Kathy Cross, Chair
Open Space Committee

Members: Kathy Cross, Chairperson; Brian Glennon, Planning Board liaison; Graeme Groombridge, Secretary; Paul Keohan (FY2016) and Freeman Boyton (FY 2017), Water and Sewer Advisory Board liaison; Kathy Palmer, Community Preservation Committee liaison; Lorrie Hall, Pat Loring, Emily Martecchini, and Phil Tuck.



Town of Duxbury Massachusetts Planning Board

January 12, 2017

Mr. Joseph Grady
Conservation Administrator
Town of Duxbury
878 Tremont Street
Duxbury, MA 02332

Re: Draft Open Space Plan – 2016


Dear Mr. Grady,

The Duxbury Planning Board reviewed the draft Open Space Plan (2016) at its meeting of January 11, 2017 and recommends favorably on submission of the Open Space Plan to the Department of Conservation and Recreation. The Open Space Plan is a valuable resource for the Planning Board in its long range studies and efforts to manage the growth of Duxbury.

The Planning Board thanks you for the opportunity for review and commends the efforts of your department in preparing a comprehensive Open Space Plan.

On behalf of the Duxbury Planning Board,

Sincerely,


Valerie Massard
Planning Director

cc: Town Manager
File

878 Tremont Street, Duxbury, MA 02332; Telephone: 781-934-1100 x 5476; www.town.duxbury.ma.us/planning

The mission of the Town of Duxbury is to deliver excellent services to the community in the most fiscally responsible and innovative manner while endeavoring to broaden our sense of community and preserve the unique character of our town.

Gordon H. Cushing
Recreation Director

Steven R. Studley
Assistant Recreation Director



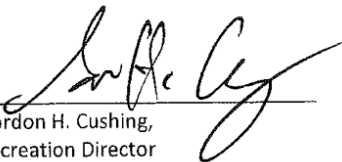
DUXBURY TOWN HALL
878 TREMONT STREET, DUXBURY, MASSACHUSETTS 02332-4443
TELEPHONE: (781) 934-7034 • FAX: (781) 934-1110

To: Joe Grady, Conservation Administrator
From: Gordon H. Cushing, Recreation Director
Re: Open Space & Recreation Plan
Date: January 24, 2017

To Whom It May Concern:

I have reviewed the most recent Open Space and Recreation Plan and I have approved the draft as required.

Please contact me at your earlier convenience if there is any further need of our participation.



Gordon H. Cushing,
Recreation Director
Town of Duxbury

"The Mission of the Town of Duxbury is to deliver excellent services to the community in the most fiscally responsible and innovative manner while endeavoring to broaden our sense of community and preserve the unique character of our town."

12 - REFERENCES

12 –

References

- Open Space and Recreation Requirements, 2008
- The Open Space and Recreation Planners Workbook, 2008
- Duxbury Open Space and Recreation Plan, 2008
- 2015 Duxbury Open Space and Recreation Plan Survey
- Duxbury Town Meeting Articles, 2008-2015
- 1999 Duxbury Comprehensive Plan
- Duxbury Bay Management Commission Report, 2009
- Duxbury Aquaculture Management Plan, 2009
- MassGIS
- Soil survey: Plymouth County, MA
- Duxbury Housing Production Needs Assessment, 2014, LDS Consulting Group, LLC
- Sea Level Rise Study, Towns of Marshfield, Duxbury, Scituate, MA, 2013, Kleinfelder
- Hall's Corner, Duxbury, MA, Economic Development and Transportation Study, 2014, Old Colony Planning Council
- Bicycle and Pedestrian Survey, Old Colony Planning Council
- Duxbury Aquifer Protection Study, 1985, IEP
- MA Division of Fisheries & Wildlife, The Natural Heritage & Endangered Species Program
- Duxbury Beach Management and Habitat Conservation Plan, 2012
- Duxbury, MA General Obligation Credit Report, Standard & Poor's, 2015
- Dufresne-Henry Engineering Study of the Duxbury Water Department, 2000
- Duxbury Water Department Annual Statistical Report, 2015
- US. Department of Commerce, U.S. Census Bureau
- Duxbury Clipper
- Boston Globe
- MA Wildlife Climate Action Tool: <https://climateactiontool.org>
- Scituate/Duxbury Coastal Climate Resiliency Plan: <http://www.mapc.org/scituateduxbury>
- MAPC 2015 Report on Climate Change: http://www.mapc.org/sites/default/files/Regional_climate_strategy_rev_june_2015.pdf

Appendix A

Recreational Facilities

Appendix - A

Area	Activities	Assessment
Keene St. 5 acres	1 Parking lot (Keene St.) 3 Little League diamonds 1 Multi-purpose field 1 Playground 1 Tennis court 1/2 Basketball court	<ul style="list-style-type: none"> • Marked parking spaces with appropriate number of handicap-designated spaces • Park is flat and grassy; good wheelchair access • Entry meets all specifications • One Porta Potty that is not handicapped-accessible • Tables have open access, although are not located adjacent to accessible
Lincoln St. 3.5 acres	1 Parking lot (Lincoln St.) 2 Soccer / Multi-purpose fields	<ul style="list-style-type: none"> • Marked parking spaces with appropriate number of handicap-designated spaces • Field not handicapped-accessible; 1 entrance with a steep grade
Tarkiln 1.5 acres	1 Parking Lot (Summer St.) 2 Little League fields 2 Tennis courts 1 Small playground	<ul style="list-style-type: none"> • Marked parking spaces with appropriate number of handicap-designated spaces • Building has a new handicap ramp at the back • No paved paths from parking lot to field or tennis courts, but ground is flat and even to allow for wheelchair access
Chandler School 6 acres	1 Parking lot (Chandler St.) 2 Full-size Soccer fields (including Ray Coppens Memorial field) 1 Full-size baseball diamond with lights	<ul style="list-style-type: none"> • Ray Coppens Memorial field complex: handicap-designated parking space next to each of two entrances • Baseball diamond: handicap-designated parking spaces next to school entrance, not near field

Area	Activities	Assessment
	2 Playgrounds	<p>entrance. Dirt area in front of entrance allows room for drop-offs</p> <ul style="list-style-type: none"> • Front playground: playground area is recessed from curb; no ramp. No ramps up to second level of play structure, and few play activities are available at ground level. - school • Side playground: No ramps up to second level of play structure, but structure has activities at ground level • All facilities are on level ground, though paved paths are few
Duxbury High School	2 Softball fields (Onion Hill field and Lovers Lane field) 1 multi-purpose artificial turf field with lights 1 Track 2 Multi-purpose practice fields 1 Basketball court 6 Tennis courts	<ul style="list-style-type: none"> • Marked parking spaces with appropriate number of handicap-designated spaces • Park is flat and grassy; good wheelchair access • Entry meets all specifications
Percy Walker Pool field	1 Soccer, Youth Football, or Lacrosse field	<ul style="list-style-type: none"> • Handicap-designated parking spaces near pool entrance. • Entrance from parking lot is paved, flat and level
Lower Alden - Behind Alden Elementary, 6 acres	2 Parking lots (Alden St.) 1 Field Hockey / Lacrosse field (Taylor Field) 1 Multi-use field 1 Playground (Ellison) 2 Softball diamonds 3 Tennis courts	<ul style="list-style-type: none"> • Playground: One handicap-designated parking space near entrance; ramp from parking lot up to sidewalk. Sidewalk has bricks near entrance to playground and transition from pavement to bricks is uneven. Entrance into playground is sloped, but steep. Surface in playground area is wood chips. Six benches and three picnic tables are available for seating. Neither structure has ramps up to upper levels; some activities available at ground level. • Tennis courts: Two handicap-designated parking spots close to entrance with van strip; no ramp at curb, and no path to courts (dirt). Cracks on surface

Area	Activities	Assessment
		<p>of both courts in double court. Two benches available for seating,</p> <ul style="list-style-type: none"> • Fields: No handicap-designated parking spaces. No paths at entrances (dirt/grass).
Train Field	1 Baseball diamond 1 Softball diamond with lights	<ul style="list-style-type: none"> •
Wadsworth Field 2 acres	1 Parking lot (Tremont Street) 2 Tennis courts 1 Little League baseball diamond 1 Small playground	<ul style="list-style-type: none"> • No handicap-designated parking spaces • Gravel parking lot makes for an uneven surface. • A chain is strung along the paved path that blocks wheelchairs as well as motorcycles. • A sloped dirt path; no stairs. • No curbs • Drinking fountain at the field meets all requirements. • One picnic table on grass with two fixed benches, which could accommodate a wheel chair pulled up to the side, but does not meet specifications for clearance and surface requirements.
Percy Walker Pool	1 Parking lot (St. George St.) 25 yard. 6 lane pool with 1 meter diving board	<ul style="list-style-type: none"> • Two handicap-designated parking spaces with a ramp from parking lot up to sidewalk. • Both exterior doors have automatic-open buttons. • Restrooms are handicap-accessible, including wide stalls, low sinks with clearance, and showers with seats and handlebars in each bathroom. • Pool has a slight raised lip around the perimeter of the pool, and has wide stairs for entrance. • A lift is available for entrance to the pool.
Duxbury Beach and Bay	2 Parking lots (near and far side of Powder Point Bridge) Paths from parking lot to beach	<ul style="list-style-type: none"> • Eight handicap-designated parking spaces in total; two van spaces by ramp with signs; another four on other side of the ramp without signs; two on the other side of the entrance, only one has a sign. • Ramp from parking lot to beach won Honor Award from the state: Accessible Design in Public Architecture - Best Site Solution.

Area	Activities	Assessment
		<ul style="list-style-type: none"> • No shade provided on the beach. • No ramp to bay side from main parking lot, but slope is not steep.
North Hill Country Club	1 Parking lot (Merry Ave.) Clubhouse Nine hole municipal golf course	<ul style="list-style-type: none"> • Three handicap-designated parking spaces, including two van spaces. • Doors into clubhouse are not automatic. • Bathrooms in clubhouse are handicap-accessible, including wide toilet stalls and clearance under sinks. • Golf course: paved paths between holes, and golf carts are available.

Main Conservation

Area	Activities	Assessment
Howlands Landing Park		<ul style="list-style-type: none"> • On-street paved parking is available on Howlands Landing Road. However, the park itself has very steep slopes and would be challenging except in the flat area near Kingston
Bay Farm Trails - Beginning of the Bay Circuit Trail in Duxbury	1 Parking lot (Loring Street)	<ul style="list-style-type: none"> • Gravel parking lot with no handicap-designated parking spaces. • Trail through field would be challenging due to muddy areas and three wooden bridges in path. • In dry weather, the field trails would be accessible. The wooded trails are not recommended due to narrow, muddy areas.
Berrybrook Fields	1 Informal Parking area (Winter Street)	<ul style="list-style-type: none"> • Parking area is relatively flat and even (dirt-packed) with no handicap-designated parking spaces. • Entrance to the farm road is handicap-accessible.

Area	Activities	Assessment
		The road is flat and accessible with rough areas
Black Friar Swamp	1 Parking Lot (Route 53/Summer Street0	<ul style="list-style-type: none"> • Trail entrance is not handicapped accessible. Trail is very rough with steep slopes and two rough, narrow bridges. • Handicapped access is not recommended.
Camp Wing Conservation Trails	1 Parking lot (Franklin Street)	<ul style="list-style-type: none"> • Parking lot is flat and even (dirt-packed) with no handicap-designated parking spaces. • Entrance to trail is handicap-accessible, however use of the trails is challenging and only the first loop trail is possible for wheelchair access. • The trail is firm, rough and dry with sections that exceed slope specifications. Seasonal Hunting is allowed.
	1 Parking Lot (Temple Street)	<ul style="list-style-type: none"> • Parking lot is flat and even (dirt packed) with no handicapped-designated parking spaces. • Handicapped accessibility may be possible for a short distance to the dam, where there are views of the South River marsh. • Trail on north side of Temple St. is too rough and steep for handicapped access.
Crowell Bog	1 Parking lot (Lincoln Street)	<ul style="list-style-type: none"> • Parking lot is flat and even (dirt-packed) with no handicap-designated parking spaces. • Entrance to trail is not currently handicap-accessible. If accessed, the flat, slightly rough trail around the bog would be handicapped accessible.
Duxbury Bogs Trails	1 Parking lot (East Street)	<ul style="list-style-type: none"> • Parking lot is flat and even (dirt-packed) with no handicap-designated parking spaces. • Entrance to the Loring and Nudd bogs from the East Street parking area is over a dirt-packed roadway with a gentle slope. Dirt roads around the bogs are flat and open and may provide handicapped access.
Gifford Bog	1 off street parking area (Temple Street)	<ul style="list-style-type: none"> • Parking area is flat and even (dirt-packed) with no handicap-designated parking spaces. • Handicapped access on perimeter bog road is possible.

Area	Activities	Assessment
Lansing Bennett Forest Trails	1 Parking lot (Union Bridge Road)	<ul style="list-style-type: none"> • Parking lot is flat and even (dirt-packed) with no handicap-designated parking spaces. • Entrance to trail is handicap-accessible, however, use of the trail is not recommended due to very rough terrain and steep slopes.
North Hill Marsh Trails	3 Parking lots (Mayflower Street, Modoc Street and Town Hall)	<ul style="list-style-type: none"> • Parking lots Mayflower and Modoc Streets are flat and even (dirt-packed) with no handicap-designated parking spaces. • Entrance at Mayflower Street is handicap-accessible, however use of the trails is not recommended due to very rough terrain and steep slopes. • Entrance at Modoc Street is not handicapped accessible. A locked gate prevents access. • Entrance at Town Hall is not recommended. Although the parking lot is paved, the trail begins with a very rough very steep slope.
O'Neil Farm	1 Parking lot (Autumn Avenue)	<ul style="list-style-type: none"> • Parking lot is flat and relatively even (dirt-packed) with no handicap-designated parking spaces. • Avery and Chandler Trails, each one mile long, are both narrow and rough with severe muddy areas. Handicapped access is not recommended.
Round Pond Trails	1 Parking lot (Mayflower Street)	<ul style="list-style-type: none"> • Parking lot is flat and even (dirt-packed) with no handicap-designated parking spaces. • Entrance to trail is handicap-accessible however; sections of the trail are very rough with steep slopes. • The trails are not recommended for handicapped use.
Thaddeus Chandler Sanctuary Trails	1 Parking lot (Valley Street)	<ul style="list-style-type: none"> • Parking lot is flat and even (dirt-packed) with no handicap-designated parking spaces. • Entrance to trails is handicap-accessible, however use of the trails is challenging. Sections are muddy and exceed slope specifications
Whitton Woods	1 off street parking area (Temple Street)	<ul style="list-style-type: none"> • The main trail is fairly flat and wide with some areas of trails are rough with steep slopes. Handicapped access is not

Area	Activities	Assessment
		recommended.

Appendix B

Field Data Sheets

(Note: Numbers in parentheses after Assessors Lot numbers are old Assessor Lot numbers; information in the texts refers to old lot numbers)

Assessors Lot #	036-502-006 (050a-502-006)	99.58 Acres	(Feinberg Bog)
	022-502-001 (010b-502-001)	2.02 Acres	
	022-502-002 (010b-502-002)	.01 Acres	

LOCATION

Southeast side of North Street, from the Marshfield - Duxbury town line to Route 3. The only access is a 40' public way off North Street. The three smaller lots are located on the south side of Route 3. It appears that these three lots were part of 050a-502- 006 but separated when Route 3 was constructed. Due to their size and isolated location their only use is for open space and wild life habitat.

PHYSICAL BOUNDARIES

One cement bound located on North St. at the right of way. The property has not been posted.

SIGNIFICANT FEATURES

The South River runs through the parcel which supplied water for the cranberry bog on either side of the river. The bog has since been abandoned and has pretty much reverted back to a red maple swamp. The remnant of dikes and control structures are still in place, however some of the control structures are open and can cause a liability problem. North Street at the public way is approximately at the 100' contour line. This is the remnant of a moraine, and slopes down rapidly to the bog elevation of 40' feet above sea level.

This parcel has a mixed soils classification. Along North St. the soils are classified as Gloucester which consists of low rolling hills with wet areas. Gloucester soils are formed in stony glacial till and consist of sandy silts. This series has moderate to severe limitations for development purposes and severe limitations for athletic fields. This classification constitutes about 25% of the parcel. The rest of the parcel is mud (swamp) both shallow and deep.

VEGETATION

On the North St. side of the parcel the vegetation consist of a heavily wooded pine - oak climax forest. The predominant species are eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). I also found several American chestnut (*Castanea dentata*) trees, as well as some red maple (*Acer rubrum*). As the parcel sloped towards the wetlands the vegetation changed to a red maple swamp consisting almost entirely of red maple, with a thick under story of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), sassafras (*Sassafras albidum*), and witch hazel (*Hamamelis virginiana*). There are scattered hemlock (*Tsuga canadensis*) where the upland changes to wetlands. The bog is now a red maple swamp.

EXISTING TRAILS

There is a cart path from North St. to the southeasterly side of the bog, which eventually circles the bog. These trails are pretty much grown over, but can be brushed back with a little effort.

PARKING

There is room for three or four cars at the cart path off North St.

PROBLEMS

There are no problems at this time except the open control structures for the bog.

RECOMMENDATIONS

TIMBER: There is a considerable amount of mature pine that should be harvested.

TRAILS: The existing trails should be brushed back and opened for hiking and cross country skiing. New trails and additions to existing trails could be constructed.

Assessors Lot # 027-502-042 (020-502-042) 9.1 Acres (Matthews Bog)

LOCATION

This parcel is located on the south side of Congress Street (Route 14) approximately 700 feet from the intersection of Union and Congress Streets. The lot has 492 feet of frontage on Congress Street and the back of the parcel abuts over 132 acres of town-owned open space under the jurisdiction of the Conservation Commission

SIGNIFICANT FEATURES

This parcel is an actively harvested cranberry bog consisting of 2.5 acres of bog, 3 acres of reservoir; 2 acres of upland and 1.6 acres of swamp.

Assessor's Lot # 014-502-004 (020a-502-004) 24.54 Acres

LOCATION

This lot is located off the northwest side of Franklin Street with two access points to Franklin Street : a 40 foot strip of land between lots # 020a-035-003 and 020a-035-004, and a second 40 foot strip of land between lots # 020a-035-011 and 020a-035-012. The lot abuts lot 020a-033-000 currently owned by the Swanson family. On the northeast side the lot abuts lot # 020a-502-036 which is under the jurisdiction of the Duxbury Conservation Commission.

GENERAL DESCRIPTION

With upland on the southeast side, the lot slopes down quickly into Black Friar's Swamp, a privately owned wetland. The upland constitutes about 30 to 40 percent of the lot. Much of the south and southeast side of the lot is a pine - oak climax forest with little undergrowth. Several foot paths have been constructed throughout the upland. The lot is contiguous with lot # 020a-502-036, a small lot that is contiguous on two side with lot # 020a-502-020, an 86 acre lot with access on Keene Street and Union Bridge Road. Since both of these lots are under the jurisdiction of the Duxbury Conservation Commission, there is a very good opportunity for an extended trail system.

SOILS

The upland portion of the lot is classified in the Gloucester series, which consists of moderately steep, well drained soils that formed in glacial till derived chiefly from granite material, which occur mostly on the high parts of ground moraines. The wetlands area on the west side is classified as peat, which consist of poorly drained soils that formed in an accumulation of partly decomposed organic material. Plant remains can still be identified, and are saturated much of the year.

VEGETATION

The wet areas form a typical red maple swamp, where the dominate tree is the red maple (*Acer rubrum*), and a lesser population of black birch (*Betula lenta*), and yellow birch (*Betula alleghaniensis*). The understory is made up of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), and sassafras (*Sassafras albidum*). The upland area is forested with a climax pine - oak forest, made up of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). There is very little understory except for some sheep's laurel (*Kalmia angustifolia*).

PROBLEMS AND RECOMMENDATIONS

There appears to be no problems with this area at this time except parking. Franklin Street is narrow, curved and congested, however since the Duxbury Conservation Commission has jurisdiction of the land across Franklin Street, parallel parking for several cars could be developed here. With the two access points on Franklin Street, a trail system can be constructed from the Phillips Brook area, which is across Franklin Street, and continue through to Keene Street, crossing Keene Street, which would connect with a trail from Summer Street to Congress Street. The Conservation Commission has jurisdiction over 200.3 acres of land in this Assessor's block alone, and jurisdiction over large pieces of land which are on abutting blocks that connect across streets. With parking on many of the streets, a network of various trails for hiking, cross country skiing and snow shoeing could be developed. Observation platforms for wildlife viewing and photography can be constructed. Interpretive trails for educational programs are a possibility. A comprehensive management plan needs to be developed.

This data sheet was completed February 2000

Assessor's Lot #	014-502-118	(020a-502-118)	1.85 Acres
	014-502-007	(020a-502-007)	1.66 Acres

LOCATION

These two parcels are located on the northwesterly side of Summer Street (Route 53) approximately 300 feet north of the intersection of Summer and Keene Streets.

DESCRIPTION

These two abutting lots have approximately 333 feet of frontage on Summer Street. This lot was once part of the Swanson farm, divided by the construction of Route 53. Originally a pasture, the parcel reverted back to a maple swamp. Located on this parcel is the other end of the cow tunnel located on parcel 020-502-011. Presently the cow tunnel is filled with water leaving only bullfrog access.

SOILS

A thin layer of sandy loam soil covers most of the pasture, sloping to a maple swamp on the northerly side, and sloping to a wet area on the southern side. Very fine, hard packed outwash and peat lie below allowing poor water percolation resulting in a high water table. Having been a farm, much of the surface soil has been altered from its original glacial outwash, although the area has an impervious substratum allowing for the poor percolation.

VEGETATION

The majority of the parcel is a grassed pasture with eastern red cedar (*Juniperus virginiana*) seedlings trying to encroach on the pasture. The predominant tree in the maple swamp on the north side of the parcel is red maple (*Acer rubrum*) and eastern white pine (*Strobus pinus*) on the higher side of the area towards Summer Street. The understory in the maple swamp consists of common green brier (*Smilax rotundifolia*), sweetpepper bush (*Clethra alnifolia*), and some high bush blueberry (*Vaccinium corymbosum*). Around the stone foundation there are some mature eastern red cedar and along Summer Street on the southern side of the area are some Norway maples (*Acer platanoides*), an introduced species.

Assessor's Lot #	004-502-008	(020a-502-008)	10.03 Acres
-------------------------	--------------------	----------------	--------------------

LOCATION

This parcel is located on the westerly side of Summer Street (Route 53), and is roughly 1033 feet south of the Pembroke-Duxbury town line with about 701 feet of frontage on Summer Street.

GENERAL DESCRIPTION

A relatively flat piece of property falling almost entirely between the 100 foot and the 110 foot contour lines on the Hanover quadrangle of the USGS topographical maps. Approximately 90% of the area is wetlands with standing surface water in many areas on the northerly side and has a small brook meandering through the lot. The entire parcel has a high water table. The majority of the area is a red maple swamp on the northern side with a stand of mature pine on the southern boundary. The rear of the lot is defined by a partial stone wall.

SOILS

The surface soils are classified in the Gloucester series - Sandy loam, very stony glacial till derived from granite, which are generally well drained. However, this area has a substratum of a firm layer of fine sands at a depth of two and a half to five feet. It is this firm layer of fine sands that is causing the high water table and the poor percolation rate.

VEGETATION

The predominate tree on most of the lot is red maple (*Acer rubrum*) on the northerly side and changes to a grove of eastern white pine (*Pinus strobus*) as the predominate species on the southern side. Other species of trees in lesser number are white oak (*Quercus alba*), red oak (*Quercus rubrum*), and yellow birch (*Betula alleghanien*). The understory on most of this area is a thick tangle of common green brier (*Smilax rotundifolia*), Sweet pepper bush (*Clethra alnifolia*), High bush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*). The understory in the pine grove is much less dense, however, made up of much the same species.

PROBLEMS AND RECOMMENDATION

Other than road side litter there seems to be no problems. Although this parcel does have parallel parking along the roadside it does not abut any other town owned land and is very wet. Due to these factors and since there are no trails or old cart paths on the property its best use is for open space, wildlife habitat, and to recharge the water table, at the present time. It also makes a good buffer zone against strip mall development along the street, and might be considered as a good candidate for a timber harvest.

Data Sheet completed December 1999

Assessor's Lot #	013-502-030 (020a-502-030)	34.94 Acres
	013-502-029 (020a-502-029)	9.86 Acres
	013-502-010 (020a-502-010)	2.77 Acres
	Total 47.39 Acres	

LOCATION

All three lots are contiguous and form a continuous passage from the north side Summer Street to the southwesterly side of Congress Street (Route 14). Lot 020a-502-010 is a rectangular shaped lot with 200 feet of frontage on Summer Street between lot # 020a-011-010 on its east and lot # 020a-009-002 on its west. This lot is contiguous on its north side with lot 020a-502-030, which lies on the west side of Keene Street. Lot # 020a-502-029 is located, with 760 feet of frontage, on the south side of Congress Street, between 020a-018-001 on its east and 020a-017-000 on its west. This lot abuts lot # 020a-502-030 on its south side.

GENERAL DESCRIPTION

Lot # 020a-502-010 is mostly a wet maple swamp with a dense tangled undergrowth. Much of the lot has surface water most of the year. There is a slight elevation on the easterly side. Lot # 020a-502-030 has three access points along Keene Street. The middle access point is a cart path leading to an overgrown field. The previous owner used the area as a chicken farm. The buildings had fallen into disrepair and had to be removed due to liability problems. The foundations are still visible. The field covers about half the lot which then slopes down westerly towards Keene's Brook, and becomes a wet maple swamp. Much of the field has been overgrown as the forest reclaims the area. This wet area, starting at Summer Street, and encompassing much of these three lots forms the head waters and water shed for Keene's Brook which flows northeasterly across these lots and under Congress Street. A stone wall on the east side of lot # 020a-502-029 forms the boundary between this lot and lot # 020a-018-001. A cement bound on Congress Street marks the western boundary between this lot and lot # 020a-017-000. Approximately 40 to 50 percent of the total area could be considered wetlands.

SOILS

The topography of this area forms a shallow sloping, concaved, or dish shaped, region with Keene's Brook at the bottom. The soils at the lowest area consist of poorly drained nearly level soils formed in coarse textured stony glacial till. This type of soil occurs in low-lying areas along streams. Most of these areas are boarded by better drained soils, formed in glacial till, with gently rising topography, and are extremely stony, maple swamps with moisture tolerant shrubs. The percolation rate of the water through the fragipan, which is close to or at the surface, is very slow. As the ground slowly rises in elevation on either side of the brook, a layer of poorly drained sandy loam is present. This layer gives way to a somewhat excessively drained soil made up of glacial till derived chiefly from granite, occurring mostly on higher parts of rolling ground moraines, which are an undulating layer of till deposited as the glacier retreats.

VEGETATION

The wetland area is made up of a maple swamp, the red maple (*Acer rubrum*) being the dominate tree, with a small population of black birch (*Betula lenta*). The understory in these areas is a dense tangle of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and high bush blueberry (*Vaccinium corymbosum*), being the thickest on lot 020a-502-010. As the elevation starts to rise eastern white pine (*Pinus strobus*) become established. As the elevation continues to rise red oak (*Quercus rubrum*), white oak (*Quercus alba*), and a small population of white ash (*Fraxinus americana*) become established. The edges of the field are being taken over by bigtooth aspen (*Populus grandidentata*), and black cherry (*Prunus Serotina*). There is a large population of yellow birch (*Betula alleghaniensis*) along Congress Street on lot # 020a-502-029 and a small population of canadian hemlock (*Tsuga canadensis*) towards the western side of this lot.

PROBLEMS AND RECOMMENDATIONS

The major problem on this area was the dilapidated buildings left by the previous owner, a chicken farmer. These buildings have now been removed and the site been cleaned and restored to a field. All this work has just been completed. The field could be enlarged more by brushing back more of the aspen and black cherry at the southern end. There is also the remnants of a household dump (bottles and cans etc.) left by previous owners, however cleaning this would be a major task. The area does lend itself for the development of a trail system that would start at Summer Street and continue across the northwest side of Duxbury to the newly acquired Camp Wing property. Connecting trails from the Phillip's Brook area off Union Bridge Road could be constructed to form a network of trails from the south side of Duxbury along the west side to the north side. A platform constructed on the western edge of the field would give wildlife observers and photographers a unique vantage point. Loop trails and self guided interpretive trails should be considered, as well as educational walk and programs. There is ample parking on Summer Street and, Congress Street. A parking lot would have to be developed in the field, for Keene Street is narrow and parallel parking along it would be very limited. A trail system could be used for hiking, cross-country skiing, jogging, snow shoeing, limited mountain biking (non- motorized), and wildlife observation.

Data sheet completed February 2000

LOCATION

This parcel is located on the southwesterly side of Summer Street (Route 53) approximately 370 feet north of the intersection of Summer and Keene Streets.

DESCRIPTION

An irregular shaped lot with approximately 800 feet of frontage on Summer Street, consisting mostly of pasture, which is mowed annually to keep it as a pasture. This lot is part of the Swanson Farm. The stone foundation of the barn still exists in the pasture with the entrance of the cow tunnel under Summer Street a short distance from the foundation. A portion of the northerly side of the pasture has reverted back to a maple swamp. Presently the cow tunnel is filled with water leaving only bullfrogs access.

SOILS

A thin layer of sandy loam soil covers most of the pasture, sloping to a maple swamp on the northerly side, and sloping to a wet area on the southern side. Very fine, hard packed outwash and peat lie below allowing poor water percolation resulting in a high water table. Having been a farm much of the surface soil has been altered from its original glacial outwash, although the area has an impervious substratum allowing for the poor percolation.

VEGETATION

The majority of the parcel is a grassed pasture with eastern red cedar (*Juniperus virginiana*) seedlings trying to encroach on the pasture. The predominate tree in the maple swamp on the north side of the parcel is red maple (*Acer rubrum*), and eastern white pine (*Strobus pinus*) on the higher side of the area towards Summer Street. The understory in the maple swamp consist of common green brier (*Smilax rotundifolia*), sweetpepper bush (*Clethra alnifolia*), and some high bush blueberry (*Vaccinium corymbosum*). Around the stone foundation there are some mature eastern red cedar, and along the Summer Street on the southern side of the area are some Norway maples (*Acer platanoides*), an introduced species.

RECOMMENDATIONS AND PROBLEMS

It will be necessary to mow the pasture each year to keep the trees from taking over. An application of agricultural lime each spring would be of great benefit to the grasses in the pasture. A test of the soils to determine the amount of lime to apply is in order. There is parking along Summer Street for several cars, however the parcel is not contiguous with any other town owned property which limits its use. Being a cleared field it does lend itself to playground use in the future. The stone foundation will need some cleaning, but does not present a hazard at the present time. There is also the standard road side litter problem that should be addressed. This is an ever present problem on all the road side parcels. At the present time its best use is open space, wildlife habitat, and a buffer to strip mall development.

Data sheet completed December 1999

Assessor's Lot # 014-502-018 (020a-502-018)	7.32 Acres
014-502-019 (020a-502-019)	.92 Acres
	8.24

LOCATION

At the intersection of High Street and Summer Street (Route 53), approximately 250 feet north of the intersection of Summer Street and Franklin Street. Parcel 019 is on the west side of Summer Street and parcel 018 is on the east side of Summer Street. On Summer Street, parcel 018 abuts parcel 020a-029-002 on the south side, and 020a-029-011 on the north side. Parcel 019 abuts the intersection of West and Summer Streets on the south side and parcel 020a-029-012 on the north side.

DESCRIPTION

Originally lots 018 and 019 were one lot which was bisected by the reconstruction of Summer Street, leaving 018 located on the easterly side of Summer Street and 019 on the westerly side. Parcel 018 has 545 feet of frontage on Summer Street and parcel 019 has 462 feet of frontage on Summer Street and 562 feet of frontage on High Street. The area is a ground moraine of glacial till with parcel 018 on the northern slope sloping down to a maple swamp and a water impoundment. The description of parcel 019 is much the same. Approximately 50% of the lots are upland with the other 50% as wetlands.

SOILS

Much of this parcel is in the Gloucester Series consisting of well drained soils that formed in glacial till derived chiefly from granite which occurs mostly on the higher parts of rolling ground moraines. The eastern boundary of the parcel is located at the top of the moraine and slopes to a swampy area of peat. The soils in the upper portions of the moraine consist of sandy mineral material allowing for good percolation of water. As the parcel slopes to the swamp the soils are made up of peat, which consist of poorly drained soils that formed in an accumulation of partly decomposed organic material, mostly plants which can be readily identified. These soils are saturated much of the year.

VEGETATION

The undulating topography allows for quite a diversity in vegetation. On the areas of well drained soils the vegetation is made up of a pine - oak climax forest, consisting of a mixture of eastern white pine (*Pinus strobus*), red oak (*Quercus rubrum*), and white oak (*Quercus alba*) with a very sparse understory of some common green brier (*Smilax rotundifolia*) and a few high bush blueberries (*Vaccinium corymbosum*). The predominant tree in this area is the white pine.

As the parcel slopes to the swamp the vegetation changes to a maple swamp consisting of red maple (*Acer rubrum*) as the predominate tree and a thick understory of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), High bush blueberry (*Vaccinium corymbosum*), and a few inkberry (*Ilex glabra*)

PROBLEMS AND RECOMMENDATIONS

Basically, there are no problems on the parcel except the standard roadside litter. There is parking along the road side and a cart path on lot 018 which extends in a short distance. Fortunately this cart path is not collecting rubbish at this time. Lot 019 is too small to have any cart paths or foot trails although it does have road side parking for several cars. Because neither lots abut any other conservation or town owned land constructing any hiking trails is not recommended. A private lot (020a -033-000) is located between 018 and a large parcel of conservation land. Should this parcel become conservation land the construction of hiking trails would take high priority. A timber harvest should be considered on lot 018. There are some mature pines that should be removed to allow for forest regeneration.

Data sheet completed January 2000

Assessor's Lot #	013-502-020	(020a-502-020)	86.28 Acres
	014-502-036	(020a-502-036)	4.06 Acres
	014-502-034	(020a-502-034)	1.03 Acres
	027-502-044	(020a-502-044)	4.91 Acres
	027-502-022	(020a-502-022)	5.19 Acres
		Total	101.47 Acres

LOCATION

All five lots are contiguous. Lot # 020a-502-022 has approximately 450 feet of frontage on west side of Union Bridge Road, between lot # 020a-047-000 and lot # 020a-051-001. Lot # 020a-502-020, the larger of the five lots, has 710 feet of frontage on Keene Street, between lot # 020a-023-001, and lot # 020a-030-001. Lot # 020a-502-036, in the southeast corner of the area, abuts lot # 020a-502-004, which is under the jurisdiction of the Duxbury Conservation Commission, and has access on to Franklin Street.

GENERAL DESCRIPTION

The majority of the five lots are wetlands with lot # 020a-502-020 almost entirely a dense maple swamp, with a small brook flowing through the lot from Black Friar's Swamp. The only upland on this lot is a small strip along Keene Street. On the other side of the area, on the west side of Union Bridge Road, on lot 020a-502-023, is an irregular shaped ridge or hill that slopes down into a maple swamp leaving about half of this lot in the uplands. Although the entire area is mostly wetlands, a system of trails could be developed.

SOILS

The majority of the five lots are classified as Peat, which contains very poorly drained soils derived from organic material. The water table is at or near the surface most of the year. The exception to this is a small kame deposit on lot # 020a-502-022, which consists of well drained coarse sand and gravel, granitic in nature. This occupies about 50 percent of the lot, which then slopes down to the maple swamp.

VEGETATION

Much of this area is a maple swamp with the red maple (*Acer rubrum*) as the dominate tree. On the upland on lot # 020a-502-022, eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*), are the dominate trees with little understory. There is a small population of Canadian hemlock (*Tsuga canadensis*) in the eastern corner of the area and some yellow birch (*Betula alleghaniensis*) in the wetland areas. As the topography changes from upland to wetlands, the dominate species of tree changes from pine and oak to red maple. In the wetlands the understory is that of a typical maple swamp, namely common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and high bush blueberry (*Vaccinium corymbosum*) as the dominate bush, with witch hazel (*Hamamelis virginiana*), and sassafras (*Sassafras albidum*) in lesser population.

PROBLEMS AND RECOMMENDATION

Parking seems to be the only problem at this time. Union Bridge Road is narrow, however parallel parking could be developed across the street along lot # 020a-502-027, since this lot is under the jurisdiction of the Duxbury Conservation Commission also. Keene Street is much the same, narrow, but parallel parking could be developed along the street with little effort. With this area totaling over one hundred acres and abutting another lot of nearly 25 acres, it lends itself to a diverse set of trails. Interpretive trails, hiking trails for walking, jogging, cross country skiing, and snow shoeing, are all possibilities. Trails with exercise stations are a possibility. Observation platforms at various intervals for wildlife viewing and photography. There is access to another nearly 50 acres of conservation land across Keene Street and access to 140 acres of conservation land across Franklin Street. There are large parcels of conservation lands which also connect, leaving many possibilities for passive recreation and education opportunities. The brook flowing out of Black Friar Swamp is rather clogged with dead branches. Removing these branches would improve the aesthetics and the flow of the stream.

Data sheet completed February 2000

Assessor's Lot #	014-502-114	(020a-502-114)	0.93 Acres
------------------	--------------------	----------------	-------------------

LOCATION

A rectangular lot located, with 200 feet of frontage, on the north side of Keene Street. The lot abuts lot # 020-011-003 on its northern side and lot # 020a-011-005 to the south side. The back portion of the lot connects to lot # 020a-502-007 which is also under the jurisdiction of the Duxbury Conservation Commission.

GENERAL DESCRIPTION

The lot has 200 feet of frontage on Keene Street. The lot is primarily a wet dense maple swamp.

VEGETATION

Being a maple swamp the primary tree is the red maple (*Acer rubrum*). There is a small population of eastern white pine (*Pinus strobus*)

PROBLEMS AND RECOMMENDATION

With the exception of road side litter there is no problem on this parcel. It is a very wet parcel with dense bushy undergrowth.

Assessors Lot #	011-502-102	(020b-502-102)	1.00 Acre
	011-502-003	(020b-502-003)	58.66 Acres
	011-502-101	(020b-502-101)	10.18 Acres
	011-502-096	(020b-502-096)	11.28 Acres
	011-502-089	(020b-502-089)	5.97 Acres
	011-502-017	(020b-502-017)	2.40 Acres
	011-502-098	(020b-502-098)	<u>4.19 Acres</u>
		Total	93.68 Acres

LOCATION

All seven lots are contiguous and are located on the West side of Union Street between Lot # 020b-100-000 on the south and Lot # 020b-097-000 on the north.

GENERAL DESCRIPTION

These seven lots form a large parcel of forest with a mixture of hardwoods and softwoods, and undulating topography, that form a continuation of the Keene's Brook corridor or watershed. This area is separated from the area of the Keene's Brook watershed on the northeast side of Congress Street by a small piece of privately owned wetlands. There is 430 feet of frontage on Union Street which allows the only public access to the entire area with parallel parking for several cars along Union Street. About 40 percent of the area is in the wetlands which forms a corridor on either side of Keene's Brook. On the west side of Keene's Brook the area slope up gently to a hardwood forest crisscrossed with many stone walls which indicates farming or pasture land as its former use. Along the brook close to Union Street is an abandon cranberry bog. Some of the cranberry vines can still be seen, however there is much encroachment of the pines and red maple. Lot # 020b-502-098 was purchased, in part, with funds donated by the Earle Hanna Family in his memory. This particular lot is significant in that it connects the open space land, under the jurisdiction of the Duxbury Board of Selectmen, around the Keenes Brook Lane development and these seven conservation lots, allowing residents of this area access into these lands.

SOILS

The soil on this area is made up of a mixture of glacial till of pebbly quartz sand to poorly drained sandy loam, which fall into several different series. The narrow strip on either side of Keene's Brook falls in the Brockton series which consist of very poorly drained nearly level soils that formed in coarse textured stony till. These soils occur in low lying areas and along small stream. The water table is at or near the surface during much of the year. The majority of the soils moving west and east of the brook fall in the Gloucester and Scituate series which are rather similar, consisting of moderately to well drained soil formed in glacial till of granitic material. Because of the slowly permeable fragipan, which is only a few feet below the surface, the soils are wet early in spring and after heavy rains. The Gloucester series contains more and larger stones than the Scituate series. There is an area of soil that falls in the Norwell series which bisects the area east to west, and would be considered wetlands due to its high water table. It consists of gently sloping; poorly drained sandy loams that formed in firm glacial till and contain many granitic stones and boulders. These soils have a fragipan at a depth of about 2 feet which restricts the downward percolation of water resulting in ponding. The seepage and runoff of water from the surrounding slopes will stand in depressions for short periods of time. The last area of different soil classification is the abandon cranberry bog which is in the Sanded Muck series, and consists of muck, peat, and very poorly drained mineral soils that have been developed for cranberry production.

VEGETATION

There is a wide mix of forest vegetation on these parcels. Starting on Union Street and moving west the dominant tree is the red maple (*Acer rubrum*), with some Canadian hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*) and white oak (*Quercus alba*). The understory is made up of much sweet pepper bush (*Clethra alnifolia*) and common green brier (*Smilax rotundifolia*) and high bush blueberry (*Vaccinium corymbosum*). This understory gets thicker and more tangled as one moves towards the brook. Moving away from the brook in an easterly direction the topography slopes upward and the dominate species change to eastern white pine, and red and white oak. In the transition zone from wetland to upland there is a small population of black birch (*Betula lenta*), and yellow birch (*Betula alleghaniensis*). The understory also thins as the upland takes over. Moving west across the brook the forest situation is much the same. Moving upland the forest floor opens up and little understory is found. In the transition zone there are a few American holly trees (*Ilex opaca*) and in the upland a population of beech (*Fagus grandifolia*) can be found.

PROBLEMS AND RECOMMENDATIONS

Other than road side trash there are no problems. There is limited access and therefore little use at this time. Acquisition of land that would connect this area with the area on the easterly side of Congress Street. Connecting these two parcels would allow access from the south west side of Duxbury to the northeast side. It would also allow complete access to the Keene's Brook corridor, and a trail system could be planned and constructed that would connect many of the land under the jurisdiction of the Duxbury Conservation Commission in this section of the town. A trail system for hiking, cross country skiing, and snowshoeing, as well as interpretive trails and exercise trails are possible. This area might be considered for limited deer hunting. There are many signs of a well established deer population and thinning makes for a healthier herd. Pulling the dead wood out of the brook might improve the aesthetics of the stream as it cascades over the many large stones and boulders on its way to join the South River.

Data sheet completed April 2000

Assessor's Lot #	012-502-021	(020b-502-021)	53.49 Acres
	012-502-073	(020b-502-073)	4.49 Acres
	012-502-171	(020b-502-171)	0.71 Acres
	Total		58.69 Acres

LOCATION

These three contiguous lots are located on the north side of Congress Street with over 1500 feet of frontage on Congress Street, between lot # 020b-064-000 on the east and Lot # 020a-061-000 on the west.

GENERAL DESCRIPTION

The lots form an " L " in shape with the widest side on the street, and Keene's Brook flowing through the middle. In the back portion of the lot, Keene's Brook forms the boundary on the west side with lot # 020b-500-071, previously-owned by the Fernandes family. These lots form a basin with Keene's Brook flowing through the bottom of the basin. The topography slopes up from the stream bed on either side. The wetlands on both sides of the brook form a typical maple swamp. As the topography slopes up on either side the forest changes to more upland species. The entire area is very stony and the brook cascades over the stones as it meanders through the swamp.

SOILS

The soil types vary with the elevation. In the lowest part of the basin the soils consist of very poorly drained nearly level soils that formed in coarse textured stony glacial till, which accounts for the poor percolation rate in that area. As the topography slopes up, the soils change to a better drained sandy soil made up of thick deposits of coarse, pebbly quartz sand. In this area, the water moves readily through the soil material above the fragipan. During periods of heavy rain fall, the soils above the fragipan, which is not a very thick layer, become saturated. When this happens, the water sits on the surface of the forest floor or moves laterally to the river bed.

VEGETATION

In the wetland the dominate species of tree is the red maple (*Acer rubrum*), with a lesser population of yellow birch (*Betula alleghaniensis*), and black birch (*Betula lenta*). There is an occasional black tupelo (*Nyssa sylvatica*), and sassafras (*Sassafras albidum*). The understory, although quite thick in some places, was not as thick as the typical maple swamp. Common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), arrowwood (*Viburnum dentatum*), and witch hazel (*Hamamelis virginiana*) made up the understory. As the wetlands changes to upland a transition in species takes place. The dominate trees are eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). There is also quite a large population of American beech, (*Fagus grandifolia*), particularly on the western side, and an occasional Canadian hemlock (*Tsuga canadensis*). There is also a small population of blue beech or American hop hornbeam (*Ostrya virginiana*). The understory in this area is mostly sheep's laurel (*Kalmia angustifolia*), if there is an understory.

PROBLEMS AND RECOMMENDATION

There really isn't any problem at this time except road side trash, some of which has blown quite a distance in to the area from the road. There is ample road side parallel parking on both sides of Congress Street, and a brook side interpretive trail with an observation area, or areas along the trail would lend itself well in this here. There is a diverse population of plant life on the parcels, and loop trails through the diversity would be in order. Across Congress Street there is a large parcel of land under the jurisdiction of the Duxbury Conservation Commission and a loop trail that includes both parcels would make for an interesting trail system. The fallen branches and dead wood in the brook should be removed to enhance the aesthetics of the brook.

Data sheet completed February 2000, updated in 2008 to include Lot 020-502-171.

Assessor's Lot #	006-502-023	(030a-502-023)	22.46 acres
------------------	--------------------	----------------	--------------------

LOCATION

Parcel 023 is located in the northwest corner of Duxbury, and is boarded on two sides by the town of Pembroke. The rest of the land is boarded by assessor's lot # 030a-024-000, land presently owned by Mr. E. Koplovsky.

DESCRIPTION

The parcel is a "U" shaped piece of land with undulating topography. Approximately 50 percent of the area is upland, however, the wetlands are mixed throughout the area. The upland consists of a typical pine-oak forest while the wetland is a red maple swamp. There is a stream draining much of the wet areas.

SOILS

About 50% of the area is made up of undulating or hummocky kames. Most of the slopes are short and irregular. The out wash deposits consist of gravely soils of granitic origin. The underlying substrate is made up of muds and peat, which are poorly drained and hold surface water much of the year. The gravely kames which constitute the uplands is forested with a typical pine-oak climax forest while the lower or wet areas are forested predominately with red maple.

VEGETATION

There is a mixture of upland and wetlands. The dominate forest vegetation on the uplands is eastern white pine (*Pinus strobus*), red oak (*Quercus rubrum*) and white oak (*Quercus alba*) In the areas with a great deal of pine there is very little understory. The wet areas are a typical red maple (*Acer rubrum*) swamp. The understory in the wet areas consist of sweet pepper bush (*Clethra alnifolia*) and common green brier (*Smilax rotundifolia*)

PROBLEMS AND RECOMMENDATIONS

Although there are several foot paths and cart paths on the parcel there is no public access. Unless more parcels can be added to allow public access it might best be left for open space and wildlife habitat. Should Mr. Koplovsky do more timber harvesting on his abutting property it might be good to harvest some of the mature timber on this property at the same time.

Data sheet completed November 1999

Assessor's Lot #	016-502-051	(030b-502-051)	104.28 Acres	(Valley Street Bogs)
	006-502-050	(030b-502-050)	1.11 Acres	

015-502-000	(030b-502-000)	9.50 Acres
015-502-056	(030b-502-056)	1.32 Acres
		Total 116.21 Acres

LOCATION

This parcel of land is located on the southern side of Valley Street between lot # 030b-051-001 (71 Valley Street) and Upper Charles Chandler's Mill Pond (also the Duxbury - Pembroke town line), with a 40' unimproved gravel way between lot # 030b-051-002 (17 Valley St.) and lot # 030b-051-003 (11 Valley St.). On the western side of Summer Street (Route 53) the parcels are located behind lot # 030b-782-001 (Fred's Duxbury Fix-It Shop), lot # 030b-782-002 (Osborn's Country Store), and Summerset Place. Lot # 030b-502 056, located on Summer Street, allows access on the western side of Summer Street. On the northern side of Birch Street there are two access points. The first is a 40' unimproved way between lot # 030b-059-002 (28 Birch Street) and lot # 030b-059-003 (42 Birch Street). The second access point is to use lot# 030-509-053, which is under the jurisdiction of the Water Department. Pine Brook, which is also the Duxbury - Pembroke town line, forms the western bound of the area.

GENERAL DESCRIPTION

Being a large parcel of land, made up of four separate lots, there is a mix of topographical features as well as vegetation. Access, with parking for several cars, on Valley Street is by a gravel cart path leading into the property, and is where the Bay Circuit Trail system enters the area. Much of this area to the left of the cart path is abandon cranberry bogs, work roads and mowed areas between the bogs, all of which are being overgrown with a variety of swamp vegetation. Some of the old bogs, their ditching, and cranberry vine can still be recognized. Much of the topography was altered with the construction of the cranberry bogs and the dam to form Upper Chandler's Mill Pond. Much of Upper Chandler's Mill Pond floods Lot 030b-502-050, a small lot of less than an acre and a half, and the rest of the lot is swampy wetlands. To the east side of this lot is Lot # 030b-502 000, a larger parcel topped by a delta kame, a steep sided flat topped hill of sand and gravel originating when sediments accumulated in openings in stagnant glacial ice, as its major topographical feature, and has approximately 60% upland. These two lots make up approximately 10 acres of this entire area. An earthen dam with two water control structures on the eastern side of Upper Chandler's Mill Pond holds the water level in the reservoir at its present level. Pine Brook flows through the reservoir, over the dam, and forms the southern boundary of the entire area as it flows on into Lower Chandler's Mill Pond. Behind the dam to the east is a large maple swamp with standing water in many areas. Behind the cranberry bog off Valley Street is a dike road running east, which was used to work the bogs, and forms part of the Bay Circuit Trail system. To the right of this dike road is a canal flowing from Upper Chandler's Mill Pond, behind the bog, then through the maple swamp to the abandoned bog off Birch Street. The dike cart path turns south, still part of the Bay Circuit Trail system, and runs to the bog on Birch Street. To the left of this cart path the land slopes upward to form a pine-oak forest and at this point can be considered upland. This area can be considered a kame terrace, a land form resulting from accumulation of glacio-fluvial sand and gravel along the margins of ice tongues in valleys of hilly relief with undrained depressions or kettle holes. Several of the kettle holes have standing water in them with swamp vegetation. Much of lot # 030b-502-056, which is part of this total area, lies on the south side of Summer Street, and is another small abandon cranberry bog of less than one half acre, and is pretty much over grown with swamp vegetation. The Bay Circuit Trail crosses Summer Street at this point. According to historical documents this area of Duxbury was called Four Mile Hill and is one of the highest points in the town. On the north side of Birch Street to the west of the water tower is another abandon cranberry which has not grown over with maples and pines as severe as the Valley Street bog. Although marsh vegetation is starting to take hold, much of the cranberry vine is still visible. Maple and pine are well established along the bog edge.

SOILS

All of the bog areas are classified, according to the Plymouth County Soils Survey of 1969, as sanded muck which consists of muck, peat, and very poorly drained mineral soils that have been developed for cranberry production. These areas have been leveled, sand applied over the organic material and planted. The upland areas to the east are classified in the Carver series which consist of well drained steep sandy soils that formed in thick deposits of coarse, pebbly quartz sand. This type of soil occupies much of the pitted and dissected outwash plains. The slopes in some areas tend to be very steep.

The soils in the wetland along Pine Brook in the west side of the area, fall in the Scarboro series which consist of poorly drained sandy loams that formed in thick deposits of sand and gravel. A black mucky layer of organic material up to 12" in thickness overlies the mineral layer of very dark brown sandy loam. These soils occupy large depressions in outwash plains, and are wet most of the time due to their high water table and slow percolation rate.

VEGETATION

The vegetation on these parcels is mixed and varied. Along the edge of the reservoir on the west side of lot # 030b-502 050 is typical pond edge grasses and sedges along with common alder, (*Alnus populus*), button bush, (*Cephalanthus occidentalis*), right adjacent to the reservoir, and high bush blueberry, (*Vaccinium corymbosum*), sweetpepper bush, (*Clethra alnifolia*), and arrowwood, (*Viburnum dentatum*) taking over as you move away from the water's edge. Getting closer to the upland on lot# 030b-502-000 red maple, (*Acer rubrum*), and common brier, (*Smilax rotundifolia*) become established. On the top of the delta kame, on lot # 020b-502-000, which is east of the reservoir, upland vegetation takes over, with eastern white pine (*Pinus strobus*) and red oak (*Quercus rubum*), being the dominant species, with white oak (*Quercus alba*) in lesser number, and very little understory. There is a varied mixture of vegetation taking over on the abandon bog on Valley Street. The understory of blueberry bushes, (*Vaccinium corymbosum*), sweetpepper, (*Cornus alternifolia*), and arrowwood (*Viburnum dentatum*) became established with red maple, (*Acer rubrum*) and eastern white pine (*Pinus strobus*) following. The eastern white pine and the red maples, as they grow taller, are starting to dominate and crowd out the understory of shorter bushes. Behind the reservoir, south of the Valley Street bog to Pine Brook is a swamp with red maple, (*Acer rubrum*), as the dominant species. There is mature eastern white pine (*Pinus strobus*) in some of the transition zones. On the Birch Street side of the swamp a population of black birch, (*Betula lenta*) is getting established.

In the southeast corner of the area on the kame terrace around the water tower is a grove of mature eastern white pine (*Pinus strobus*), and red oak, (*Quercus rubrum*), with very little understory. There are several kettle holes in this section with standing water and wetlands vegetation.

The native species of wetland plants have not taken over as much on the abandon bog off Birch Street. Much of the area is still covered with cranberry vine with some marsh grasses and sedges slowly moving in. Red maple (*Acer rubrum*), and immature eastern white pine, (*Pinus strobus*), are beginning to establish themselves along the edges of the bog, and the bog roads, as is the typical wetland bushes, such as sweet pepper, (*Cornus alternifolia*), high bush blueberry, (*Vaccinium corymbosum*), and Arrowwood, (*Viburnum dentatum*).

PROBLEMS AND RECOMMENDATIONS

There seems to be little or no problems in this area short of the typical road side litter particularly along the Summer Street access area where the Bay Circuit Trail reaches Summer Street. All of the parcels are free of rubbish and no encroachment. As for recommendations The existing trails and foot paths, which there are several besides the Bay Circuit Trail need to be brushed back. More hiking trails might be developed to give the Bay Circuit Trail a little variation. More classroom use of these areas should be encouraged. In the upland area behind Summerset Place a harvest of timber should be considered.

Data sheet completed February 2000

Assessor's Lot #	029-502-005	(030b-502-005)	122.06 Acres	(Trout Farm/Phillips Brook)
	015-502-038	(030b-502-038)	14.08 Acres	
	015-502-049	(030b-502-049)	<u>3.50 Acres</u>	
			Total	140.18 Acres

LOCATION

This large parcel, made up of three contiguous lots, is located on the west side of Union Bridge Road, on the north side of Cross Street, the east side of Summer Street (Route 53), across from the intersection of Summer Street and Valley Street, and the south side of Franklin Street. The area has access from all four of these Streets.

GENERAL DESCRIPTION

The three lots are contiguous and form one large wooded lot of mixed species and a mix of upland and wetlands. On lot 030b-502-038 on Summer Street is a small abandoned cranberry bog of approximately 1 1/2 acres. Due to its size and lack of care for such a long time, bringing the bog back into production is not economically feasible. This bog and surrounding area form the watershed of Phillips Brook which flows through the northern side of the property along Franklin Street. The water quality of this brook is such that before the Town of Duxbury purchased the property in 1973, it was used as a private trout hatchery. Wooden raceways were constructed and trout were farmed. One might catch a glimpse of a small brook trout darting for cover along the undercut banking or vegetation in the brook as you walk along the path beside the brook. Most of the wooden raceways and control structures have been cleaned out and the construction material removed leaving the brook in its natural condition. The water quality is still rather pristine as is evident by the presence of a small population of brook trout.

Located in the northeast corner of the lot is an old mill sight. The mill foundation and dam can still be recognized. The dam impounded water to operate the mill forming Phillips Mill Pond. Remnants of a ditch can be seen between Phillips Brook and Black Friar Swamp, which is located between Keene Street and Franklin Street. When Phillips Brook did not have enough water to run the mill, water was diverted from Black Friar Swamp to supplement the water resources. The Phillips Brook watershed occupies about 25 to 30% of the parcel and is a maple swamp which is considered wetlands. The remainder of the parcel is a climax pine - oak forest on an outwash plain, an undulating layer of glacial till deposited as the ice front retreats. The topography in this area consists of a kame terrace, a series of hills and valleys with several kame deposits, which are steep sided hills composed of sand and gravel, originating when sediment collected in openings in stagnant ice, and kettle holes, pits or depressions left by the melting of isolated blocks of ice. It appears that today's topography is just as the glaciers left it while retreating. With the exception of the small cranberry bog and the mill site there is no evidence of any alteration of the area. Timber has been harvested but that does not alter the topography. There are several cart paths and hiking trails throughout the property, all marked and color coded. A map at the kiosk on Union Bridge Road delineates the trails. The Bay Circuit Trail runs through the parcel from Summer Street to Union Bridge Road on its way across Duxbury.

SOILS

The majority of the soils in the upland area are classified, according to the Plymouth County Soil Survey of 1969, in the Carver Series, which consists of well drained sandy soils that formed in thick deposits of coarse pebbly quartz sand. These are in the formation of a kame field or terrace, formed generally by the collapse of sand and gravel deposited over irregular ice fields, and are the coarsest textured soils in the county. The percolation rate of these soils is rapid, but these deposits tend not to be thick. There is standing water in some of the kettle holes which tends to indicate a high water table. In the wetland of the Phillips Brook watershed the soils are classified in the Scarboro Series and Peat. The Scarboro Series consist of very poorly drained sandy loams that formed in thick deposits of sand and gravel, which occupy large depressions on outwash plains, and have a high water table. Peat consists of very poorly drained soil that formed in an accumulation of partly decomposed organic material. In some of the peat accumulation the plant remains can be identified. The soils are usually level and are saturated much or all of the year. This soil type dominates the northwest corner of the wetland area. The abandon cranberry bog is classified in the sanded muck series, which consists of very poorly drained mineral soils that have been developed for cranberry production. All trees and brush has been removed and the surface has been leveled. About a foot of sand has been spread over the organic material to provide a rooting medium for cranberry vines, and ditches for water control constructed around the bog edges.

VEGETATION

The abandon cranberry bog still has some cranberry vine present as well as marsh grasses and sedges with immature red maple (*Acer rubrum*) around the edge. The understory along the edge is made up of sweet pepper bush (*Cornus alternifolia*), and high bush blueberry (*Vaccinium corymbosum*). The vegetation over the peat area and the Scarboro soils constitutes a typical maple swamp made up of red maple (*Acer rubrum*) as the primary tree cover with an understory made up of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and high bush blueberry, (*Vaccinium corymbosum*). The upland areas are a characteristic climax pine- oak forest, with the primary trees being eastern white pine (*Pinus strobus*), red oak (*Quercus rubrum*), and white oak (*Quercus alba*). In some spots there is a small population of eastern hemlock (*Tsuga canadensis*). In the pine-oak forest there is very little understory. Some of the deeper kettle holes have typical maple swamp vegetation and some standing water in them.

PROBLEMS AND RECOMMENDATION

With the exception of the standard roadside litter there seems to be few problems. Since the cart paths have been blocked off, no dumping inside the property has occurred. The area seems to be respected at this time. The paths and hiking trails need to be brushed back a little. More hiking trails could be constructed. This is an area that is in need of a management plan and a selective harvest and some timber stand improvement under taken. The topography lends itself to a wonderful study of geology or earth science in glacial deposition. There is a wide variety of glacial features which appear to be just as the glacier left them as it retreated, with the exception of the mill site and the abandon bog. According to historical reports no settling or development has taken place on this parcel. On the east side of the parcel a short distance down the cart path from the kiosk on Union Bridge Road is " a charcoal pit" were charcoal was produced. According to "Settlement And Growth of Duxbury 1628-1870" by Dorothy Wentworth " One of the most interesting industries that grew out of a shipbuilding need was the production of charcoal necessary to the smelting of bog iron ore ". " Charcoal burning was a lonely and undesirable job. Two men lived at the site of the kiln, working alternately day and night, becoming sootier and grimmer as the process went on, and recognized in the countryside as a breed apart. The trees were cut and piled in huge conical circles, perhaps twenty feet in diameter, and dirt was piled over the pyramid as soon as a fire got underway. Whenever a curl of smoke showed, the man on duty threw on a shovel of dirt, for any air in the kiln spoiled the slow oxidation of the wood. After the required days and nights had passed, the dirt was pulled off, the charcoal was carted to the furnace, and the men moved on to the next site. The dirt they pulled off fell into small circular mounds around the fired area and now, more than a hundred years later, bits of charcoal can be dug from them. "One of these "pits" can be seen clearly on the side of the cart path. After taking several cores from across the circle and several cores from outside the circle, and comparing these cores it was easy to determine that the circle of dirt is actually a charcoal pit. The mill site should be brushed out and brush removed to open the site for better viewing. History of the site is sketchy at best. According to the same source "A grist mill was early on a small pond south of Union Street where it crosses Franklin Street. The remains of the dam and the foundation of the mill can be seen by anyone who will brave the poison ivy. There is a rather small stream, not very swift, and often the supply of water behind the dam was depleted. When there was not enough water, arrangements were made to bring a supply from Black Friar Swamp to turn the wheel. The ditch that brought the water out of the swamp and across Franklin Street to Phillip's Brook can be located today". This mill was converted to a saw mill later and the remains of the foundation that are present today is that of the saw mill and not the actual grist mill.

There also is a small population of brook trout in the brook. A report, entitled Trout Stream Improvement, prepared by the Soil Conservation Service in January 1978, states " Sections along the Phillips Mill Brook meander from (one) side of the stream to the opposite side. Additional aeration and fish cover is desirable. The establishment of logs at a slight angle in selected sites along the waterway would create necessary pools. In addition, boulders can be placed in strategic spots to help form deep pools and whirlpools. Edges of stream banks provide excellent hiding spots for trout". Raising the water level behind the dam slightly and constructing some of the improvements suggested by the Soil Conservation Service would improve the brook trout population.

Data Sheet completed February 2000

Assessors Lot # **033-502-026** (040-502-026) 2.92 Acres

LOCATION

This parcel is located off Autumn Avenue and located behind lots 040-026-00 and 040-010-006 and adjacent to lot 040-010-000, which is a privately-owned cranberry bog. Access to the parcel is through an easement over lot 040-026-000.

SIGNIFICANT FEATURES

Over two-thirds of the parcel consists of wetlands.

LOCATION

The parcel is located on the north side of Clearwater Drive between Clover Circle and Greenleaf Drive, directly behind lots 040a-500-009 and 040a-500-010, which are Selectman lots.

GENERAL DESCRIPTION

This lot is part of the Hall's Brook watershed, and is entirely in the wetlands. It consists of a maple swamp, with a very thick understory, and standing water on the entire lot for the major part of the year.

SOILS

The soils on the entire parcel, according to the Plymouth County Soils Survey, are classified as Muck, which consists of very poorly drained soils that formed in an accumulation of organic material decomposed to the extent that the original material can not be identified. The water table is at or near the surface during much of the year.

VEGETATION

The predominate tree is almost 100% red maple (*Acer rubrum*) with a very dense understory of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and high bush blueberry (*Vaccinium corymbosum*). This is a classic example of a red maple swamp.

PROBLEMS AND RECOMMENDATION

Although there is access over town owned property, namely lots 040a-500-009 and 040a-500-010, off Clearwater Drive, this lot is not contiguous to any other town owned property, and due to the standing water for most of the year, it does not lend itself to much recreational use. At the present time it might best be left as open space and wildlife habitat.

LOCATION

This parcel is located on the south side of Lake Shore Drive between lots 040a-914-052 & 040a-914-109, with 150 feet of frontage on the road and 265 feet of frontage on Chandler's Mill Pond.

GENERAL DESCRIPTION

The single lot crosses a moraine which slopes up from the road to a high point in the center of the lot then down to the lake shore, giving public access to Chandler's Mill Pond. Much of the southeast side of the area is wooded with a mix of hard and softwoods. A cleared dirt drive allows vehicular passage from Lake Shore Drive to the lake for the purpose of launching small boats and canoes. Parking for six to eight vehicles is available.

SOILS

All of the soils on this lot are classified in the Carver Series, which consist of well drained sandy soils with some steep slopes formed in thick deposits of coarse, pebbly, quartz sand occupying much of the pitted and dissected glacial outwash plain in the southeastern part of Plymouth County.

VEGETATION

On the wooded area of the lot is a mix of eastern white pine (*Pinus strobus*), red oak (*Quercus rubrum*), and white oak (*Quercus alba*), with some gray birch (*Betula populifolia*), black cherry, (*Prunus serotina*), and bayberry (*Myrica pensylvanica*) in the transition zone between the wooded section and the cleared area. As the lot slopes to the lake shore the vegetation changes to wetland species, namely red maple (*Acer rubrum*), high bush blueberry (*Vaccinium corymbosum*), sweet pepper bush (*Clethra alnifolia*), and leather leaf (*Chamaedaphne calyculata*) with a mixture of wetland grasses and sedges along the lake shore.

PROBLEMS AND RECOMMENDATIONS

The only problem is a little erosion at the lake shore on the boat launch sight. A little gravel would take care of this. A little brushing back of the road way might be in order as the pioneer plants move out of the wooded area to keep the access open. With the limited parking and boat launch access Chandler's Mill Pond has been opened to improved recreational use.

Data sheet completed Jan. 2000.

LOCATION

This is a land - locked piece of property located between Lake Shore Drive, Mill Pond Lane, and Pine Street. There is no public access except a 10' travel easement which winds its way from Lake Shore Drive at the intersection of Jonathan Way. This easement would have to be surveyed and marked in order to be useful.

GENERAL DESCRIPTION

The majority of this lot is a maple swamp with an abandon cranberry bog at the southern end of the lot. Eighty to ninety percent of this parcel would have to be considered wetlands. A small brook flows north to south through the old bog, which has reverted back to maple and pine trees. The brook continues south under Pine Street and into Pine Brook.

SOILS

This area falls into two soil types. The majority of the parcel is classified as peat which is made up of very poorly drained soils that formed in an accumulation of partly decomposed organic material and is saturated most of the year. The cranberry bog is classified as sanded muck which consists of muck, peat, and very poorly drained mineral soil constructed for the purpose of cranberry production. This cranberry bog was constructed in the area classified as peat. The second soil type is classified in the Carver series which consist of steep sandy soil that formed in thick deposits of coarse, pebbly sand. Although the percolation rate is good, this sandy layer can be rather thin overlaying the peat substrate.

VEGETATION

The dominate tree in this area is the eastern white pine (*Pinus strobus*). Red oak (*Quercus rubra*), and white oak (*Quercus alba*) populate the upper drier areas, along the west side of the parcel, with the pine. In the wet areas the dominate tree is the red maple (*Acer rubrum*) with the pine. The wet areas have a very thick tangled understory of the usual species of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*vaccinium corymbosum*), and arrowwood, (*Viburnum dentatum*).

PROBLEMS AND RECOMMENDATIONS

The lot at present is not being used due to the fact there is no public access. The construction of the bog left a small sand pit on the west side of the bog which has been used as a dump. Much of the rubbish remains but nothing has been added recently. It probably is best that the lot be used as open space, wildlife habitat, and ground water recharge.

Data sheet completed April 2000

LOCATION

Whitton Woods is located on the easterly side of Temple Street between Franklin Street and Laurel Street.

GENERAL DESCRIPTION

This parcel is unique in that in the center of the parcel is a large outcropping of bedrock surrounded by glacial till, which is comprised of very stony sandy loam, derived mainly of granitic material. Many stone walls crisscross the lot. The forest consists of a mix of mesic forest of well drained soils and hydric forest which occur in low lying areas that retain water.

SOILS

The bedrock outcrop is surrounded by glacial till deposits of very stony sandy loam, derived mainly from granitic material. Below this layer is a fragipan of compact loamy sand, which is commonly referred to as a clay lens or hard pan.

VEGETATION

The upland portion of the parcel, which constitutes the higher areas in the center, are forested predominately with eastern white pine (*Pinus strobus*), white oak (*Quercus alba*), and red oak (*Quercus rubrum*). As the topography slopes to the fresh water swamp on either side the dominate species of tree is the red maple (*Acer rubrum*) with some eastern red cedar (*Juniperus virginiana*) and in the northern corner of the area a grove of yellow birch (*Betula alleghaniensis*). In the wet areas there is an understory of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and high bush blueberry (*Vaccinium corymbosum*). Without delineated boundary lines it is difficult to determine the amount of wetlands as opposed to upland, however, I feel this parcel is approximately half upland and half wetland, with all the upland in the center of the parcel.

EXISTING TRAILS

There is a trail that circles the parcel. This circle trail crosses private land on the northern side. Permission will be needed for continued use. There are also foot paths that cross over the bedrock outcrop from side to side traversing some of the interesting geological formations.

PARKING

There is room to park two or three cars along Temple Street at the side of the road. With a little brushing at the entrance parking could be made a little more convenient.

PROBLEMS

The sign "Whitton Woods" at the entrance of the property is missing. The existing trails need to be brushed back and remarked. The northern boundary between this parcel and parcel 050b-026-000, the privately owned parcel, should be located so a trail could be constructed to reform the continuous circle of the property, or permission to use the portion of the existing trail on the private property.

POTENTIAL USAGE

Trails: The existing trails need to be cleaned and remarked for hiking and cross country skiing. Some new trails should be constructed with some interpretive signs along the trails to point out some of the significant features or vegetation.

Wildlife Habitat: This area lends itself to bird watching and wildlife viewing. I saw many signs of deer using this area.

Data sheet completed November 1999

LOCATION

This parcel is located on the easterly side of Laurel Street and abuts the Marshfield town line.

GENERAL DESCRIPTION

An irregular shaped lot with no street frontage and no public access. The entire parcel is a dense maple swamp with standing surface water and does not abut any other conservation land or other town owned land.

SOILS

Almost all of this area is classified as shallow muck, which consists of poorly drained soils that formed in an accumulation of organic material decomposed to the extent that the original plant material cannot be readily identified. This decaying material, mostly plant life, can be from 2 to 12 feet in thickness with a substratum of fine mineral deposits similar to that of the surrounding mineral soils. This type of soil receives surface runoff water from surrounding higher lying areas, which it holds, due to the fine particle size of the underlying soils. The water table is near or at the surface throughout much of the year.

VEGETATION

A very dense swamp with red maple (*Acer rubrum*) as the predominate tree. Along the easterly edge of the parcel are a few eastern white pine (*Pinus strobus*). The understory is made up of the typical bushes of a red maple swamp, namely a dense tangle of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), arrowwood (*Viburnum dentatum*), winter berry (*Ilex verticillata*), and high bush blueberry (*vaccinium Corymbosum*).

PROBLEMS AND RECOMMENDATIONS

This area has no public access or parking. It does not connect with any other town owned property and has surface water most of the year. There are no trails or old cart paths, nor is the area being used in any way at this time. These factors limit its recreational use severely. It might simply be left as open space and wildlife habitat until such time other parcels might be added, and access acquired.

Data sheet completed December 1999

LOCATION

This parcel is located on the easterly side of Laurel Street and the northeasterly side of Temple Street.

GENERAL DESCRIPTION

A rectangular lot with no street frontage and no public access. It is a very dense northern white cedar swamp, with a very high water table or standing water most of the year. Along with no public access it does not abut any other conservation land or town owned land. This entire lot is wetlands.

SOILS

Almost all of this area is classified as shallow muck, which consists of poorly drained soils that formed in an accumulation of organic material decomposed to the extent that the original plant material cannot be readily identified. This decaying material mostly plant life, can be from 2 to 12 feet in thickness with a substratum of fine mineral deposits similar to that of the surrounding mineral soils. This type of soil receives surface runoff water from surrounding higher lying areas. The water table is near or at the surface throughout much of the year.

VEGETATION

The area is a very dense wooded swampy area with northern white cedar (*Thuja occidentalis*) as the predominate tree on the western side of the parcel. There is also red maple (*Acer rubrum*) which becomes more predominate on the eastern side of the parcel. Also on the eastern edge of the lot there is eastern white pine (*Pinus strobus*). These three species of trees make up the canopy over the region.

The understory is made up of a very thick tangle of Common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), winterberry (*Ilex*), and high bush blueberry (*Vaccinium corymbosum*). Due to the surface water and the dense understory walking through this area is very difficult.

PROBLEMS AND RECOMMENDATIONS

No bounds were located nor is there any record of any having been set. I did not find any existing trails. At the present time the parcel has no public access, is quite small, 4 acres, and is not being used, therefore, should probably be left as open space and wildlife habitat.

Data sheet completed December 1999

Assessor's Lot #	039-502-014	(060b-502-014)	5.57 Acres
	039-502-018	(060-502-018)	11.07 Acres
			Total 17.27 Acres

LOCATION

Both parcels are located on the northeasterly side of Route 3, south of Templewood Drive, and west of Franklin Street. From Franklin Street these lots are behind Lots 060b-018-010 and 060b-031-002.

GENERAL DESCRIPTION

Being a very dense maple swamp these parcels are part of the upper reaches of the South River watershed, and are entirely in the wetlands. A river runs through the area and under Route 3. It joins the South River draining this property of its surface water. The lots are contiguous to each other but have no public access. There is an electrical transmission line easement over this parcel which runs along Route 3.

SOILS

The soils in this area consist of mud and peat and very poorly drained glacial till in the Brockton and Sanded Muck Series of the Plymouth County Soils Survey. There is standing water on the area most of the year. Some of the soils along Route 3 and under the transmission easement have been altered and do not conform to the Soils Survey, however, due to vegetation and standing water this area falls in the wetland district.

VEGETATION

Being a maple swamp the predominate tree is the red maple (*Acer rubrum*) with eastern white pine (*Pinus strobus*) and a few red oak (*Quercus rubrum*) and white oak (*Quercus alba*) scattered mostly along the transition zones. The understory consist of a tangle of common green brier (*Smilax rotundifolia*), sweetpepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*). Along Route 3, where the soils have been altered, and under the electric transmission easement, the vegetation is quite different. There are some aspen (*Populus tremuloides*), black cherry (*Prunus serotina*), and gray birch (*Betula populifolia*) with some alders (*Alnus serrulata*) in the real low areas.

Recommendation and Problems

At the present time these parcels are not being used for any purpose basically because of inaccessibility and wetness. There is no public access, nor do they abut any other town owned land, and therefore do not lend themselves to any recreational use. Left for open space and wildlife habitat seems to be there best use at the present time. (There are many signs of a population of deer inhabiting the area). As for problems there is none except lack of accessibility and wetness.

Data sheet completed December 1999

Assessor's Lot #	041-502-000	(070a-502-000)	61 Acres
------------------	--------------------	----------------	-----------------

LOCATION

This parcel is located on the north side of Congress Street with 40 feet of frontage on Congress Street opposite the intersection of Congress Street and King Phillip Path, and 40 feet of frontage on the south side of Franklin Street where the South River flows under Franklin Street. There is also access off South River Lane East across lot # 070a-500- 020, which is under the jurisdiction of Duxbury's Board of Selectmen.

GENERAL DESCRIPTION

A large very irregular shaped parcel made up entirely of abandon cranberry bogs. All of this area is considered wetlands. Little of the cranberry vine is left at this time. Most of the area has been taken over by fresh water marsh grasses with swamp vegetation moving in from the edges. The South River flows through the area and floods over most of the marsh or remnants of the bog areas. The bog dikes are still visible but are overgrown, and many of the control structures have washed out, undermined, or caved in.

SOILS

The soils are classified by the Plymouth County Soil Survey of 1969 as sanded muck, which is a classification for cranberry bogs. It consists of muck, peat, and very poorly drained mineral soils that have been developed for cranberry production. All the trees and bushes have been removed, and the surface has been leveled. About a foot of coarse sand has been spread over organic material to provide a rooting medium for cranberry vine. A network of ditches and canals to control the level and quantity of water are necessary for the production of cranberries. All of the area around this parcel that can support houses has been developed.

VEGETATION

The edges around the old bog areas are populated with red maple (*Acer rubrum*), and common alder (*Alnus serrulata*). Some of the transition zones and dikes support eastern white pine (*Pinus strobus*), mostly immature, red oak (*Quercus rubrum*), and white oak (*Quercus alba*). The understory is made up of sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), arrowwood (*Viburnum dentatum*), inkberry (*Ilex glabra*), and winterberry (*Ilex verticillata*). Most of the open marsh areas are covered principally with cat-tail (*Typha latifolia*), bur-reed (*Sparganium eurysarpum*), common reed (*Phragmites communis*), wool-grass (*Scirpus cyperinus*), and other common marsh vegetation in lesser amounts.

PROBLEMS AND RECOMMENDATIONS

Although there is ample parking and access from South River Drive East there is not much area dry enough to develop a system of hiking trails. For now the best use of the area might be for wildlife habitat, and open space. Bringing the bogs back into production is not economically feasible due to the amount of time that these bogs have been out of production, and to the extent of the disrepair of the control structures and dikes between the bogs.

Data sheet completed February 2000

LOCATION

This lot is located on the north side of Congress Street (Route 14) between lot # 070a-035-001 on its west and lot # 070a-500-021 on its east. The boundary on the north side of the lot is what is believed to be the original "King Phillip's Path".

GENERAL DESCRIPTION

With 206 feet of frontage on Congress Street this parcel lies entirely in the wetland. It consists of a red maple swamp, and slopes gently down to a reservoir on the east side. The reservoir and surrounding land is under the jurisdiction of the Duxbury Selectmen.

SOILS

The majority of the area is classified in the Deerfield series, which consist of gently sloping moderately drained soils which were formed in thick deposits of glaciofluvial sand occupying the low-lying parts of sandy out wash plains. Due to its very high water table the area is saturated most of the time.

VEGETATION

Being a maple swamp the primary tree is the red maple (*Acer rubrum*), with a mixture of eastern white pine (*Pinus strobus*) and red oak (*Quercus rubrum*) and white oak (*Quercus alba*). There is also, but in lesser population, sassafras (*Sassafras albidum*) and black tupelo (*Nyssa sylvatica*). The understory consist of a thick tangle of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), particularly close to the edge of the reservoir, arrowwood (*Viburnum dentatum*), and a rather dense population of inkberry (*Ilex glabra*).

PROBLEMS AND RECOMMENDATIONS

The only problem that comes to mind is that parking is limited at best. Parallel parking along Congress Street, a narrow busy street with close proximity to Route 3, is not a wise idea. Access through South River Lane in the back of the lot would be more desirable. It might serve the town best just left as open space and wild life habitat, as well as a water recharge area.

LOCATION

This parcel is located on the east side of Union Bridge Road and the northwesterly side of King Phillips Path ending at the intersection of King Phillip's Path and Union Bridge Road.

GENERAL DESCRIPTION

The area is a heavily wooded typical pine-oak climax forest, and triangular in shape. Approximately 85% of the parcel is upland with 15% a wet maple swamp. With undulating topography and two recessional moraines which traverse the area east to west with a maple swamp between, makes this an example of a kame terrace. There is standing water in the easterly end of the swamp. This parcel shows no signs of having been altered in any way, except tree harvest and wood roads, since the glacial period. There are no stone walls, sand pit remnant, or past farming activity.

SOILS

The soils in this area are a mixed classification, all having relatively the same description: namely, consisting of well drained, steeply sloped sand and gravel that formed in glacial till derived chiefly of granite. Between the two moraines is an area classified as muck, which consist of very poorly drained soils that formed in an accumulation of organic material decomposed to the extent that the original plant material cannot be identified. In this area the water table is at or near the surface throughout much of the year.

VEGETATION

The predominate tree in the upland area is the eastern white pine (*Pinus strobus*), with some red oak (*Quercus rubrum*), and white oak, (*Quercus alba*). There is little to no understory in this area. In the maple swamp the predominate tree is the red maple (*Acer rubrum*), and a small population of black birch (*Betula lenta*) in the transition area between the upland and the wetlands, with a thick understory of common green brier (*Smilax rotundifolia*), sweet pepper bush, (*Clethra alnifolia*), and high bush blueberry, (*Vaccinium corymbosum*).

PROBLEMS AND RECOMMENDATIONS

There are no problems except the accumulation of road side rubbish which has to be collected and removed periodically. This parcel is unique in that it appears to be unaltered from its original form short of the harvest of timber over the years. There is no evidence of any change what so ever. This could be its greatest value and should be maintained in the form. As for the pine on the lot, it might be time to harvest this on a selective basis, and open up the area letting in some sun to promote an understory to improve wildlife habitat. The Bay Circuit Trail crosses the lot between Union Bridge Road and King Phillip Path, and a short cart path crosses between the same two roads. There is room for another trail or two to be constructed on the lot possibly an interpretive trail.

Data sheet completed January 2000

LOCATION

This small lot is located on the west side of Peterson's Saw Mill Pond and on the east side of Union Bridge Road, between lots 080a-067-000 to its north, and 080a-066-001 to its south.

GENERAL DESCRIPTION

It is a small rectangular wooded lot, of less than an acre, with 410 feet of frontage on the west side of Peterson's Saw Mill Pond. There is 406 feet of frontage on Union Bridge Road, between Congress Street and Franklin Street. The topography rises up from the road to a ridge running along the center of the lot then drops down to the edge of the pond. The width of the lot averages a little over 100 feet from the road to the shore of the pond.

SOILS

The majority of the lot is upland. The hill that is parallel to the shore line is made up of excessively drained sandy soils that formed in thick deposits of coarse, pebbly quartz sand. Due to the size of the lot there is no diversity in the soils.

VEGETATION

The vegetation on the hill is a mix of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). There is an understory of sweet pepper bush (*Clethra alnifolia*), common green brier (*Smilax rotundifolia*), and high bush blueberry (*Vaccinium corymbosum*) along the shore. There are a few red maple (*Acer rubrum*), and black tupelo (*Nyssa sylvatica*) as the hill gets close to the shore line.

PROBLEMS AND RECOMMENDATIONS

The lot is problem free at this time. Due to the size of the lot there is not much that can be done with it except to use it for parallel parking for a few cars for the lots across the street. There is approximately 140 acres of land across Union Bridge Road, under the jurisdiction of the Duxbury Conservation Commission, with several hiking trails already developed, and parking on this side of the road would be safer and easier.

Data sheet completed April 2000

LOCATION

This parcel of land is located on the north side of King Phillips Path between parcel 080a-017-000 and 080a-013-001.

DESCRIPTION

The majority of this area is upland with a bowl shaped depression in the center. The depression will contain surface seasonal water during the rainy periods of the year. The back of the parcel slopes down to a wetland. The upland is a typical pine-oak climax forest, while the wet area contains mostly red maple.

SOILS

This area is a ground moraine of glacial till. The till consists of loamy sands with many rock fragments of all sizes scattered throughout the soil material. This soil material is derived chiefly from granite. The substratum is a firm layer of fine particulate at a depth of 2 1/2 to 5 feet allowing for poor water percolation. Approximately 75 % of this parcel is upland.

VEGETATION

The majority of the vegetation in the upland is eastern white pine (*Pinus strobus*), red oak (*Quercus rubrum*) and white oak (*Quercus alba*) with little understory. Several species of ferns are present during the growing season. The wet areas are predominately vegetated with red maple (*acer rubrum*) and an understory of sweet pepper bush (*Clethra alnifolia*), common green brier (*Smilax rotundifolia*) and some high bush blueberry (*Vaccinium corymbosum*). On the slopes near the wetlands there is a few eastern hemlock (*Truga canadensis*).

PROBLEMS AND RECOMMENDATIONS

There are no problems on this parcel with the exception of some minor road trash, and no parking. Roadside parking is very limited due to the narrowness of the road and a curve in the road at this area. The use of the area is rather limited, even though there is street frontage, due to its size and that it abuts no other public or open space land. Its best use is probably for wildlife habitat and open space. A timber harvest might be considered.

Data sheet completed November 1999

6.34 acres of cranberry bog

14.31 acres of upland

3.00 acres of reservoir/wetl

Total 23.65 acres**LOCATION**

This parcel is located on the north side of Mayflower Street, west of Otter Rock Road, and on the south side of Chandler Street, opposite Ledgewood Drive.

GENERAL DESCRIPTION

Part of this area is a working cranberry bog (approximately 6.34 acres), which is leased to a grower to continue the production of cranberries. Each year cranberries are harvested from this bog and return revenue to the town. Approximately 20% of the area is upland which consists of an esker and several kame deposits (glacial hills of sand and gravel), between which lies some abandoned bogs and an abandoned reservoir. The upland areas are not contiguous. Much of this reservoir and wetlands is actually the abandoned cranberry bog which has been left to revert back to a maple swamp. Sand has been mined from one of the moraines to be used in the culture of the cranberries. The reservoir and the surrounding wetland as well as this bog are part of the upper reaches of the South River watershed. The river that flows through this parcel is the beginning of the South River. Round Pond, Pine Lake, Cranberry Factory Pond, this reservoir, and the surrounding wetlands for these ponds make up the head waters of the South River.

SOILS

The soils in this area are of three series: The Hinckley series, the Raynham series, and the Sanded Muck series according to the Plymouth County Soils Survey of 1969. The Sanded Muck series consist of muck, peat and very poorly drained mineral soils that have been developed for cranberry production. It is the type of soils used in the construction of cranberry bogs and has an impervious substratum.

The Hinckley series, which occur on eskers and kames, consists of gravely soils that formed in thick deposits of water-sorted sands and gravels. These soils are low in water retention capacity, and organic content. They also have many cobblestones which is evident when one views the sand pit excavated for sand to be used on the bogs. The slopes of the eskers and the kame are rather steep, 15 to 25 %, and wooded.

The Raynham series consists of poorly drained silt loams that formed on marine or glacial lake sediments. These areas have a very high water table and are saturated 7 to 9 months of the year.

VEGETATION

There are three cranberry bogs on the parcel, (The Crocker Bogs), that are still in production and cranberry vine covers these areas while various grasses cover the bog borders, access roads and dikes.

There are two abandoned bogs on the parcel. The upper reaches of the South River flows through these bogs. The first is presently classified as a fresh water marsh which consists of continuously flooded areas with some open water. These areas support a dense growth of cattails (*Typha latifolia*), sphagnum moss (*Sphagnum palustre*), various rushes, and other aquatic vegetation. The second bog has less standing water on it and is reverting to a typical red maple swamp, with immature red maples (*Acer rubrum*), sweet pepper bush (*Clethra alnifolia*), common green brier (*Smilax rotundifolia*), and high bush blueberry (*Vaccinium corymbosum*). Remnants of the cranberry vine are still evident on both bogs.

Beyond the northern end of the working bog is a mature red maple swamp, with red maple (*Acer rubrum*) as the primary tree and an understory of a dense tangle of sweet pepper bush (*Cornus alternifolia*), common green brier (*Smilax rotundifolia*), arrowwood (*Viburnum dentatum*), high bush blueberry (*Vaccinium corymbosum*) and common alder (*Alnus serrulata*).

The transition zone between the bog roads and the wet areas have some pioneer species such as gray birch (*Betula populifolia*) black cherry (*Prunus serotina*) aspen (*populus tremuloides*), and staghorn sumac (*Rhus typhina*), species which are common in altered sandy areas such as sand pits and along the edges of gravel roads.

The upland areas on the esker and the kames have eastern white pine (*Pinus strobus*), red oak (*Quercus rubrum*), and white oak (*Quercus alba*).

PROBLEMS AND RECOMMENDATIONS

There seems to be no problems on this parcel. The production of cranberries is the main concern at this time. The bog road around the bog is used as a hiking trail. The area does not lend itself for much else at the present time.

LOCATION

This parcel of land is located on the southerly side of King Phillips Path at the end of an approximately 1000' gravel road. This road, located between lots 080b-026-001 and 080b-027-001, gives access to the lot and to parcel 080b-032-001 presently owned by the John Tarsa family. On the northerly side, the lot has a 20 foot way to Vine Street between lots 080b-833-001 and 080b-833-002.

GENERAL DESCRIPTION

The lot is an irregular shaped parcel of wooded land, and slopes from its high area on the southwesterly side coming to a point in the Garside Reservoir (South River Reservoir) on its northeasterly side. Approximately one third of the area is in the wetlands with the remaining two thirds as upland. There is a deep trough running east- west with a small intermitting brook flowing easterly towards the reservoir. The sides of the trough slope steeply from a moraine on each side. This parcel completely surrounds the Tarsa property, and was used as farm land and a wood lot by the previous owners. The cart path on the property is probably a remnant of the path from the meeting house of yesteryear, in the Hall's Corner area, to the western side of town.

SOILS

The majority of this parcel falls in the Gloucester Series which consist of well drained soils that formed in glacial till derived mostly from granite. As the topography slopes towards the Garside Reservoir the surface soils become thinner and thinner until they change to a muck classification at the reservoir. The substratum is made up of a firm layer of fine sand and silt with a very poor percolation rate. These Gloucester soils are extremely stony with many large boulders in evidence.

VEGETATION

The vegetation in the upland area consists of a pine-oak climax forest with eastern white pine (*Pinus strobus*) being the predominant tree and a mix of red oak (*Quercus rubra*) and white oak (*Quercus alba*). There is little understory in this area. The wetland area consists of a maple swamp, however it is not a very dense tangle of species, but relatively open. The predominant tree is the red maple (*Acer rubrum*), with a few black tupelo (*Nyssa sylvatica*), and black birch (*Betula lanta*). The under story is made up of sweet pepper bush (*Clethra alnifolia*), arrowwood (*Viburnum dentatum*), high bush blueberry (*Vaccinium corymbosum*), and swamp azalea (*Rhododendron viscosum*), and common green brier (*Smilax rotundifolia*).

PROBLEMS AND RECOMMENDATIONS

The major problem with the area is the lack of off street parking. King Phillips Path is much too narrow and busy for parking to be developed, and Vine Street is too congested with a very limited access. The Bay Circuit Trail is located on the south western end of the parcel off King Philip's Path and exits on Vine Street. This parcel is not connected to any other public property and does not lend itself to much recreational use at present. It might be better left as open space and wildlife habitat. Much of the pine in the area is mature and a selective thinning should be considered.

Data sheet completed May 2000

LOCATION

This lot has no public access. It is located on the northeast side of Fordville Road behind Lots # 090a-917- 006, 007 and 008.

GENERAL DESCRIPTION

The entire lot is a maple swamp and completely in the wetlands. There is a small brook flowing easterly towards Chandler Street.

SOILS

The soils classification for this area is Muck, which consists of very poorly drained soils that formed in a accumulation of organic material decomposed to the that the original plant material cannot be readily identified. The water table is at or near the surface throughout much of the year.

VEGETATION

Being a red maple swamp the dominate tree is the red maple (*Acer rubrum*). The understory is a very dense tangle common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), and arrowwood, (*Viburnum dentatum*) .

PROBLEMS AND RECOMMENDATIONS

Since there is no public access and the area is a wetlands it has little recreational use and no traffic. This parcel should be left as it is for wildlife habitat, open space and a water recharge area at this time.

Data sheet completed April 2000

Assessor's Lot #_ 057-502-033	(090b-502- 033)	173.85 Acres East Street Bog
		35.03 Acres of Bog
		35.07 Acres of Reservoir
		<u>103.75 Acres of Upland</u>
	Total	173.85 Acres

LOCATION

This large diverse parcel is located on the west side of Mayflower Street, the northwest side of route three, and the north side of East Street. To its west it abuts Chandler Street School property under the jurisdiction of the Duxbury School Department.

GENERAL DESCRIPTION

Thirty-five acres of this parcel are working cranberry bogs under the jurisdiction of the Duxbury Conservation Commission. Another thirty five acres are made up of reservoirs for water retention for the production of cranberries. The remaining 100 acres plus consists of mostly uplands with undulating topography, and small pockets of wetlands and transition zones. There are many sand pits from which sand was taken for use in cranberry culture. Some of the material from the esker between the "old bog" and bogs 1,2, and 3 has been removed for this purpose.

SOILS

The soils that make up the cranberry bogs are classified as sanded muck, which consists of muck, peat, and very poorly drained mineral soils that have been developed for cranberry production. All trees and brush has been removed, and the surface has been leveled. About a foot of sand has been spread over the organic material to provide a rooting medium for cranberry vines. Provisions have been made, in the form of water retention ponds, reservoirs and ditching, to quickly flood and drain these areas. A network of lateral and perimeter ditches lower the water level a foot and a half below the cranberry vines. Water for frost protection, harvesting, and over winter flooding is pumped from the reservoirs or retention ponds. The upland areas are classified in two categories: the first is the Carver series which consist of excessively drained soils that formed in thick deposits of coarse, pebbly quartz sand. Water moves rapidly down through the solum and the underlying substratum. The second type is the Hinckley series, which consists of gravelly soils that formed in thick deposits of water sorted sands and gravels. They occur mainly on plains and terraces and hummocky kames and esker ridges. The slopes of these kames and eskers are steep. These soils are low in moisture holding capacity. The low wet pockets are classified in the Muck series which consist of poorly drained soils that formed in an accumulation of organic material decomposed to the extent that the original plant material cannot be identified. The water table is at or near the surface throughout much of the year.

VEGETATION

The vegetation is very diverse. A great deal of alteration to the area due to cranberry production has caused a great deal of diversity in the vegetation. The upland areas that have not been altered are made up of the typical pine oak forest, which consist of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). The understory is made up of several species of blueberry and immature pine and oak. The wetland pockets contain red maple (*Acer rubrum*) with an understory of sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*). The transition zones between the bogs and the upland contain a diverse number of mostly wetland plants, such as sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), arrowwood (*Viburnum dentatum*), wild raisin (*Viburnum cassinoides*), common elder (*Sambucus canadensis*), winterberry (*Ilex verticillata*), bayberry (*Myrica pensylvanica*), and staghorn sumac (*Rhus typhina*) for the bushes. The trees in this transition zone consist of large tooth aspen (*Populus grandidentata*), quaking aspen (*Populus tremuloides*), gray birch (*Betula populifolia*), black cherry (*Prunus serotina*), sassafras (*Sassafras albidum*), and black tupelo (*Nyssa sylvatica*).

PROBLEMS AND RECOMMENDATIONS

The area gets a great deal of use in the form of walking and jogging on the bog service roads. With all this use there seems to be very little abuse. The access and parking areas on Mayflower Street and East Street seem to be clean and respected. Driving through the area is restricted by chains and gates at the access points. Due to the active production of cranberries, restriction is necessary. There is an abandoned pump house off Mayflower Street that should be removed due to its condition of severe disrepair. A liability problem in the making. With the number of bog roads and the fact that the bogs are in active production, more trails are not necessary at this time. Since this parcel abuts the Chandler School property a hiking trail to the bog might be of interest to the school population. An outdoor classroom could easily be developed using the bogs as a learning experience. There are areas of mature eastern white pine that should be harvested. In many cases the quality is poor, however, removing these poor quality trees would help young higher quality trees to mature.

Data sheet completed June 2000

Assessor's Lot # 059-502-043	(100a-502-043)	40.43 Acres
059-502-041	(100a-502-041)	0.05 Acres

LOCATION

Lot # 100a-502-041 is a very small triangular piece of property surrounded by lot # 100a-502-043 on two of its three sides and Route 3 on the third side. The larger lot, lot #100a-502-043, has approximately 1300 feet of frontage, with on access, on the west side of Route 3, and is on the east side of Elm Street with no access. There is an old cart path off Wendall Pond Road between lot # 100a-087-000 and lot # 100a- 801-001 that proceeds easterly to route 3 which gives access to this property. This cart path actually forms the easterly boundary line between lot # 100a- 021-000 and lot # 100a-502-043.

GENERAL DESCRIPTION

The majority of this property is a dense maple swamp having a thick tangled brushy undergrowth with the exception of the northeast corner which is a pine - oak forest sloping into the swamp. The only access to the area is the cart path which is on private property. The majority of the swamp has standing water on it 7 to 9 months of the year. Boarding Route 3 is an abandon cranberry bog of several acres. The bog has reverted to a maple swamp with red maple (*Acer rubrum*), and immature eastern white pine (*Pinus strobus*) as the major plant life. The only indication that it is an old bog is some of the bog ditches are still visible and there is little thick, bushy undergrowth. Between the bog ditches, the surface is very level. The boundary between this property and the privately owned bog to the north, which is the cart path, is on a moraine, which forms the divide between two watersheds. Water on the north side of this moraine flows north and forms part of the head waters of the South River. Water on the south side of this moraine tends to flow south into Dead Swamp and form the head waters for Miles Brook and Tussock Brook, eventually finding its way to The Jones River in Kingston.

SOILS

The northeastern corner of the property, which is part of an outwash plain, is classified, according to the Plymouth County Soil Survey of 1969, in the Carver series, consisting of well drained sandy soils formed in thick deposits of coarse pebbly quartz sand. This area gently slopes to the swamp and is classified as peat, which consists of very poorly drained soils that formed in an accumulation of partly decomposed organic material. Plant remains can be readily identified. These soils are generally level and saturated much of the year. The old bog is classified as sanded muck, which consist of muck, peat, and very poorly drained mineral soils that have been developed for cranberry production.

VEGETATION

The northeast corner where there is a little upland, and on the transition zones the vegetative cover is made up of a pine - oak forest, which consist of eastern white pine (*Pinus strobus*), red oak (*Quercus rubrum*), and white oak (*Quercus alba*). There is very little understory in this area. In the maple swamp the major tree is the red maple (*Acer rubrum*). There is a very sparse population of eastern white pine. The understory in this area is a very thick tangle of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and some high bush blueberry (*Vaccinium corymbosum*). The vegetative cover on the abandon bog area is immature red maple and white pine, with very little understory.

PROBLEMS AND RECOMMENDATIONS

The major problem with this property is there is no public access. It also appears that in the construction of the privately owned bogs to the north, encroachment on to this property may have occurred. At this time, I did not locate any bounds, however, alterations over the cart path, which appear to be the boundary line according to the assessor's maps between the two properties, shows some encroachment. Bringing the abandon bog back into production does not seem to be economically feasible. Due to its proximity to Route 3, lack of access, lack of proper water supply, and the amount of time it has been out of production, all add up to not a wise move. Until such time public access is secured by the additional land purchase, the best use of this area would be open space, wildlife habitat, and water table recharge.

Data sheet completed February 2000

Assessor's Lot # 073-502-011	(100b-502-011)	30.66 Acres
073-502-074	(100b-502-074)	3.10 Acres
Total		33.76 Acres

LOCATION

These two lots are located on the west side of Mayflower Street with 2011.42 feet of frontage on the street. They are separated by a fifty foot strip of land which is under the jurisdiction of the Duxbury Water Department and leads to a well site on the west of Mayflower Street.

GENERAL DESCRIPTION

Heavily wooded with very little topographic relief, both lots are all upland. From Mayflower Street the lots are flat and dry. Lot 100b-502-011 slopes upward in the form of a kame as you move west away from Mayflower Street. Surrounding property is under the jurisdiction of the Duxbury Water Dept. and the Duxbury Rural and Historical Society.

SOILS

The soils on these parcels fall mostly in the Hinckley Series which consist of well drained gravelly soils that formed in thick deposits of water sorted quartz sand and gravel. Water percolates rapidly down through the column and the underlying substratum, which makes their moisture holding capacity poor.

VEGETATION

The vegetation on both of these parcels, is that of a typical pine- oak climax forest, which consist of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak, (*Quercus alba*). The majority of the trees are mature and there is very little understory. Much of the understory consists of immature pine and oak trees.

PROBLEMS AND RECOMMENDATIONS

There are no real problems on these lots. Cart paths and hiking trails have been closed to vehicular traffic and there is no sign of rubbish disposal. The area has many cart paths and hiking trails which are well used. There is room for the construction of more trails as well as some interpretive trails. The existing trails should be marked and some trail maintenance done. These two lots are just part of a large area of public land between Mayflower and Elm Streets, and Island Creek Pond, under the jurisdiction of several town boards. All of the groups might be better served if one all encompassing management plan was to be developed for the entire area.

Assessor's Lot # 074-502-062	(100b-502-062)	6.78 Acres
074-502-630	(100b-502-630)	10.66 Acres
074-502-064	(100b-502-064)	2.18 Acres
Total		19.62 Acres

LOCATION

These three contiguous lots are located on the west side of Island Creek Pond, with lot# 100b-065-000 to the north and lot # 100b-060-000 to the south. The west side abuts lot # 100b-500-065, which is under the jurisdiction of the Duxbury Board of Selectmen, and lot # 100b-502-066, is under the jurisdiction of the Duxbury Conservation Commission.

GENERAL DESCRIPTION

All three lots are contiguous and form a near square of forested land with 850 feet of frontage on Island Creek Pond. Approximately eighty percent of the area is upland with a knob and kettle topography. The wetland is located on the shore frontage, with lot # 100b-502-064 having wetland extending farther way from the shoreline than the others. A steep slope grades upwards a short distance from the lake frontage.

SOILS

The upland area of this parcel is classified in the Hinckley series, which consists of gravelly soils that formed in thick deposits of water sorted sand and gravel. This soil type occurs mainly on plains or terraces or hummocky kames. Due to the sand and gravel the water retention is very poor, and the percolation rate is very high with a very low organic material content. At the bottom of the steep slope there is a soil type change. This soil type is peat, which has a very high percentage of clay and fine silt which holds surface water and has a very poor percolation rate. Much of this area has standing water most of the year. These wetlands occur along the shore frontage.

VEGETATION

In the upland areas the vegetation consists of a pine- oak climax forest. The dominate tree is the eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). A very thin understory consists of immature pine and oak. The wet areas consist of a maple swamp with the dominate tree being the red maple (*Acer rubrum*). On the waters edge there are a few black tupelo (*Nyssa sylvatica*), and atlantic white cedar (*Chamaecyparis thyroides*). The understory of the maple swamp is a thick tangle of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*).

PROBLEMS AND RECOMMENDATIONS

There appears to be no problems in this area. The hiking trails show a lot of use with very little abuse. There is a little horseback riding through the area. One of the cart paths crosses over the corner of lot # 100b-065-000 and should be rerouted to public property. Some of the trails need some maintenance and marking. This parcel is part of a large area of public property between Mayflower, East, and Elm Streets, Route 3, and Island Creek Pond under the jurisdiction of The Duxbury Board of Selectman, Duxbury Conservation Commission, The Duxbury Water Department, and The Duxbury Rural and Historical Society. All of these groups might be better served if one all encompassing management plan was developed for the entire area. This would allow all involved to communicate possible uses, intentions, ideas, and concerns. It would offer a document that would serve as a common framework for uses and considerations as options present themselves. Data sheet completed April 2000

LOCATION

Access to this lot is over Cherry Lane off Elm Street. There is also 920 feet of shore frontage on the west side of Island Creek Pond.

GENERAL DESCRIPTION

Approximately fifteen acres of this parcel is a cranberry bog and a reservoir owned and operated by the Town of Duxbury. There is wetland just to the west of the back side of the bog and the reservoir. The rest of the parcel is upland. Approximately forty percent of the entire parcel is wetland, this includes the bog, the reservoir, and the brook from Pine Lake. The upland portion of the parcel is made up of glacial till formed in an irregular, rubbly heap with knob like hills and basin like hollows. This formation is known as knob and kettle topography.

SOILS

Much of the upland is classified in the Plymouth Carver series, which consists of undulating topography of thick deposits of water sorted sand and gravel. This soil type occurs on plains and terraces with hummocky kames and kettle depressions. Due to the sand and gravel, the water retention is low, and the percolation rate is high. The cranberry bog is classified in the Sanded Muck series which consists of muck, peat, and very poorly drained mineral soils that have been developed for the production of cranberries. The rest of the wetland are classified as peat which consists of very poorly drained soils that formed in an accumulation of partly decomposed organic material. Most of the year these soils are saturated.

VEGETATION

The vegetation in the upland areas consists of a typical pine - oak climax forest made up of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). There is very little understory with the exception of immature pines and oaks, a few blueberry bushes (*Vaccinium corymbosum*) in the transition areas, and sheeps laurel (*Kalmia angustifolia*). In the wet areas the vegetation consists of a typical red maple swamp with the dominate tree being the red maple (*Acer rubum*), and a thick understory of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*).

PROBLEMS AND RECOMMENDATIONS

The problems seem to be little. There is little rubbish and respect for the area seemed to be good. There are signs of past dumping, however, that problem seems to have come to a stop. The area has a lot of cart paths and hiking trails which connect with trails from abutting parcels and continue on to Mayflower Street. All of the trails are well used, a very popular area. Some trail maintenance and marking is needed. There is a small amount of horse back riding on the trails. A selective harvest of the pine should be a consideration. This parcel is part of a large area of public land under the jurisdiction of the Duxbury Board of Selectmen, Duxbury Conservation Commission, Duxbury Water Department, and the Duxbury Rural and Historical Society. All of these groups might be best served if one all encompassing management plan was developed for the entire area. This would allow all groups involved to communicate possible uses, intentions, ideas, and concerns. It would offer a document that would serve as a common framework for uses and considerations as options present themselves.

Data sheet completed April 2000

Assessors Lot # 061-502-042 (110b-502-042)	20.48
061-502-053 (110b-502-053)	17.10
Total 37.58 acres	Dead Swamp

LOCATION

Parcel 042 is located on the west side of route 3 and 053 is located on the east side of route 3; the two parcels being bisected by the highway.

DESCRIPTION

Both parcels make up a large red maple and white cedar swamp known as Dead Swamp. The construction of Route 3 separated the swamp into two individual parcels, one on either side of the highway. Both parcels have standing water on them for most of the year.

SOILS

The soils underlying these parcels is listed as peat, a very poorly drained type of soil formed by an accumulation partly decomposed organic material. These soils are usually saturated much of the year with ponding of surface water very common. This type of soil has severe limitations as to its uses.

VEGETATION

The majority of both parcels is covered with red maple (*Acer rubrum*) and northern white cedar (*Thuja occidentalis*) with an under story of sweet pepper bush (*Clethra alnifolia*) common green brier (*Smilax rotundifolia*) and high bush blueberry (*Vaccinium corymbosum*). This type of understory makes for a very thick undergrowth and very difficult to traverse.

PROBLEMS AND RECOMMENDATIONS

At the present time there is no public access to these areas, nor is there any parking available. No trails have been constructed, nor does this area lend itself to the construction of trails since most of these two parcels are under water much of the year as well as no access. Both parcels are presently being used as open space, water retention areas, and wildlife habitat.

Data sheet completed December 1999

LOCATION

This parcel is located on the southeast side of Cordwood Path, a private way, between Lot # 120b-018-102 and Lot # 120b-981-022, with 200 feet of frontage on Cordwood Path, 134 feet west of Enterprise Street.

GENERAL DESCRIPTION

The topography of this lot is relatively flat with a 0 to 3% slope. On the northeast side of the lot there is standing water flowing towards the west. There is a mix of trees on this wooded lot with a thick understory on most of the area. The majority of the lot would fall in the wetland with the entire lot having a high water table. An old cart path bisects the lot north to south.

SOILS

The soils on the parcel fall mostly in the carver series which consist of very deep, excessively drained soils on outwash plains, deltas, and moraines. Typically, these soils have a dark gray or black coarse sand surface layer 7 inches thick. The subsoil from 7 to 25 inches are strong brown and yellowish-brown coarse sands. The substratum is made up of yellowish-brown coarse sand.

VEGETATION

This wooded lot is covered with a mixed forest of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), white oak (*Quercus alba*) on the higher areas, and red maple (*Acer rubrum*), and a few black tupelo (*Nyssa sylvatica*) on the lower areas. The understory, particularly on the wet areas, is made up of sweet pepper bush (*Clethra alnifolia*), Common green brier (*Smilax rotundifolia*), and high bush blueberry (*Vaccinium corymbosum*).

PROBLEMS AND RECOMMENDATION

There are no real problems on the lot itself, however the road into the lot is a private road and is heavily posted. The lot is surrounded by private homes and is not contiguous with any other conservation or public land, and might best be served as open space, wildlife habitat and a water recharge area.

Assessor's Lot #	070-502-018	(130a-502-018)	8.52 Acres	Waiting Hill
	070-502-017	(130a-502-017)	5.17 Acres	
	070-502-016	(130a-502-016)	4.79 Acres	
	071-502-028	(130a-502-028)	3.00 Acres	
	071-502-029	(130a-502-029)	3.42 Acres	
	070-502-024	(130a-502-024)	4.78 Acres	
	071-502-025	(130a-502-025)	2.35 Acres	
	071-502-026	(130a-502-026)	11.51 Acres	
	071-502-027	(130a-502-027)	2.36 Acres	
	071-502-022	(130a-502-022)	6.77 Acres	
	071-502-023	(130a-502-023)	12.92 Acres	
	056-502-009	(130a-502-009)	<u>7.64 Acres</u>	
	Total		73.23 Acres	

LOCATION

All twelve lots are contiguous and form one large parcel on the west side of Modoc Street. Modoc Street is a dirt cart path running between West Street and Lincoln Street.

GENERAL DESCRIPTION

These twelve forested lots form a large lot of woodland and swamp with knob and kettle topography. Modoc Street follows the crest of a moraine or high ridge separating two watersheds. To the west, surface and ground water move westerly toward Lincoln Street and into the cranberry bogs at the intersection of Congress Street and Lincoln Street, presently owned by the Crowell Cranberry Corporation. Eventually the water flows through the Wright Reservoir and into the Green Harbor River. This undulating topography, called knob and kettle, on the west side of Modoc Street, made up of kames and kettle holes, is approximately sixty percent upland and forty percent wetlands. The upland is forested with pine and oak, with little understory, and the wetlands is made up of typical maple swamps. Many of the kames have very steep sides and the kettle holes resemble inverted cones.

SOILS

The classification of the soils in this area fall mainly in two soil series. The upland is classified in the Hinckley series which consist of thick deposits of water sorted sand and gravel, covered with hummocky kames with short steep irregular slopes. Many of the kettle holes that pock mark the outwash plain of the upland area have perched water due to the accumulation of organic matter decomposing at the bottom which restricts the percolation rate, and a high water table. The second series in the area is peat, which consists of very poorly drained soils that formed in an accumulation of organic matter. These areas are saturated much or all of the year and is the substrate under the majority of the wetlands in the area.

VEGETATION

The upland areas are vegetated with a pine/ oak climax forest which consist of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). There is very little understory and not a great deal of diversity in the species. Scattered throughout the transition zones are some high bush blueberries (*Vaccinium corymbosum*) and sheep's laurel (*Kalmia angustifolia*). In many areas throughout the upland a second generation of eastern white pine seedlings are well established. In some of the areas the seedlings are so thick competition will cause poorly formed and stunted growth, and many will not survive. The wet areas are made up of red maple (*Acer rubrum*) as the predominate tree with an understory of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and high bush blueberry (*Vaccinium corymbosum*).

PROBLEMS AND RECOMMENDATIONS

The only access point to this parcel is Modoc Street off West Street. With this limited access the area gets little use generating very few problems. There is little to no abuse at this time. The area does lend itself to a diversity of uses. Modoc is a fine walking cart path, however, more loop trails and interpretive trails could be developed. Wildlife photography and birding are other excellent options. This area is just a small part of public and quasi-public land between Tremont, West, Congress, Lincoln and Mayflower Streets. These lands are under the jurisdiction of several different town boards as well as the Audubon Society and others. All of the groups involved might be well served to have one all encompassing management plan for the entire area. This would allow all involved to communicate possible uses, intentions, ideas, and concerns. It would offer a document that would serve as a common framework for future uses and considerations as options present themselves.

Data sheet completed in March 2000.

Assessor's Lot # 071-502-001	(140a-502-001)	30.00 Acres
070-502-020	(140a-502-020)	16.69 Acres
071-502-223	(140a-502-023)	8.75 Acres
071-502-039	(140a-502-039)	13.80 Acres
Total		69.24 Acres

LOCATION

These four contiguous lots are located on the east side of Modoc Street with 294 feet of frontage on the west side of West Street where Modoc and West Streets intersect. Access to the parcel is at this point. Access can also be gained over Hatches Bar Road off Mayflower Street.

GENERAL DESCRIPTION

The four lots form a long irregularly shaped parcel of heavily forested property boarded on the west by Modoc Street, a dirt cart path, and on the east by the Audubon Society property, and a cranberry bog owned by the Merry Cranberry Corporation. Modoc Street runs along the top of a moraine or ridge forming a watershed divide. The surface and ground water of this area moves east towards West Brook which is dammed forming The North Hill Marsh, a reservoir used for cranberry production. The westerly end of the parcel is located across Hatch's Bar Road from Lot # 140a-502-038 and access can be gained from Mayflower Street at this point also. There is a cranberry bog on lot 140a-502-039 leased by the Merry Cranberry Corp. Approximately eighty to eighty-five percent of this parcel is in the upland. The boundary line between the town property and the Merry Cranberry Corp. and The Audubon Society property is a very irregular line, which is not marked, making a wetland determination quite difficult.

SOILS

The Glacial till that makes up this knob and kettle topography consists of gravelly soils that formed in thick deposits of water sorted sand and gravel. In the bottoms of the low kettles the soils consist of peat which is very poorly drained soils. Percolation of water through this peat is very slow and standing water is present most of the year.

VEGETATION

The vegetation on the uplands consists of a classic pine - oak climax forest which is made up of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). There is very little understory particularly in the pine groves. The wet areas consist of a red maple swamp with the dominate tree being the red maple (*Acer rubrum*), with an understory of sweet pepper bush (*Clethra alnifolia*), common green brier (*Smilax rotundifolia*), high bush blueberry (*Vaccinium corymbosum*).

PROBLEMS AND RECOMMENDATION

Since the cart paths have been gated, the accumulation of trash is no longer a problem. The area does lend itself to passive recreation in the form of hiking, jogging, cross-country skiing, snowshoeing, wildlife photography, and bird watching. There is room for the development of more trails particularly interpretive trails. An observation platform on the top of "Waiting Hill" would a very useful added feature. This area is part of public and quasi-public land between Mayflower, Tremont, West, Congress, and Lincoln Streets. These lands are under the jurisdiction of several different town boards as well as The Audubon Society. All of the groups might best be served if one all encompassing management plan was developed for the entire area. This would allow all involved to communicate possible uses, intentions, ideas, and concerns. It would offer a document that would serve as a common framework for uses and considerations as options present themselves.

Data sheet completed March 2000

Assessor's Lot # 073-502-013	(140a-502-013)	34.59 Acres
------------------------------	----------------	-------------

LOCATION

This lot is located on the east side of Mayflower Street abutting the west side of the Knapp Town Forest with 2195 feet of frontage on Mayflower Street. The north side of the lot abuts the Duxbury Water Dept. property and the Audubon Society property.

GENERAL DESCRIPTION

The entire area is a heavily wooded lot of upland. There is no evidence of any wetlands on this lot. The knob and kettle topography is typical of this moraine type; very undulating surface topography. Some of the kames have rather steep sides. None of the kettle holes have standing water in them. It does appear that this topography is just as the receding glaciers left it many thousands of years ago.

SOILS

These soils consist of gravelly soils that formed in thick deposits of water sorted sand and gravel, with hummocky kames and esker ridges. This type of soil has a low moisture carrying capacity due to soil porosity and high percolation rate.

VEGETATION

The vegetation is typical of a pine - oak climax forest. The dominate trees are eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). The understory consists of immature pine and oak. There are no unusual species types. The area has been logged, but probably seventy-five to one hundred years ago.

PROBLEMS AND RECOMMENDATIONS

There is a forty foot easement at the northwest boundary between this lot and lot 140a-064-106, which the Duxbury Water Dept. uses to access their property in the back. A great deal of logs and brush have been dumped on the east side of this easement. Other than this problem and road side trash there does not seem to be any other problems. There are several walking trails and a cart path which lends the area to hiking and jogging. This is just a small part of public and quasi-public land between Tremont, West, Congress, Lincoln, and Mayflower Streets. These lands are under the jurisdiction of several different town boards, as well as the Audubon Society. All of these groups might well be served to have one all encompassing management plan for the entire area. This would offer a document that would serve as a common framework for future uses and considerations as options present themselves.

Data sheet completed March 2000

Assessor's Lot # 056-502-038	(140a-502-038)	4.93 Acres
------------------------------	----------------	------------

056-502-100

(140a-502-100)

0.97 Acres

Total 5.90 Acres

LOCATION

These two lots are contiguous and have a combined 200.44 feet of frontage on the east side of Mayflower Street, between lot # 140a-100-001 and lot # 140a-038-001. Lot # 140a-502-038 also has 403.92 feet of frontage on the west side of Hatchs Bars Road, a dirt cart path between Modoc Street and Mayflower Street.

GENERAL DESCRIPTION

The area is a forested woodland with standing water in the northeast corner. Approximately fifty percent is wetland and fifty percent is upland. The undulating topography contains typical upland vegetation with an understory of juvenile oak and pine. The wet areas are typical maple swamp.

SOILS

These two parcels fall in two different soils types. The upland is classified in the Hinckley series which consist of gravelly soils that formed in thick deposits of water sorted sand and gravel. The second soil type is peat which consist of very poorly drained soils that form in an accumulation of partly decomposed organic matter. The percolation rates in this soil type is extremely slow and ponding of water is common much of the year causing the swampy conditions. The Hinckley Series gradually grades into the Peat Series. In this area the Hinckley soil are rather thin.

VEGETATION

The upland areas are forested with a mix of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). The understory consists of immature pine and oak. The dominate tree in the wet areas is the red maple (*Acer rubrum*). The understory consists of a thick tangle of common green brier (*Smilax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and high bush blueberry (*Vaccinium corymbosum*). A mix of all these species can be found in the transition zone.

PROBLEMS AND RECOMMENDATIONS

This is a small area of approximately six acres with residences along both sides of the street and private undeveloped land to the east behind the lots. Taking into consideration the size and wetness of the area, as well as its location, it might be best served to leave this as open space, wildlife habitat, and a water recharge area. There is parking for several vehicles off Mayflower Street, and a cart path that leads into other land under the jurisdiction of the Duxbury Conservation Commission. A small parking lot could be outlined with timbers, although the Mayflower Street area is well served with parking.

Assessor's Lot # 072-502-073

(140a-502-073)

4.99 Acres

LOCATION

This parcel is located in the North Hill Marsh reservoir and is under water twelve months of the year.

GENERAL DESCRIPTION

The lot is flooded all year as part of the reservoir. The reservoir is used in the production of cranberries by the Merry Cranberry Corp. which has bogs adjacent to the reservoir at the northern end. Some of the dead trees which populated the area before the reservoir was constructed are still visible. Access to the parcel is by boat only. This reservoir makes up the West Brook watershed.

SOILS

The soil classification at the bottom of the reservoir is muck and peat which consist of very poorly drained organic material. The percolation rate is very slow allowing for the ponding of the water.

VEGETATION

The vegetation consists of aquatic species of plant life that can tolerate being submerged during the entire growing season.

PROBLEMS AND RECOMMENDATIONS

At the present time the area is not being used. Little can be done with this lot except to leave it to aquatic wildlife habitat.

LOCATION

This lot is located on the northeast side of Mayflower Street between lot # 140b-500-082, which is the Knapp Town Forest, and lot 140b-500-080, which are both of these lots are under the jurisdiction of the Duxbury Board of Selectmen. The parcel has over 1400 feet of frontage on Mayflower Street.

GENERAL DESCRIPTION

The parcel is a ground moraine with knob and kettle topography; a very undulating surface. The entire area in upland except for a few kettle holes with standing water. It is completely forested with a mix of pine and oak. Some of the kames are steep sided. This is part of the upland that outlines the North Hill Marsh watershed.

SOILS

The majority of the soil falls in the Carver series which consist of very deep, excessively drained soils on moraines. Typically, these soils have a dark gray or black coarse sand surface layer 7 inches thick and have a high infiltration rate even when thoroughly wetted and consisting chiefly of deep, well drained sands and gravels. The kettle holes have deep sides and standing water on the bottom. There are 2 such kettle holes on the lot.

VEGETATION

This area consists of a pine - oak climax forest. In such a wood lot the dominate trees are eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). There is very little understory, particularly in the dense pines. There is sheeps laurel (*Kalmia Angustifolia*) and a few high bush blueberry (*Vaccinium corymbosum*) in the transition zones. In the kettle holes which are wet the typical wetland species can be found, such as red maple (*Acer rubrum*) and an understory of common green brier (*Simlax rotundifolia*), sweet pepper bush (*Clethra alnifolia*), and high bush blueberry (*vaccinium corymbosum*). There was no evidence of any unusual species.

PROBLEMS AND RECOMMENDATIONS

All of the access roads have been limited to walking trails, with parallel parking along Mayflower Street, limiting the deposition of trash. Some of the trails need to be cleaned and remarked. This might be a good place to develop a canoe and kayak launch area opening the North Hill Marsh to canoeing and kayaking to residents. This area is just a small part of public and quasi-public land between Tremont, West, Congress, Lincoln, and Mayflower Streets, which are under the jurisdiction of several different town boards, as well as the Audubon Society. All of these groups involved might be better served to have an all encompassing management plan for the entire area. It would offer a document that would serve as a common framework for future use and considerations as options present themselves.

Data sheet completed March 2000

LOCATION

This is a small piece of shore front property off Tremont Street that fronts on Island Creek Mill Pond.

GENERAL DESCRIPTION

This cleared half acre allows small boat and canoe access to Mill Pond. There is parallel parking for several cars along Tremont Street. The edge of the pond is over grown with cattails and bushes as the entire pond goes through the eutrophication process. Access to the water is getting more difficult.

SOILS

The soils in this area are classified as Shallow Muck according to the Plymouth County Soil Survey of 1969. This series, found in low lying areas, consists of poorly drained soils that formed in an accumulation of organic material decomposed to the extent that the original plant material cannot be readily identified. The water table is at or near the surface all year long.

VEGETATION

The cleared area is grassed. The edge of the pond has common cattails (*Typha latifolia*), and common alder (*Alnus serrulata*). There is some sweet pepper (*Clethra alnifolia*), and Arrowwood (*Viburnum dentatum*) in the back of the lot. Located along the back edge are red maple trees (*Acer rubrum*) and eastern white pine (*Pinus strobus*).

PROBLEMS AND RECOMMENDATIONS

Although this is a small area it would make a great small boat and canoe launch or fishing sight, but some work would have to be done. The edge of the shore is very muddy due to eutrophication of the pond, and is being over run with cattails. These would have to be removed and some mineral soil put in. The grass might also be mowed to improve the lot aesthetically and also to keep the shrubs from encroaching. At the present time the area is getting very little use even though there is parking.

LOCATION

This lot is located on the northwest side of Bay Road with frontage on Island Creek.

GENERAL DESCRIPTION

Almost entirely salt marsh is subject to tidal flooding with no public access. The far west side slopes up to a maple swamp however, where the line between this lot and the private abutting property is located is unclear.

SOILS

The soils in this area are considered tidal marsh and consist of poorly drained organic and mineral deposits that are flooded regularly by tidal action. Soils of this type occupy low lying tracts of land along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulation of herbaceous vegetation. There may be some glacial till deposits on the extreme side depending where the property line is located.

VEGETATION

The area is vegetated with typical salt marsh plants. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains. The ditches and stream bank are lined with cord grass (*Spartina alterniflora*) and marsh elder (*Iva frutescens*). As the lot slopes up at the western side red maple (*Acer rubrum*) are well established.

PROBLEMS AND RECOMMENDATIONS

With no parking and no public access the use of this area is limited at best. Added to this problem it is subject to tidal flooding twice a day. With this said, its best use is wildlife habitat, and should be left just as it is.

Date sheet completed June 2000.

LOCATION

This parcel is located on the south side of Bay Road with frontage along Island Creek, which flows from Mill Pond.

GENERAL DESCRIPTION

Although this parcel has 260 feet of frontage on Bay Road, and approximately 100 feet of frontage on Island Creek it is considered tidal marsh and is flooded at high tide.

SOILS

The soils in this area are considered tidal marsh and consist of poorly drained organic and mineral deposits that are flooded regularly by tidal action. Soils of this type occupy low lying tracts of land along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulation of herbaceous vegetation.

VEGETATION

The area is vegetated with typical salt marsh plants. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains. The ditches are lined with cord grass (*Spartina alterniflora*), and marsh elder (*Iva frutescens*).

PROBLEMS AND RECOMMENDATIONS

There is no parking even with 260 feet of frontage on Bay Road, and the parcel is subject to tidal action leaving it under water twice a day. The area will best serve as wildlife habitat and best be left just as it is.

Date sheet completed June 2000

Assessors Lot #	115-502-016	(170-502-016)	1.16 Acres	(Back River Marsh)	
	115-502-088	(170-502-088)	1.81 Acres		
	115-502-085	(170-502-085)	8.47 Acres		
	115-502-079	(170-502-079)	12.46 Acres		
	116-502-073	(170-502-073)	3.00 Acres		
			115-502-080	(170-502-080)	1.36 Acres
			115-502-081	(170-502-081)	.92 Acres
			115-502-082	(170-502-082)	1.80 Acres
			115-502-083	(170-502-083)	2.62 Acres
			105-502-043	(170-502-043)	.20 Acres
			105-502-047	(170-502-047)	.89 Acres
			Total	34.69 Acres	

LOCATION

These lots are all in the upper reaches of Duxbury Bay and are considered tidal salt marsh. All parcels are subject to tidal flooding and access can be gained by boat only. These lands would be under water during high tide periods.

PHYSICAL BOUNDARIES

Not known

SIGNIFICANT FEATURES

Salt Marsh with tidal tributaries

SOILS

The soils in this area are considered tidal marsh and consist of poorly drained organic and mineral deposits that are flooded regularly by tidal action. It occupies low lying tracts of land along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulations of herbaceous vegetation.

VEGETATION

The area is vegetated with typical salt marsh plants. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains, along with black grass (*Juncus gerardi*) and spike grass (*Distichlis spicata*). The ditches are lined with cord grass (*Spartina alterniflora*).

EXISTING TRAILS

None

PARKING

None

PROBLEMS AND RECOMMENDATIONS

The property is not accessible and underwater during high tide periods. The area is a nursery for many species of finfish and shellfish, as well as a feeding area for many species of shore birds and song birds. The entire bay serves as protection from storms to the upland behind it. These lots should be left as they are, basically as wildlife habitat and storm protection of Duck Hill River.

Assessors Lot # 116-502-120	170-502-120	3 Acres	(Little Harry Foot Island)
------------------------------------	-------------	----------------	-----------------------------------

LOCATION

Back River

PHYSICAL BOUNDARIES

Duck Hill River

SIGNIFICANT FEATURES

Salt Marsh with Osprey nesting Platform

VEGETATION

Spartina Altinaflora cord grass

LOCATION

Back River

PHYSICAL BOUNDARIES

Duck Hill River, Little Wood Island River, town Line

SIGNIFICANT FEATURES

Salt Marsh

VEGETATION

Spartina Alterniflora cord grass

Assessor's Lots #	105-502-031	(170a-502-031)	3.53 Acres
	105-502-056	(170a-502-056)	2.00 Acres
	105-502-050	(170a-502-050)	2.40 Acres
	105-502-042	(170a-502-042)	4.12 Acres
	105-502-012	(170a-502-012)	1.65 Acres
	105-502-025	(170a-502-025)	3.68 Acres
	104-502-003	(170a-502-003)	<u>6.48 Acres</u>
	Total		23.86 Acres

LOCATION

All of these lots are located in the salt marsh to the north of Back River Way off St. George Street and to the north of Onion Hill Road.

GENERAL DESCRIPTION

This area is in the upper reaches of Duxbury Bay and is considered tidal salt marsh. The only public access is from Pine Hill Ave, off St. George St. Access can be gained by walking over Wildlands Trust property off Tremont St. following Mill Brook. The majority of these lands would be under water during the high tide periods. There are two small islands which can be reached from the cart path extending from Pine Hill Ave.

SOILS

The soil in this area is classified as tidal marsh and consist of very poorly drained organic and mineral deposits that are flooded regularly by tidal action. It occupies low lying tracts of land along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulations of herbaceous vegetation.

VEGETATION

The area is vegetated with typical salt marsh plants. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains, along with black grass (*Juncus gerardi*) and spike grass (*Distichlis spicata*). The ditches are lined with cord grass (*Spartina alterniflora*). Marsh elder (*Iva frutescens*) is located along the cart path and transition zones, particularly around the two small islands. These two islands do have a few red cedar (*Juniperis virginiana*), and a couple of red oak (*Quercus rubra*) and white oak (*Quercus alba*).

PROBLEMS AND RECOMMENDATION

The only problem is the lack of parking. The high school parking lot is available when school is not in session, otherwise the lot is full. The salt marsh is an excellent habitat for shore and marine birds, making this area a popular birding area. One must always check the tide before entering these parcels. Duck Hill River is a wonderful area to canoe. Canoes can be launched from the town landing off Cove Street. The area's best use is probably wildlife habitat and open space and should be left just as it is. With the exception of the cart path no other trails should be constructed.

Data sheet completed April 2000

Assessor's Lot # 104-502-076	(170a-502-076)	6.44 Acres
115-502-077	(170a-502-077)	<u>2.59 Acres</u>
	Total	9.03 Acres

LOCATION

These two contiguous parcels of land are located in Duxbury Bay on the town line between the Town of Duxbury and the Town of Marshfield.

GENERAL DESCRIPTION

This area is a salt marsh subject to tidal action. The only access is by small boat.

SOILS

The soil in this area is classified as tidal marsh and consists of very poorly drained organic and mineral deposits that are flooded regularly by tidal action. It occupies low lying tracts along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulations of herbaceous vegetation.

VEGETATION

The area is vegetated with typical salt marsh plants. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains, along with black grass (*Juncus gerardi*) and spike grass (*Distichlis spicata*). The ditches are lined with cord grass (*Spartina alterniflora*).

PROBLEMS AND RECOMMENDATIONS

There is no public access to this area or parking. The only way to reach the area is by small boat and being subject to tidal action they are flooded during high tide periods. The area is ideal shore and marine organism habitat, and its best use at the present time is wild life habitat and open space.

Data sheet completed April 2000.

Assessor's Lot # 109-502-015	(190a-502-015)	1.16 Acres
------------------------------	----------------	------------

LOCATION

This small parcel is located on the east side of Depot Street, between lot # 190a-015-002 and Lot # 190a-500-015, which is under the jurisdiction of the Duxbury Board of Selectmen.

GENERAL DESCRIPTION

Standing water covers most of the parcel which will remain covered most of the year. This condition would place the entire lot in the wetlands. A control structure regulates the water level in the small pond. This lot

SOILS

Although this area is classified by the Plymouth County Soil Survey of 1969, in the Carver Series, which consists of well drained soils, the standing water on this lot would indicate that there is a drainage problem. It would appear that some sub-surface soil deposit, too small to be indicated on the Soil Survey, might be the reason, or alteration of the area in the past. There is a control structure on the property which would indicate previous alteration.

VEGETATION

The area has standing water but no pond vegetation which would indicate that the area does not have standing water at some part of the year. Much of the vegetation has been altered, however, the dominant tree is the red maple (*Acer rubrum*) With a sparse understory of sweet pepper (*Clethra alnifolia*), arrowwood (*Viburnum dentatum*) and high bush blueberry (*Vaccinium corymbosum*).

PROBLEMS AND RECOMMENDATIONS

There are no real problems with the parcel at this time, but due to its size and wetland conditions it does not lend itself to a lot of uses. It does abut land under the jurisdiction of the Duxbury Board of Selectmen, however, the total area of both parcels is less than three acres not really increasing its usage significantly. It might best be left as open space, wildlife habitat and a water table recharge area.

Data sheet completed May 2000.

LOCATION
Standish Street

PHYSICAL BOUNDARIES
Open field

SIGNIFICANT FEATURES
Scenic view

VEGETATION
Field grasses

EXISTING TRAILS
Open land

PARKING
Along roadside

PROBLEMS
Needs to be mowed on a regular basis. Lots of invasive plants. View compromised by evergreens

RECOMMENDATION
Remove some of the evergreens.

Assessor's Lot # 094-502-014	(200a-502-014)	6.90 Acres
094-502-114	(200a-502-114)	1.79 Acres
	Total	8.69 Acres

LOCATION
Both parcels are located on the south side of Tremont Street between Lot # 200a-014-102 and Lot # 200a-001-000, with 166 feet of frontage on Tremont Street. Much of this lot is backland.

GENERAL DESCRIPTION
On lot 200a-502-014 the frontage on Tremont Street enters into a dense pine forest with little other vegetative growth. Many of these trees are small (6 to 8 inches in diameter) and over crowded. As one proceeds east into the lot the pines thin somewhat, become more mature, and more oaks are present. All of this lot can be classified as upland with undulating topography. The back of the lot slopes steeply forming a trough. The bed of former railroad tracks separates these two lots. Too level the bed for the tracks a path across the trough was filled leaving a cart path from Pinewood Lane to Arrowhead Road. Commonwealth Electric Co. owns a quarter of an acre in the center of this area for a sub-station. This area also abuts a 1.82 acre lot under the jurisdiction of the Duxbury Board of Selectmen, and another 3.31 acre playground under the jurisdiction of the Duxbury Recreation Department. The back lot, (lot # 200a-502-114), is 40 percent wetland and 60 percent upland with the bottom of the trough as the wetland. Parking off Arrowhead Road serves as ample parking for this area.

SOILS
The soils in the upland area of these parcels is classified in the Carver series of the Plymouth County Soil Survey of 1969, which consists of excessively drained sandy soils formed in thick deposits of coarse, pebbly quartz sand. Water moves rapidly down through the solum and the underlying substratum. Dissecting this out wash plain is a deep trough with steep sides running southeast towards Duxbury Bay. The soil at the bottom of this trough is classified as peat, which consists of very poorly drained soil that formed in an accumulation of partly decomposed organic material, and is saturated much of the year. Plant remains, in these soils, can be readily identified.

VEGETATION
The vegetation in the upland area consists of eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and white oak (*Quercus alba*). There is little understory in this area. Where the pine is thick there is no understory. On the wetland area of the back lot the vegetation is that of a typical maple swamp, namely red maple (*Acer rubrum*) as the predominant tree. The understory is made up of sweet pepper bush (*Clethra alnifolia*), high bush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*).

PROBLEMS AND RECOMMENDATIONS
Although the area abuts a playground and other public land under the jurisdiction of the Duxbury Board of Selectmen it is not heavily used at the present time. There are a few short walking trails in the pine grove and along the railroad grade. Due to the size of the area the construction of more walking trails would be quite limited. A short exercise trail from the playground might be considered, as well as a picnic area with tables next to the playground. There is ample parking off Arrowhead Road. As for problems, the area seems to be respected. There is little road side trash. The only problem seems to be in the trough in the back. In the past old car parts were dumped here, however that was done quite a while ago, and nothing has been added recently. The frontage on Tremont Street enters into a very dense pine forest. These trees are not developing well and a thinning might be considered. That would decrease the competition and improve the growth of the trees.

Data sheet completed May 2000

132-502-052	(210a-502-052)	9.05 Acres
133-502-061	(210a-502-061)	4.00 Acres (Scat Island)
142-502-062	(210a-502-062)	4.25 Acres (Long Island)
131-502-068	(210a-502-068)	2.80 Acres
	Total	24.10 Acres

LOCATION

All of these lots are located in Duxbury Bay north of the Powder Point Bridge, and to the east of Great Wood Island.

GENERAL DESCRIPTION

These lots are all in the upper reaches of Duxbury Bay and are considered tidal salt marsh. All parcels are subject to tidal flooding and access can be gained by boat only. This land would be under water during high tide periods.

SOILS

The soils in this area are considered tidal marsh and consist of poorly drained organic and mineral deposits that are flooded regularly by tidal action. It occupies low lying tracts of land along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulations of herbaceous vegetation.

VEGETATION

The area is vegetated with typical salt marsh plants. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains, along with black grass (*Juncus gerardi*) and spike grass (*Distichlis spicata*). The ditches are lined with cord grass (*Spartina alterniflora*).

PROBLEMS AND RECOMMENDATIONS

The property is not accessible and underwater during high tide periods. The area is a nursery for many species of finfish and shellfish, as well as a feeding area for many species of shore birds and song birds. The entire bay serves as protection from storms to the upland behind it. These lots should be left as they are, basically as wildlife habitat and storm protection.

Data sheet completed June 2000.

Assessor's Lot #'s	131-502-065	210a-502-065	6.00 Acres (Flat Great Salt Marsh)
	131-502-069	210a-502-069	15.00 Acres
	131-502-070	210a-502-070	11.44 Acres
	131-502-073	210a-502-073	4.10 Acres
	131-502-074	210a-502-074	7.50 Acres
	131-502-084	210a-502-084	6.00 Acres
		Total	50.04 Acres

LOCATION

All of these lots are located in Duxbury Bay north of the Powder Point Bridge, and to the east of Little Wood Island River.

GENERAL DESCRIPTION

These lots are all in the upper reaches of Duxbury Bay and are considered tidal salt marsh. All parcels are subject to tidal flooding and access can be gained by boat only. These lands would be under water during high tide periods.

SOILS

The soils in this area are considered tidal marsh and consist of poorly drained organic and mineral deposits that are flooded regularly by tidal action. It occupies low lying tracts of land along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulations of herbaceous vegetation.

VEGETATION

The area is vegetated with typical salt marsh plants. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains, along with black grass (*Juncus gerardi*) and spike grass (*Distichlis spicata*). The ditches are lined with cord grass (*Spartina alterniflora*).

PROBLEMS AND RECOMMENDATIONS

The property is not accessible and underwater during high tide periods. The area is a nursery for many species of finfish and shellfish, as well as a feeding area for many species of shore birds and song birds. The entire bay serves as protection from storms to the upland behind it. These lots should be left as they are, basically as wildlife habitat and storm protection.

Assessor's Lot #'s	139-502-001	(210b-502-001)	1.50 Acres	Back River Saltmarsh
	139-502-002	(210b-502-002)	1.00 Acres	
	138-502-011	(210b-502-011)	4.44 Acres	
	138-502-012	(210b-502-012)	3.06 Acres	
	141-502-017	(210b-502-017)	<u>3.06 Acres</u>	
		Total	13.06 Acres	

LOCATION

All five lots are located in the salt marsh on the northeast side of the Powder Point Bridge.

GENERAL DESCRIPTION

These lots are located in the upper reaches of Duxbury Bay which is considered tidal marsh and is subjected to daily tidal action. The only access is by small boat along Canal River in the Bay.

SOILS

The soils in this area are classified as tidal marsh and consist of very poorly drained organic and mineral deposits that are flooded regularly by tidal action. These soils occupy low lying tracts of land along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulations of herbaceous vegetation.

VEGETATION

The area is vegetated with typical salt marsh vegetation. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains, along with black grass (*Juncus gerardi*) and spike grass (*Distichlis spicata*). The ditches are lined with cord grass (*Spartina alterniflora*).

PROBLEMS AND RECOMMENDATIONS

The area is a great place for small boating and canoeing. Access by boat would have to be from the boat launch sight off Cove Street. The marsh is a wonderful place to observe shore and marine bird life. Some duck hunting is done during the hunting season.

Data sheet completed May 2000.

Assessor's Lot #	141-502-048	(211-502-048)	0.66 Acres
	141-502-050	(211-502-050)	<u>0.50 Acres</u>
		Total	1.16 Acres

LOCATION

These two lots are contiguous and are located off the west side of Gurnet Road between Marginal Road and Pine Point Road.

GENERAL DESCRIPTION

Both lots are vegetated sand dunes and only a few feet above mean high tide.

SOILS

The entire area is classified as Dune Land and Coastal Beach, according to the Plymouth County Soil Survey of 1969, and consists of highly quartzitic sand adjacent to the seashore. The individual sand particles have been rounded by the action of waves and wind. These areas are continuing to change in shape and size depending on vegetative cover. A thick vegetative cover tends to hold the sands from shifting. The water table is generally very close to the surface.

VEGETATION

The vegetation on this area is quite typical for the dune land and coastal beaches. It consists of beach rose (*Rosa rugosa*), beach plum (*Prunus maritima*), american beach grass (*Ammophila breviligulata*), and eastern red cedar (*Juniperus virginiana*). The lots are thickly covered with poison ivy (*Rhus radicans*). As the dune area meets the water cordgrass or salt marsh grass (*Spartina alterniflora*) becomes established.

PROBLEMS AND RECOMMENDATIONS

The major problem with the area is the amount of poison ivy. Also being a dune area it is very fragile and cannot handle a lot of traffic. There is no parking in the area. All and all it might be best just left as open space, wildlife habitat, and a buffer zone for storm tide surges.

Data sheet completed June 2000

Assessor's Lot #'s	137-502-085	(212-502-085)	4.60 Acres
	137-502-003	(212-502-003)	.50 Acres
	137-502-004	(212-502-004)	<u>0.19 Acres</u>
	Total		5.29 Acres

LOCATION

All of these lots are located in Duxbury Bay north of the Powder Point Bridge, on the Canal River and west of Gurnet Road

GENERAL DESCRIPTION

These lots are all in the upper reaches of Duxbury Bay and are considered tidal salt marsh. All parcels are subject to tidal flooding and access can be gained by boat only. These lands would be under water during high tide periods.

SOILS

The soils in this area are considered tidal marsh and consist of poorly drained organic and mineral deposits that are flooded regularly by tidal action. It occupies low lying tracts of land along salt water bays and streams. The mineral deposits are predominantly silt. The organic deposits are mainly accumulations of herbaceous vegetation.

VEGETATION

The area is vegetated with typical salt marsh plants. The predominant grass is the salt meadow grass (*Spartina patens*) on the flat plains, along with black grass (*Juncus gerardi*) and spike grass (*Distichlis spicata*). The ditches are lined with cord grass (*Spartina alterniflora*).

PROBLEMS AND RECOMMENDATIONS

The property is not accessible and underwater during high tide periods. The area is a nursery for many species of finfish and shellfish, as well as a feeding area for many species of shore birds and song birds. The entire bay serves as protection from storms to the upland behind it. These lots should be left as they are, basically as wildlife habitat and storm protection.

Appendix C

Maps

Soils

Geological Features

Water Resources

Unique Features

Zoning

Open Space

Seven-Year Action Plan

Old Shipbuilders National Historic District