



Town of Marshfield, Massachusetts

2015 Master Plan

August, 2015

Prepared by  vhb



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Cover Photo: A view of Green Harbor from Harbor Park, Greg Guimond

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Vision and Goals

Introduction

Over the last century, the coastal Town of Marshfield has transformed from an active commercial fishing port to an accessible and desirable residential community with easy access to Boston and other job centers in the greater Boston Metropolitan area. Residents appreciate Marshfield's scenic beauty, including its beaches, scenic marshland and rolling hills. The Town embarked on this effort to update its Master Plan to chart a future that builds on the Town's many assets while also addressing potential vulnerabilities.

Residents appreciate the high quality of life in Marshfield including its solid performing schools, distinct residential neighborhoods, and abundant community amenities. This Master Plan creates a comprehensive framework for preserving and enhancing the Town's economic, natural, neighborhood, and cultural/historic resources through a series of actionable recommendations. Through the Town's actions thus far, and through the implementation of the goals of this 2015 Master Plan, the Town will continue to thrive and build further upon its many assets.

Vision Statement

Marshfield is and will continue to be a residential beach community. Our primary purpose as a community; within the border context of our region, is to provide a wonderful place for people to grow up, to go to school, to raise a family, to work, to recreate and to retire. While we have many businesses, and we will continue to encourage new businesses, those businesses will be primarily oriented toward meeting the needs of the residents of Marshfield rather than the needs of the broader region. We are a sea side community of homes and local businesses.

There are several qualities that distinguish us from other residential communities. These qualities must be protected if we are to maintain and enhance our community character. Those qualities are the rivers, marshes, beaches, historic structures, historic sites, archeologically sensitive areas, agricultural areas, rural roads, villages and open space. If any of these qualities are compromised, essential ingredients of Marshfield's character will be lost. Each must be given attention and stewardship.

Community Voices

The Town first embarked on updating the Master Planning process after approval by voters in the annual 2012 Town Meeting. As part of the process of updating the Master Plan, the Planning Board partnered with the Moakley Center for Public Management (MCPM) at Suffolk University to develop a public opinion survey. In November 2012 the survey was distributed by mail and made available online, yielding a total of 335 responses. Survey results are noted within the applicable chapters of this Master Plan.

In addition to this survey, the Town's Master Planning Team lead by planning consultants, VHB, presented and gathered input from two public meetings from residents, meetings with the Planning Board and the Marshfield Chamber of Commerce.

One public meeting held on November 13, 2012 at the Senior Center kicked off the planning process as residents came to share their vision for Marshfield. The community members commented on the four key topic areas: housing, economic development, transportation, and climate adaptation. Another public meeting was held on April 2, 2013 on the topics of natural resources, open space, and community character. Approximately 25 residents attended and gave input at each forum. Below is a summary of the highlights from these meetings.



Photos from the November 13, 2012 public forum

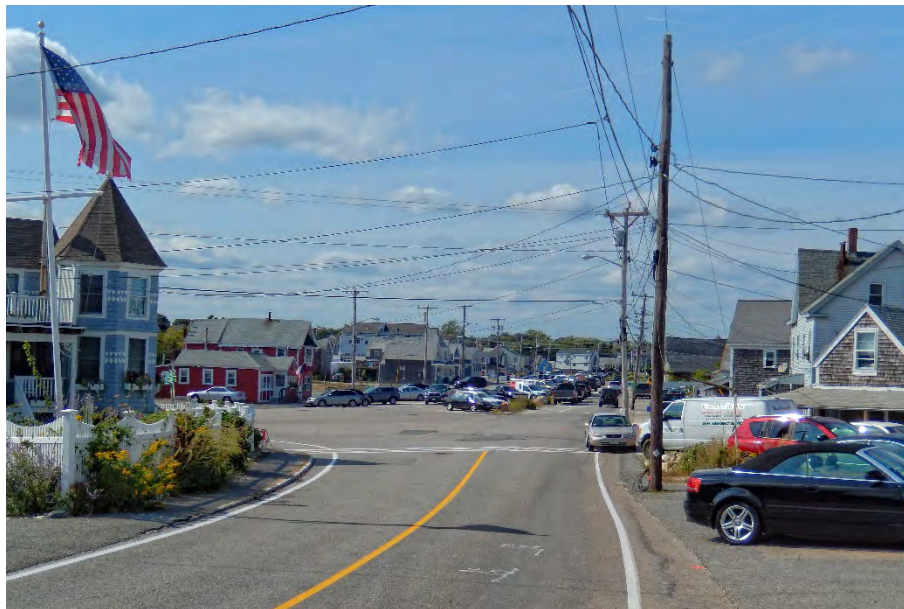
Housing

Residents identified as successful the recent senior-related residential development projects catering to residents 55 years and older. While senior housing development has been notable, residents noted that some of Marshfield’s housing challenges include providing more affordable and more choices of different types of housing options for young professionals, teachers, and single-parent families. The Town’s zoning allows for accessory apartments in all the residential districts and mixed use buildings in the Planned Mixed Use Development and Brant Rock Village overlay districts.

Economic Development

Residents focused on the Enterprise Park area as a priority planning area and indicated that the current Industrial zoned land should allow for mixed use, healthcare, a hotel, and affordable housing. Based on this feedback the Town increased the Planned Mixed Use Development (PMUD) overlay district at the 2014 Annual Town Meeting. At the Fall 2014 Town Meeting, voters approved allowing additional uses including residential above commercial in the PMUD. The Chamber of Commerce particularly highlighted the need for a hotel in Marshfield to attract business conventions and additional economic development activity. Members noted Marshfield could also fill a need for a non-profit center servicing communities in the South Shore.

Residents noted that Marshfield needed more businesses in the Downtown including a movie theater and mixed use with residential over commercial. Better walkability around the Downtown is also needed. The current design of Downtown was broken up with parking lots and didn’t have the feel of a town center, and parking was a concern.



Brant Rock

Brant Rock was another area of study and residents noted the area could be enhanced with additional storm water facilities, improvements to the Harbor Park, and a hotel to accommodate functions and large family events. Residents also noted that climate adaptation should play a critical planning role as the area becomes more vulnerable to severe storm events with a changing climate.



Stores in downtown Marshfield

Transportation

Residents felt that mobility in Marshfield was encumbered by Downtown traffic congestion and high vehicle speeds, lack of traffic signal synchronization and poor pedestrian connections in the Downtown. Some opportunities for improvement included more sidewalks, improved wayfinding/signage, development of a river greenway, improved trail system, and expanded Greater Attleboro Taunton Regional Transit Authority (GATRA) service.

Climate Adaptation

Many residents were very concerned about the impact of climate change in Marshfield, particularly with flooding and public safety. Residents noted the problem is larger than just the homes along the coast. The age and condition of the sea walls and the condition of the beaches are also serious issues facing the Town. Some felt that homes could be elevated, and there should be a plan for evacuation prior to major storm events. Residents had mixed reactions as to

whether rebuilding the seawall made sense for the Town from an economic point of view.



Brant Rock flooding

Community Character

Residents describe Marshfield's character as historic, active, quaint, traditional, friendly, family-oriented, growing, scenic, sleepy, progressive, remarkable, heterogeneous/economically diverse, welcoming, involved and vocal. Some of its notable aspects included its school system, village character, active senior center and trails. Some of the things that residents noted could be improved include a better gateway to the Town, Route 139 corridor improvements, downtown design review, and increased beach and river access. Special places identified included: the Town Forest, Damon's Point, Dwyer Farm, the North River, MA Audubon Daniel Webster Wildlife Sanctuary, Town Pier, Airport, Marshfield Fairgrounds, and the Green Harbor and Marshfield Hill's General Stores.

Natural Resources and Open Space

According to the Suffolk University Poll, the most important reason residents initially move to Marshfield is for its beaches. Marshfield's water resources and natural landscape make up a huge part of Marshfield. Residents noted that the protection of surface water and groundwater resources is critical and that development near sensitive water resources can negatively impact water quality. Residents found the top two priority conservation areas the Town should acquire are water supply protection parcels and open spaces for trails and passive

recreation. Residents generally felt that additional development negatively impact water quality. Due to water quality issues at the South River, residents favored a new overlay district that allows only certain uses along with environmental performance standards.

Master Plan Goals

In light of the public input from the community, the analysis of past and current economic, housing, natural resources, infrastructure and land use trends and needs, the Master Plan sets out the following goals by resource category.

Land Use and Community Design Goals

- In all aspects of public and private actions, seek to permanently protect strategic areas of open land to enhance the Town's water, scenic, and recreational resources.
- Maintain the character and quality of the Town's residential neighborhoods.
- Ensure that future residential, commercial, and industrial development is designed in a manner that enhances, rather than erodes the Town's low density character.
- Encourage commercial development to concentrate in village centers.
- Consider options for development and possible appropriate rezoning of the Town's industrial land to best meet long-term needs.

Housing Goals

Marshfield housing choices should be diverse and made available to residents of all income levels. The Town of Marshfield's 2009 Housing Production Plan lists the following housing goals, which were also goals within the Town's 2013 Community Housing Plan:

- To meet local housing needs by enhancing housing choices along the full range of incomes, promoting social and economic diversity and the stability of individuals and families living in Marshfield;
- To leverage other public and private resources to the greatest extent possible;
- To ensure that new housing creation is harmonious with the existing community; and,
- To surpass the 10 percent state standard for affordable housing.

Economic Development Goals

- Maintain Marshfield's economy at a scale so that it contributes to the local tax base and provides needed local goods and services but does not overburden Town roads or service systems.
- Seek excellence in design and aesthetics on all existing and future business sites.
- Improve the marketing of Marshfield locally and regionally to attract more visitors and investment.
- Maximize benefits of the Town's coastal location, broad economic base, available Industrial zoned land and improved highway access
- Strengthen the Downtown as a place for commerce and as the community's center.
- Carefully shape development in the Enterprise Drive Area to include mixed use development and provide full infrastructure to the Industrial and PMUD districts.
- Make strategic improvements in the Brant Rock commercial district in coordination with local businesses.
- Support and expand maritime related industries, tourism, medical and educational opportunities that provide economic benefit to the Town of Marshfield.

Natural, Historic and Open Space Resources Goals

In order to preserve the Town's natural resources and open space, the community has established a set of goals taken from the *Marshfield Open Space and Recreation Plan Update (March 2010)*:

- Protect lands within aquifer recharge areas
- Buffer and link protected lands for wildlife habitat
- Provide additional buffer and protection to the watershed areas surrounding the riverfront areas of the North, South, and Green Harbor Rivers
- Blaze, map, and maintain existing trails
- Create new trails
- Involve residents in managing open space

Additionally, goals for the preservation of historic resources include:

- Promote cultural and historical preservation and renovation projects.
- Identify and preserve significant archaeological resources.

Public Services and Facilities Goals

- Develop a comprehensive planning process for short- and long-term capital improvements for all Town facilities and services.
- Establish new or improved/upgraded facilities and increase staffing for public safety to meet demands resulting from anticipated growth.
- Lead by example in community facilities and operations by establishing sustainable principles and initiatives.

Transportation and Mobility Goals

The following provides an overview of the transportation goals:

- Improve and enhance pedestrian connectivity through Town.
- Improve bicycle connections between destinations in Town.
- Protect the Town's rural roadways and enhance major arterials and collector roadways through gateway enhancements.
- Provide new or enhance existing public transportation alternatives to improve access to rail transportation and improve service in Town.
- Reduce vehicle conflicts along major corridors.
- Develop new local zoning bylaws that incorporate new transportation initiatives (such as complete streets, access management, traffic impact study guidelines).
- Identify sustainable transportation and infrastructure improvements that minimize the impact of new development or redevelopment.
- Perform corridor and/or intersection studies that identify specific improvements for areas with safety concerns and traffic congestion.

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Land Use and Community Design

Introduction

The Town of Marshfield is a scenic coastal community with many assets, including diverse recreational facilities, distinctive historical villages, beaches, and scenic rivers which give access to recreation and fishing. Marshfield also has undeveloped, available land that can be used for new residential, commercial and industrial development. The Land Use element of this Master Plan provides additional focus for the Town's efforts on overall land use policies.

Land use refers to the development character of land within a municipality from the amount, types, and intensity of development of commercial, industrial, residential and institutional as well as open space and key natural resources features. This chapter provides an analysis of overall land use within the Town of Marshfield as well as land use recommendations for three focus areas within the Town: the Downtown, the business area of Enterprise Park and the scenic ocean-side Brant Rock neighborhood. In addition, this chapter has recommendations for other specific areas in Town as well as Town-wide policy recommendations.

Land Use and Community Design Goals

- In all aspects of public and private actions, seek to permanently protect strategic areas of open land to enhance the Town's water, scenic, and recreational resources.
- Maintain the character and quality of the Town's residential neighborhoods.
- Ensure that future residential, commercial, and industrial development is designed in a manner that enhances, rather than erodes the Town's overall low density character.
- Encourage commercial development to concentrate in village centers.
- Consider options for development and possible appropriate rezoning of the Town's industrial land to best meet long-term needs.

Marshfield

Marshfield is approximately thirty miles southeast of Boston, twelve miles north of Plymouth, and sixty miles northeast of Providence, Rhode Island. The Town's land area is approximately 29 square miles, and is bounded by the towns of Norwell and Pembroke to the west, Scituate to the north, and Duxbury to the south. Marshfield's land uses are largely defined by its distinct water features, including the North and South Rivers, the Massachusetts Bay to the east, Green Harbor to the south, and the large number of fresh and saltwater wetlands that dot the Town's landscape.

One unique feature of Marshfield is the Rexhame-Humarock peninsula, a barrier beach moraine connected to land via a bridge to the Marshfield main land. The peninsula was originally joined to the southern end of the Town of Scituate but was disconnected in the Portland Gale of 1898 and is now connected to Marshfield. Most of this peninsula is within the Town of Scituate and is called Humarock Beach. The southern portion of the peninsula, named the village of Rexhame, is within the Town of Marshfield. This barrier (Humarock) beach provides some protection to the Sea View and Ferry Hill portions of Marshfield from coastal storms.

Marshfield still has some significant tracts of open and forested land, which contributes to its natural beauty and scenic views. Approximately 65 percent of the Town's land area includes agriculture, forestry, recreational open space, and protected wetlands. About one third of Marshfield is residential land uses and 3 percent is commercial, industrial, and transportation-related land uses.¹

¹ Massachusetts Department of Environmental Protection; http://www.mass.gov/dep/service/my_comm/marshfield.htm; Accessed October 2012.

Land Use Patterns

Historic Land Use

Marshfield was one of the early pilgrim towns being part of the original area known as the “New Colony of New Plimoth in New England,” established in 1640 by Edward Winslow, one of the pilgrims on the Mayflower. Cattle farming was one of Marshfield’s original and major industries. The other industry, commercial fishing, was also established at this time and continues to be an important economic and recreational activity in Marshfield today. Marshfield was named because of the large number of salt water tidal marshes scattered throughout the Town along the Green Harbor River and the North and South Rivers, near their confluence with Massachusetts Bay.

The broad land use patterns that shaped Marshfield were shaped by four trends. The first trend was the colonial and subsequent 18th century agricultural and early industrial development of Marshfield. From the Town’s settlement in 1632 through to the 1800’s, Marshfield was a farming and ocean -oriented community. This period left its permanent mark on Marshfield through the establishment of several villages, the winding road system, farms and fields, and the historic homes and civic buildings found throughout Marshfield. It is this historic community development pattern that lends Marshfield most of its charm and character.

The second development trend which shaped the Town was the early 20th century building of vacation subdivisions and associated vacation oriented businesses along the beach. This development occurred at sufficiently high densities and in such a thorough manner along Ocean Street that there have been few subsequent changes in the overall character of that area. Seasonal homes are being converted to year round housing and improvements are occurring in the business areas, but the basic land use pattern of single family homes on small lots along beach areas remains.

The third community-shaping trend was the construction of Route 3 in the 1960s and the increasing suburbanization that this highway access brought to Marshfield. The completion of Route 3, establishing Marshfield as a Boston suburb, spurred increased residential and commercial development in Marshfield.²

Today, Marshfield is largely a seaside community with many residents commuting by car to jobs in Boston. While some communities slow down in the

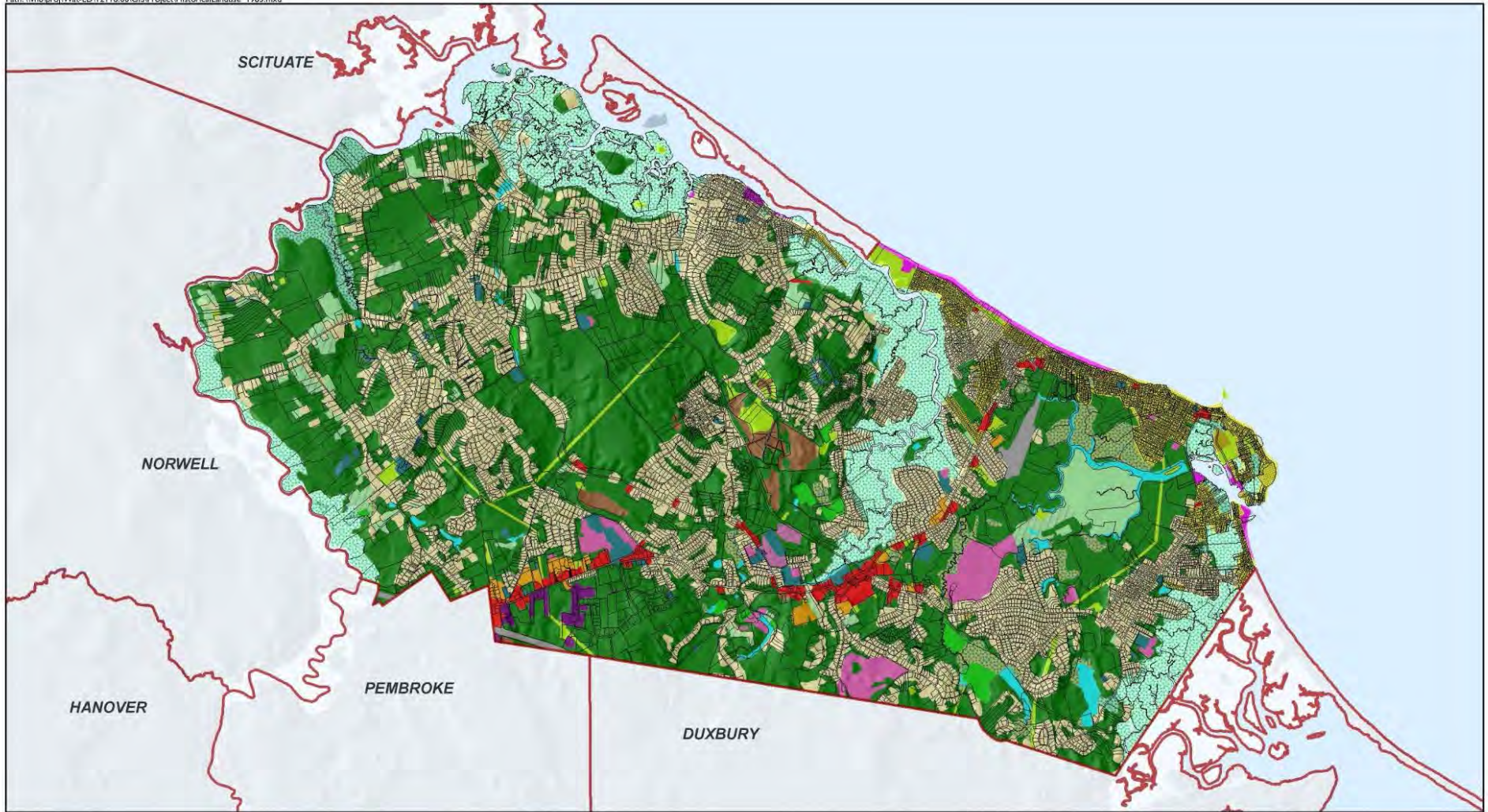
² *The Townscape Plan: A Comprehensive Plan for the Town of Marshfield, MA, 1997.*

Boston metro area during the summer months, Marshfield becomes a vibrant center of activity with a large influx of summer visitors, especially those that rent summer homes near Marshfield beaches. Marshfield also hosts one of the oldest agricultural fairs in the United States at the Marshfield Fairgrounds in August. Marshfield's active arts community, the North River Arts Society, also hosts an annual weekend festival of arts in the late spring.

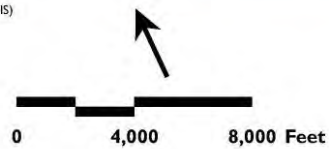
Figure 2-1 shows land uses within Marshfield in 1985. According to data from MassGIS, the acreage of industrial uses between 1971 and 1999 has more than doubled from 26 acres in 1971 to 61 acres in 1999. Commercial acreage also increased during the same period by about 43 percent from 166 acres in 1971 to 238 acres in 1999.

Figure 2-1 Historical Land Use, 1985

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- | | | | |
|--------------------------|----------------------------|-----------------|---------------------------|
| Crop Land | Spectator Recreation | Commercial | Town Boundaries (MassGIS) |
| Pasture | Water-Based Recreation | Industrial | Atlantic Ocean |
| Forest | Multi-Family Residential | Urban Open | |
| Non-Forested Wetland | High Density Residential | Transportation | |
| Mining | Medium Density Residential | Waste Disposal | |
| Open Land | Low Density Residential | Water | |
| Participation Recreation | Salt Water Wetland | Woody Perennial | |



VHB Vanasse Hangen Brustlin, Inc.

Historical Land Use - 1985

Master Plan Update
Town of Marshfield, MA



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In terms of housing, residential development has occurred across the board but mostly concentrated in low-density residential development. Low-density residential development from 1971 and 1999 increased by almost 1,000 acres (a 50 percent increase). The pace of high-density housing development was much slower by comparison; about 84 acres was developed for high-density development between 1971 and 1999 (a 13 percent increase overall).

In terms of natural resources, forestland and wooded perennial land have shown the sharpest decreases between 1971 and 1999 when approximately 1,800 acres of forestland and wooded perennial land was developed for other uses, about a 20 decrease over this time period.

Table 2.1 Historic Land Use in Marshfield

Land Use: 1971, 1985, 1999						
Land Use	1971		1985		1999	
	Size (acres)	Percent of Total	Size (acres)	Percent of Total	Size (acres)	Percent of Total
Agriculture	527	2.8%	521	2.8%	523	2.8%
Open Space	307	1.7%	233	1.3%	295	1.6%
Commercial	166	0.9%	211	1.1%	238	1.3%
Industrial	26	0.1%	43	0.2%	61	0.3%
Transportation	76	0.4%	76	0.4%	75	0.4%
Mining	262	1.4%	239	1.3%	156	0.9%
Transitional	161	0.9%	197	1.1%	203	1.1%
Higher Density Residential	666	3.6%	706	3.8%	751	4.1%
Medium Density Residential	1,753	9.5%	2,121	11.5%	2,443	13.3%
Low Density Residential	1,862	10.1%	2,205	11.9%	2,804	15.2%
Recreation	327	1.8%	387	2.1%	372	2.0%
Forest/Wooded Perennial	9,383	50.7%	8,568	46.3%	7,595	41.3%
Waste Disposal	7	0.0%	18	0.1%	11	0.1%
Non-forested Wetland	338	1.8%	338	1.8%	341	1.9%
Saltwater Wetland	2,103	11.4%	2,103	11.4%	2,103	11.4%
Water	208	1.1%	208	1.1%	206	1.1%
Total	18,173	100%	18,173	100%	18,173	100%

Source: MassGIS

Note: Higher Density Residential includes multi-family housing and housing with lots smaller than 1/4 acre. Medium Density is 1/4 to 1/2 acre lots. Low Density is lots larger than 1/2 acre.

Note: The State has not updated land use for Marshfield since 1999, also certain category numbers could be higher or lower due to misclassification of land uses. Example: mining is less than shown because some of the areas classified in 1999 as mining are no longer mined (town owned land east of Forest Street and land around the former Town landfill). Also parcels that at the time of the air photo had been cleared and re-graded for new development or creation of cranberry bogs were classified as mining. Also while Marshfield lost a number of farms between 1971 and 1999, there was an increase in the number of cranberry bogs which is also an agricultural use.

Table 2.2 Land Use Changes in Marshfield

Land Use Changes: 1971, 1985, 1999			
Land Use	Percent Change		
	1971-1985	1985-1999	1971-1999
Agriculture	-1.2%	0.4%	-0.7%
Open Space	-24.0%	26.5%	-3.8%
Commercial	27.2%	12.8%	43.5%
Industrial	64.4%	39.8%	129.9%
Transportation	0.0%	-1.3%	-1.3%
Mining	-8.9%	21.8%	-10.9%
Transitional	22.1%	2.7%	25.4%
Higher Density Residential	5.9%	6.4%	12.7%
Medium Density Residential	21.0%	15.2%	39.3%
Low Density Residential	18.4%	27.2%	50.6%
Recreation	18.2%	-3.7%	13.8%
Forest/Wooded Perennial	-8.7%	-11.4%	-19.1%
Waste Disposal	149.2%	-40.1%	49.2%
Non-forested Wetland	0.0%	0.6%	0.6%
Saltwater Wetland	0.0%	0.0%	0.0%
Water	0.0%	-1.0%	-1.0%

Source: MassGIS

Note: Higher Density Residential includes multi-family housing and housing with lots smaller than 1/4 acre. Medium Density is 1/4 to 1/2 acre lots. Low Density is lots larger than 1/2 acre.

Note: Same notes as for Table 2.1.

Current Land Use

Marshfield is primarily a residential community with many residents originally moving to the Town because of its highway access to the metro Boston area, proximity to the coast and beaches, as well as its relatively affordable housing compared to neighboring communities and the metropolitan area in general. For more information on Marshfield’s housing affordability relative to other communities, please refer to *Chapter 3, Housing*.

Residential Development

Residential development is largely focused within several neighborhoods being confined to areas that are developable because of the constraints posed by the large areas of saltwater and freshwater wetlands in Marshfield. In general, residential development in Marshfield is characterized by a more rural development pattern in the northern half of Marshfield and a denser development pattern along the Marshfield coast, the Downtown area, and southern half of Marshfield. Marshfield’s primary residential neighborhoods include:

- North Marshfield

- Marshfield Hills
- Green Harbor
- Rexhame
- Brant Rock
- Ocean Bluff
- Sea View
- Fieldston

The rural beauty of the North Marshfield neighborhood is characterized by very low-density development with large historic homes and newer homes on large lots, generally clustered in the area of Union Street in North Marshfield. Other low-density clusters of residential development are located along Highland Street and Oak Street in North Marshfield.

The historic village of Marshfield Hills, a registered Historic District, is another residential neighborhood in the northeastern area of Marshfield in the area of Main Street, Old Main Street, Pleasant Street and Route 3A. This village is characterized by large older homes and the hilly terrain noted by its name.

In contrast, very dense residential development is located along Marshfield's coast with houses on small lots. The Rexhame neighborhood near Rexhame Beach on the Humarock-Rexhame peninsula has large single-family homes on small lots (about 5,000 square feet in size). Just south of Rexhame, the Fieldston, Ocean Bluff and Brant Rock neighborhoods also consist of large to medium housing types on small lots along Ocean Street. As mentioned earlier in this chapter, this development pattern harkens back to the early 1920s when Marshfield encountered a building boom of seasonal cottages along its southeastern shoreline near the Town's beaches.

The Green Harbor neighborhood at the southern edge of Town is also a dense residential neighborhood and is bordered by Green Harbor on the east and saltwater wetlands to the south.

Commercial

Commercial strip development with a mix of restaurants, shops, and auto-related uses are concentrated along Marshfield's main corridors, primarily along Route 139/Ocean Street on Marshfield's western edge. Pockets of mixed-use and commercial development are located along Ocean Street within and near Marshfield's Downtown. The Brant Rock area on the coastline contains an active commercial esplanade with restaurants and stores, some with ocean views (see inset photos below). The commercial district's successful restaurants and venues attract local residents and are particularly busy in the summer months with the large influx of summer visitors.



Industrial

Marshfield contains little industrial development (about 1 percent of the total land area), mostly scattered light industrial businesses in the Enterprise Park area (Industrial District) adjacent to Route 3. Marshfield does have a small gravel and concrete operation in the vicinity of Clay Pit Road within the central area of Town. This operation is a grandfathered use in a residential district which is further discussed later in this chapter.

Recreation, Open Space and Natural Resources

Marshfield still contains vast areas of forested open space (37.5 percent of the Town) and saltwater wetlands (11 percent of the Town) associated with tidal flow from the North and South Rivers and Green Harbor. Both saltwater and non-forested wetlands comprise almost one-quarter of the Town making it a key natural feature of the Town's landscape. In addition to the prevalence of wetlands, Marshfield's character is largely defined by its major water bodies, the South River, the North River, Green Harbor, and the Massachusetts Bay. In particular, the Massachusetts Bay and the beaches on Marshfield's eastern edge spurred on the development of high-density residential housing which has become increasingly vulnerable to large-scale flooding associated with frequent hurricanes and major storms. Commercial and industrial development within the Downtown has also compromised the water quality of the South River as detailed in *Chapter 5, Open Space and Natural Resources*.

Table 2.3 Current Land Use in Marshfield

Land Use Description	Acreage	Percent of Total
Agriculture	304	1.7%
Open land	251	1.4%
Commercial	244	1.3%
Industrial/Transportation/Mining	158	0.9%
Transitional	114	0.6%
Powerline/Utility	46	0.2%
Public Institutional	128	0.7%
Higher Density Residential	683	3.7%
Medium Density Residential	1,140	6.2%
Low Density Residential	3,073	16.8%
Recreation	309	1.7%
Forest/Wooded Perennial	6,860	37.5%
Waste Disposal	8	0.0%
Non-forested Wetland	2,362	12.9%
Saltwater Wetland	2,003	11.0%
Cranberry Bog	104	0.6%
Beach	253	1.4%
Marina	16	0.1%
Water	220	1.2%
Total	18,274	100.0%

Note:

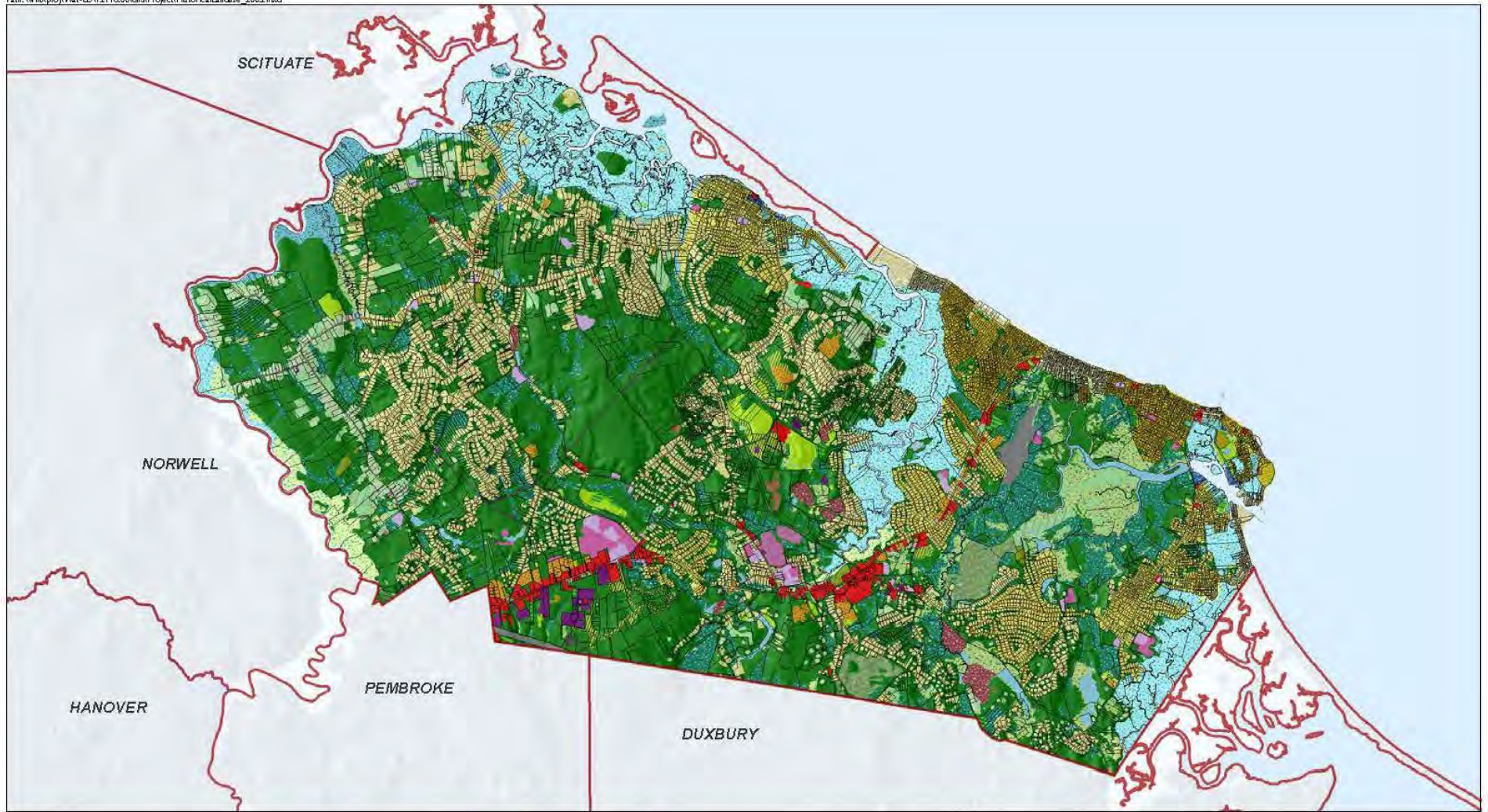
Due to changes in how MassGIS land use data is defined between 1999 and 2005, it is difficult to make comparisons between 2005 and prior years.

MassGIS definition of open land is "Vacant land, idle agriculture, rock outcrops, and barren areas. Vacant land is not maintained for any evident purpose and it does not support large plant growth".

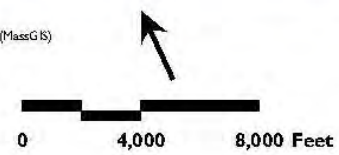
Marshfield contains 4,814 acres of land protected in perpetuity.

Figure 2-2. Current Land Uses

Path: \\h:\proj\W&C-LD\12118.00\GIS\Project\HistoricalLandUse_2005.mxd



Legend				
Forest	Cranberry Bog	Spectator Recreation	Urban Public/Institutional	Town Boundaries (MassGIS)
Brushland/Successional	Orchard	Marina	Commercial	Atlantic Ocean
Open Land	Nursery	Multi-Family Residential	Industrial	
Water	Cropland	High Density Residential	Transportation	
Forested Wetland	Pasture	Medium Density Residential	Powerline/Utility	
Non-Forested Wetland	Cemetery	Low Density Residential	Mining	
Salt Water Wetland	Golf Course	Very Low Density Residential	Waste Disposal	
Saltwater Sandy Beach	Participation Recreation	Transitional		



VHB Vanasse Hangen Brustlin, Inc.
 Historical Land Use - 2005
 Master Plan Update
 Town of Marshfield, MA



Source: MassGIS, 2005.

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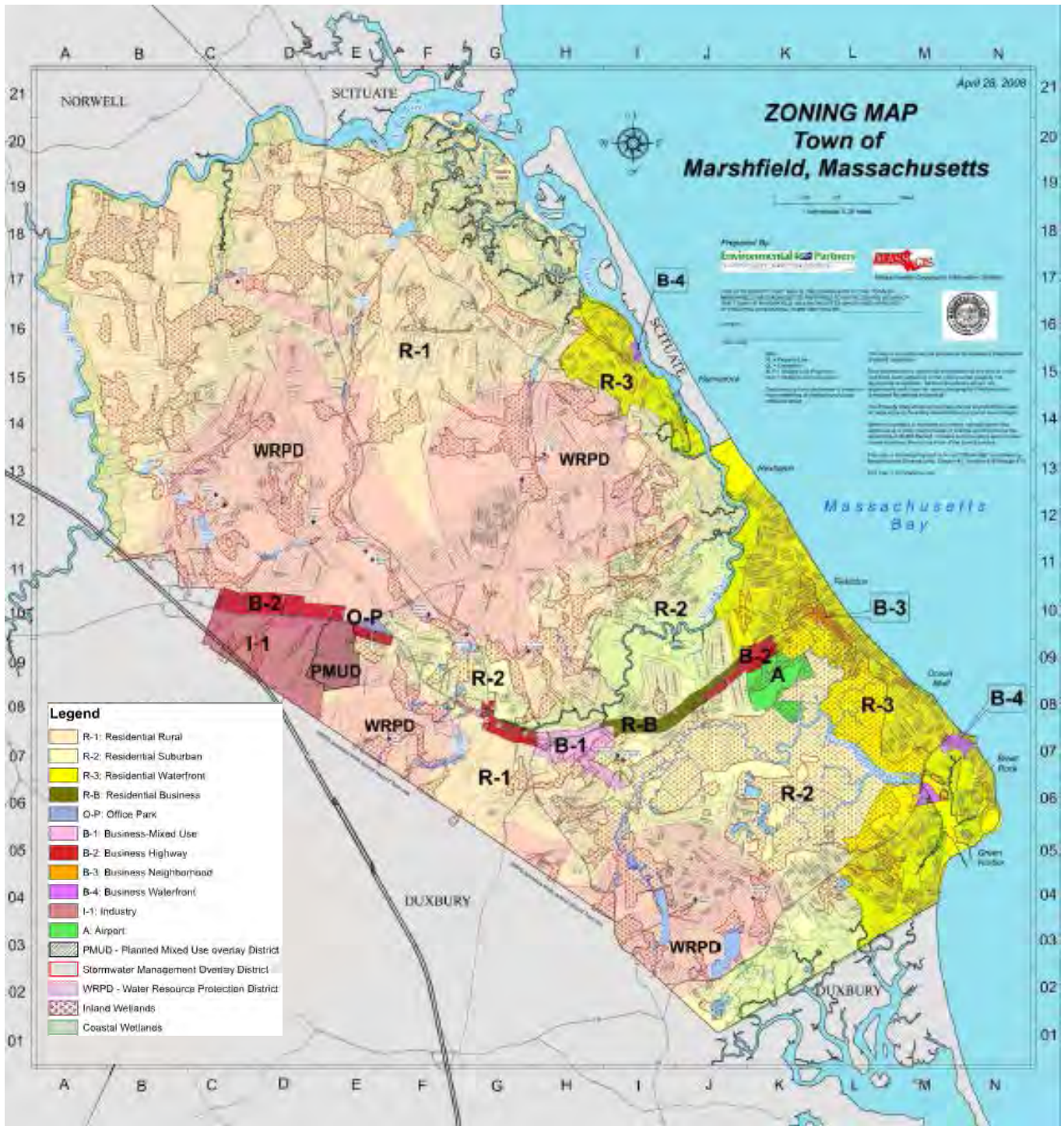
Land Development Regulations

This section of the Master Plan considers the important role played by zoning in guiding future land use decisions. It analyzes the Zoning Bylaws from a variety of perspectives and includes recommendations for changes and amendments that revise the Bylaws so that it achieves the Goals and Objectives of the Master Plan. Some of the recommendations are simply aimed at improving the manner in which the Bylaws are presented so that it becomes easier to read and understand or more "user friendly".

Overview of the Marshfield Zoning Districts

The Zoning Bylaws establish eleven districts and three overlay districts. See Figure 2-6 for a map of the zoning districts. Note that this map does not reflect the expansion of the PMUD and the creation of the Brant Rock Village Overlay District.

Figure 2-6. Marshfield Zoning Map





What is zoning?

Modern zoning began in the early 1900's in response to the location of potentially incompatible and noxious land uses next to commercial and residential areas. The Zoning Bylaw has evolved over the years as a means to limit the types of land uses that could locate in a particular area of the municipality, resulting in a separation of uses. Ideally, the Master Plan is the blueprint for the Town and the Zoning Bylaw is the regulation that implements the plan. Typically, a Zoning Bylaw regulates land use by:

- Specifying and distinguishing different land use types;
- Creating development standards for the size and shape of lots and the buildings erected on those lots;
- Addressing lots, buildings and uses that pre-dated the adoption of the zoning ordinance (non-conformities);
- Establishing criteria for the evaluation of permit applications for new buildings;
- Establishing procedures for permitting uses not specifically allowed by right;
- Defining terms that have specific meanings under the ordinance; and,
- Creating a map that displays the geographic extent of each zoning district.



Residential

The residential zoning districts in Marshfield consist of R-1 (Residential Rural), R-2 (Residential Suburban), R-3 (Residential Waterfront), and RB (Residential Business) uses. These are identified on the Table of Use Regulations. The Town has three different lot sizes for residential single family construction. The Town allows for attached residential housing by special permit and multi-family mixed use in the PMUD and BRVO overlay districts. An overview by district is provided below.

Single Family Residential (R-1, R-2, and R-3)

Most land in Marshfield lies within these residential zoning districts which allows single-family dwellings. The main difference between these single family residential districts (R-1, R-2, and R-3) are how densely developed the properties can be. Specifically, the minimum lot sizes range from almost 1 acre (43,560 square feet) for R-1 to just under one-half acre (20,000 square feet) for R-2, and less than one-quarter of an acre for R-3 (10,000 square feet). These districts also allow churches, preschools, parks, libraries, municipal buildings, farms, and daycare centers. They also allow up to two lodging units in an existing dwelling. In addition, age restricted attached (up to four units per acre), accessory apartments, home occupations, commercial greenhouses and certain recreational uses are allowed by special permit.

The R-1, large-lot rural zoning, comprises the majority of the Town toward the north. The southern end of Town is more densely zoned R-2 land. The eastern edge of Marshfield along the ocean front from Grandview Avenue along the South River to Rexhame to Green Harbor is the most densely developed on smaller lots and is zoned R-3.

RB (Residential Business)

Residential Business is allowed in the area adjacent to the corridor of Ocean Street between the Downtown to the eastern side of Town at approximately Marshview Drive. The RB designation specifically allows for business uses on the ground floor and a single accessory residential unit within the structure, with sufficient on-site parking for both uses.

Residential Accessory Apartments

The Town's zoning allows for accessory apartments by special permit in single family homes so long as the additional unit remains subordinate to the principal dwelling unit and maintains the appearance of a single-family house. The apartment can contain no more than forty percent (40%) of the total living area of the dwelling.

Age-Restricted Adult Village

These planned communities are allowed by special permit only. They must be at least six (6) acres in size, no more than 35 feet in height. The ARAV allows one dwelling unit per acre by right as well as additional density for affordable housing. The development must preserve at least fifty percent (50%) of the tract of upland natural open space as common open space or be deeded to the Town as a conservation restriction.

Commercial/Industrial

Business – Mixed Use (B-1)

This district allows a variety of commercial uses and allows the conversion of upper floors for residential use where the first floor is devoted to commercial uses. It allows by special permit more than one permitted principal use in one building. It allows businesses with a maximum floor area limitation of 8,000 sq. ft. by right and those businesses over this amount by special permit. The B-1 district does not permit certain uses that are not compatible with the existing Downtown, such as manufacturing, heavy industrial uses, junkyards, and agricultural uses. The B-1 district includes the Downtown area along Ocean Street and the Webster Street Square area.

Business – Highway (B-2)

Located along Route 139/Ocean Street, this corridor district allows for a variety of uses from retail sales, car dealerships, community facilities such as churches and parks, restaurants, greenhouses, and banks. Uses such as drive-in restaurants and single-family detached housing are also allowed by special permit only. Industrial uses are not allowed in this district. Notably, this is the only district in Marshfield that allows hotels.

Business Neighborhood (B-3)

Only one small area in the dense oceanfront Fieldston neighborhood allows B-3 uses such as small-scale retail (8,000 square feet or less), eat-in restaurants, banks, and certain accessory uses such as commercial parking, accessory buildings, and home occupations. It also allows single-family dwellings.

Business - Waterfront (B-4)

The B-4 district is specifically geared toward the small commercial districts within waterfront neighborhoods including Brant Rock, Green Harbor and the Ferry Hill area near the bridge to Humarock. It accommodates smaller scale commercial businesses, retail, and restaurants as well as single-family homes.

Office Park (OP)

A small, triangular office park district is located on the western end of Town along Route 139 near the intersection of Furnace and Forest Streets and across the street from the Furnace Brook Middle School. It allows for limited uses such as

professional and small research offices and funeral homes but does not allow automobile uses such as automobile sales and storage. It allows uses such as veterinary clinics by special permit. The area currently has a tire wholesale business, which is not consistent with the zoning. It does have a veterinary clinic and dental offices, which are consistent with the zoning in this district.

Industrial (I-1)

Marshfield has approximately 420 acres of I-1 land zoned at the entrance to Marshfield on Route 139 and Route 3 which is primarily for industrial uses. The I-1 District allows manufacturing by special permit, as well as a variety of research offices, renewable energy research and development facilities, warehousing, and professional businesses and offices. The I-1 district is mostly undeveloped and considerations for rezoning are presented further in this chapter.

Planned Mixed Use Overlay District (PMUD)

Marshfield's PMUD district was adopted in January 2003 at Town Meeting as a way to encourage mixed use development in the vicinity of the Industrial District on Route 139. The District allows a variety of uses including community facilities such as libraries, churches and parks but most uses are allowed by special



New Development in the PMUD

permit only including industrial, restaurants, retail, hospitals, manufacturing, trade and distribution, and hotels. Only limited residential development is allowed in the form of age restricted adult developments (or senior communities). To enhance the village feeling of the district, it does not allow gas stations, banks or drive-in restaurants. The PMUD was recently expanded in size (210 Acres) and amended to allow residential and mixed uses (up to two stories of residential units above commercial), and to streamline the permitting process. This can now be permitted through a combined Special Permit/Site Plan Review process with the Planning Board. A 40R Smart Growth District is being considered within a portion of the PMUD zoning district.

Airport (A)

The area including Marshfield Municipal Airport runways and terminal is covered by the Airport zoning district. The airport, located with access from Ocean Street is located in the eastern portion of Marshfield. The zoning allows for airport facilities, the renting and selling of aircraft, small offices, parks, churches, licensed day care centers, town equipment storage, and

noncommercial forestry. A variety of other uses are allowed by special permit such as PV installations, wireless facilities, and hotels.

Communication Towers and Wireless Communications Facilities Bylaws

This is an overlay district that regulates where and how wireless communication facilities can be installed. In general, those facilities that comply with certain height restrictions are allowed by right in the Business and Industrial districts, as well as on residential properties by special permit. Wireless Communications Towers are only allowed by special permit in all zones.

Natural Resources

Water Resource Protection District

The purpose of the Water Resource Protection District is to prevent contamination of and preserve the quantity and quality of ground and surface water which provides existing or potential water supply for the Town's residents, institutions, and businesses. The Water Resource Protection District covers over half of the Town and includes all the wellheads. Within this district, single-family residential, recreational, and farming are permitted while prohibited uses include any activities dealing with hazardous waste, landfills, and other high density or high impervious surface uses. Special permit uses include new subdivisions of more than 5 lots, in addition to increases in septic capacity of more than 2,000 gallons of waste water a day. Special permits are administered by the Planning Board which undertakes a Performance and Design Standards process for reviewing development applications for permitted and special permit uses. Special permit uses undergo additional review for nitrogen loading and emergency response plans for industrial and commercial uses.

Storm Water Management Overlay District

The purpose of this Overlay District is to protect, maintain and enhance the public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased post-development storm water runoff and non-point source pollution associated with new development and redevelopment. The Bylaw regulates new construction, the removal of natural vegetation and the excavation of land to minimize erosion, flooding, and water pollution. New development, including new buildings and substantial alterations of sites in these areas, are required to meet performance standards which include; reduce building area, impervious surfaces, and disturbance of vegetation depending on the size of the lot.

Zoning Regulations

The Planning Board acts as the special permit granting authority (SPGA) for the Water Resource Protection District, Age Restricted Adult Villages, Planned Mixed Use Developments, Open Space Residential Developments and Inclusionary Zoning for Affordable Housing developments.

The Zoning Board of Appeals has the authority to grant variances and administer site plan reviews in Marshfield. Site plan approval is required for new dwellings, significant site alterations, excavation that results in changes in topography, removal of five or more mature trees, and increases in impervious surfaces that have the potential to result in flooding that may impact adjacent properties.

In addition, Marshfield zoning requires a traffic impact study for projects within B-1, B-2, or I-1 zoning districts or for developments that are anticipated to have average peak hour trip generation in excess of 80 vehicle trip ends or an average weekday generation in excess of 800 vehicle trip ends. A trip end is a vehicle entering or leaving a property.

Build-out Analysis

A build-out analysis is an assessment of a community's zoning together with an analysis of all available, developable land that allows a community to test out its existing regulations. The build-out analysis here provides a picture of Marshfield's possible future when all land is developed to the maximum extent allowed under law.

Based on the build-out analysis performed by Metropolitan Area Planning Council (MAPC) in August 2013, Marshfield contains a total additional housing capacity of approximately 1,100 units. This means that approximately 1,100 more housing units or structures could be potentially constructed in the Town in the future based on current zoning and parcel configuration. Many parcels scattered throughout Town can handle capacities of one, two to five, or six to ten housing units each. Approximately six parcels contain a capacity of ten to twenty-five units, and four parcels contain a capacity of 25 to 100 housing units. Many of the smaller capacity parcels are located in the northern section of Marshfield, while the larger capacity parcels are located in the southern section. See Figure 2-3 for housing unit capacities per parcel.

The build-out analysis also examined the capacities for affordable housing (inclusionary) and Age-Restricted Adult Village (ARAV) eligible parcels. The ARAV zoning refers to the denser residential development allowed by the Town

for senior community developments. Town-wide inclusionary zoning capacity is approximately 70 units, and ARAV capacity is approximately 220 units. Larger parcels that contain overall greater residential capacities (such as those with capacities of ten to twenty-five or 25-100 units) compared to others, also contain large inclusionary or ARAV capacities (12 or 16-25 units each). Smaller inclusionary or ARAV capacity parcels are scattered throughout the Town. See Figure 2-4 for inclusionary and ARAV capacities per parcel.

Figure 2-3. Build-out Projections, Residential Capacity

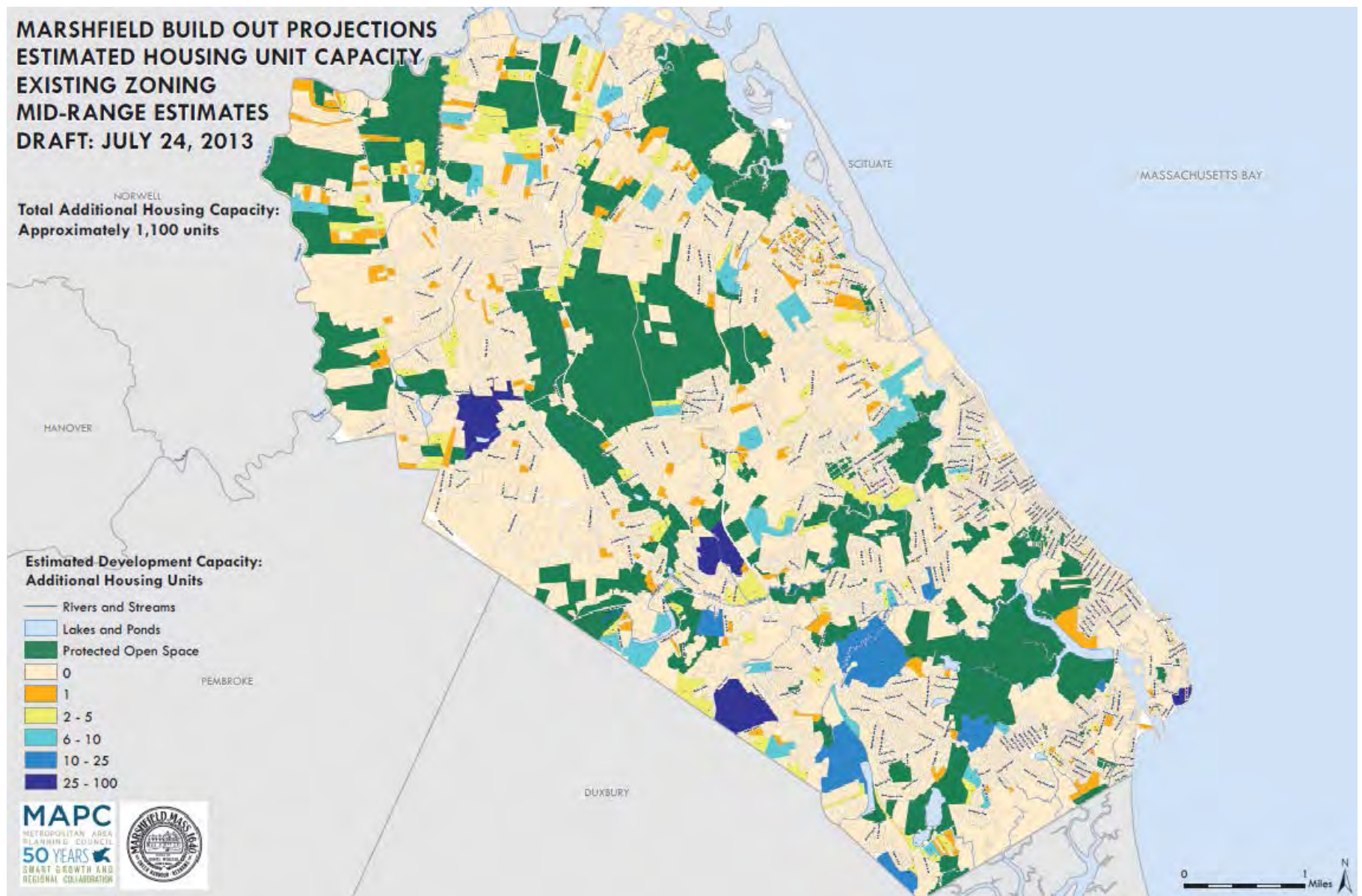
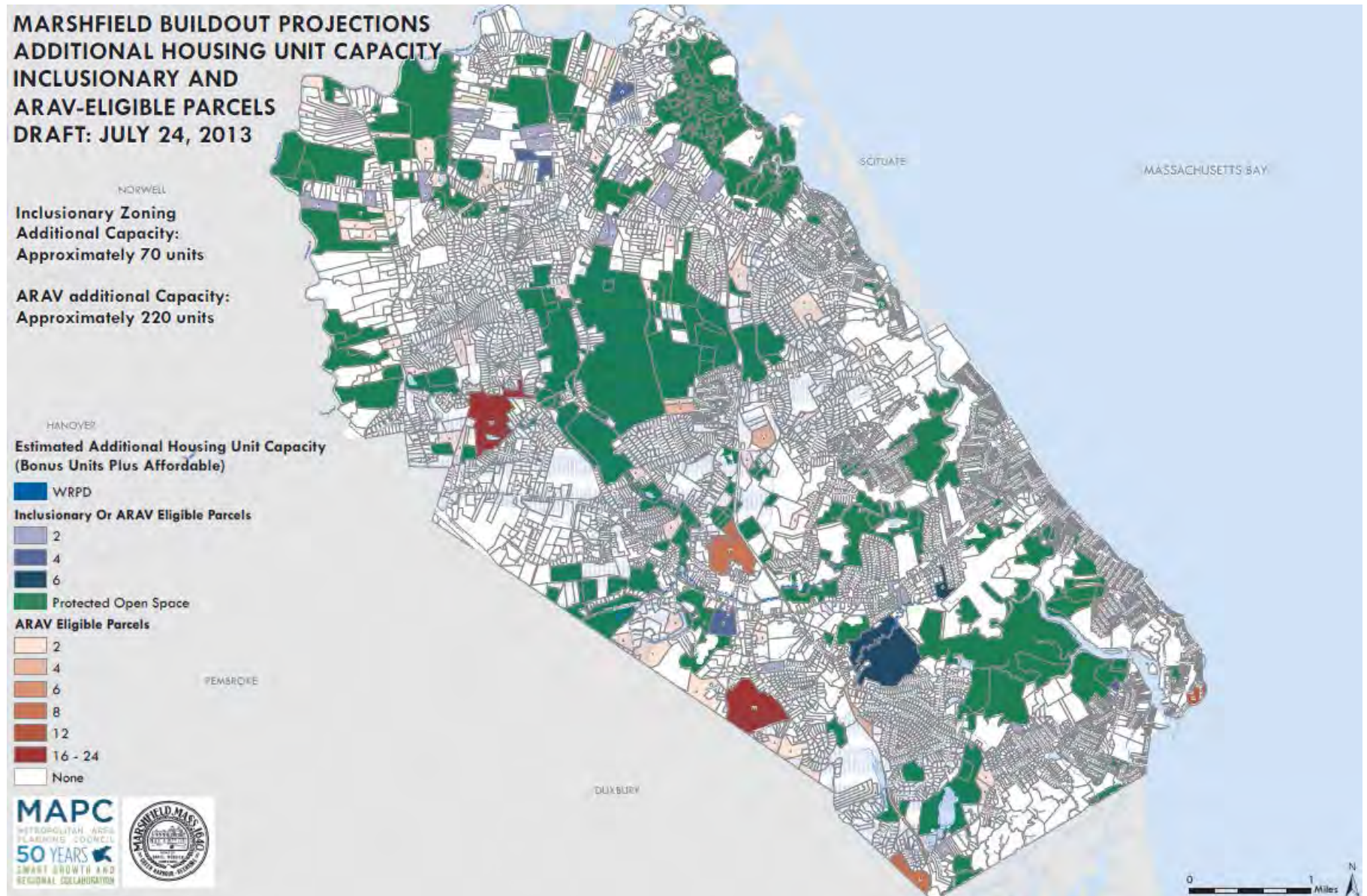
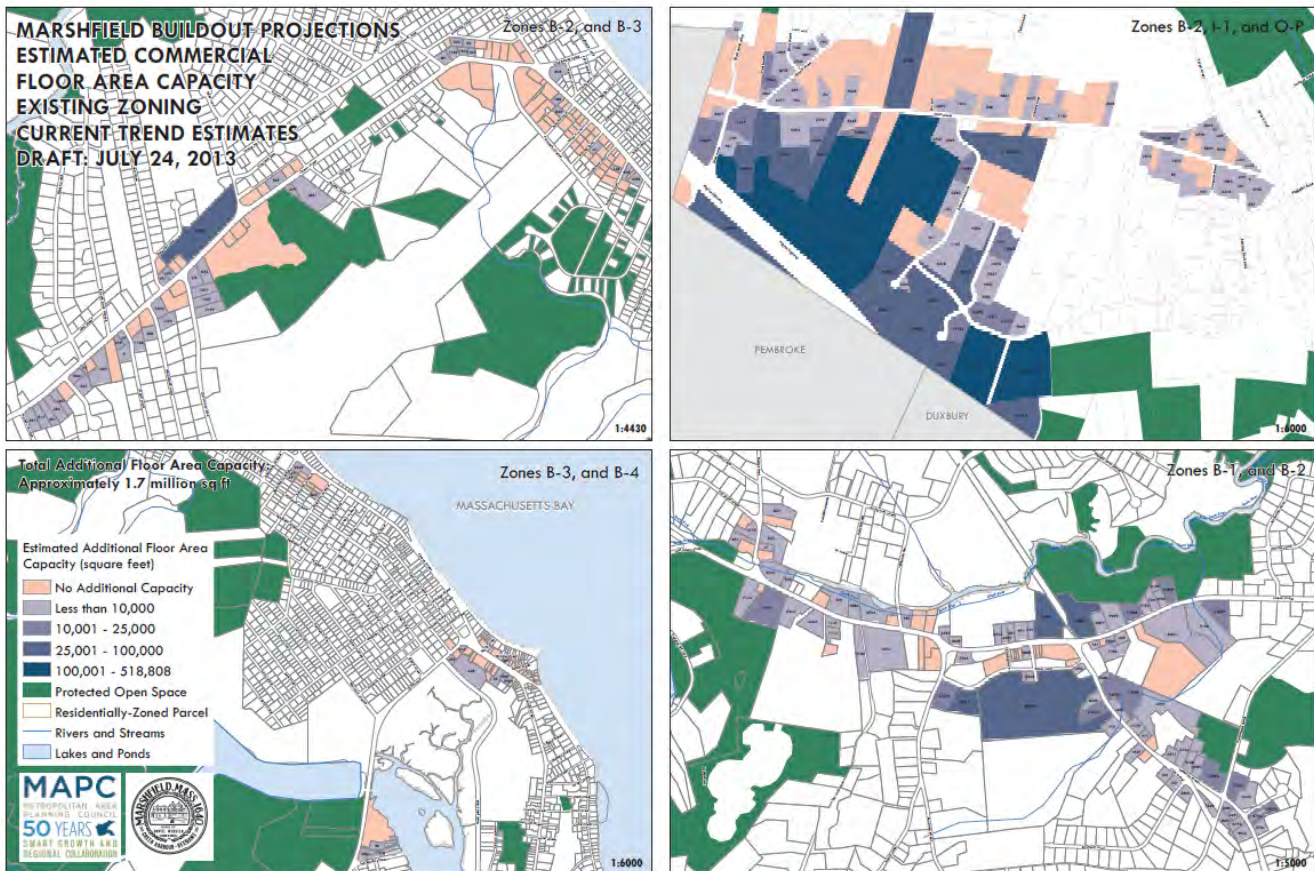


Figure 2-4. Build-out Projections, Inclusionary and ARAV Capacity



There is space available in Marshfield for commercial and industrial uses. While some commercial parcels do not have the potential for any additional capacity, many have the ability to add additional floor area capacities varying from less than 10,000 square feet to 100,000 square feet in zones B-1, B-2, B-3, B-4, and O-P. The Brant Rock commercial district has the smallest capacity for commercial and industrial uses with only a handful of parcels containing less than 10,000 square feet of build-out space. Remaining parcels in this area contain no additional capacity. On the other hand, the industrial area of Marshfield located along Route 139 and Route 3 upon entering the Town, contains parcels with varying capacities. This area also contains the most parcels with the largest capacity for additional floor area (100,001-518,808 square feet range). The Downtown area of Marshfield mainly contains areas with capacities of less than 10,000 square feet. Based on this analysis, Marshfield currently contains a total floor area capacity of 1.7 million square feet, with largest capacities clustered in the industrial zone, middle range capacities located in Downtown, and smallest capacities in the Brant Rock Village Overlay, as shown in Figure 2-5 below.

Figure 2-5. Build-out Projections, Commercial Capacity



Land Use Issues

Marshfield is a town with many assets, and residents all appreciate Marshfield's beaches and small town character. However, there are still opportunities for Marshfield to better showcase its community in a way that increases economic development opportunities and its heritage as one of New England's historic beachside communities. This includes developing strategies to revitalize its Downtown, encourage well-designed commercial, mixed use, and industrial development along the southern section of Route 139 to add to the uses allowed in Marshfield and to encourage the creation of new businesses and create more housing choices for residents.

Site Photos—The Downtown



Downtown Marshfield consists of pockets of mixed-use and commercial development located along Ocean Street within and near Marshfield's Downtown. The Downtown includes the Webster Square area just south of Ocean Street and municipal buildings such as the Town Hall and Library.

Zoning Issues

This section describes some of the issues related to zoning and land development within specific areas of Marshfield and is followed by recommendations to address these issues.

Downtown

While there have been some streetscape and intersection improvements in the Downtown, the entire area lacks a cohesive feel which was noted in public input sessions. Other issues that members of the public noted is that it did not seem like a center or meeting place, and that it seemed “broken up with large parking lots”. Other residents noted that it needed to be more pedestrian-friendly and walkable.

The Downtown’s main corridor, Route 139, contains a series of curb cuts for the automobile related uses from gas stations to auto repair shops, which has a negative effect on walkability and character of the Downtown.

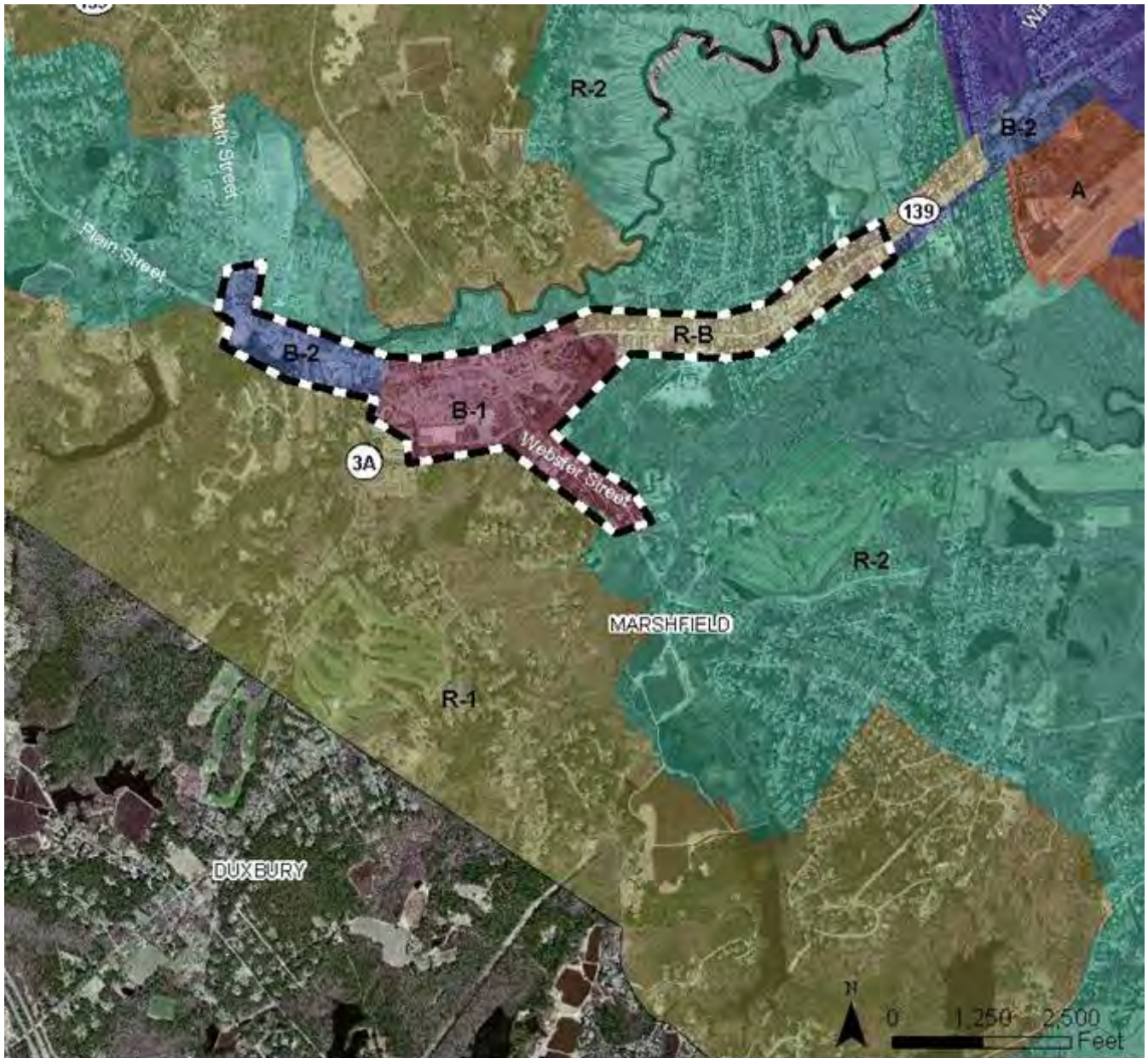
In addition to the design issues posed by the Downtown, there are issues related to stormwater runoff from properties within the Downtown along the South River. These are further described in *Chapter 5, Natural Resources and Open Space*. In particular, there is a section of B-2 zoned land that abuts the South River between Route 3A and the Congregational Church in the



South River Park at Sunrise

downtown area that has a number of gas stations and other uses that impair the water quality in the South River (see Figure 2-7 below). Soil contamination has been documented during the construction of the South River Park when petroleum contamination in the soil was discovered. In addition, this section of Route 139 is not located within a sewer district so that septic systems and surface water runoff within this densely developed commercial strip are having a negative impact on water quality in South River.

Figure 2-7 Downtown Focus Area



Legend

- | | | |
|-------------------------|----------------------------|-----------------------------|
| Downtown Focus Area | B-2: Business Highway | R-1: Residential Rural |
| Town Boundaries | B-3: Business Neighborhood | R-2: Residential Suburban |
| Zoning | | |
| A: Airport | B-4: Business Waterfront | R-3: Residential Waterfront |
| B-1: Business-Mixed Use | I-1: Industry | R-B: Residential Business |
| | O-P: Office Park | |

**Downtown Focus Area
Marshfield, Massachusetts**

Master Plan Update 2013

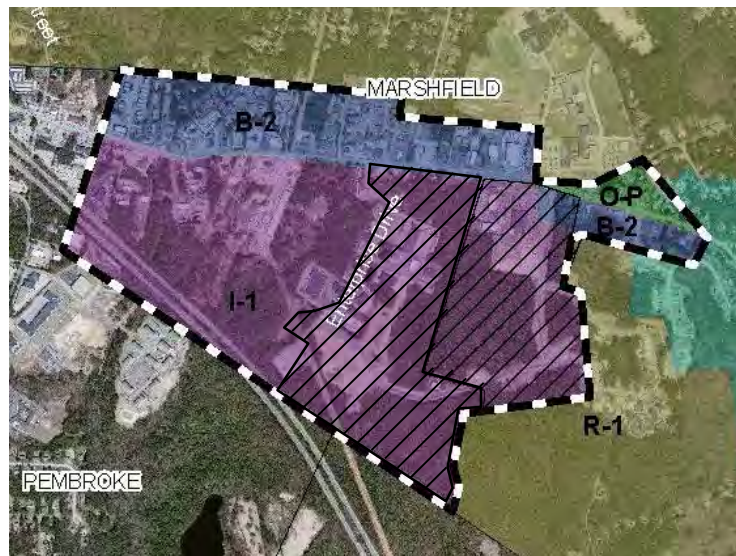
Sea View

A portion of Sea View directly across from Humarock is currently Zoned R-3, which allows for 10,000 square foot residential lots. Unlike the residential area within Brant Rock that is zoned R-3, this residential area is not currently served by sewer. The Holly and Ferry Hill areas have glacial till soils, with lower permeability. Using Community Preservation Act funding, the Town recently approved the purchase of more than 45 acres of land in this area. Septic systems within the Holly and Ferry Hill areas compromise the groundwater within the area and can impact ground water discharges into the South River. While the zoning of Holly Hill allows for smaller 10,000 square foot lots, some of the existing houses are on large lots. These lots could be subdivided in the future as noted in the build out analysis and could result in out of character development for the neighborhood in addition to greater impact to ground water and South River water quality.

Industrial District

Within the Industrial District adjacent to Route 139, there is scattered industrial development which under-utilized this accessible land near the Route 3 exit. As described further in *Chapter 4, Economic Development*, significant new industrial uses in Marshfield are not anticipated, and the district contains undeveloped prime real estate (80 acres by one land owner; over 200 acres total). Figure 2-8 shows the current zoning and Figure 2-9 shows the under-utilized land within the Industrial District. The Town has recently expanded the PMUD Overlay to help allow for more flexibility in future development. The Town should also consider rezoning a portion of the I-1 zone that fronts on Route 139 to Commercial B-2.

Figure 2-8 Industrial Zone (I-1) and PMUD



Note: Striped zoning includes PMUD overlay zone

Figure 2-9 Undeveloped Land with Industrial District



Legend

- Town Boundaries
- Enterprise Park Focus Area
- I-1 Zone
- Undeveloped Land Use within I-1 Zone**
- Forest
- Forested Wetland
- Non-Forested Wetland
- Open Land
- Brushland/Successional
- Water

**Enterprise Park I-1 Zone
Undeveloped Land Use
Marshfield, Massachusetts**

Master Plan Update 2013

Recommendations

As land use and zoning are intimately tied to a community's growth and development, many land use recommendations have been made throughout this Master Plan. See the Housing, Economic Development, and Transportation chapters for additional detailed recommendations.

Land Use (LU) Recommendations:

- LU - 1. Based upon the build-out analysis, inventory all under-utilized properties of 2 acres or more and assess how the property can be developed or redeveloped to maximize its potential land use particularly for commercial, industrial, and mixed-uses.
- LU - 2. Review and revise zoning to encourage reinvestment and redevelopment of existing properties. Such incentives could include density bonuses, streamlined permitting, etc.

Zoning Recommendations

- LU - 3. Update the parking standards and include both minimum and maximum parking standards to avoid areas that are over-parked and to establish a mechanism for reducing impervious coverage for 10,000 square foot residential new developments. This is especially important in the Water Resource Protection District and Storm Water Management Overlay District.
- LU - 4. Revise R-3 zoning for the Ferry Hill area that currently allows 10,000 square foot lots to R-1 (minimum one-acre lot size), to increase lot size in character within this area and minimize impacts to water quality.
- LU - 5. Consider changing a portion (400 feet in depth) of the I-1 district fronting along Route 139 to B-2. Consider changing the PMUD to underlying zoning instead of overlay zoning.
- LU - 6. Review Airport District and consider updating the list of uses to remove daycare facilities as a permitted use.
- LU -7. Consider allowing Hotels or Bed and Breakfast as uses in the Brant Rock Village Overlay district.

Downtown Recommendations

- LU - 8. Develop a Downtown Wayfinding signage program.
- LU - 9. Move forward with design guidelines for major building renovations, streetscape improvements, new construction, and new signage.
- LU - 10. Renovate Downtown sidewalks and incorporate streetscape improvements to provide for a more pedestrian-friendly environment.

- LU - 11. The Town can explore ways to host a regularly occurring (weekly) farmers market in the Downtown area.
- LU - 12. Encourage mixed use development with commercial uses on the first floor and residential uses on the second and third story in the Downtown.
- LU - 13. Encourage streetscape improvements that create gateways to Marshfield along Ocean Street in Downtown.
- LU - 14. Develop a Complete Streets plan for the Route 139/Ocean Street corridor to encourage more pedestrians and bicyclists to frequent the shops and restaurants in the Downtown.
- LU - 15. Revise the use regulations to prohibit auto-dependent uses (gas stations, auto repair, etc.) from the Downtown area.

Route 139 recommendations

- LU - 16. Develop a master plan for the Route 139 corridor that would address uses within the corridor to ensure there is adequate transition between the single family residential and the commercial areas, and that appropriate, possibly mixed use development is allowed.
- LU - 17. Establish access management standards to control curb cuts along the Route 139 corridor.
- LU - 18. Create a river front zoning district or an overlay zone for Route 139/Ocean Street to protect the water quality in the South River, one of the Town's greatest natural resources.

Procedural Recommendations

- LU - 19. For major development proposals, consider having monthly or regular cross-department review meetings with representatives from the Planning Department, Housing, Fire Department, Department of Public Works and Conservation Commission to review issues and make recommendations regarding developer proposals.

Farmland Preservation

- LU - 20. Educate agricultural landowners about the state's voluntary Agriculture Preservation Restriction Program which provides an alternative to selling or developing their land. The program pays farmland owners the difference between the fair market value and agricultural value of their land, and in return, a deed restriction is placed on the land that prohibits uses that would negatively impact the property's agricultural viability.³
- LU - 21. Encourage local agriculture through the development of farmers' markets. The state Department of Agricultural Resources provides technical assistance to people interested in starting farmers' markets.⁴ The Town should also consider establishing additional community gardens on Town-owned land. This could be done on a seasonal basis.
- LU - 22. Encourage development of additional community gardens in Marshfield.

³ Massachusetts Department of Agricultural Resources, Agriculture Preservation Restriction Program, <http://www.mass.gov/agr/landuse/APR/index.htm>

⁴ Massachusetts Department of Agricultural Resources, Farmers' Markets, <http://www.mass.gov/agr/markets/farmersmarkets/index.htm>

3

Housing

Introduction

Marshfield's housing inventory is predominantly composed of single family residential housing. The Marshfield Housing Partnership's current mission is to "identify the needs of residents for affordable housing and develop strategies that are consistent with other town priorities to meet these needs."¹ Described in another way, Marshfield's general housing goal is to provide a variety of housing choices for current and future residents with price and affordability playing a significant role in achieving this objective. The Marshfield Housing Partnership has developed the Town of Marshfield Housing Production Plan, most recently updated in May 2014 from the 2009 Community Housing Plan. The Housing Production Plan has been officially approved by the Department of Housing and Community Development (DHCD) and can be found in the appendix. Many of the recommendations from the Housing Production Plan have been carried forward in this Master Plan and used as a basis for developing additional recommendations. This chapter represents an update of the plan, particularly for demographics and housing data, and was prepared to incorporate recent changes to the requirements set forth by DHCD.

The first section of this chapter provides an overview of the population and household changes that have been occurring in Marshfield, particularly since the adoption of the Housing Production Plan in 2009. It also looks at how the Town's demographics compare to those of the region which includes neighboring towns.



¹ Marshfield Housing Partnership, *Town of Marshfield Housing Production Plan*. March 4, 2009

The next section discusses the type of housing that is available in Marshfield and includes an analysis of housing affordability, as well as key housing issues that have been identified during the public outreach process.

Housing Goals

Marshfield housing choices should be diverse and made available to residents of all income levels. The Town of Marshfield's 2014 Housing Production Plan² lists the following housing goals which are also goals within the Town's 2009 Housing Production Plan and the 2004 Community Housing Plan:

- To meet local housing needs by enhancing housing choices along the full range of incomes and to promote social and economic diversity and the stability of individuals and families living in Marshfield;
- To leverage other public and private resources to the greatest extent possible;
- To ensure that new housing creation is harmonious with the existing community; and,
- To surpass the 10 percent state standard for affordable housing.

In upcoming years, the Town of Marshfield will strive to meet these housing goals by producing more affordable housing and preserving what exists now, and by determining solutions for retaining its youth, elderly, workforce and families through variability of housing stock. Being strategic in initiatives for leveraging both public/private funding and initiatives for investing existing financial resources, and additionally incorporating design characteristics into future affordable housing developments that are in line with the community's character, are also ways the Town can work towards achieving their housing goals.

Population and Demographic Profile

Marshfield's population has grown dramatically since 1940, when the population was just below 2,500 people. It increased by 170 percent to 6,748 in 1960 and another 126 percent to 15,223 in 1970, as shown in Figure 3-1. The rate of growth since then has leveled off somewhat, showing an increase of only 3 percent from 2000 to 2010. According to 2010 United States Census data, the population was 25,132 in 2010.

Since Marshfield is a coastal community, it draws tourists and visitors during the warm summer months.



² Marshfield Housing Partnership, *Town of Marshfield Housing Production Plan*. May 23, 2014

Figure 3-1 Population over Time



With a total land mass of 31.7 square miles, Marshfield’s current population density is 793 people per square mile. This is an increase in density of approximately 3 percent since 2000, when density was 767 people per square mile.

Compared to its neighbors, Marshfield grew more rapidly in the 1970’s and 1980’s, but more slowly since the 2000 U.S. Census as shown in Table 3-1. The highest growth rate from 2000 to 2010 was witnessed by Norwell (an 8 percent increase), while the lowest was observed by Scituate, which only increased by 2 percent. During this same ten year period, Marshfield’s population increased by 3 percent.

Table 3-1 Population Comparisons for Marshfield and Neighboring Communities

Municipality	1970	1980	1990	2000	2010
Marshfield	15,223	20,916	21,531	24,324	25,132
Duxbury	7,636	11,807	13,895	14,248	15,059
Norwell	7,796	9,182	9,279	9,765	10,506
Hanover	10,107	11,358	11,912	13,164	13,879
Pembroke	11,193	13,487	14,544	16,927	17,837
Scituate	16,973	17,317	16,786	17,863	18,133

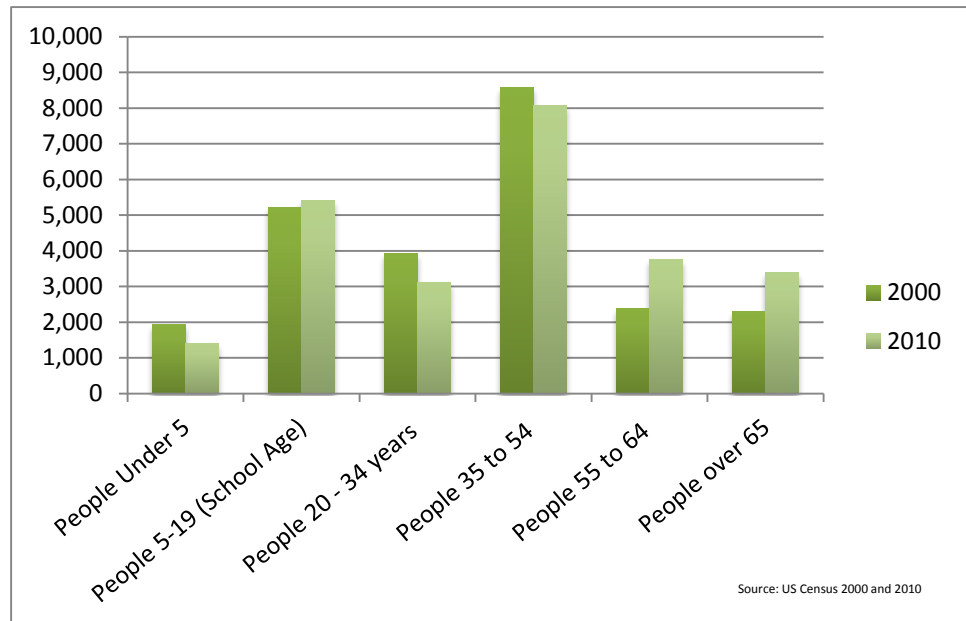
Source: US Census 1970, 1980, 1990, 2000, 2010

Much of the Town’s population is made up of residents between the ages of 35 and 54, making up 32 percent of the total population (according to 2010 U.S. Census data). This percentage decreased slightly since 2000 when this age group composed 35 percent of the population. Percentages of age groups older than 35 to 54 have increased in recent years. For example, the 55 to 64 age group has

increased 5 percent since 2000, and now makes up a total of 15 percent of the Town’s population. Those over 65 years of age have increased 4 percent since 2000, and now make up a total of 13 percent of the Town’s population. These trends can be seen in Figure 3-2. This information suggests that Marshfield’s population is getting older and will continue along that trend, reflecting national and regional trends and the aging of the Baby Boomers. It is anticipated that the number of Americans over the age of 85 will triple from 5.4 to 19 million by 2050.³ This trend towards aging demographics is important to consider when establishing housing and other infrastructure goals for a community. Future plans for Marshfield must consider the implications of an aging population, such as the need for more affordable housing for seniors, increased public transit, proximity to transit and other services, increased and improved social services, etc.

Between 2000 and 2010, the number of children under age five dropped substantially from 1,924 to 1,394 (a 28 percent decrease). This follows a national trend for smaller families because parents are having fewer children. School-aged children increased slightly from 5,224 to 5,402. Overall, as shown in Table 3-2, there was a 6 percent reduction in the number of married couple families with children under 18 years of age. There were slight reductions in the 20 to 34 year old cohort which may be indicative of relocation of younger wage earners and families to other areas where jobs and/or affordable housing are available.

Figure 3-2 Distribution of Population by Age

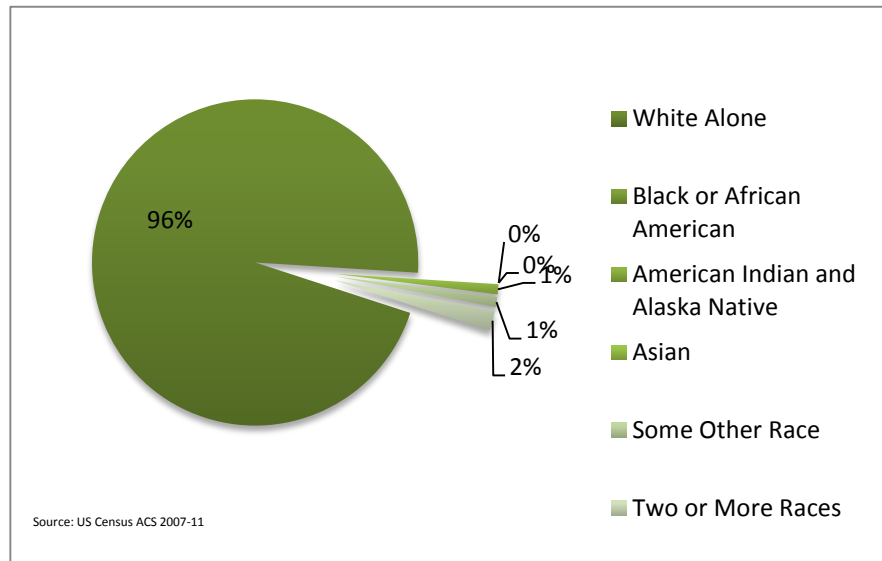


▼
³ U.S. Census, Mitchell Silver, AICP

In terms of gender, Marshfield’s population is almost evenly distributed between men (48.7 percent) and women (51.3 percent).⁴

The Town is also homogeneous racially, with approximately 96 percent of the population identifying as White alone as shown in Figure 3-3.⁵ Approximately 1 percent is Asian, and 2 percent identified as two or more races.

Figure 3-3 Population Comparison by Race (2011)



Households

Marshfield had 9,526 households in 2010 compared to 8,905 in 2000, which represents a 7 percent increase, as shown in Table 3-2. Family households comprise 72 percent of all Marshfield households. Of the family households, 80 percent are married couples and 45 percent have children less than 18 years of age, which represents a slight decrease from the 2000 U.S. Census.

Table 3-2 Household Changes by Type

	2000	2010	Percent Change 2000-2010
Total Households	8,905	9,526	7%
Family Households	6,600	6,879	4%
Married couple family	5,419	5,534	2%
Households with children <18	3,334	3,128	-6%
Nonfamily households	2,305	2,647	15%

Source: US Census 2000 and 2010

⁴ 2010 US Census
⁵ *Ibid.*

Census data confirms that Marshfield’s average household size was 2.63 persons in 2010, as compared with 2.73 in 2000. This is consistent with a trend found throughout the country and reflects that more families are having fewer or no children, that many people are delaying having children until later in life, and an aging population that is staying in place. **In fact, by 2025, the U.S. Census Bureau projects that single-person households will equal the number of families.** Only 13 percent of all households were single-person households in 1960, and by 2000 this number doubled to 26 percent of all households. Marshfield’s average household size is higher when compared to the state of Massachusetts (2.48) and slightly lower when compared to Plymouth County (2.67).⁶

Figure 3-4 below shows the distribution of household size in Marshfield according to the 2010 U.S. Census data. More than a third of the households are two-person households and more than half are households with one or two people.

Figure 3-4 Size of Households (2010)

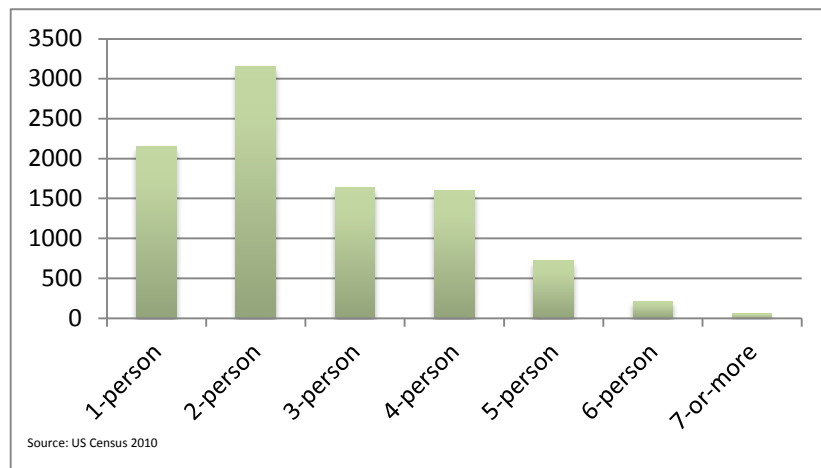


Figure 3-5 and Table 3-3 provide additional detail about the breakdown of household types in Marshfield. Approximately 72 percent of all Marshfield households are considered to be family households, and 58 percent of these are husband-wife families. Single-person head of household families are found in about 14 percent of all households, with 10 percent of them having a female head of household. Children under 18 years of age can be found in 35 percent of all households. Twenty-six percent of all households have people over 65 years residing in the home.

▼
⁶ US Census 2010

Figure 3-5 Households by Type (2010)

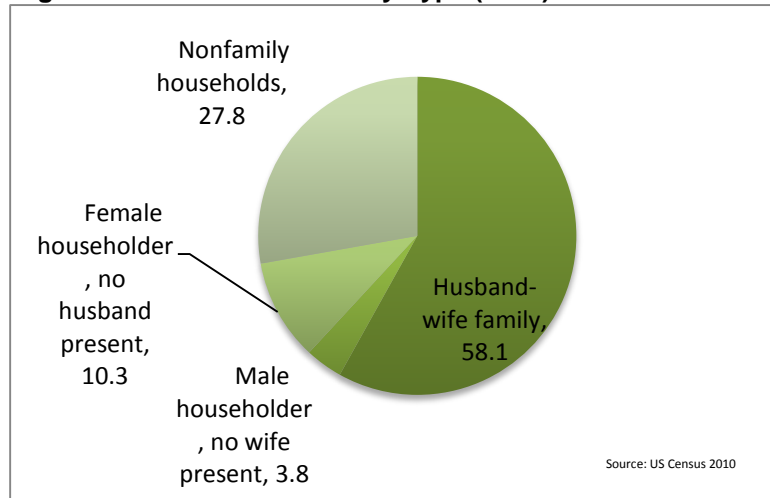


Table 3-3 Detailed breakdown of household by Type (2010)

Household Type	Number	Percentage ¹
Family Households	6,879	72.2
With own children under 18 years	3,128	32.8
Husband- wife family	5,534	58.1
With own children under 18 years	2,494	26.2
Male householder, no wife present	362	3.8
With own children under 18 years	161	1.7
Female householder, no husband present	983	10.3
With own children under 18 years	473	5.0
Nonfamily households	2,647	27.8
Householder living alone	2,151	22.6
Male	884	9.3
Over 65 years	245	2.6
Female	1,267	13.3
Over 65 years	623	6.5
Households with children under 18 years	3,343	35.1
Households with individuals over 65 years	2,484	26.1

Source: US Census 2010

¹ Percentages based on total households in 2010 (9,526)

The following tables and charts summarize household data for both owner-occupied and rental dwelling units in Marshfield. **Of the 9,526 occupied housing units in Marshfield, approximately 82 percent were owner-occupied in 2010.** This equals 7,849 units, which is an 9 percent increase from 2000, as shown in Table 3-4. The number of renter occupied housing units increased very slightly, from 1,672 in 2000 to 1,677 in 2010.

Table 3-4 Housing Tenure

Occupied Housing Units	2000	2010	% change
Owner Occupied	7,233	7,849	9%
Renter Occupied	1,672	1,677	0%

Source: US Census 2000 and 2010

Figure 3-6 shows the distribution of householder age for owner occupied units. A majority of the owner occupied units, 28 percent, contain householders between the ages of 45 to 54. Similarly, Figure 3-7 shows the data for rental units. As with owner occupied units, a majority of the renter occupied units contain householders between the ages of 45 to 54. There are no rental units with householders over the age of 85.

Figure 3-6 Age of Householder: Owner Occupied Housing Units (2011)

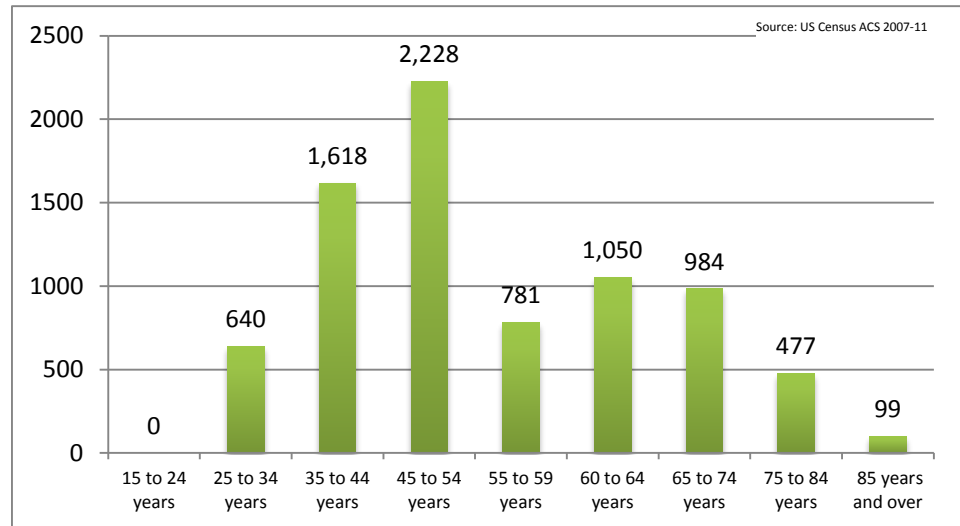
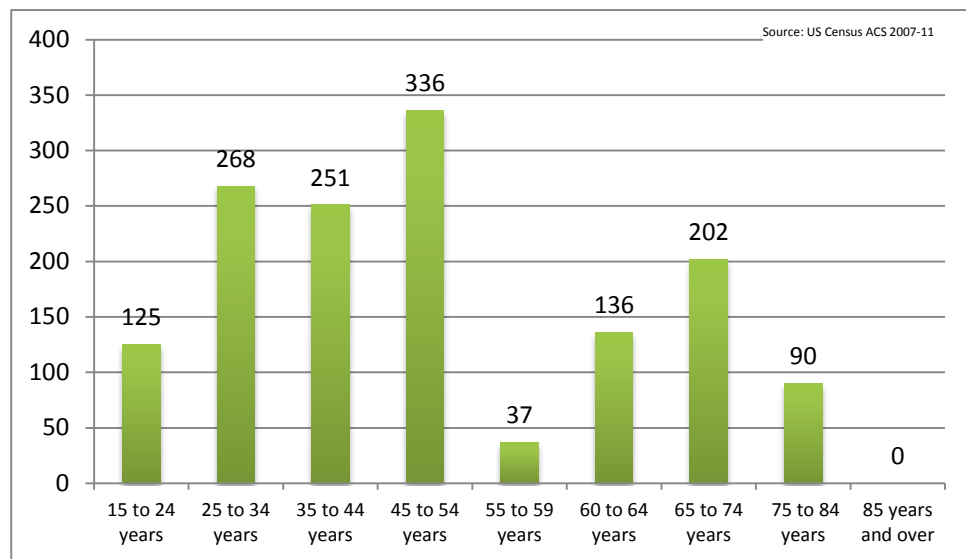


Figure 3-7 Age of Householder: Renter Occupied Housing Units (2011)



Housing Conditions

Household growth is a major driver of housing demand in a community. The number of housing units has increased since 2000 by 10 percent or 986 units. As shown in Table 3-5, there were 9,954 housing units in Marshfield in 2000, with 89 percent (8,905 units) being occupied. More recently, in 2010 there were 10,940 housing units, with 9,518 units or 87 percent being occupied.

Vacancy has increased in the Town since 2000 also. Table 3-5 shows that 1,414 (13 percent) of the available housing units in Marshfield are vacant, and 9,526 of the units are occupied. This large number of vacant units is due to the large number of seasonal housing units available in Marshfield. Marshfield contains a total of 1,088 seasonal housing units or 10 percent of total housing units due to local amenities and beaches.⁷ Therefore, vacancy rates are high during off seasons. Vacant seasonal units increased from 837 in 2000 to 1,088 in 2010.

Table 3-5 Change in Housing Units

Housing Units	2000	2010	# Change	% Change
Occupied	8,905	9,526	621	7%
Vacant	1,049	1,414	365	35%
Total	9,954	10,940	986	10%

Source: US Census 2000 and 2010

In terms of housing type, Marshfield is predominantly home to detached single-family dwellings (83 percent). The remainder of the units are multi-family dwellings.

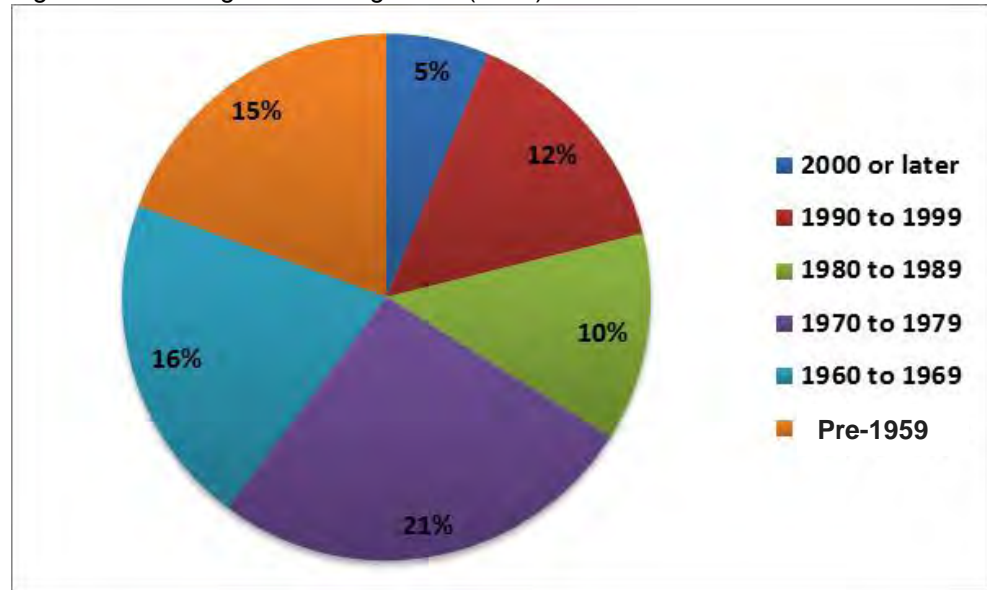
Marshfield's housing stock consists of older housing with development slowing down after 1980. The largest portion of the Town's housing stock (37 percent) was built between 1960 and 1979. Another 37 percent was built prior to 1960, and only 28 percent has been built since 1980, in the past 30 years.

As shown in Figure 3-8, only 16 percent of the housing stock was built prior to World War II, but the number of housing units more than doubled between 1940 and 1959. (Note: 446 homes were replaced after the 1941 Brant Rock Fire). Housing development increased dramatically during the 1970s (21 percent of the housing stock), but slowed down to half that rate during the 1980s. Between 2000 and 2010, the rate of housing development was at its lowest rate, with only 5 percent of the housing stock built during that most recent decade. This is partially the result of the recession as well as zoning and infrastructure constraints, and the fact that the Town is approaching buildout.



⁷ US Census 2010

Figure 3-8 Age of Housing Stock (2011)



Source: American Community Survey, 2007-2011.

Housing Market

Home Sales Prices and Rental Costs

The sales prices of homes in Marshfield show similar trends to other communities affected by the national economic recession. Since 2000, prices of homes have increased by 83 percent until 2005, when prices began to drop. The median single-family home price in 2000 was \$235,500, as shown in Table 3-6. In 2005, prices were at a high median price of \$432,000. Seven years later, in 2012, median prices of single-family homes in Marshfield dropped 24 percent to an average of \$328,500.

Sale prices of condominiums in Marshfield generally followed a similar path as single family homes in the Town. In 2000, the median price of a Marshfield condominium was \$79,900. Condo pricing increased from 2000 by an astonishing 426 percent until 2005, when prices began to drop. In 2005, condo median prices were at a high of \$420,000. By 2012, prices decreased 33 percent to \$282,500. (Note: A number of new construction Aged Restricted housing (attached) units were built in 2004 and 2005.)

Median single family home prices in the towns surrounding Marshfield within Plymouth County were generally lower, but followed similar patterns of

increasing until 2005 and then decreasing. Condos within Plymouth County were generally higher compared to Marshfield with the exception of the years 2005 and 2006, when Marshfield condo prices increased dramatically, surpassing those of surrounding communities. The most recent 2012 data shows that condominium prices in Marshfield and Plymouth County are rebounding and beginning to increase.

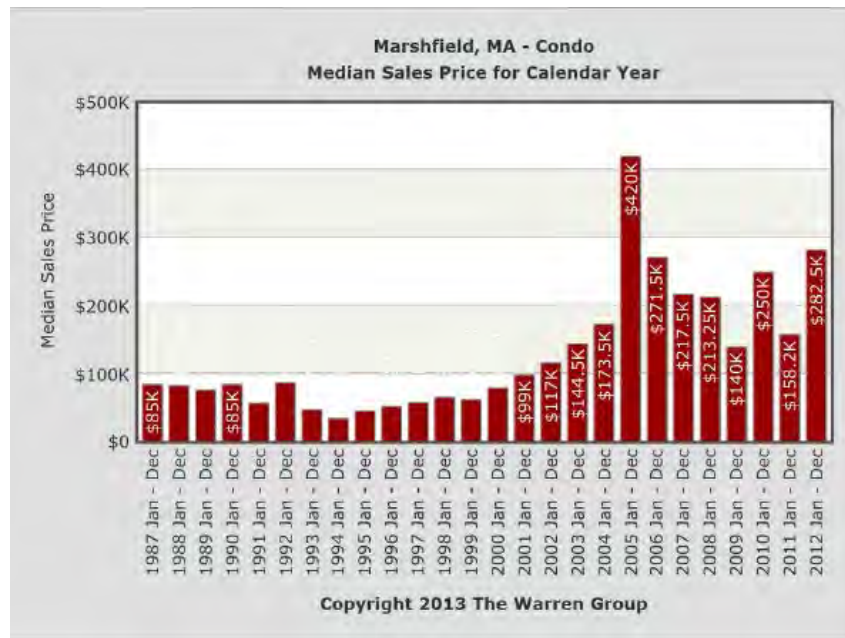
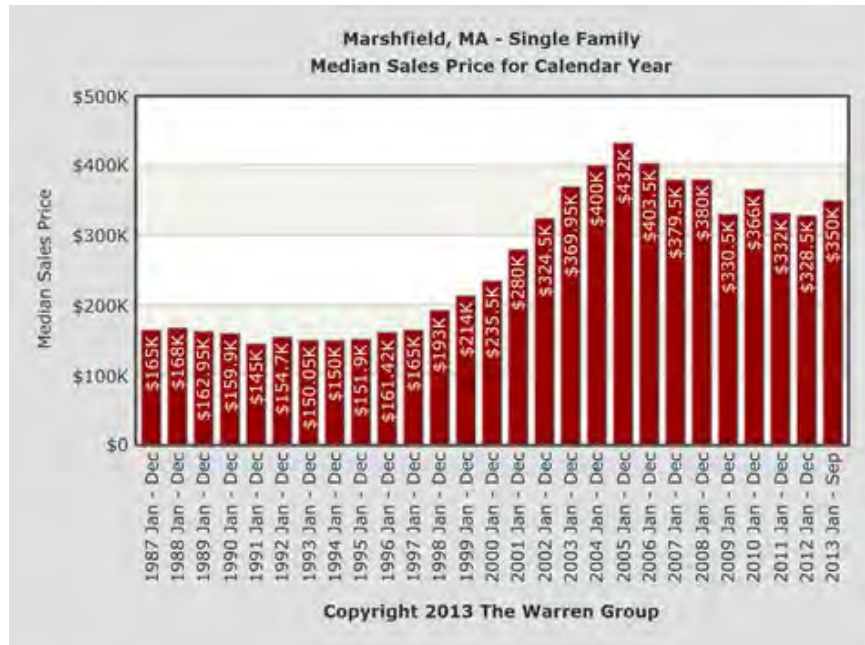
Figure 3-9 displays the median home price trends for Marshfield single family homes and condominiums from 1987 through 2012.

Table 3-6 Median Home Prices in Marshfield and Plymouth County

Year	Marshfield Home Median Price	Plymouth County Median Home Price	Marshfield Condominium Median Price	Plymouth County Median Condominium Price
2000	\$235,500	\$193,000	\$79,900	\$123,300
2001	\$280,000	\$225,000	\$99,000	\$140,300
2002	\$324,500	\$265,000	\$117,000	\$179,900
2003	\$369,950	\$300,000	\$144,500	\$215,000
2004	\$400,000	\$335,000	\$173,500	\$260,000
2005	\$432,000	\$350,000	\$420,000	\$269,900
2006	\$403,500	\$345,000	\$271,500	\$265,000
2007	\$379,500	\$343,000	\$217,500	\$254,469
2008	\$380,000	\$300,000	\$213,249	\$235,900
2009	\$330,500	\$275,000	\$140,000	\$210,500
2010	\$366,000	\$274,747	\$250,000	\$221,225
2011	\$332,000	\$270,000	\$158,200	\$199,900
2012	\$328,500	\$266,500	\$282,500	\$216,250

Source: Warren Group

Figure 3-9 Median Home Price Trends in Marshfield



Somewhat similar to single family and condominium home prices, median gross rental costs have increased in the past 20 years in both Marshfield and Plymouth County. Since 1990, Marshfield rental costs have increased by approximately 91 percent from \$634 in 1990 to \$1,212 in 2011. As shown in Table 3-7 below, Marshfield median gross rental costs are on average about 15 percent higher than that of the surrounding area within Plymouth County.

Table 3-7 Median Gross Rental Costs in Marshfield and Plymouth County

Year	Marshfield Median Gross Rental	Plymouth County Median Gross Rental
1990	\$634	\$525
2000	\$767	\$679
2011	\$1,212	\$1,088

Source: US Census 1990, 2000, and 2011 American Community Survey (5-year estimate); 2009 Marshfield Housing Production Plan

Since the condo data prices were disproportionately affected by the sales of luxury over-55 condominiums after 2005, the following analysis will focus on single-family house prices which were not subject to quite as large of a distortion due to an influx of upper end units.

After a decline in market prices between 1988 and into the early 1990's, due largely to the economic slump, the market began to revive in 1995 but did not surpass the 1988 high until 1998, a full decade later. Since then the market has escalated precipitously, up 123% from \$193,000 in 1998 to \$432,000 by 2005 – an annual appreciation rate of more than 12% per year for 7 years! Since 2005, single-family home prices have dropped by 19% bringing them back to the level they were at 10 years ago. While this is a difficult situation for homeowners who purchased at or near the peak, prices have risen 6.7% over the last year which cuts the losses that many experienced.

Another analysis of housing market data is presented in the following two tables, which demonstrate the escalation of housing market prices based on sales data over the past five years from the Multiple Listing Service for single-family homes and condominiums:

History of Sales by Price 1998-2013 Single-family Sales

Sales Price	1998	2002	2008	10/2012-10/2013
Under \$100K	19	1	1	0
100-200K	1	20	2	1
200-300K	1	10	4	6
300-400K	5	92	6	7
400-500K	2	47	4	4
500-600K	3	33	1	3
600-700K	1	12	1	7
700-800K	1	9	5	8
800-900K	0	5	4	4
900-1,000,000	0	2	1	0

Over 1,000,000	1	3	0	4
TOTAL	4	32	195	273

Source: Multiple Listing Service

What stands out so clearly in the above table is the rapidly declining numbers of sales in the “affordable” range of \$200,000 or less, the steep increases in the number of sales in the higher price ranges, and the abrupt slowdown in the overall number of sales from 2002 to 2008. Over the past fifteen years there has been a virtual drain on the availability of homes in the affordable range, priced at \$200,000 or less, with 217 units sold under \$200,000 in 1998, 21 in 2003, 3 in 2008 and 17 in 2013. At current median income and interest rates, some houses selling for less than \$300,000 are affordable to households at or below 80% of median income; however, the sales of houses in that price range is also in decline. In 1998 and 2002, sales in the \$200-\$300,000 range accounted for roughly 30% of all sales, but in 2008 and 2013, that figure dropped to 25%.

The escalating value of condominiums from 1998 to 2002 is clearly demonstrated in the following table; however, the addition of luxury over-55 condos priced in the 400,000 - \$550,000 range after 2005 have made it difficult to draw any conclusion other than to note that they exist.

History of Sales by Price 1998-2013 Condominium Sales

Sales Price	1998	2002	2008	10/2012 10/2013
Under \$100K	30	6	1	11
100-200K	9	27	10	7
200-300K	1	5	3	1
300-400K	0	0	11	5
400-500K	0	0	0	14
500-600K	0	0	0	4
>600K	0	0	0	1
TOTAL	40	38	25	32
Average List	82,337	138,131	287,920	301,190
Average Sales	78,098	136,560	281,012	294,150
Average	98	27	177	

Source: Multiple Listing Service

While the sales prices of condominiums are significantly more affordable than single-family homes (except for market-rate over-55 condos), their values have grown robustly from 1998 to 2002 (and a bit beyond) but have since moderated. It should also be noted that the numbers of condo sales in the higher price range increased significantly with only one unit sold above \$200,000 in 1998 to 13 in 2008 and 25 in 2013. It is important to note that roughly half of the condos that were sold last year were priced within the means of those households earning at or below 80% of area median income, and these units represent opportunities within the town's homeownership market for starter households or first-time homebuyers as well as seniors looking to downsize.

Rentals

The 2010 census indicated that the median gross rental was \$1,212, up 58% from the 2000 median rent of \$767. The median rents are likely to be skewed to the low end of the market range as the census includes subsidized rents in addition to market rentals. Of the 1,384 rental units analyzed, 203 units, or 14.7%, rented for less than \$750, documenting the existence of some affordable rental opportunities in Town. At the other end of the range, 28.3%, or 391 units, were rented at more than \$1,500 per month.

Housing Needs Assessment

The Marshfield Housing Authority and Marshfield Housing Partnership are the responsible Town bodies in charge of implementing and maintaining an affordable housing program in the community. The Housing Authority is responsible for approximately 103 units of state elderly/disabled housing and 16 units of family housing (2-4 people).⁸ Income limits in order to qualify for affordable housing in Marshfield is \$47,150 for one person, and \$89,950 for up to eight people. Marshfield's current waiting list to receive affordable housing is divided into three groups; families, elderly, and non-elderly/disabled. The following are approximate wait list times for Marshfield affordable housing.

- Families
 - Marshfield residents: 3-5 years
 - Non-Marshfield residents: 7-10 years

- Elderly
 - Marshfield residents
 - Second floor housing: 0-3 months
 - First floor housing: 1-2 years
 - Non-Marshfield residents: 3-5 months

- Non-elderly/disabled
 - Marshfield residents: 5 years
 - Non-Marshfield residents: 7 years

The Marshfield Housing Partnership and Housing Authority offer the Marshfield Housing Opportunity Purchase Program (MHOPP), a financial assistance program for low-income first-time homebuyers to purchase single-family homes or condominiums in Marshfield. Eligible applicants (household income must be at or below 80% of area median income to qualify) would apply for the program and be placed into a lottery drawing. Winning applicants, upon successful completion of a Homeownership Education Workshop and submittal of required documentation, receive down payment and closing costs grant funds during closing of their new home (and may receive additional potential cost benefits, such as elimination of mortgage insurance requirements). The program has been successful in creating affordable housing units out of existing stock by tying an Affordable Housing Restriction to the property deed in perpetuity. The restriction ensures if the property were to be placed on the market in the future, it would be listed at an affordable market price and sold to another income-eligible first-time homebuyer. To this date, Marshfield has developed 17 affordable units through the MHOPP program.



⁸ Town of Marshfield Housing Authority

A housing needs assessment examines the overall demographic profile of Marshfield, along with the household income of the population and housing costs to determine how the Town can best meet its needs for providing a diverse and affordable housing stock for its citizens. Based upon the information provided above by the Marshfield Housing Authority and in the Housing Needs Assessment of the Town of Marshfield's 2009 Housing Production Plan, the following are several major findings related to Marshfield's population and housing needs:

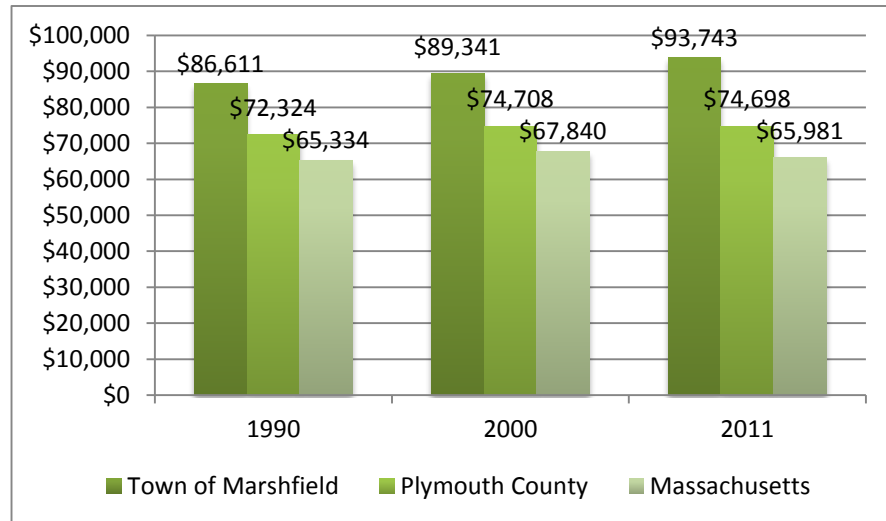
- The state goal for affordable housing under Chapter 40B requires 10% of a community's year-round housing stock to be affordable. According to the DHCD Subsidized Housing Inventory, as of April 30, 2013, Marshfield had 9,852 year-round housing units, therefore creating a goal of 985 affordable units.⁹ Marshfield currently contains 544 affordable units (5.5 percent), leaving a gap of 441 units.¹⁰ This gap is projected to increase at the next decennial Census count when, based on estimates of population and buildings, the number of year-round housing units will increase, and therefore the affordability needs and goals will also increase.
- Marshfield median household income for 2011 was \$93,743. For Plymouth County, the 2011 median household income was \$74,698 and it was \$65,981 throughout Massachusetts. Figure 3-10 presents the median household income for Marshfield, Plymouth County, and Massachusetts adjusting to 2011 dollars to account for inflation using the Consumer Price Index (CPI-U) published by the Bureau of Labor Statistics. When accounting for standard consumer price inflation on goods such as food, housing, and transportation, real household income has been increasing from \$89,341 in 2000 to \$93,743 in 2011, as shown in Figure 3-10.



⁹ Massachusetts Department of Housing and Community Development, Subsidized Housing Inventory. <http://www.mass.gov/hed/community/40b-plan/subsidized-housing-inventory-shi.html>. Accessed February 2013.

¹⁰ Town of Marshfield Housing Partnership.

Figure 3-10 Median Household Income in Marshfield, Plymouth County, Massachusetts (adjusted to 2011 dollars)

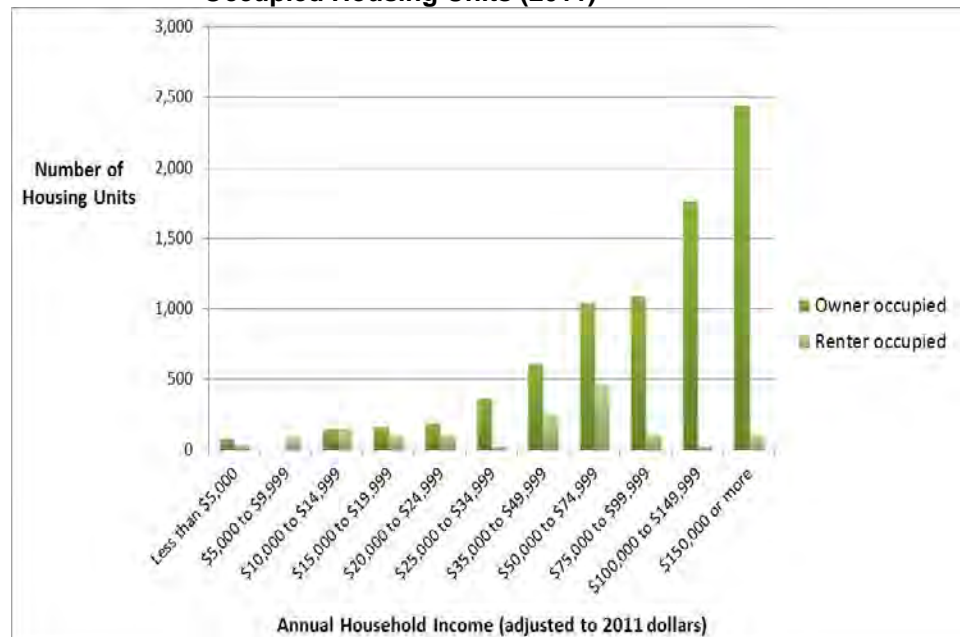


Source: US Census 1990, 2000, and ACS 2007-2011

Note: Income adjusted using Northeast CPI-U (Consumer Price Index for All Urban Consumers) 2011 dollars.

Figure 3-11 illustrates the distribution of median household income for renter and owner occupied housing in Marshfield.

Figure 3-11 Household Income Distribution for Renter and Owner Occupied Housing Units (2011)



Affordability Gap

The Massachusetts Department of Housing and Community Development recommends sales prices for low and moderate income housing units to be set such that they are affordable to a household whose income is between 70 percent and 80 percent of area median income (AMI). The difference between a community's median housing sale price and the price affordable to a low or moderate income homebuyer is known as an affordability gap. The following demand analysis assesses the gap between actual home sales prices in Marshfield and the housing that low-income homeowners and renters can actually afford. According to the Massachusetts Housing Partnership and as shown in Table 3-8, the average 4-person low-income household in Marshfield earns an income limit of approximately \$67,350 based on the AMI.

Table 3-8 2013 Income Limits for Affordable Housing in Marshfield

Area Median Income	1-person	2-person	3-person	4-person	5-person	6-person
80% AMI	\$51,400	\$53,900	\$60,650	\$67,350	\$72,750	\$78,150

Source: Massachusetts Housing Partnership http://www.mhp.net/uploads/resources/softsecond_income_limits.pdf. Accessed August 2013.

In order for a housing unit to be considered affordable, a household would have to pay no more than 30 percent of its income towards housing costs.¹¹ Using the income limits explained above, a 4-person low-income household could comfortably afford \$1,684 a month for housing costs. Based on these numbers and using maximum sale price models from the Executive Office of Housing and Economic Development, the maximum sales price of a home in Marshfield was calculated for a low-income 4-person family.

Table 3-9 Affordability Gap Analysis for Housing Units

Housing Cost	
Maximum Sales Price of Home	\$190,000
Down Payment 5%	\$9,500
Mortgage Amount	\$180,500
Principal and Interest	\$1,111.37
Real Estate Taxes	\$222.00
Private Mortgage Insurance	\$117.00
Homeowners Insurance	\$63.00
Association/Condo Fee	\$170.00



¹¹ Executive Office of Housing and Economic Development. <http://www.mass.gov/hed/community/40b-plan/sale-prices-and-rents.html>. Accessed August 2013.

Total Monthly Housing Costs	\$1,683.37
# of Bedrooms	3
Household Size	4
80% AMI/Low Income Limit	\$67,350
Target Monthly Housing Costs¹	\$1,684

Sources: EOHED Maximum Sales Price examples; Massachusetts Housing Partnership; VHB 2013
<http://www.mass.gov/hed/community/40b-plan/sale-prices-and-rents.html> (Accessed August 2013)

¹ 30% of Low Income Limit divided by 12 months (67,350 x .30)/12=1,684

As shown in Table 3-9, a 4-person low income household can afford a home with a maximum sales price of \$190,000. Comparing this number to the median sales price of a single-family home in Marshfield in 2012 (\$328,500) shows that there is a \$138,500 affordability gap for low-income households. The affordability gap for condominiums is slightly less at \$92,500 (median condominium price in 2012 was \$282,500).

Performing a similar analysis for rental housing in Marshfield demonstrates an affordability gap of \$152 when using current rental data from Zillow. As shown in Table 3-10 below, a two-person, low-income household can afford to rent an apartment for \$1,348 a month if utilities are included; \$152 less than current market-rate rents taken from Zillow. When comparing the target monthly renting costs to 2011 census data, an affordability gap does not exist.

Table 3-10 Affordability Gap Analysis for Rental Units

Housing Cost	
Market-Rate Rent (Zillow)	\$1,500
Household Size	2
80% AMI/Low Income Limit	\$53,900
Target Monthly Renting Costs¹	\$1,348
Affordability Gap (per Month)	\$152

Sources: Massachusetts Housing Partnership; VHB 2013; Zillow
http://www.zillow.com/local-info/MA-Town-of-Marshfield-home-value/r_397306/#metric=mt%3D46%26dt%3D1%26tp%3D5%26rt%3D8%26r%3D397306%252C396798%252C1642%252C396793%26el%3D0 (Accessed August 2013)

¹ 30% of Low Income Limit divided by 12 months (53,900 x .30)/12=1,348

Based on this affordability gap analysis, a low-income family cannot comfortably afford the average home in Marshfield, as a \$138,500 gap exists between the median sales price of a home and the maximum sales price of a home that low-income families can afford. Rental units are more appealing to low-income families, as the affordability gap for these units is only \$152.

Housing Recommendations

The following housing recommendations were created based on the above housing analysis and the draft 2014 update of the Marshfield Housing Production Plan. The recommendations in the Housing Production Plan provide additional detail and are incorporated by reference here.¹² These recommendations are suggested for the Town of Marshfield in order to improve the existing housing stock within the community.

H.1 Meet the 10% goal for housing affordability under Chapter 40B.

- Inventory town-owned land and tax title property to identify potential parcels for use as affordable housing sites which can be developed/rehabilitated by the Town or private developers.
- Create a policy whereby projects with a certain amount of on-site affordable housing receive priority for sewer service.
- Review and revise the Inclusionary Zoning Bylaw. The Bylaw allows a modest increase in density and increased flexibility in setback and frontage requirements in order to provide developers with an opportunity to obtain approval for an additional market rate unit when they agree to build an additional affordable unit. The Bylaw also includes innovative options for developers to fulfill the affordable requirement through the payment of an in-lieu fee or the provision of off-site units.

To date, this has not yielded any new affordable units. The Town should consider making this provision mandatory in order to provide that 10 percent of all new units be considered affordable. Incentives such as the density bonus may need to be increased and they can be used to encourage developers to provide additional units beyond the minimum 10 percent requirement.

H.2 Provide high-quality affordable housing in attractive neighborhoods through modification of zoning bylaws, regulations and programs. Ensure that housing choices are available to meet the needs of current and future generations of Marshfield.

- Encourage more mixed-use and infill development where appropriate, mainly in the Downtown, Planned Mixed Use Development overlay district, and the B-4 zoned areas in Brant Rock. This encourages the reuse of vacant or under-developed parcels and can allow for development at higher densities where the infrastructure can support it. Mixed-use development helps to diversify the housing stock by creating dwelling

▼
¹² See the 2014 Marshfield Housing Production Plan which is in draft form as the master plan is being prepared.

units that tend to be smaller and more affordable, either as rental or for-sale units.

- Consider revising the Zoning Bylaw to encourage the development of a greater range of dwelling types in order to increase these types of affordable units.
- Adopt housing design guidelines for privately sponsored affordable housing development. The result of adopting design guidelines is to encourage developers to design and plan for residential development that is more consistent with what the community seeks in affordable housing. These guidelines can address issues relating to scale, siting, density, levels of affordability, location and design.
- Consider revising the current Accessory Apartment Bylaw. The current Zoning Bylaw allows accessory apartments only for existing, owner-occupied, single-family residences by a special permit. The Town could consider allowing them in certain districts by right. Additionally, the Town should revise this Bylaw to allow accessory units in newly constructed dwelling units, provided they meet the current zoning standards for accessory apartments. This could include the development of separate buildings as accessory apartments by special permit on lots over a certain size.
- Review the feasibility of pursuing housing in the Town Center and other areas such as Brant Rock. Any redevelopment plans involving the Town Center should promote the incorporation of affordable housing.

H.3 Build capacity to promote affordable housing activities locally.

- Continue to hold educational campaigns for affordable housing. The Town has held general informational sessions in the past on resources available for affordable first time homebuyers. Marshfield should continue doing these to increase awareness of affordable resources.
- Hold educational programs for preventing and dealing with foreclosure. Doing this will help retain the Town's residents and increase the awareness of foreclosure resources.
- Continue to fund the Town's Housing Coordinator position, as this has proven to be beneficial for providing expertise in the affordable housing field.

4

Economic Development

Introduction

The following chapter explores the state of the local economy in Marshfield, identifies the community's economic development goals as expressed through the planning process that was undertaken for this Master Plan Update, and suggests potential implementation strategies that could be undertaken by the Town to help advance its economic development goals. As part of the Master Plan Update, the Town contracted with the Northeastern University's Dukakis Center for Urban and Regional Policy to complete an Economic Development Self-Assessment Tool (EDSAT) report in November 2013. The analyses in this chapter draw from the findings of the EDSAT report, a review of Building and Zoning Approval data from J. Markarian (June 2015), an earlier 2005 Market Potential Analysis prepared by Bonz and Company, Inc., an assessment of Marshfield's current land use and zoning, input from the public and the local business community, and economic data.

Goals

Marshfield's economic development goals have been crafted to enhance business activity, create land use policies to support a thriving downtown and business sector while preserving Marshfield's character, environment and distinctive neighborhoods and villages. Marshfield's 2002 Master Plan update and the EDSAT study provides the basis for the economic development goals. The 2002

goals have been updated to account for changes in the local economy over the past decade.

- Maintain Marshfield's economy at a scale that contributes to the local tax base and provides needed local goods and services but does not overburden Town roads or service systems.
- Seek excellence in design and aesthetics on all existing and future business sites.
- Improve the marketing of Marshfield locally and regionally to attract more visitors and investment.
- Maximize benefits of the Town's coastal location, broad economic base, available Industrial zoned land and improved highway access.
- Strengthen the Downtown as a place for commerce and as the community's center.
- Carefully shape development in the Enterprise Drive area to include mixed use development and provide full infrastructure to the Industrial and PMUD districts.
- Make strategic improvements in the Brant Rock commercial district in coordination with local businesses.
- Support and expand maritime related industries, tourism, medical and educational opportunities that provide economic benefit to the Town of Marshfield.

Economic Profile

The following economic profile inventories key indicators related to the performance of the local economy including demographic measures, labor force characteristics, and information related to business establishments and sales activity within Marshfield. While these measures can enhance understanding of the economic situation, there are other less tangible elements such as quality of life and business climate perceptions that can also influence local conditions.

Commercial and Industrial Assets

As noted in *Chapter 2, Land Use*, Marshfield's commercial and industrial assets are concentrated along Marshfield's main corridors, primarily along Route 139/Ocean Street. Marshfield contains little industrial development (about 1 percent of the total land area), which mostly consists of scattered light industrial businesses in the Enterprise Park area along Route 139. Marshfield does have a small number of small-scale mining related businesses including sand mining and gravel mining, particularly in the vicinity of Clay Pit Road within a residential area located in the central area of Town off Ferry Street. Another of Marshfield's historically important commercial activities is the commercial and

recreational fishing cluster at the southern end of Marshfield located in the vicinity of the Green Harbor and Brant Rock villages. Some fishing boats also operate out of Damon's Point on the North River. These distinctive areas are described further below.

Enterprise Park

This area includes the area east of Enterprise Drive on the western edge of Town, a large mixed use and industrial zoned area with access from Route 3. It runs along the south side of Route 139 from the Pembroke town line east to the intersection of Route 139, Furnace St. and Proprietors Drive. Current uses in this industrial district include manufacturing, general office, construction supplies, light manufacturing, publishing and wholesale trade. A large portion of this area is currently zoned I-1 (420 acres), which is primarily for industrial uses. The Planned Mixed Use Development (PMUD) overlay covers the eastern portion (216 acres) of the I-1 district and has helped to facilitate the development of a Master Plan for Enterprise Park and the construction of 900,000 square feet of mixed use development, including the New Roche Brothers flagship store and the Proprietor's Green assisted living facility. The Boys and Girls Club located its new building on Proprietors Drive and the Town is developing a recreational facility to include baseball, softball, soccer/lacrosse, and youth soccer fields. The build-out analysis included in *Chapter 2, Land Use*, assesses the capacity of the Enterprise Park industrial/PMUD district noting that the area contains many vacant parcels with varying capacities. Of Marshfield's commercial/industrial zoned land, it has the largest parcels accommodating between 100,001 to 518,808 square feet of commercial floor area capacity.

The Town recently approved amendments to the PMUD to allow residential and mixed uses (up to two stories of residential units above commercial), and to streamline the permitting process. This can now be permitted through a combined Special Permit/Site Plan Review process with the Planning Board. A 40R Smart Growth District is being considered within a portion of the PMUD zoning district. *(The Smart Growth Zoning Overlay District Act, Chapter 149 of the Acts of 2004, codified as M.G.L. chapter 40R (the Act), encourages communities to create dense residential or mixed-use smart growth zoning districts, including a high percentage of affordable housing units, to be located near transit stations, in areas of concentrated development such as existing city and town centers, and in other highly suitable locations. Projects must be developable under the community's smart growth zoning adopted under Chapter 40R, either as-of-right or through a limited plan review process akin to site plan review. Upon state review and approval of a local overlay district, communities become eligible for payments from a Smart Growth Housing Trust Fund, as well as other financial incentives.)*

Downtown

Two recent projects in the Downtown area were completed in 2008 and 2009. The projects included a make-over of the Webster Square retail and commercial area as well as the Shops at Ocean's Gate. The project included intersection improvements, pedestrian amenities, such as sidewalks, decorative lighting, landscaping, and new parking. The build-out analysis included in *Chapter 2, Land*

Use, notes that the Downtown area of Marshfield contains a moderate amount of commercial space to accommodate additional commercial floor area. This is an area where mixed-use with residential uses located above ground floor commercial should be encouraged by allowing such development with a Special Permit. The area is currently zoned B-1 (Business-Mixed Use), “where the location of more than one permitted principal use in one building may be allowed by special permit”.¹



Shops at Oceans Gate, Marshfield, MA

Brant Rock

The Brant Rock area on the coastline contains a successful commercial esplanade with restaurants and stores, and ocean views. The commercial district’s successful restaurants and venues attract local residents and are particularly busy in the summer months with the large influx of summer visitors. A recently adopted amendment to the Zoning Bylaw will allow for the development of residential uses above commercial in Brant Rock. The build-out analysis summarized in *Chapter 2, Land Use*, notes that the Brant Rock neighborhood has the smallest capacity for commercial and industrial uses with only a handful of parcels containing less than 10,000 square feet of build-out space. Remaining parcels in this neighborhood contain no additional capacity.



¹ Zoning definition of Mixed Use District, Article II of the Marshfield Zoning Bylaws

Commercial Fishing

In addition to the businesses catering to residents and tourists, the area is also home to businesses supporting commercial fishing. The Marshfield Waterway Committee recently completed the *Marshfield Harbor, Rivers, and Waterways Management Plan* for Green Harbor, Marshfield rivers and waterways. The Harbor, Rivers, and Waterways Management Plan evaluates the current state of fisheries infrastructure, public access, recreational boating, navigation, water quality, and fishery resources. This chapter draws from this report for recommendations to improve Marshfield's fisheries infrastructure.



Brant Rock/Green Harbor Commercial Fishing Enterprise

In 2012, the National Oceanographic and Atmospheric Administration reported a total of 141 vessels with federal permits in the Town of Marshfield (i.e., 141 vessels listed Marshfield, Green Harbor, or Brant Rock as the principle port on their permits), most of which are for tuna.² According to the most recent data available, commercial fisheries in Marshfield yielded a total of 2,505,172 pounds of seafood in 2012. This included Atlantic Cod, American Lobster, Spiny Dogfish, along with other miscellaneous species. Data was not available for commercial tuna landings, which has typically been a high volume catch in Marshfield. The 2012 catch had a value of \$2,679,726.³

A project that is currently under planning and evaluation is the Ocean Campus Center for Marine and Environmental Studies. The school would focus on marine sciences and oceanography, complementing Marshfield's already active fishing industry by training students in the recreational and commercial marine industry. The Center will be renting an existing building on Enterprise Drive for



² Marshfield Harbor, Rivers, and Waterways Management Plan, December 2014, Marshfield Waterways Committee and Urban Harbors Institute

³ Data derived from Atlantic Coastal Cooperative Statistics Program (ACCSP), *Ibid.*

the next few years and the Town hopes it will expand further on the site. Verrocchi Realty Trust supported planning for the school by donating land in the Enterprise Park area.⁴ Massasoit Community College would oversee the academic program with the assistance of other academic institutions in southeast Massachusetts, including the Massachusetts Maritime Academy, the National Marine Sanctuary and the University of Massachusetts-Boston. It would offer a variety of programs depending on student needs, ultimately leading to associate degrees which could be transferred toward baccalaureate degrees.⁵

Municipal Airport (George Harlow Field)

Located to the east of the downtown the municipal airport (George Harlow Field) serves the general aviation needs of the region. Recently the runway was repaved and extended to 3,900 feet in length and can accommodate a wide range of single and multi-engine aircraft as well as light jets. The airport's terminal is ideal for accommodating both local users and visitors to the Town and region.

The airport is managed by Shoreline Aviation which provides fueling, tie-downs, hangar storage, aircraft maintenance, ground handling, flight training, charter and rental services. The airport contributes 74 jobs to the local economy with a payroll of \$3.6 million a year. The combined direct, indirect and induced benefits are the equivalent of adding \$9.1 million dollars a year to the local economy. Several additional "T" hangar buildings have been proposed as part of the 2008 Airport Master Plan Improvements.

Culture and Arts

One area that is gaining ground in economic development circles is a community's attention to its culture and arts as a means to naturally boost economic activity through tourism, civic pride, and associated business services. Marshfield's arts and cultural organizations and events draw visitors from around Massachusetts and help to augment its local economy. Marshfield is home to one of the oldest agricultural fairs in the United States at the Marshfield Fairgrounds every August. The week-long fair attracts thousands of visitors from around the state and region for live music and country activities such as horse pulling and the demolition derby. Marshfield also has a very active arts community, the North River Arts Society, which hosts an annual weekend festival of arts in late spring and classes and workshops throughout the year. As described in the recommendations, the Town could consider establishing a Cultural District in the Downtown area to showcase its arts and cultural activities.



⁴ Massachusetts college pursues marine training center, January 28th, 2013 <http://www.tradeonlytoday.com/2013/01/massachusetts-college-pursues-marine-training-center/>. Accessed April 21, 2014.

⁵ Ibid.

Strengths and Weaknesses Assessment

In addition to the commercial and industrial assets above, the *Economic Development Self-Assessment Tool* provided an analysis of Marshfield's strengths and weaknesses compared to similar municipalities or Comparison Group Municipalities (CGM). The focus of the tool is to evaluate Marshfield's attractiveness and competitiveness to attract businesses compared to similar communities. Highlights of the report's findings are noted below.

Strengths among Very Important Location Factors

- Labor (available): Marshfield's labor force is slightly more educated with more bachelor's degrees per person than the CGM.
- Traffic: Marshfield's regular access to a traffic engineer or transportation planner (by way of the Town's Curb Cut and Traffic Study Zoning Bylaws) gives the Town an advantage over the CGM.
- Rents: Manufacturing space rent in Marshfield is less expensive than the CGM (\$5 vs. \$6 per square foot), and there is slightly more Class B office space available than in the CGM.

Strengths among Important Location Factors

- Quality of Available Space: Marshfield has significantly fewer brownfields and contaminated sites than the CGM, as well as having no vacant or severely underutilized shopping centers. Additionally, the jurisdiction features much more greenfield or open land than the CGM.
- Crime: Crime, in all four categories of burglary, auto theft, robbery, and homicide, in Marshfield is very low compared to the CGM.
- Housing: Homeownership, rental vacancy, and home sales are all stronger than the CGM, indicating that Marshfield is a desirable and stable community.
- Local Schools: Marshfield's public high school students test better than those in the CGM, and more go on to attend four-year colleges after graduation than in the CGM.
- Amenities: Marshfield features more eateries within one mile of existing development sites than does the CGM.
- Business Incentives (State): Like all of the Massachusetts' CGM, businesses in Marshfield are eligible for several state business incentives, but the town could do a better job of helping its businesses apply for some of these state programs.
- Tax Rates (local): By offering a single tax rate, which businesses generally prefer, Marshfield has an advantage over the CGM.
- Physical Attractiveness: Marshfield reserves significantly more acreage for parks than does the CGM.
- Land (space): Significantly more of Marshfield's parcels, compared to the CGM, are available for development on five or more acres.

Strengths among Less Important Location Factors

- Airports: Marshfield features a local airport.
- Permitting Ombudsman: Unlike the CGM, Marshfield requires that businesses apply for only a general business license, rather than particular licenses for different types of businesses.
- Website: Marshfield's website lists all local development policies and procedures as well as an electronic permit applications, giving the Town a slight competitive advantage over the CGM.

Weaknesses among Very Important Location Factors

- Rents: Rents in Marshfield for retail space and all classes of general office space in the central business district as well as Class B and C general office space in the highway business district are significantly higher than in the CGM representing a "deal-breaker" for the Town. Additionally, only 10% of Marshfield's available office space is Class A.
- Infrastructure: Lack of public sewer in the Industrial and PMUD districts, wastewater treatment, and cellular data/telecommunications support capacity for current needs only, representing a disadvantage compared to the CGM and a "deal-breaker" for some potential businesses and developers when considering Marshfield.

Weaknesses among Important Location Factors

- Critical Mass Firms: Although the CGM does feature all the following, Marshfield does not have a development strategy, Overall Economic Development Plan (OEDP). Also Marshfield does not target specific industries or sectors that are part of the state development strategy, nor does it have an industrial attraction policy.
- Industry Sensitivity: Marshfield does not have a marketing program or strategy that engages local businesses or leverages local strengths.
- Cross Marketing: Marshfield does not engage state agencies or organizations in marketing the Town.
- State Business Incentives: Marshfield takes "very little" advantage of special state business incentives, while the CGM does so at a "somewhat" level.
- Local Business Incentives: Unlike the CGM, Marshfield does not actively pursue federal and/or state programs to assist in attracting and retaining new businesses, nor does the Town offer any programs to provide tax breaks to businesses or help them secure financing.
- Housing: Last year, the median rent for a two-bedroom apartment in Marshfield was substantially higher than in the CGM.
- Public Transit: Significantly fewer of Marshfield's available sites for retail, manufacturing, and general office space are within 1/.1 mile of public transit, compared to the CGM. Public transit service is also not available on nights and weekends. (Note: GATRA does serve Marshfield, Pembroke, Duxbury and Kingston with local service, but does not provide Marshfield with a direct connection with the MBTA Greenbush commuter rail to Boston. The P&B does provide limited service on weekdays to Boston.)

Weaknesses among Less Important Location Factors

- Website: Marshfield's website is updated "rarely", putting the Town at a disadvantage compared to the CGM, which generally updates their websites on a weekly basis. Additionally, unlike the CGM, Marshfield does not have a designated webmaster or staff person responsible for website maintenance.
- Permitting Ombudsman: Local officials in Marshfield are not empowered to ensure the efficiency of the Town's permitting process. Also unlike the CGM, Marshfield is not involved in the federal or state permitting or licensing process for businesses, nor does it provide technical assistance to those business to help with this process.
- Workforce Training: Unlike the CGM, Marshfield does not support public-private partnerships to provide specific workforce training, nor does the town have an adult education program readily available.
- Proximity to Universities and Research: Marshfield does not feature any public or private universities nor vocational/technical schools within its borders.
- Airports: Marshfield is further from an international airport than is the CGM.⁶

Labor Force Characteristics

This section examines various demographic and economic characteristics related to the Marshfield residential population and labor force.

Income

From the perspective of local residents, the key measures of economic functioning relate to the ability to find a job and to generate income to sustain their families. In comparison to the State as a whole, the regional economy performs relatively well in providing employment and income for residents of Marshfield. The Town has higher median household income, family income and per capita income than the State and Plymouth County overall. Between 2000 and 2011, resident income growth within Marshfield exceeded the rate of growth for the County and the State.

▼
⁶ While the Town is not close to a major airport, it is important to note that it does have a regional municipal airport, an advantage that many municipalities do not have.

Table 4-1 Income and Poverty Characteristics

	2000			2011		
	Marshfield	Plymouth County	State	Marshfield	Plymouth County	State
Median HH Income	\$66,508	\$55,615	\$50,502	\$93,743	\$74,698	\$65,981
Median Family Income	\$76,541	\$65,554	\$61,664	\$110,756	\$88,110	\$83,371
Per Capita Income	\$28,768	\$24,789	\$25,952	\$42,269	\$34,285	\$35,051

Source: 2000 U.S. Census. 2007-2011 American Community Survey 5-Year Estimates

Table 4-2 Income 2011

Community	Household Income	Family Income	Per. Cap. Income
Duxbury	\$117,197	\$105,683	\$85,253
Marshfield	\$93,743	\$110,756	\$44,966
Norwell	\$109,167	\$118,679	\$37,520
Scituate	\$89,485	\$111,893	\$45,086
Pembroke	\$84,136	\$97,247	\$36,873

Source: ACS 2007-2011, DP-03

Labor and Employment

As of March 2014, the unemployment rate for Massachusetts was 6.3% and 6.7% for the nation. The number of Marshfield residents within the labor force increased modestly over the first decade of the 2000s. This growth (4.6%) was slightly less than the rate of overall population growth of individuals of working age (over 16 years) during that period (5.5%).

Table 4-3 Labor Force Characteristics

Labor Supply	2000	2011
Labor Force	13,220	13,834
Population over 16	18,418	19,436

Source: 2000 U.S. Census. 2007-2011 American Community Survey 5-Year Estimates

Approximately 72% of Marshfield families with children under the age of six years, have both parents in the family in the labor force (dual working family), while 74.4% of families with children ages six to 17 years have all parents in the

family in the labor force.⁷ The fact that most Marshfield families with children under 17 have both parents working demonstrates there is a need for adequate childcare and afterschool care in Marshfield.

The number of dual working families is important to consider as this can influence a number of factors in a community. For example, if there is a large number of dual working families in a community, day-care and after school programs should be expanded. Stores and businesses would benefit from extending hours past a typical work day (to appeal to those families who work until 5 PM or later), and public participation may be lacking as dual working families would be less likely to attend such events during the week.

Type of Employment

In 2011, the education and health services industry sector continued to employ the largest number of Marshfield residents with almost a full quarter of the working population. The next two largest sectors in terms of employment were FIRE (Finance, Insurance, Real Estate) and retail trade. Over the past decade from 2000, there have been gains in the construction, FIRE, education and the health services industry, and the arts and entertainment sectors. There were decreases in the manufacturing, information, professional, scientific and management and administration sectors. All other sectors remained level over the decade. Thus Marshfield residents provide a broad employment base for local and regional employers given their high level of skills and educational attainment, which helps to support a diverse economy.

▼
⁷ United States Census Bureau. Selected Economic Characteristics. 2007-2011 American Community Survey 5-Year Estimates. Accessed April 2014.

Table 4-4 Statewide Employment Share by Industry Sector for Marshfield Residents

Employment by Industry	2000		2011	
Agriculture, Forestry, Mining, etc.	44	0.3%	80	0.6%
Construction	1,140	8.9%	1,313	10.1%
Manufacturing	1,045	8.1%	598	4.6%
Wholesale Trade	424	3.3%	354	2.7%
Retail Trade	1,542	12.0%	1,336	10.3%
Transportation and warehousing and utilities	645	5.0%	688	5.3%
Information	567	4.4%	498	3.8%
Finance, insurance, real estate	1,602	12.5%	1,779	13.7%
Professional, scientific and management and administrative services	1,399	10.9%	1,208	9.3%
Education services and health care and social assistance	2,615	20.4%	3,135	24.1%
Arts, entertainment, recreation, accommodation	808	6.3%	1,041	8.0%
Other services	459	3.6%	417	3.2%
Public administration	558	4.3%	572	4.4%

Source: 2007-2011 American Community Survey 5-Year Estimates

Note: All industries with over 10 percent of the total employment are highlighted in BOLD text.

Education

Marshfield is a highly educated community, with almost half of its population holding a bachelor's degree or higher. In a state that has a highly educated workforce, Marshfield competes within the state with a higher percentage of high school and college graduates with bachelor's degrees compared to both state and county averages. Marshfield's ratio of high school graduates is also very high at 98%, which demonstrates the high quality and effectiveness of its public school system. The EDSAT report notes that Marshfield's highly educated population is a very important location factor when recruiting new business to the area.

Table 4-5 Educational Attainment

Educational Attainment (Population 25+)	Marshfield	Plymouth County	State
High School Grad	22.4%	30.5%	26.3%
Associate's Degree	9.2%	9.4%	7.6%
Some College, No Degree	16.6%	19.1%	16.2%
Bachelor's Degree	33.5%	21.3%	22.1%
Graduate or Professional Degree	16.4%	11.5%	16.6%
High School Grad or Higher	98.0%	91.60%	88.9%
Bachelor's Degree or Higher	49.9%	49.30%	38.7%

Source: 2007-2011 American Community Survey 5-Year Estimates

Commuting Patterns and Traffic

Marshfield residents' commutes tend to be longer on average than the county and state with one-third of residents driving over 35 minutes to get to work, with most residents driving by themselves. Marshfield also has a lower percentage of Marshfield workers that use alternative means, such as public transit, walking, and biking to get to work compared to the county and state.

Table 4-6 Commuting Patterns

Commuting Characteristics	Marshfield	Plymouth	State
Mean Travel Time to Work (minutes)	35.7	32.2	27.5
Commute to Work - Drive Alone	83.5%	80.9%	72.3%
Commute to Work by Alternative Transportation	10.2%	15.3%	23.4%

Source: 2007-2011 American Community Survey 5-Year Estimates

Note: Alternative Transportation includes carpooling, public transit, walking and other means.

As the region's road transportation network becomes more congested with a growing population, Marshfield may want to explore opportunities for additional alternative transportation modes. Including enhancing GATRA service with a connection to Greenbush and Scituate Harbor.

A lower cost opportunity could also be creating a regional Transportation Management Association (TMA) with neighboring communities. MassCommute, a non-profit that has helped create 12 TMAs serving regions throughout the Commonwealth, defines a TMA as a private, non-profit association of businesses joined together in a legal agreement for the purpose of reducing traffic

congestion and pollution by improving and providing transportation options for commuters. TMAs leverage public and private funds to promote the use of ridesharing and other alternative commute methods to help reduce traffic congestion and associated vehicle emissions while improving access for commuters. For initial guidance on establishing a TMA, the Town can contact the MassCommute.⁸

Business Establishments

Marshfield is home to a diverse range of businesses that employ approximately 6,000 people in total. As indicated in the table below, the largest sector in terms of employment is Retail and Wholesale Trade, Transportation and Utilities and Arts, Entertainment and Hospitality. Wages are significantly higher in the Retail, Wholesale and Transportation and Utilities sector while arts, entertainment and hospitality are quite low. The lower wages likely reflect many part-time workers are employed in the hospitality industry in general.

Table 4-7 Marshfield Employment and Wages by Sector

Sector	Number of Establishments	Average Monthly Employment	% of Total Employment	Average Weekly Wages
Total	628	6,080	100.0%	\$746
Agriculture, Forestry, Fishing & Hunting	4	8	0.1%	\$2,253
Construction	94	504	8.3%	\$1,180
Manufacturing	12	181	3.0%	\$1,426
Retail and Wholesale Trade, Transportation and Utilities	112	1,150	18.9%	\$2,842
Information	12	98	1.6%	\$831
Finance and Insurance	34	188	3.1%	\$1,153
Real Estate	14	36	0.6%	\$706
Professional and Business Services	110	396	6.5%	\$2,120
Healthcare and Social Assistance	40	1047	17.2%	\$591
Arts, Entertainment, and Hospitality	64	1117	18.4%	\$601
Other Services	114	323	5.3%	\$515

Source: Massachusetts Executive Office of Labor and Workforce Development

A majority of establishments (91%) within Marshfield could be classified as small businesses with fewer than 20 employees. More than half of the businesses in Town have less than five employees. The number of firms with 100 or more employees is very small (about 1% of the total number).



⁸ See <http://www.masscommute.com/>.

Table 4-8 Marshfield Business Size

Size of Establishments (# of Employees)	# of Firms	Percent
1-4	295	59%
5-9	97	19%
10-19	63	13%
20-49	34	7%
50-99	8	2%
100-249	4	1%
250-499	1	>1%
500-999	0	0%
1000+	0	0%
Total	502	100%

Source: US Census, Zip Code 2011 Business Patterns

The value of sales or business done is another way to view the local economic mix. As indicated below, wholesale and retail trade are responsible for the largest share of business activity by a large margin and are well above the average levels for these sectors for the state. (See Table 4-8 - Employer Value of Sales, Shipments, Receipts, Revenue or Business Done). The numbers for wholesale and retail trade may include the fishing industry, which is estimated to represent over \$2.5 million dollars in landings in 2012.⁹ The impact of internet sales on the local retail trade should be considered as part of the long-term economic strategy for the Town.



⁹ Marshfield Harbor, Rivers, and Waterways Management Plan, December 2014.

Table 4-9 Employer Value of Sales, Shipments, Receipts, Revenue or Business Done

Industry Sector	Value (\$1,000)	% of Total	Massachusetts Proportion
Wholesale Trade	\$293,112	49%	27%
Retail Trade	\$151,148	25%	16%
Information	NA	NA	NA
Real estate	\$13,401	2%	3%
Professional, scientific and tech services	\$24,028	4%	10%
Administrative and support and waste management	\$29,092	5%	0%
Educational services	Withheld	Withheld	Withheld
Health care and social assistance	\$32,165	5%	10%
Arts, entertainment, and recreation	\$13,123	2%	1%
Accommodation and food services	\$31,725	5%	3%
Other	\$16,120	3%	2%
Total	\$603,914	100%	*

Source: 2007 Economic Census

*Does not sum to 100% because the State has other sectors that are not represented locally

Recommendations

Local economies are shaped by a complex interaction of factors that can include historic development patterns, infrastructure capacity, natural resources, access to markets, access to labor, financing availability and, in an increasingly interconnected world, global competitive pressures. However, local government also has a role in supporting and facilitating economic activity. This can involve activities such as provision of infrastructure, assembly of land, adjusting land use regulations, investment in local businesses, or facilitating partnerships with institutional or private entities. In a most basic sense, local government’s economic development initiatives should be aimed at reducing the costs to businesses of development or operation.

The Downtown, Brant Rock and Enterprise Park areas within Marshfield have been identified by the Town as strategic areas for targeted development, redevelopment or investment. The Brant Rock commercial area has flood and storm related events that will influence redevelopment opportunities. Opportunities for enhancing these areas for business activity are detailed in this section. These economic development recommendations also build upon the action items from the 2002 Master Plan update, discussions from the public forums and the changing local and regional economic conditions.

Downtown Recommendations

As detailed in *Chapter 2, Land Use*, the Downtown lacks a cohesive feel, and residents note that the Downtown does not seem like a center or meeting place. The Downtown's main corridor, Route 139, contains a series of curb cuts for the automobile-related uses from gas stations to auto repair shops. Additionally, the relatively high traffic speed at the Route 139 and Route 3A intersection has a negative effect on walkability and character of the Downtown.

Recommendations for Downtown include:

- ED - 1. Consider consolidating the Downtown area into one overlay zoning district that incorporates a mix of uses.
- ED - 2. Consider financial incentives such as property tax abatement to encourage rehabilitation and redevelopment of downtown buildings for mixed-use.
- ED - 3. Review whether regulations inhibit development of restaurants, nightlife or arts/performance uses that would help activate the downtown during the evening (e.g., updating the parking regulations to encourage more shared parking, limitations on outdoor dining, etc.).
- ED - 4. Create a "gateway" to Marshfield in the Downtown welcoming visitors and engaging civic pride.
- ED - 5. Create Downtown design guidelines for major building renovations, streetscape improvements, new construction, and new signage. (Also LU-10)
- ED - 6. Continue making improvements to Downtown sidewalks and incorporate streetscape improvements to provide for a more pedestrian-friendly environment. (Also LU-11)
- ED - 7. Encourage second and third story residential uses in the Downtown. (Also LU - 13)
- ED - 8. Consider designating the downtown area as a Cultural District, which is an area where there is a concentration of cultural facilities, activities, and assets. It is a walkable, compact area that is easily identifiable to visitors and residents and serves as a center of cultural, artistic and economic activity. The Town would partner with other organizations to create an area that can:
 - Attract artists and cultural enterprises
 - Encourage business and job development
 - Establish the district as a tourist destination
 - Preserve and reuse historic buildings
 - Enhance property values
 - Foster local cultural development¹⁰



¹⁰ See: http://www.massculturalcouncil.org/applications/culturaldistricts_guidelines.asp

- ED - 9. Work with downtown property owners and local artists to install temporary “pop-up” exhibits or public art installations in vacant ground floor retail spaces in order to avoid empty facades that contribute to blighting or a depressing influence.

Enterprise Park Recommendations

Within the Enterprise Park Industrial District (I-1) adjacent to Route 139, there is scattered industrial development which under-utilizes this accessible land near the Route 3 exit. New heavy industrial uses in Marshfield are not anticipated with the decline of the manufacturing sector over the last decade. The I-1 district contains undeveloped prime real estate (80 acres by one land owner; over 200 acres total). To better facilitate appropriate development, it is recommended that the Town consider providing a waste water treatment system for the Industrial district.

Recommendations include:

- ED - 10. Rezone the I-1 frontage on Rt. 139 to B-2 so that both sides of Rt. 139 are consistently zoned along that stretch of the road.
- ED - 11. Recruit a hotel with event meeting space and a medical facility to locate in the Enterprise Park area.
- ED - 12. Continue to work with Massasoit Community College to develop the Ocean Campus Center for Marine and Environmental Studies.
- ED - 13. Consider a 40R Smart Growth District Overlay for the southwest portion of the PMUD.

Brant Rock Recommendations

While Brant Rock’s commercial esplanade is a successful draw for both residents and visitors because of its unique restaurants and stores, with water views, it faces challenges with storm events that cause frequent flooding of area businesses. In particular, residents believe that climate adaptation should play a critical planning role as the area becomes more vulnerable to severe storm events with a changing climate.

Because Brant Rock has limited space for additional commercial development, the focus of economic development should be improving the district and creating a supportive environment for existing businesses. Recommendations include:

- ED - 14. Create a business investment district (BID) to help with renovations. BIDs are special districts in which property owners vote to initiate, manage and finance supplemental services above and beyond the baseline of services already provided by their local city or town governments. To finance these services, a special assessment, or common area fee, is levied only on property within the district.

- ED - 15. Explore a stormwater management system for the Brant Rock Commercial district that will reduce the chronic flooding during coastal storms.
- ED - 16. Target streetscape improvements that are more resilient to storm damage to improve the pedestrian experience and explore whether a small park could be located here.
- ED - 17. Clarify that residential use is allowed on both the second floor and the ½ story above the second floor for mixed-use buildings in the Brant Rock Village Overlay District.

Harbor Management Working Waterfronts and Infrastructure Recommendations

The fishing fleet in Green Harbor is important to Marshfield's economy and culture. The December 2014 *Marshfield Harbor, Rivers and Waterways Management Plan* proposes improvements to infrastructure and access to support this valuable commercial resource in Marshfield. The Town should support water-dependent uses and businesses for their economic benefit to the Town, including:

- ED - 18. Explore the feasibility of providing reliable high-capacity ice service for commercial and recreational fishermen.
- ED - 19. Ensure that the public infrastructure and shore side arrangements are identified and planned for in terms of current and future needs.
- ED - 20. Develop a branding strategy to promote the Town's local waterfront businesses.
- ED - 21. Create events for the public to become more aware of activities along the Town's waterfronts.
- ED - 22. Allow for opportunities to expand the use of Marshfield's working waterfronts to accommodate new uses (e.g., activities related to the Ocean Campus Center) and the growth of existing uses.
- ED - 23. Evaluate the potential for expanded commercial shellfishing by conducting a stock assessment to determine whether the shellfish population can support a larger commercial fishery.
- ED - 24. Continue to review the Town's permit review process to identify ways in which the process can be made more efficient and streamlined.
- ED - 25. Develop a comprehensive economic development vision and plan, including identifying business sectors/industries to target.
- ED - 26. Create a comprehensive marketing plan that enlists local businesses to shape the brand and image of Marshfield.
- ED - 27. Update the Town's website regularly, on a weekly basis if possible, to enhance the Town's image and business profile.
- ED - 28. Explore best practices and innovative solutions to address the infrastructure capacity constraints. For example, the Town could fill gaps in cellular service by leasing Town-owned property to cellular companies.

ED - 29. Engage state agencies or organizations in marketing the Town, and take advantage of state and local business incentives available through the state and federal governments.

ED - 30. Support public-private partnerships to provide specific workforce training.

Other Recommendations:

ED - 31. Consider establishing design guidelines for commercial developments.

ED - 32. Explore opportunities for creating a regional Transportation Management Association (TMA) with neighboring communities and private employers.

ED - 33. Consider establishing a shuttle service with private employers to the North Scituate commuter rail stop.

ED - 34. Consider rezoning the Town Pier to commercial (B-4) to encourage more maritime/commercial fishing related business along the waterfront.

5

Natural, Open Space and Historic Resources

Introduction

Marshfield boasts many natural resources and open space features, and is particularly known for its wetland landscape, in which the Town derives its name. Residents have long valued these resources, seeing them as an integral part of the community. While Marshfield's coastline and proximity to Boston make it an attractive community to live in year round and vacation during the warmer months, the Town strives to maintain its character and resources as it manages its growth going forward. The preservation of natural resources and open space is key to achieving this goal.

Natural Resources and Open Space Goals

In order to preserve the Town's natural, open space and historic resources, the community established a set of goals taken from the *Marshfield Open Space and Recreation Plan Update (March 2010)*:

- Protect lands within aquifer recharge areas
- Buffer and link protected lands for wildlife habitat
- Provide additional buffer and protection to the watershed areas surrounding the riverfront areas of the North, South, and Green Harbor Rivers

- Blaze, map, and maintain existing trails
- Create new trails
- Involve volunteers in managing open space

Additionally, goals for the preservation of historic resources include:

- Promote cultural and historical preservation and renovation projects.
- Identify and preserve significant archaeological resources.

These goals will be explained in more detail in the sections to follow.

Natural Resources

Marshfield is rich in natural resources. From forests to rivers to wetlands, these resources add to the Town's character, providing residents and visitors with scenic views and recreational opportunities. They also serve many important environmental and ecological purposes such as providing habitat for wildlife.

Many of the natural features in town are water resources, such as the North and South River, and the Green Harbor River. The Plymouth-Carver groundwater aquifer within the Town's boundaries, supplies all drinking water to residents, making this an important element to protect. These water resources and others are an integral part of the Town's landscape and groundwater supply.

Open space, conservation land, forests and parks are other significant resources in town. Marshfield's forested conservation lands are used for hiking, horseback riding, bird watching, and cross-country skiing, while also providing wildlife habitat and protecting water quality.

Because natural resources are important to Marshfield residents, the Town has worked to preserve them through bylaws and land acquisitions. Over 2,600 acres of forestland has been permanently protected in Marshfield. Some of this land is owned by the Town, and other land is considered quasi-public, such as the Green Harbor Golf Club and the Daniel Webster Wildlife Sanctuary. Another 4,200 acres of forestland are privately owned and many are temporarily protected through the Chapter 61 Forestry Tax program.

Existing Conditions

The following sections describe the current state of natural resources in Marshfield. It specifically addresses geology and soils, water resources, vegetation, fisheries and wildlife, and scenic resources.

Soils, Topography and Geology

This section discusses the characteristics of the soils, topography and geology in Marshfield. It largely draws on information from the March 2010 update of the *Marshfield Open Space and Recreation Plan*.

Soil Characterization

There are five main soil types in town: Woodbridge-Paxton-Ridgebury, Ipswich-Pawcatuck-Hooksan, Hinckley-Windsor-Deerfield, Plymouth-Carver, and Montauk-Scituate-Norwell.

Woodbridge-Paxton-Ridgebury soils: Found in north, south, and central Marshfield, this soil type is very deep and is present in gently sloping areas. These soils are predominantly found in the wet areas of town, and are not very pervious since they tend to overly dense substratum that does not readily absorb water. These areas are difficult to develop because of this reason.

Ipswich-Pawcatuck-Hooksan: Also found in all areas of town, this soil type has similar qualities as the Woodbridge-Paxton-Ridgebury soils, but includes areas of dunes and beaches with low soil strength and wetness. These areas are also difficult to develop due to the soil strength. However, a number of homes in Marshfield are developed on this soil type today.

Hinckley-Windsor-Deerfield: This soil type is found in central and south Marshfield. It is highly permeable, allowing water to flow through and recharge groundwater aquifers, which are present in these areas due to this soil characteristic. These soils are preferred for development; however, increased development in these areas may have negative impacts on water quality of the aquifers.

Plymouth-Carver: With similar qualities and location as the Hinckley-Windsor-Deerfield soil type, Plymouth-Carver soil types are highly permeable and preferred for development. The Plymouth-Carver Aquifer, which supplies all of Marshfield's drinking water, exists today because of this soil type.

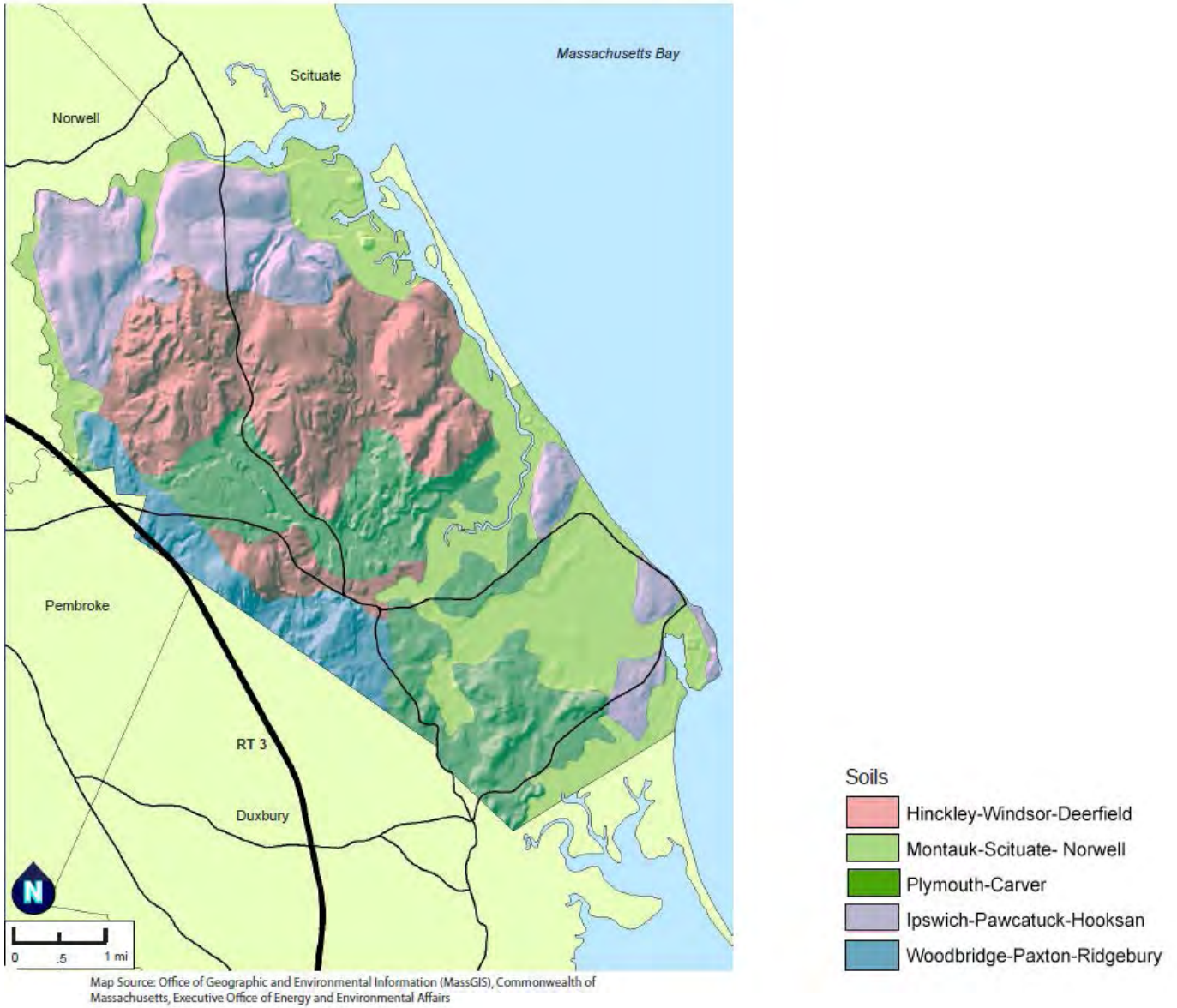
Montauk-Scituate-Norwell: Located in central and south Marshfield, this soil type is classified as prime agricultural soils. The National Resource Conservation Service has classified prime agricultural soils in Marshfield based on their lack of susceptibility to erosion and flooding, acceptable pH, lack of excessive stoniness, and favorable climatic conditions for agricultural purposes. They must also be available for use as cropland, pasture land, or forestland.

Topography

In the northeast and central areas of Marshfield, Holly Hill, Telegraph Hill, Snake Hill, Ferry Hill, and Carolina Hill make up the topography of this predominantly residential area, better known as the Highlands. The Highlands and Marshfield Hills

are divided in the south by Furnace Brook Valley, and in the north by Bare’s Brook. Central Marshfield contains Mount Skirgo and Pudding Hill. The Plains, with a constant elevation of 100 feet, is located between Forest, School, and Plain Streets. This area is distinguished from the higher elevated portions of town.

Figure 5.1 Soil Types in Marshfield



Water Resources

Water resources include beaches, watersheds, surface waters, wetlands, flood hazard areas, groundwater and drinking water resources. Such resources are plentiful in the

Town of Marshfield as it is located alongside the coast, and there are many surface water features, wetlands, marshes, and important aquifer areas.

Beaches

An important natural feature and characteristic of Marshfield is its open coastline. On the east, the Town faces the Massachusetts Bay from its boundary with Scituate south to the Duxbury Line, a distance of more than four and one half miles. The structure of the coastline varies from barrier beaches to eroding coastal banks and natural rock outcroppings. Areas along the shore are reserved for recreational uses, which draw a large summer-time population as well as day visitors. On the shoreline, the only undeveloped land other than the beach is a strip of land 1,500 feet long in front of an area known as Old Rexhame.

Watersheds

Marshfield is entirely located within the South Coastal Watershed, which is in the southeast portion of Massachusetts, along the south shore. The watershed contains a drainage area of approximately 240 square miles, and spans over 19 municipalities. The South Coastal Watershed is one of eleven watersheds in eastern Massachusetts that drains to the Massachusetts Bay. The North and South River coastal subwatersheds, draining approximately 105 square miles, are considered to be major subwatersheds within the South Coastal Watershed and are located entirely in Marshfield. The Plymouth-Carver aquifer provides much drinking water to the South Coastal Watershed region, and provides all drinking water to Marshfield.¹

Surface Waters

Rivers, streams, lakes and ponds serve many different functions in Marshfield, including habitat for wildlife and areas for recreational activities. Three large tidal rivers flow through Marshfield: North River, South River, and the Green Harbor River. These rivers make up much of the structure and landscape of the Town, while offering a variety of recreational and environmental benefits.

The North River forms the northernmost boundary of the Town. It is used for a variety of recreational activities, such as, boating, canoeing, kayaking, fishing, and swimming. Two Mile Brook, Cove Creek, Maccombers Creek, and streams in Norwell and Scituate discharge into the North River. The North River flows through wetlands and salt marshes throughout Marshfield before flowing into the Massachusetts Bay. This River has been designated as a State Scenic Protected River and a National Natural Landmark because its freshwater tidal wetlands are globally rare. It is the largest undisturbed intact habitat of its kind in Massachusetts.



¹ Executive Office of Energy and Environmental Affairs. <http://www.mass.gov/eea/air-water-climate-change/preserving-water-resources/mass-watersheds/south-coastal-watersheds.html>



South River (at Rexhame beach), former mouth of North and South Rivers

The South River begins west of Marshfield, also flowing through marshes along its way, until meeting the North River. Furnace Brook, Twin Brooks, Little's Creek, and several smaller creeks discharge into the South River.

The Green Harbor River starts at the Duxbury Line and flows for approximately five miles north and east to the dike at Green Harbor. The upper portion of the Green Harbor River is impounded to create reservoirs for cranberry cultivation. Bass Creek and Wharf Creek discharge into the Green Harbor River. This River is slower flowing than the other rivers and is sometimes choked by siltation and vegetation, making it impassible by boat.

The Duxbury Bay Basin contains many small tidal creeks that drain south into Duxbury Bay. Little changes in elevation mixed with slow water flow have created a variety of meanderings across the floodplains and eventually discharge into the sea through an extensive estuary. Silt dropped during this process, mixes with materials brought in by ocean tides, creating mud flats that are favorable to shellfish.

Wetlands

Wetlands in Marshfield play a large role in the Town's landscape. Poorly draining soils, mentioned earlier, create freshwater wetlands and streams. Hillside wetlands exist because groundwater has reached the surface and cannot seep through impervious soil layers. Wetlands in the Town include river corridors, ponds, marshland, and cranberry bogs. There are greater than 1,000 acres of Conservation Commission owned wetlands in Marshfield, and 166 acres of estuary are state-owned.

Wetlands are protected under the Massachusetts Wetlands Protection Act (MGL c. 131 § 40), which was originally enacted into law as the Hatch Act in 1972 and amended by the 1996 Rivers Act. The law aims to protect public and private water supplies, prevent storm damage and pollution, protect wildlife habitat and fisheries, reduce the effects of potential flooding and protect groundwater supplies.² Under the Act, work within wetland resource areas and their buffer zones cannot occur without approval from the Marshfield Conservation Commission.

Like other Massachusetts communities, the Town of Marshfield has adopted a local wetlands bylaw that is more stringent than the state law. According to the Marshfield Conservation Commission Wetlands Protection Regulations, “any activity proposed or undertaken within 100 feet” of certain described areas require a Notice of Intent and approval by the Commission. Such described areas subject to these regulations include any bank, freshwater wetland, coastal wetland, beach, dune, flat, marsh, wet meadow, bog, swamp, estuary, creek, river, stream, pond, lake, and any land subject to tidal action, coastal storm flowage, or flooding.³ Marshfield’s Coastal Wetlands District is an overlay district encompassing all lands covered by water of the average lunar monthly high tides that further restricts development and activities in these areas.⁴

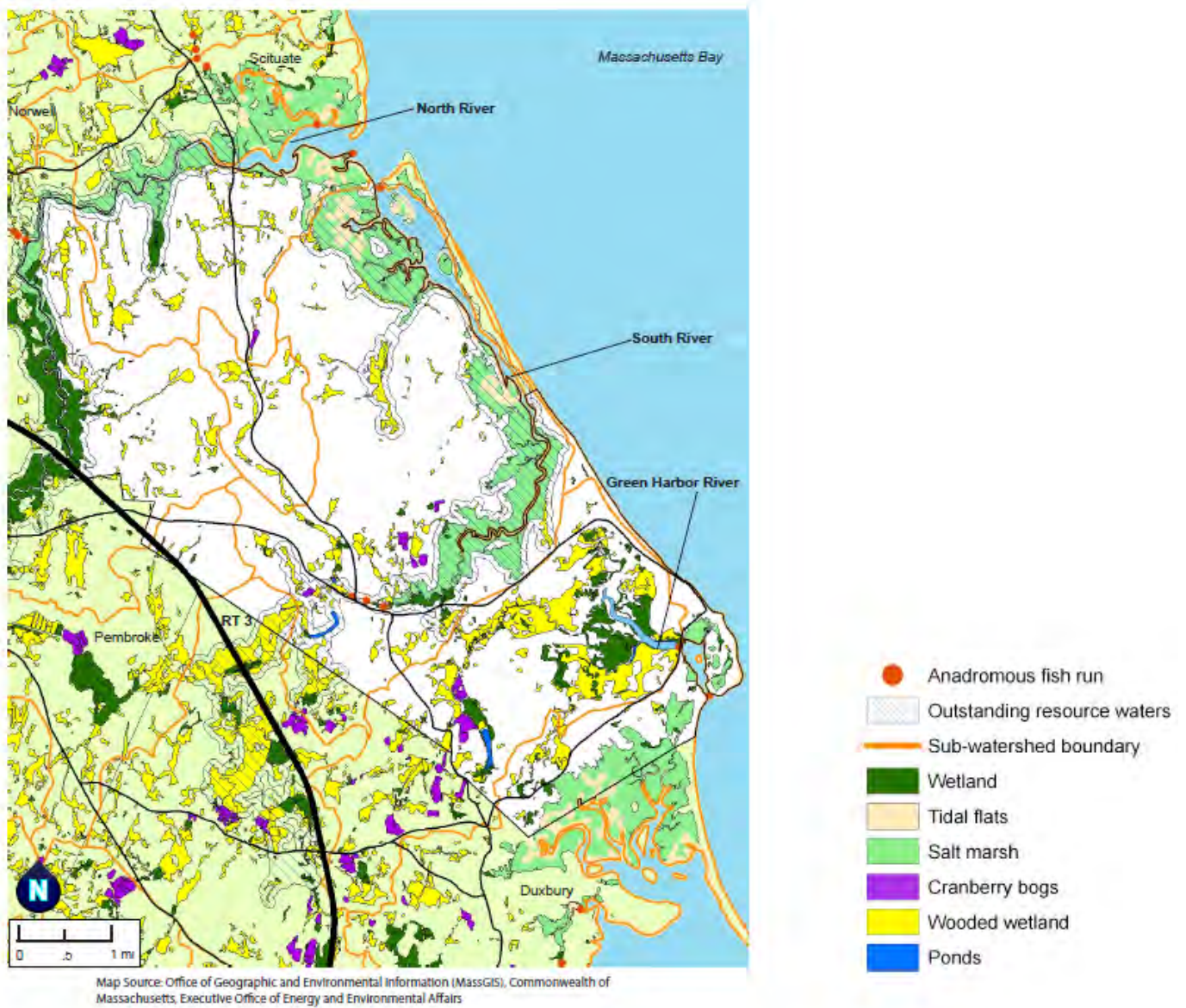


2 Wetlands Protections Act regulations, <http://www.mass.gov/dep/service/regulations/310cmr10a.pdf>

3 Marshfield Wetlands Protection Regulations, http://www.townofmarshfield.org/Collateral/Documents/English-US/conservation/WETLANDS%20REGULATIONS_5-1-08.pdf

4 Marshfield Zoning Bylaws.

Figure 5.2 Surface Water Features



Floodplains

Floodplains – areas adjacent to waterways that are inundated with water during times of increased flow – are also protected in Marshfield. Specifically, within the Town’s Zoning Bylaws is a section dedicated to Floodplain Zoning with an established floodplain overlay district, which seeks to “protect human life and health and minimize danger to emergency response officials in the event of flooding; minimize expenditure of public money for flood control projects and emergency

response and clean up; reduce damage to public and private property and utilities resulting from flooding water and debris.”⁵

Areas of Special Flood Hazard designated as Zone A, AE, AH, AO, or VE by the Federal Emergency Management Agency (FEMA) in the Town fall within the Floodplain District. Structures cannot be built or substantially improved, footprints of existing structures cannot be expanded, and topography cannot be altered without a permit granted by the Planning Board and Building Inspector. Additionally, “all encroachments, including fill, new construction, substantial improvements to existing structures, and other development is prohibited in the floodway.”⁶

These kinds of restrictions help protect against disruptions to floodplain areas and the water-holding capacity of those areas. When such disruptions occur, flooding beyond the boundaries of floodplains can take place, which can potentially damage roads and buildings. This is especially important in the Town of Marshfield due to its proximity to the Massachusetts Bay and vulnerability to frequent coastal storms, and its abundance of wetlands and marsh areas. Much of Marshfield’s coast is protected with concrete seawalls or armored revetments requiring periodic repair. As the coastline continues to change and there is less beach in front of the seawalls and revetments the frequency of repairs to these structures will increase. At the April 2013 Town Meeting, more than \$4.25 million was appropriated to cover replacement of 1,131 feet of seawall in the Fieldston Beach neighborhood, repair 150 feet of revetment in front of the seawall in Hewitt’s Point and design a project to replace 2,600 feet of seawall stretching into Ocean Bluff. Future rises in sea levels and increased intensity of coastal storms, creates a more vulnerable and risky situation for Marshfield, making this an important resource to consider.

Vernal Pools

Vernal pools are seasonal depressions that typically hold water during certain times of the year, generally in the fall or winter. They are breeding grounds for a host of amphibians and invertebrate animals. The Natural Heritage Endangered Species Program (NHESP) of the Massachusetts Division of Fisheries and Wildlife (MassWildlife) has certified 42 vernal pools in Marshfield.⁷ These vernal pools are protected under several state and federal laws, including the Wetlands Protection Act and the Federal Clean Water Act. The Town’s local wetlands bylaw includes a provision that creates a 100 foot buffer from the highest extent of flooding around vernal pools.



⁵ Marshfield Zoning Bylaws.

⁶ Marshfield Zoning Bylaws.

⁷ MassWildlife website, Natural Heritage Endangered Species Program, Vernal Pools, http://www.mass.gov/dfwele/dfw/nhesp/vernal_pools/vernal_pool_data.htm

Groundwater

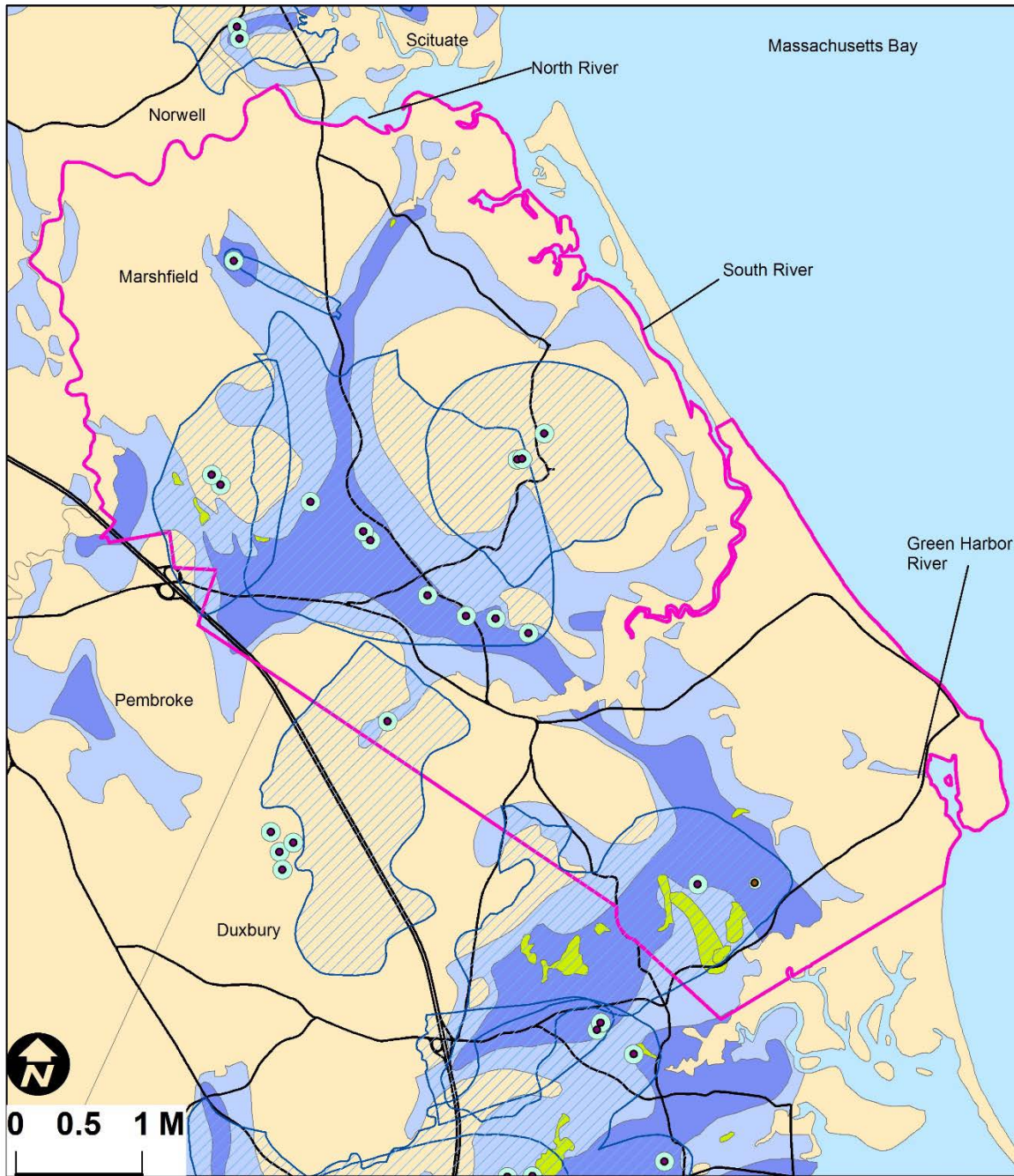
Marshfield receives all of its drinking water from the Plymouth-Carver Aquifer which is located beneath the Town and contains water flowing within the South Coastal Watershed. The Aquifer also supplies water to portions of Duxbury, Scituate, and Pembroke. Marshfield contains 16 public water supply wells that have the potential to supply in excess of 8.6 million gallons a day. Ninety percent of Marshfield's population utilizes these public wells, while the remainder relies on private wells.

The Town has established a Water Resource Protection District (WRPD) in order to "prevent contamination of and preserve the quantity and quality of ground and surface water which provides existing or potential water supply for the Town's residents, institutions, and businesses".⁸ The overlay district includes Zone II protection areas. Zone II includes portions of the watershed that contribute to the groundwater of the wells. The Zone I is a 400 foot buffer around each public well and limits activity within this buffer (established by the Massachusetts Department of Environmental Protection (MassDEP)). The southeastern most well in Marshfield, Webster II, is protected by a 250-foot buffer (Figure 5.3). Uses are restricted within this overlay district that may pose a threat to the water quality of the Town's drinking supply.



⁸ Marshfield Zoning Bylaws.

Figure 5.3 Floodplains and Groundwater Features



Water Resources - Marshfield, MA
 Source Data: MassGIS, MassDEP
 Prepared by VHB

Legend

- Public Water Supplies
 - Wellhead Protection Zones
 - DEP Approved Zone IIs
 - Town of Marshfield
 - Major Roads
- Aquifers**
- High Yield
 - Low Yield
 - Medium Yield
 - Pond
 - Till

Stormwater Management

Communities are required to manage stormwater runoff under federal law. This is because stormwater carries nutrients and pollutants from lawns, fields, roads, construction sites, and other sources into waterways and sewer systems. Marshfield has also established a Stormwater Management Overlay District which is to “protect, maintain and enhance the public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater run-off and non-point source pollution associated with new development and redevelopment”.⁹ Specific development activities are subject to Site Plan Review and development performance standards within the Stormwater Management Overlay District. Similarly, best practices for stormwater management – such as use of rain gardens and roof water collection – are encouraged under Site Plan Review.

Vegetation and Forest Resources

Marshfield’s forestland is currently estimated at 7,115 acres – 2,520 acres less than in 1985. The forestland consists of coniferous and deciduous trees, and a wide range of tree species. Over 2,600 acres of available forestland today have been protected and are owned by the Town of Marshfield or considered quasi-public (Green Harbor Golf Club and the Daniel Webster Wildlife Sanctuary). Another 4,200 acres are privately owned and many are temporarily protected through the Chapter 61 Forestry Tax program.

The Carolina Hill Reservation is of particular importance to the Town’s recreational and environmental needs because of its contiguous 775 acres utilized for hiking, horseback riding, cross-country skiing, scenic walks, and wildlife observation. Forested areas also provide wildlife habitat, help to increase water quality, reduce wind damage, help recharge the aquifers, and reduce flooding.

Town-wide, there are two endangered plant species, according to the NHESP. Table 5.1 show plant species in Marshfield that have been designated by the state as endangered, threatened, or species of special concern.

▼
9 Marshfield Zoning Bylaws.

Table 5.1 NHESP Rare Plant Species

Wildlife Group	Scientific Name	Common Name	Conservation Status
Plant	<i>Suaeda calceoliformis</i>	American Seablite	SC
Plant	<i>Bidens pilosa</i>	Beggar's-ticks	E
Plant	<i>Botrychium simplex</i>	Grape Fern	SC
Plant	<i>Eriocaulon parkeri</i>	Estuary Pipewort	T
Plant	<i>Cardamine longii</i>	Long's Bitter-cress	T
Plant	<i>Panicum philadelphicum</i>	Philadelphia Panic Grass	T
Plant	<i>Linum medium</i>	Rigid Flax	T
Plant	<i>Carex plymorpha</i>	Variable Sedge	E

Source: Natural Heritage and Endangered Species Program
 E = Endangered, T = Threatened, SC = Special Concern

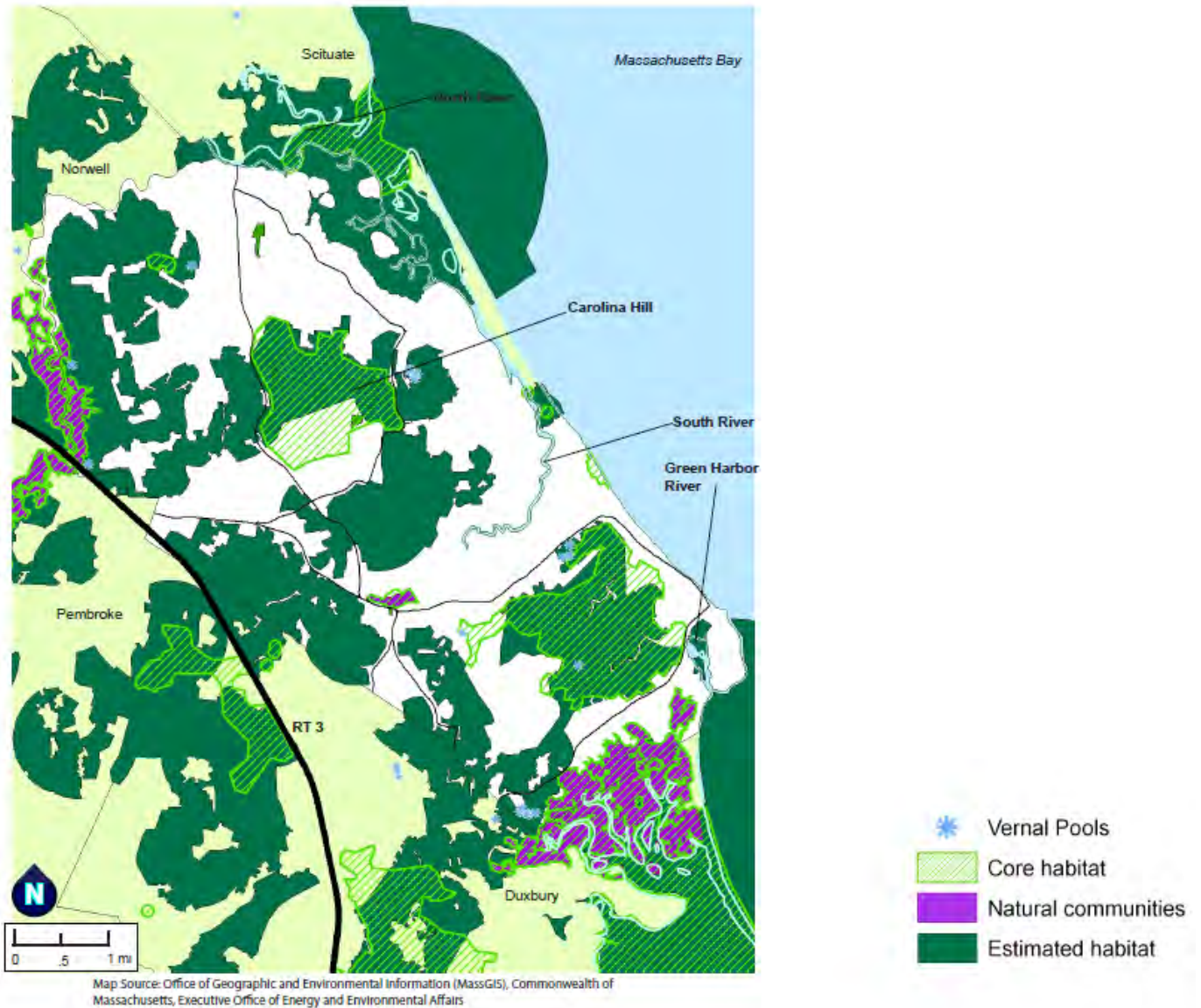
Fisheries and Wildlife

The natural spaces in Marshfield are home to many different species of wildlife. These spaces include everything from vernal pools to forests to rivers. Having both salt and fresh water habitats increases the diversity of aquatic and land animals. Marshfield's shoreline provides a transitional region with creatures from both the ocean and rivers. Saltwater estuaries are the most productive habitat in the world, serving as a nursery for two-thirds of commercial seafish and nourishing a myriad of other wildlife. With these small species at the bottom of the food chain, other animals have been able to thrive. Marshfield is home to species like foxes, muskrats, raccoons, turtles, frogs, spring peepers, ducks, and deer. The North River Marshes serve as the nighttime roost for the non-breeding blackbird population that reaches 100,000 birds each fall. Wetlands serve as the wintering ground for large raptor, including the rough-legged hawk, northern harrier, red-tailed hawk, and short-eared owl.

Marshfield contains two fishways: one where the Green Harbor River flows into Green Harbor, and one on the South River in Veterans Park. There are fish runs and spawning habitat on the Second Herring Brook and the North and South Rivers. The runs and spawning habitat support alewife, blue herring, Atlantic salmon, and rainbow smelt. There are six shellfish growing areas in Marshfield within the North River, South River, and Green Harbor River Estuaries.

With this abundance of wildlife, the NHESP has designated fifteen priority habitats of rare species areas in Marshfield comprising 2,043 acres, and eleven estimated habitats of rare species comprising 1,920 acres. A majority of this land is already protected, but there are still some areas that are unprotected. In 2015 the Planning Board working with an applicant and the Conservation Commission protected an additional 28.2 acres of rare species habitat off of Webster Street. Protecting all priority and estimated habitats would enhance these areas and preserve a part of the character and heritage of Marshfield for present and future generations.

Figure 5.4 Wildlife Habitat and Vernal Pools



There are four endangered species in Marshfield, according to the NHESP. Table 5.2 identifies the status of rare amphibian, bird, crustacean, fish, and reptile species in Marshfield.

Table 5.2 NHESP Rare Animal Species

Taxonomic Group	Scientific Name	Common Name	NHESP Status
Amphibian	Hemidactylum scuattum	Four-toed Salamander	SC
Bird	Botaurus lentiginosus	American Bittern	SC
Bird	Sterna paradisaea	Arctic Tern	SC
Bird	Dendroica striata	Blackpoll Warbler	SC
Bird	Gavia immer	Common Loon	SC
Bird	Sterna hirundo	Common Tern	SC
Bird	Gallinula chloropus	Common Moorhen	SC
Bird	Accipter cooperi	Cooper's Hawk	SC
Bird	Rakllus elegans	King Rail	T
Bird	Ixobrychus exilis	Least Bittern	SC
Bird	Sterna antillarum	Least Tern	E
Bird	Oporonis philadelphia	Mourning Warbler	SC
Bird	Circus, Cyaneus	Northern Harrier	T
Bird	Podilymbus podiceps	Pied-Billed Grebe	T
Bird	Charadrius melodus	Piping Plover	E
Bird	Sterna dougallii	Roseate Tern	T
Bird	Accipter striatus	Sharpshinned Hawk	SC
Bird	Asio flammeus	Short Eared Owl	E
Bird	Bartramia longicauda	Upland Sandpiper	E
Crustacean	Crangonyx aberans	Mystic Valley Amphipod	SC
Fish	Notropis bifrenatus	Bridle Shiner	SC
Reptile	Terrapine carolina	Eastern Box Turtle	SC
Reptile	Clemmys guttata	Spotted Turtle	SC

Source: Natural Heritage and Endangered Species Program
 E = Endangered, T = Threatened, SC = Special Concern

"Endangered" (E) species are native species which are in danger of extinction throughout all or part of their range, or which are in danger of extirpation from Massachusetts, as documented by biological research and inventory.

"Threatened" (T) species are native species which are likely to become endangered in the foreseeable future, or which are declining or rare as determined by biological research and inventory.

"Special concern" (SC) species are native species which have been documented by biological research or inventory to have suffered a decline that could threaten the species if allowed to continue unchecked, or which occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become threatened within Massachusetts.

Scenic and Unique Resources

Marshfield contains many scenic landscapes and elements, especially scenic views. The Duxbury Marsh, a salt marsh located in the southern part of town where Marshfield borders Duxbury, has been designated by the state as a scenic landscape. Since the Town purchased it and the surrounding land for conservation, Carolina Hill remains the only hilltop in the community that is accessible by the general public. Other hilltops (which all contain scenic views) have been privately developed and therefore are no longer accessible to the public.

The North, South, and Green Harbor River corridors and their surrounding marshland have immense scenic value. Luckily, state regulations and the North River Commission protect these scenic areas. The North and South Rivers and their tributaries are designated by the state as Outstanding Resource Waters. It is important for the Town to continue to enforce regulations in order to protect these resources for years to come.

Other scenic and unique natural resources include:

- The English Salt Marsh Wildlife Management Area – a 166-acre parcel at the mouth of the North and South Rivers, providing exceptional scenic views and a feeding area for a variety of egrets and herons.
- Open meadows scattered throughout the Town – a majority of these lands have public access and are designated as conservation land. The largest being the Daniel Webster Wildlife Sanctuary.
- Coastline and barrier beaches provide scenic views of Massachusetts Bay.
- Thirty-four Scenic Roads have been designated in the Town. These not only offer scenic values, but are a form of the Town's preserved history.

Environmental and Management Challenges

There are several environmental challenges that could conflict with natural resources and open space goals. These challenges range from hazardous waste sites, landfills, erosion, chronic flooding, sedimentation, development impacts, and groundwater and surface water pollution. Five hazardous waste sites within the Town of Marshfield directly influence the Zone II Aquifer Recharge areas. Although the Town does not own these sites, it is important to remediate these because of their potential risks to the Town's water supply.

A major challenge Marshfield faces is the erosion of the seacoast from flooding and wave action. Seawalls and armored coastlines have been created to prevent this erosion and

flooding from occurring. However, these structures also reduce the amount of sediment that would normally be deposited along the shore, replenishing the beach. This sediment deficit results in recession and narrowing of beaches, increased erosion, and an increase in coastal storm damage during storm events. Coastal development must be planned in order to avoid areas of major natural physical processes.

Flooding is also one of the biggest challenges the Town faces today. With an extensively developed coast, low-lying areas in close proximity to water bodies, and a landscape made up of an abundance of wetlands, marshes, floodplains, rivers and tributaries, flooding is a frequent occurrence in this community. Since many coastal areas were developed prior to today's building codes and FEMA regulations, they continue to remain at risk for flooding and property damage. Efforts by Marshfield's Department of Public Works have decreased flooding in the Bass Creek and upper Green Harbor River areas. The Conservation Commission and Building Department strictly enforce FEMA regulations today for construction within Flood Hazard Zones. Recent regional efforts by the Town Planner, Conservation Agent, and Board of Selectmen will help in developing long term best management practices and solutions for rising seas levels.

South River and North River Water Quality

The South River has had a history of being impaired by bacteria, specifically pathogens, since testing began in 1994. According to the most recent MassDEP 2012 Integrated List of Waters, there are two segments of the South River (MA94-08 and MA94-09) that have been assessed.¹⁰ The 4.9 mile upstream segment (MA94-08) flows from an unnamed pond north of Congress Street in Duxbury to the dam at Main Street in Marshfield. This segment has been listed as a Category 2 waterbody, meaning some uses have been assessed, while others have not. The MA94-08 segment has attained the following uses: aesthetics; fish, other aquatic life and wildlife; primary contact recreation; and, secondary contact recreation.

The 0.7 square mile downstream segment (MA94-09) flows from the dam at Main Street in Marshfield to the confluence with the North River/Massachusetts Bay in Marshfield/Scituate. It has been listed as a Category 5 waterbody, meaning this segment has a regulatory restriction on the Total Maximum Daily Load (TMDL) because it is impaired by fecal coliform. TMDLs are regulated for impaired waterbodies to limit the amount of pollutant entering the waters. It is the maximum amount of a pollutant that is permitted in the waters, while still retaining certain water quality standards.

Two segments of the North River are listed as Category 5 waterbodies in MassDEP's 2012 Integrated List of Waters. The 0.3 square mile segment (MA94-05) begins at the confluence of Indian Head River and Herring Brook in Hanover and Pembroke, and flows to Main Street in Marshfield/Scituate, where the second segment begins. This segment is impaired for fecal coliform, and mercury in fish tissue. The second 0.6 square mile segment (MA94-06) flows from Main Street in Marshfield/Scituate to the confluence with the South River/Massachusetts Bay in Scituate. This segment is also



¹⁰ Massachusetts 2012 Integrated List of Waters. Massachusetts Department of Environmental Protection. <http://www.mass.gov/dep/water/resources/12list2.pdf>

impaired by fecal coliform. All pollutants are regulated through TMDLs for these two segments.

A main concern related to South River water quality is that of shellfish beds located at the river mouth. Shellfish beds near the mouth of the river were only recently opened in April 2011 for the first time in decades.¹¹ The Division of Marine Fisheries in fact reopened 313 acres of South River shellfish beds during this time.¹² Shellfishing in these areas are restricted to recreational use only, as commercial shellfishing is not allowed. Shellfish beds located farther upstream are still prohibited from shellfishing due to water quality issues. The Town and the North and South Rivers Watershed Association (NSRWA) wish to continue to open these beds annually, and extend the locations and seasons in which they stay open, possibly keeping them open all year round.

The Town of Marshfield has worked towards a goal of reducing pollution to the South River from stormwater events. Multiple monitoring and testing programs have been conducted by the Town and NSRWA since 1994. More recent efforts, through the American Recovery and Reinvestment Act (ARRA) 604(b) funding, involved tracking sources of bacteria to target hot spot areas of high bacterial levels, focusing water quality improvements in those areas based on prioritization of sites, and providing design for the top three sites. The top three priority hot spot sites included the areas of High Point Realty, Road to Responsibility, and the Marshfield Library. These targeted hot spot areas were recently remediated and improved by utilizing stormwater best management practices (BMPs) and other stormwater improvements. Various BMPs were recommended based on design challenges, such as constructed wetlands, grass swales, and filtering bioretention areas. When implemented, these BMPs would not only provide pollutant removal benefits and help towards extending shellfishing seasons, but also improve drainage and increase the aesthetics of the area.

Open Space

Currently, 5,413 acres (25 percent) of Marshfield is considered to be open space. Open space generally refers to any undeveloped, conservation, recreational, forested, and agricultural lands or parks. Since the 1970s, Marshfield has been acquiring open space parcels buffering public wells and within the aquifer recharge areas. Marshfield contains 4,814 acres of land protected in perpetuity, with 3,026 acres managed municipally by the Marshfield Conservation Commission, School Department, Department of Public Works, or the Water Department. Land trusts manage 1,120 acres, and the state manages 431 acres of the English Salt Marsh in northeastern Marshfield (near the mouth of the North River).



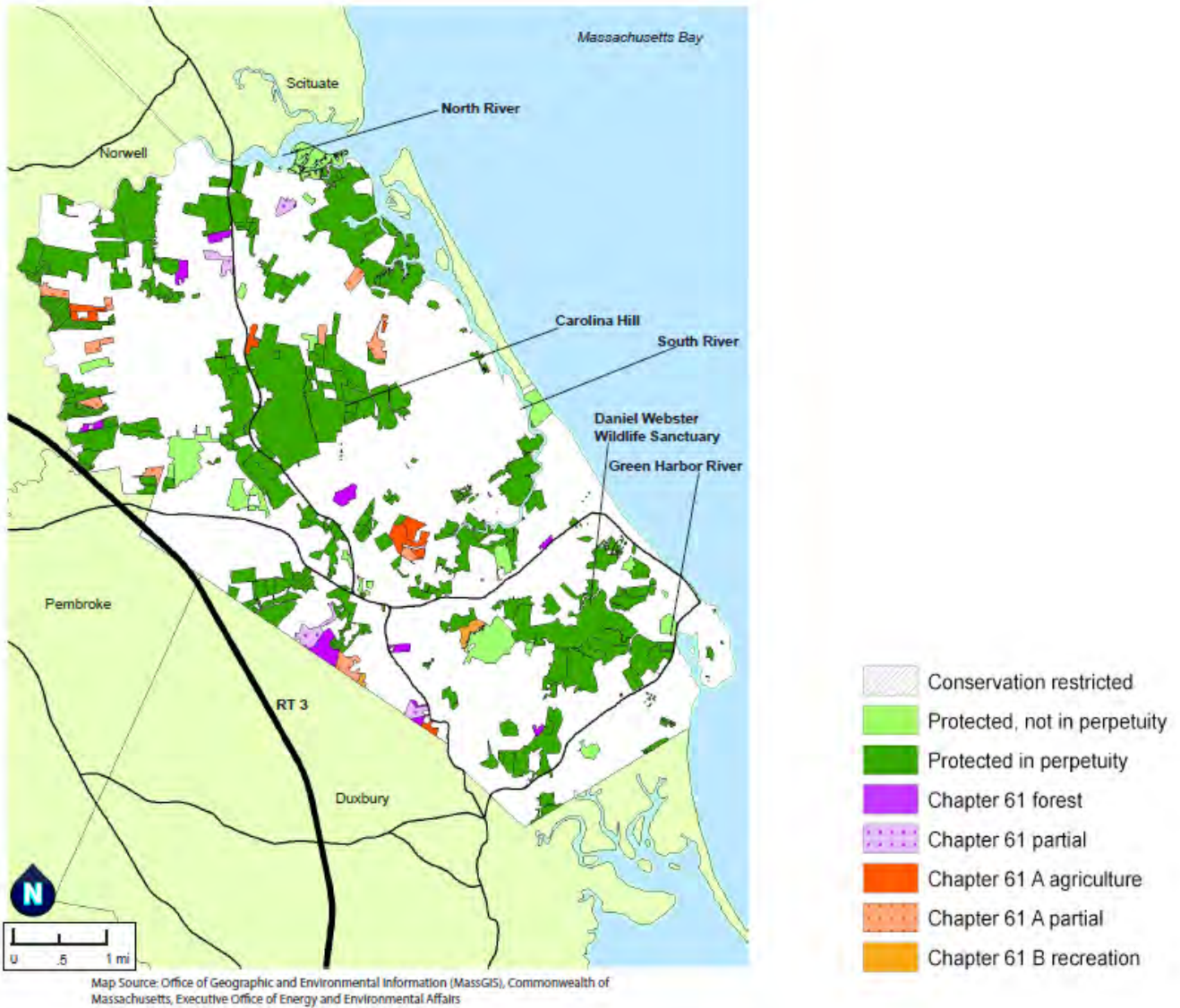
¹¹ 2009-5/ARRA 604 South River Bacterial Source Assessment. June 20, 2011. Town of Marshfield. Final Report.
¹² The Boston Globe. May 15, 2011. *After 20 years, Marshfield clam beds reopened to public.*

Chapter 61 is a government program that offers tax incentives to private landowners who maintain their property as open space. It is designed to encourage the management, preservation and enhancement of the Commonwealth's forests, agricultural lands, and privately-owned recreational parcels. There are three types of Chapter 61 designated lands:

- Chapter 61: Contiguous forestland of ten or more acres with an approved management plan for improving forest health;
- Chapter 61A: Agricultural/horticultural land in excess of five acres, e.g. cranberry bogs, orchards, grape vineyards, productive woodland, and nurseries; and,
- Chapter 61B: Private recreational land, e.g. hiking trails or paths, camping, boating, golfing, fishing areas, and horseback riding trails open to the public.

Various parcels of land in Marshfield fall within Chapter 61 designation. See the following figure for protected and Chapter 61 parcels.

Figure 5.5 Open Space Inventory



Historic and Cultural Resources

Marshfield's rich history dates back to America's first colonies and the arrival of the Mayflower. Settlers from the Mayflower were drawn to Marshfield as they began to look for better farmland outside of Plymouth. Marshfield was part of the original area known as the "New Colony of New Plimoth in New England," established in 1620 by Edward Winslow, one of the pilgrims on the Mayflower. Marshfield was named because of the large number of salt water tidal marshes scattered throughout the Town along the Green Harbor River, and the North and South Rivers near their confluence with Massachusetts Bay.

Existing Conditions

The Town of Marshfield possesses numerous historic resources, including properties listed in the National Register of Historic Places (NRHP) and properties included in the Inventory of Historic and Archaeological Assets of the Commonwealth, as well as several archaeological sites (see Historic Resources Map). Marshfield's active Historical Commission was formed in 1964, and is the town's official town historical body governed by Massachusetts General Laws, Chapter 40, Section 8d. The seven member Commission serves as the liaison with the Massachusetts Historical Commission (MHC), administers the Town's demolition delay bylaw with the Building Department and functions as the promoter and caretaker of a number of Town-owned historic properties.

Inventoried Resources

The Historical and Archaeological Assets of the Commonwealth, an inventory of buildings, districts, structures, objects, archaeological sites, and burial grounds maintained by the MHC, includes a number of properties in Marshfield. Although many of these properties have not received an official designation, further study of inventoried properties often identifies candidates for designation as well as acts as a useful guide to explain the historical development of communities.

Properties in Marshfield that are listed in the NRHP consist of historic districts and individual buildings. Marshfield has two NRHP-listed historic districts: the Marshfield Hills Historic District and the Hatch Homestead and Mill Historic District.

Originally a farming and fishing community near the North River, the Marshfield Hills Historic District is small village-like residential area with a few public and commercial buildings dating back to the 19th century, such as churches, a general store, and a post office. The owners of the first houses in this area were farmers, local craftsmen, and merchants, many of whom were descendants of the earliest settlers in the area. The primary style for the district is Greek Revival. Marshfield Hills Cemetery at the south end of the district dates to 1723; and the earliest residence to approximately 1750 with a variety of styles and periods between then and the early

20th century. Some of its historic homes include the Zenas T. Ewell House, the Rogers/Carver House, John L. Toughy House, and Calvin Damon House, all of which date to approximately 1800.

The Hatch Homestead and Mill Historic District contains the historically significant Deacon Joel Hatch Mill which played an important role in Marshfield's settlement and early history. Constructed in 1812, the grist mill with its original waterwheel and 19th century machinery is an example of Marshfield's early industrial history along the North River and is the only surviving water powered mill in the area.

One of Marshfield's most famous historic places is the Daniel Webster Estate, owned by the Town and managed by the Daniel Webster Preservation Trust. Daniel Webster was an important figure in Massachusetts history as a leading American senator from Massachusetts during the period leading up to the Civil War. The classic Queen Anne-style Victorian mansion, built in 1880, is located on a 14-acre estate was established on land granted in 1640 to William Thomas by the Plymouth Proprietors. The house sits on the location of the original Webster home which was destroyed by fire in 1878. The estate draws visitors through tours, teas, lectures and special events.



Daniel Webster House

Marshfield has one individually listed building in the NRHP. Table 5.3 details all NRHP listed resources in the Town of Marshfield. All resources listed in the NRHP are also listed in the Massachusetts State Register of Historic Places.

Table 5.3 NRHP listed resources in the Town of Marshfield

Name	Year Listed	Resource Type
Hatch Homestead and Mill Historic District	2009	Historic District
Marshfield Hills Historic District	2009	Historic District
Isaac Winslow House	2000	Individual Property
Daniel Webster Estate	2010	Individual Property

Inventoried Resources

The Historical and Archaeological Assets of the Commonwealth, an inventory of buildings, districts, structures, objects, archaeological sites, and burial grounds maintained by the MHC, includes a number of properties in Marshfield. Although many of these properties have not received an official designation, further study of inventoried properties often identifies candidates for designation as well as acts as a useful guide to explain the historical development of communities.

Marshfield has seventeen inventoried areas or neighborhoods that do not have official designations. These areas are distinct residential, industrial, and landscape areas of the Town that either have a connection to the Town’s early settlement or its industrial and cultural heritage. Examples include the Marshfield Fairgrounds, Marshfield Village, and Brant Rock.

Altogether, Marshfield has 357 inventoried individual properties that have not received an official designation. The inventoried properties are located in and around all of Marshfield’s neighborhoods, including Downtown Marshfield, North Marshfield, Green Harbor, Brant Rock, Fieldston and neighborhoods along the beachfront such as Rexhame and Brant Rock.

Because of Marshfield’s history as one of the earliest settlement, it was a prime location of historic markers, including one dating back to 1657, the Stepping Stone, located at the Training Green in front of the First Congregational Church. The Stepping Stone was used for church attendees as a mounting block for horseback riders. Another marker overlooking the ocean at Hewitt’s Point documents the site of a 1683 sheep farm and five different shipwrecks at the point between 1787 and 1898.

Locally Significant Historic Resources

The Historical Commission keeps record of the Historical House Survey in Marshfield. The Survey lists 300 properties that have been determined to be of local historical significance to the Town. To document important sites, over forty granite and cast markers have been placed around Marshfield to identify historically significant sites. Many of these individual properties are also listed as inventoried properties under the MHC, however, several are not including Paine House in Brant Rock.

The Historical Commission also recently completed a survey of streets in Marshfield with names attributed to local and national history. The street survey includes four distinct historical groups including:

- Streets named after early Native American neighbors in the 1630s, such as Agawam Avenue
- Streets named after famous ships, such as Constitution Road
- Streets named after famous individuals in U.S. history, such as Franklin Street
- Streets named after people in the Marshfield history, such as Alden Road named for Pilgrim John Alden

Preservation Programs in Use

The Town of Marshfield employs the following programs to assist in the preservation of the Town's historic properties.

National Register of Historic Places

As mentioned above, the Town of Marshfield has four historic properties listed in the NRHP, including two historic districts. The NRHP is the nation's official list of significant historic properties. Properties listed in the NRHP include sites, buildings, structures, districts, and objects that are significant in American history, architecture, archaeology, engineering, and culture. Contrary to popular perception, listing in the NRHP does not limit a property owner's right to alter, manage, or sell the property when using private funds. Instead, the designation acts as a key to access preservation programs and incentives at the federal, state, and local level.

Some of the key benefits to NRHP listing include eligibility for federal and state rehabilitation tax credits, access to income tax deductions for the donation of historic preservation restrictions, and matching grant funds for preservation related projects. NRHP listing also requires consideration in federal, state, and some local planning projects.

Properties considered for NRHP listing must be at least fifty years old (unless they demonstrate exceptional significance) and must possess physical integrity by retaining enough of its original materials to exhibit its historic appearance during the period of its historic significance. The NRHP recognizes properties associated with famous figures and events, but also acknowledges places that are associated with the history of important themes and trends in American history and pre-history. NRHP listing is accomplished through a nomination process initiated by an individual, or a private or public entity. Property owners may object to the listing through a certified letter to the State Historic Preservation Office. If 51 percent of the property owners within a district object to the listing through the certified letter objection process, the district will not be officially listed in the NRHP. The number of properties held by a single owner is immaterial; each property owner has one "vote." The nomination addresses the significance and integrity of the resource through a thorough report

documenting its appearance and history. Before the final designation, the report is reviewed by MHC staff, the MHC's state review board, and the NPS.

Federal and State Historic Tax Credit Programs

Since 1976, a federal tax credit has been available for rehabilitating buildings listed in the NRHP that are used for an income-producing use. This program offers a 20 percent tax credit for the qualified costs of a substantial rehabilitation of historic buildings when the work meets the Secretary of the Interior's Standards for Rehabilitation. A similar tax credit program at the state level in Massachusetts provides a state tax credit up to 20 percent of qualified costs. The programs have made an important contribution to not only the continued use and preservation of many historic buildings in Massachusetts, but have also resulted in the creation of additional jobs, revenue for municipalities, and housing units, among a number of proven benefits.

Demolition Delay Bylaw

Demolition by neglect, defined as the deterioration of a building through abandonment and/or inadequate maintenance, poses a serious threat to many communities. Such neglect can lead to the deterioration of a building's structural systems and its external and internal appearance. In addition to being dangerous, deteriorating buildings are an eyesore and discourage investment and damages neighborhood pride.

The Marshfield Demolition Delay Bylaw, prepared and sponsored by the Commission, was approved by Marshfield voters at its annual town meeting in 2008. The bylaw provides for a delay of up to one year in the demolition of a property fifty years old or older that the Commission has determined to be historically significant to the Town to provide time to explore other alternatives. Sixty properties have been reviewed and two historic homes, a unique barn and components of several outbuildings have been preserved using the bylaw as a vehicle for discussion.¹³ The bylaw protects individual derelict buildings as well as the physical integrity of an entire neighborhood by specifying a set of minimum maintenance requirements for all buildings. While historic buildings and neighborhoods are by no means the only structures to suffer from owner neglect, concerns about the high costs and hassles involved in rehabilitation of older buildings tend to make older structures more susceptible to abandonment.

Historical Commission Programs

In addition to the property and historic streets survey programming and demolition delay bylaw, the Historical Commission maintains a series of other historic and cultural preservation programs that seek to preserve Marshfield's unique history as one of America's first communities. The Historical Commission began the Pilgrim



¹³ Town of Marshfield. Historical Commission. <http://www.townofmarshfield.org/government-boards-historical-commission.htm> Accessed April 2014.

Trail Preservation Program first with the procuring preservation covenants for sections of the Pilgrim Trail in the 1970s. The Pilgrim Trail was first a Native American footpath from Plymouth to Scituate. The historic trail is visible in Marshfield partly due to the preservation efforts of the Historical Commission working with the Planning Board. The Pilgrim Path was designated a road by the Plymouth Court in 1637. Plans are in progress to improve portions of the trail that have become impassable.¹⁴

The Historical Commission maintains a Concord coach at the historic Winslow House. The coach was built in 1854 to carry passengers to Marshfield from the Boston ferry terminal in Hingham and the South Shore Railroad terminal in Cohasset. When rail service was extended to Marshfield in 1871, the coach was used to carry vacationers from the former train station (located at the site of the skate park in Marshfield center) to various vacation hotels in Brant Rock and Green Harbor.¹⁵

The Historical Commission also owns and maintains the historic blacksmith shop at the Historic Winslow House. Demonstrations of the blacksmithing art are a favorite of Marshfield school children. The Historical Society and the Commission have begun a project to renovate the building.¹⁶



Governor Winslow House



¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid.

Recommendations

- NR-1. Protect the drinking water for the Town of Marshfield. (Note: several zoning proposals will be addressed in the land use element that relate to the WRPD, land use designations in certain business districts, and dimensional requirements.)
- NR-2. Develop, maintain and improve public access to water resources (particularly along the North, South, and Green Harbor Rivers), open space and trails.
- NR-3. Consider adopting a Low Impact Development (LID) bylaw to minimize post-development stormwater runoff and further protect the Town's water resources and surface and groundwater drinking supplies. Ideally, such a bylaw should apply town-wide, but it could be targeted specifically to areas that are especially sensitive from an environmental perspective. Review the design, construction, and maintenance of stormwater "best management practices" both by the Town and private developers to ensure that the Town is taking advantage of the most recent and effective approaches to LID.
- NR-4. Evaluate effectiveness of waste water systems in Zone II areas. Work with DPW and Town Planner to determine parcels that are within Zone II and are currently unprotected.
- NR-5. Continue monitoring the water quality of water features to determine which, if any, are in need of cleanup or protection.
- NR-6. Acquire or otherwise protect available parcels that will buffer wells from VOC's, nitrogen and other contamination sources.
- NR-7. Evaluate opportunities and locations that could be used to facilitate wildlife crossings and connect habitat areas within the Town. Develop Management Plans for the most heavily used properties that address safety, conservation, and biodiversity.
- NR-8. Seek funding through NHESP, DFW, and other partners to fully evaluate and document the wildlife habitat values and natural communities in Marshfield.
- NR-9. In the course of updating the zoning bylaw, ensure that any revisions consider and incorporate appropriate best practices for such environmental protections as stream buffers or shoreline setbacks.
- NR-10. Continue to monitor and work towards improving water quality in both the South, and North and Green Harbor rivers.
- NR-11. Create a stormwater utility to help facilitate better stormwater management.
- NR-12. Protect the water quality in the South River by limiting the type of development adjacent to the river to protect it from pollution.
- NR-13. Work with the abutting towns to protect groundwater in Zone II areas that extend beyond Marshfield's borders.

NR-14. Ensure that post-development runoff does not exceed pre-development runoff by requiring on-site stormwater retention.

NR-15. Reduce imperviousness in site design where appropriate by encouraging design features such as smaller parking lots, reduced road and driveway dimensions, the use of pervious paving materials, and other measures to reduce overall impervious surfaces.

NR-16. Ensure adequate treatment of stormwater before it reaches surface and groundwater.

NR-17. Establish an inspection system to ensure continued operation of required stormwater management systems.

NR-18. Identify opportunities to improve infiltration and stormwater management in existing developed areas.

Recreation Recommendations:

NR-19. Create connections between currently protected parcels to make a greenway and trail network throughout the town. Develop a larger, multi-use trail.

NR-20. Increase the amount of recreational trail based activities, such as walking and biking. Increase the number of ball fields (five to eight needed) to meet the needs of youth programs. Develop an additional indoor recreational facility.

Historical Resources Recommendations:

NR-21. Consider granting tax credits to property owners who restore buildings to their original character and style.

NR-22. Continue to acquire preservation covenants, maintain, and support the creation of cultural points of interest along the Pilgrim Trail.

NR-23. Continue the inventory and study of archaeological resources and consider further state designation of archaeological sites.

6

Public Services and Facilities

Introduction

The public services and facilities portion of a master plan is needed in order to guide decisions and develop a plan relevant to public buildings, utilities, and infrastructure in order to meet future needs of the community. Community facilities make it possible for municipal employees and volunteers to provide services for the public good. The adequacy of municipal facilities for the functions they serve is largely determined by three factors:

- The form, size, and organization of the community's local government;
- The community's land use pattern; and,
- The expectations of the community's population.

A town's ability to provide adequate facilities depends on effective capital planning and a commitment to implementation, asset management policies, and the amount of revenue available for local government operations. Marshfield, like many other municipalities, receives very little funding from non-local sources and relies almost entirely on its own residents and businesses for financial support. Although it has basic core facilities for local services, some of Marshfield's facilities are inadequate to meet current or future needs in order to

accommodate the personnel, equipment, technology, and records storage that government organizations need in order to run efficiently.

Public Services and Facilities Goals

- Develop a comprehensive planning process for short- and long-term capital improvements for all Town facilities and services.
- Establish new or improved/upgraded facilities and increase staffing for public safety to meet demands resulting from anticipated growth.
- Lead by example in community facilities and operations by establishing sustainability principles and initiatives.
-

Marshfield's Local Government

The municipal services that Marshfield provides are fairly typical of other Massachusetts communities. To residents and businesses in just about every city or town, many local government services qualify as “essential” regardless of whether the state mandates them. For example, municipalities do not have to provide solid waste disposal services, youth services, recreation programs, a senior center or a public library, but the towns that provide these services often consider them important to the quality of life and an indispensable part of what it means to be a community. The following are some of the municipal services that the Town of Marshfield offers:

Table 6-1 Marshfield Municipal Services

Accounting	Police Department
Administration	Department of Public Works:
Animal Control	Engineering
Assessors Department	Highway/Equipment Maintenance
Beaches	Cemetery/Trees/Greens
Board of Health	Water
Building Department	Trash & Recycling
Council on Aging	Wastewater (Sewer)
Emergency Management Agency	Recreation Department
Fire Department	Marshfield Public Schools
Harbormaster	Sealer of Weights & Measures
Information Technology	Town Clerk
Library Department	Town Counsel
Marshfield Airport/George Harlow Field	Treasurer/Collector
Planning Department	Veteran's Services
Payroll & Benefits Administration	Zoning Board of Appeals

Source: Marshfield Town website, <http://www.townofmarshfield.org/government-departments.htm>

In addition to its municipal services and departments, Marshfield is home to a variety of boards, committees, and commissions working to advance and improve the community. The Town's executive decisions are made by the Board of Selectmen, a board composed of three elected members who serve as the primary policy makers for the Town. The Board of Selectmen is responsible for providing policy guidance for all Town departments, developing budget strategies and oversight of the budget process, appointing those serving on boards that are not elected, and acts as the licensing authority for alcohol and motor vehicle retailers. Other boards, committees, and commissions are shown below.

Table 6-2 Marshfield Boards/Committees/Commissions

ADA Committee	Housing Authority
Advisory Board	Hunting Safety Committee
Agricultural Commission	Library Board of Trustees
Airport Commission	Library Building Committee
Beach Commission	Marshfield Energy Committee
Board of Assessors	Open Space Committee
Board of Health	Personnel Board
Board of Public Works	Planning Board
Board of Selectmen	Playground Committee
Capital Budget Committee	Recreation Commission
Coastal Advisory Committee	School Committee
Community Preservation Committee	Seth Ventress Building Committee
Conservation Commission	Trustees of Soldiers Memorial
Council on Aging	Veterans Agent Search Committee
Cultural Council	Waterways Committee
Historical Commission	Zoning Board of Appeals
Housing Partnership	

Source: Marshfield Town website, <http://www.townofmarshfield.org/government-boards.htm>

Existing Facilities and Services

Education

The Marshfield Public Schools system is comprised of seven schools (Daniel Webster Elementary, Eames Way Elementary, Furnace Brook Middle School, Governor Edward Winslow Elementary, Marshfield High School, Martinson Elementary, and South River Elementary), preschool programming, a school administration building, and technology building. Marshfield's school district facilities, along with grade levels, size, year built, current condition, recent upgrades, and number of staff are listed in Table 6-3 below. Condition ratings are determined by the Massachusetts School Building Authority's (MSBA) 2010 Needs Survey Report and based on a scale of 1 to 4; 1 indicating the best conditions and 4 indicating the poorest.

Table 6-3 Marshfield's School District Facilities

Facility	Grade Levels	SF	Year Built	Condition*	Recent Upgrades
Daniel Webster Elementary	K-5	57,715	1964	3	HVAC & windows (2012)
Eames Way Elementary	K-5	40,020	1961	2	HVAC & windows (2012); roof (2007)
Furnace Brook Middle School	6-8	159,220	1959	1	Addition (1999)
Governor Edward Winslow Elementary	K-5	65,790	1969	2	HVAC & windows (2011)
New Marshfield High School	9-12	267,367	2014	1	N/A
Martinson Elementary	K-5	92,900	1965	1	Addition (1999)
South River Elementary	K-5	62,790	1950	2	HVAC & windows (2012); roof (2006); windows (2003)
Seth Ventress Building/School Administration	N/A	N/A	1895	N/A	Renovated 2010
Marshfield Technology Building	N/A	2,510	1928	N/A	N/A

Source: Marshfield Public Schools

*Conditions are based on the MSBA's 2010 Needs Survey Report

There are three school facilities in Marshfield with a condition rating of 1, having the best conditions. Options for the Daniel Webster Elementary will need to be evaluated in the future as this facility also has a fairly poor ranking (condition ranking of 3).

As of August 2013, the entire Marshfield school district was composed of 725 staff including but not limited to teachers, administration, tutors, custodial, and transportation. Total student enrollment in the schools for the 2013-2014 enrollment year was about 4,340 students.¹ Staffing and student breakdown for each of the seven Marshfield public schools is shown in Table 6-4.

¹ 56 students were counted as out of district.

Table 6-4 Marshfield’s School District Staff and Student Enrollment

Facility	Staff	Teachers ¹	Student Enrollment	Teacher to Student Ratio
Daniel Webster Elementary	79	40	342	1:8.6
Eames Way Elementary	59	34	321	1:9.4
Furnace Brook Middle School	136	86	1066	1:12.4
Governor Edward Winslow Elementary	76	41	363	1:8.9
Marshfield High School	191	131	1319	1:10.1
Martinson Elementary	82	42	399	1:9.5
South River Elementary	68	41	474	1:11.6

Source: Marshfield Public Schools

1 – Number includes special education, art, music, physical education, and other teachers. Does not include administrative staff.

The Marshfield Public School District is currently undergoing a redistricting exercise to better redistribute elementary students across the five elementary schools. Some of the schools have grown in enrollment more quickly than others, while some have decreased in enrollment. Engaging in a redistricting process would help to evenly distribute students across the elementary schools so as not to overcrowd some.

In FY2014 the Town spent over \$1 million on school improvements, including replacement of gymnasium bleachers and flooring. Additional capital spending planned through FY17 totals approximately \$15 million, about half of which is dedicated to technology upgrades in the schools. Another \$3 million is earmarked for improving ADA accessibility.

Library

The Ventress Memorial Library is the public library serving Marshfield’s residents. The library contains approximately 71, 372 books in circulation and runs a variety of programs and events. Ventress offers e-book and e-magazine (electronic books and magazines) services along with regular book, book on tape, CD, video, and magazine rentals. Children’s services include a designated children’s room, story time sessions and summer reading programs.

Ventress Memorial Library currently contains a total of 13 staff members (five full-time staff, eight part-time staff). An additional volunteer organization, the Friends of the Ventress Memorial Library, works towards efforts of the library. The mission of the Friends is to support the library through fund-raising activities (semi-annual book sales, silent book auction), advocacy, and sponsorship of programs (public enrichment programs) to benefit the general public.² The organization is open to all members of the community to join.

² Ventress Memorial Library. Friends of the Library. <http://www.ventresslibrary.org/index.php/friends-of-the-library/friends-of-the-library>. Accessed October 2013.

The Library is located in a converted shopping center originally constructed in 1968. In 1983, a portion of the building was converted into the library. Since then, several major maintenance issues have emerged. Heating, ventilation, and air conditioning (HVAC) problems developed, and were partially addressed with new HVAC units installed in 2007. Leaks in the roof developed in the early 2000s but were addressed in 2008 with a new roof installation. In 2010, staff reported water seepage from ground level in several areas throughout the library, which has caused buckling in the cement floors and a partial collapse in the rear of the library. This is a structural concern for the library that will need to be addressed in the future.

Department of Public Works (DPW)

The Department of Public Works (DPW) is responsible for providing essential public works infrastructure support services for Marshfield residents. The DPW is under the direction of the Superintendent of Public Works. There is also an administrative assistant and payroll clerk employed by the Department. The DPW is located at 870 Moraine Street and holds office hours Monday through Friday. The DPW is organized into six divisions, each under the direct supervision of a division supervisor. Divisions include: Engineering; Highway Operations; Cemetery, Trees, and Greens; Water; Trash and Recycling; and Wastewater (sewer).

Services provided include:

- The engineering design, construction, maintenance, and repair of streets, sidewalks, sewer, water, and storm drainage systems;
- Surveying and mapping;
- Maintenance and repair of vehicles and equipment;
- Maintenance of parks, cemeteries, athletic fields, beaches, public buildings, and off-street parking facilities;
- Public refuse collection and disposal;
- Recycling;
- Snow plowing and ice control;
- Administration of construction contracts;
- Review of subdivision projects;
- Inspection of construction projects; and
- The operation of the Water and Sewer Treatment plants.

Engineering Division

The DPW Engineering Division designs infrastructure improvement projects and provides technical support to DPW divisions. The Engineering Division employs a Town Engineer and two Project Managers. The Division is located at 870 Moraine Street and holds office hours Monday through Friday from 8:30 AM to

4:30 PM. The Engineering Division produces, updates, and provides public access to the Town atlas/assessors maps, plans of land, easement plans, taking plans, as-built sewer and drainage record plans, and various town maps. The Division is currently working with the Town Geographic Information System (GIS) Administrator to create and update GIS datalayers and databases to contain all of the same features shown on the maps described above.

Highway Operations Division

The Highway Operations Division is staffed by a Highways Supervisor and Administrative Assistant. The Division is located at 35 Parsonage Street at the N.E. Williams Highway Garage. The Highway Garage is in poor condition and needs to be addressed in the future.

Cemeteries, Trees, and Greens Division

The Cemeteries, Trees, and Greens (CTG) Division is staffed by 10 full-time personnel and eight summer employees. The Supervisor of the CTG Division also supervises the Highway Operations Division. The CTG Division cares for cemeteries, trees, ball fields, parks, and grounds owned by the Town of Marshfield.

Table 6-5 Cemeteries, Trees, and Greens Division Responsibilities

Facility	Number	Responsibilities
Cemeteries	7	Funerals, interments, seeding, loaming, trimming, mowing, rubbish, foundations and markers, funeral flowers, snow plowing, tree/shrub maintenance/planting.
Trees		Removal, planting, trimming, tree hearings.
Roadside Maintenance		Responsible for 480 miles of roadside to be trimmed back.
Schools	7	Mowing, rubbish removal, irrigation systems, benches, soccer fields, tennis courts, football fields, track, over seeding, loam, fertilization contract, basketball courts.
Ballfields	32	Rubbish, mowing, seed/loam, irrigation systems.
Parks	7	
Other recreational/historical	10	
Traffic Islands	16	Mowing, trimming, general upkeep.

Source: Marshfield Town website: <http://www.townofmarshfield.org/government-departments-public-works-cemeteries-trees-greens.htm>

Water and Wastewater Treatment Divisions

The Marshfield Water Division is responsible for providing an adequate supply of safe water for Marshfield residents. The Division is overseen by a Water Supervisor. Water Division responsibilities include:

- The installation, maintenance, and repair of water main, service lines, and fire hydrants;
- The maintenance and operation of wells, pumps, and related infrastructure;
- Water meter installation and reading; and
- Water resources protection and management.

The Water Division also conducts community outreach and education, including the promotion of water resources conservation.

The Wastewater Treatment Division is led by a Chief Operator and Administrative Clerk. There is a wastewater treatment facility in Town located at Joseph Driebeck Way. The treatment facility is staffed seven days a week and holds normal office hours from 7:00 AM to 3:30 PM Monday through Friday. The DPW is responsible for operations and maintenance of the facility and also oversees the sewer collection system and remote pumping stations.

Trash and Recycling Division

The Trash and Recycling Division mission is to encourage people to consume less, reuse and donate materials, and recycle what cannot be reused. The Division employs a Project Manager, Solid Waste and Recycling Enforcement Officer, Transfer Station Foreman, and Administrative Clerk. The Division holds office hours Monday through Friday.

The DPW plans, implements, and maintains cost-effective recycling, toxics reduction, and waste prevention programs. These programs strive for good communication, good customer service, and high participation and recovery rates. The Trash and Recycling Division maintains and monitors the curbside recycling program, recycling center, and recycling in municipal buildings, schools, public areas, and events.

The Division maintains a Transfer Station and Recycling Center at 23 Clay Pit Road which is open Monday through Saturday from 8:30 AM to 4:00 PM. Marshfield residents that pay the annual trash fee and purchase a \$20 sticker can use the center; stickers are available at a discounted rate of \$10 for residents over 70 years old. Waste accepted at the facility includes: yard waste, compost, appliances, bagged clothing, batteries, cardboard, fluorescent bulbs, bottles, cans, plastics, oil paint, paper, scrap metal, tires, and motor oil and filters.

The Marshfield curbside recycling collection program accepts a variety of common recyclables including newspapers, mixed paper, cardboard, glass, plastics, and cans. Collected items are taken to a Materials Recovery Facility where they are separated into different types of materials, compressed, and shipped to firms that use the materials to make new products.

Public Safety

Fire Department

The Fire Department currently has 54 full-time uniformed positions, three of which are currently vacant. The Department also has 14 part-time on-call firefighters (with one vacancy), one full-time administrative assistant, and one part-time administrative assistant. The Fire Department is headed by a Chief and Deputy Chief. The department also employs approximately four captains, eight lieutenants, and 39 Firefighter EMTs.

The Central Fire Station is located at 60 South River Street and was originally constructed in the late 1950's and was remodeled in the 1990's.

The new Fire Station 1 is located at 21 Massasoit Avenue was just opened (March 2015). Fire Station 2 at 229 Old Main Street is over 100 years old; the current fire station was converted from a school in 1954. The most recent improvement to Station 2 was in 2004. The improvement included a ten foot addition to the apparatus bays with new windows and insulation.

The Central Fire Station, or Station 3, at 60 South River Street was built in 1958 with an addition added in 1999 that included windows, insulation, and a heating plant. In 2012, six of the eight garage doors were replaced to improve energy efficiency. This station houses Quint 1, Engine 3, Forest 3, three paramedic ambulances, three command cars, a service truck, dive rescue, fire alarm operations, and administration.

Fire Department equipment is presented in Table 6-6 below.

Table 6-6 Fire Department Equipment

Equipment	Quantity
1000 GPM pump (Engine 4)	1
1250 GPM pump (Engines 1,2,3 & 5)	4
100 foot aerial with a 1500 GPM pump (Quint 1)	1
Brush Breaker (Forest 3)	1
Forest-fire trucks (Forest 1 and 2)	2
Paramedic ambulances	4
Rescue/special operation vehicle	1
Command cars	3
Service truck	1
Marine units	4
Boat trailers	3

Source: 2013 Department Survey

The Fire Department responded to 4,526 incidents in FY2013 for a monthly average of 377. This number does not include inspections or permit processing.

The Fire Department currently has difficulty keeping up with the demand for services, especially Emergency Medical Services (EMS). On average, the Department needs to put two additional members on the ambulance each week to treat a critical patient. Following these transports, the ambulance is often out of service due to a lack of supplies or the need to clean the vehicle before it can transport another patient. As the average age of Marshfield residents increases, and as 55 and older developments fill to capacity, there will be a rise in the demand for EMS. For example, the Fire Department has responded to incidents at the Village at Proprietors Green senior rental facility 411 times in the three years it has been operational.

Access to many beach areas is impacted during coastal flooding events. Trouants Island is not accessible on a daily basis during high tide. Tea Rock Lane is also a challenge for the Fire Department due to the lack of fire hydrants; in the event of a structure fire, an excess of 2,000 feet of supply line would be necessary.

The Fire Department has started discussions with the Advisory Board subcommittee, Treasurer, and Town Administrator to review the total cost of providing emergency ambulance services so that the Marshfield rate will more closely match the cost of readiness. The current system of cross-trained firefighter/paramedics is the most economical service but cost recovery is very difficult with the Medicare/Medicaid reimbursement. This discussion needs to continue in order to reduce the tax burden of emergency ambulance service.

Police Department

The Marshfield Police Department employs approximately 41 full-time officers, 12 part-time officers, and 3 full-time civilian clerks. The Department is led by a Police Chief and Captain. There are five Lieutenants, four Sergeants, and 30 Patrolmen. The Police Department's mission statement is as follows: "The Marshfield Police Department will seek to reduce and prevent crime by working in partnership with the community. We will seek to identify the problems and needs that reduce the quality of life in Marshfield. Our Department will respond to these problems and needs with professionalism and fairness."

The Police Station is located at 1639 Ocean Street and was built in 1958. The station was renovated and expanded in 1978. There have also been additional minor upgrades over the years. The station currently has twelve holding cells, but based on the 2013 survey, this does not meet current Town needs.

The Department currently receives approximately 14,000 calls for service annually. Currently, the Department has difficulty meeting the demand for services.

Community Programs offered by the Police Department include: Drug Abuse Resistance Education (DARE); Training for Intervention Procedures (TIPS); Rape Aggression Defense (RAD); protection for those who may wander; Neighborhood Watch/Waterfront Watch; school resource officers; traffic safety; crime prevention; emergency operations; community policing; violence prevention; and crime reporting.

The Police Department noted a number of current issues in the 2013 survey. Notably, the station has the following needs:

- The building is not handicapped compliant;
- The cell block does not meet current suicide prevention guidelines;
- Areas of the building (e.g., evidence, interview) do not meet state accreditation standards;
- Non-compliance with state health regulations for arrestee hygiene;
- The indoor firing range is condemned;
- The electrical and network wiring is over capacity;
- The interior and exterior layout of the building poses safety and security hazards;
- Indoor ventilation A/C is inadequate;
- Inadequate locker room, bathroom, and shower facilities;
- There is no suspect/attorney interview room;
- There is no conference room;
- There is no decontamination area;
- The booking area is a concern for officer safety;
- The communication center is not sound proofed or segregated;
- There is a lack of storage space; and
- The server room is not temperature or climate controlled.

Recreation

The Marshfield Recreation Department was established in 1958 with the purpose of conducting and promoting recreation, play, sport, and physical education. The Department plans, organizes, promotes, and provides worthwhile leisure programs and facilities to serve the physical, emotional, and social needs of Marshfield residents. Currently, ages from one to 95 are served by the Department.

Marshfield's Recreation Department offers many activities throughout the year, including a concert and entertainment series, recreational trips, pre-school programs, youth and teen programs, adult programs, and family activities. The Department is active in the community, and posts updated seasonal brochures to their website of available programming and activities.

The Recreation Department is staffed by a full-time Recreation Director and part-time Administrative Assistant and operates from an office at Coast Guard Hill (900 Ferry Street). Program instructors and part-time employees are hired on a seasonal basis. Volunteers also assist with programs and planning. As many as 40 staff and volunteers assist with programs and special events. The Department holds office hours from 8:30 AM to 2:30 PM Wednesday, Thursday, and Friday.

There is a Recreation Commission comprised of seven full members and two alternates, all appointed by the Marshfield Board of Selectman. The Commission is an active board responsible for providing year-round, high quality indoor and outdoor recreational activities for Marshfield residents. The Commission meets regularly to review policy, programs, and facilities; community attendance and input regarding programs and facilities is welcome.

Recreation Department objectives include:

- Coordinate recreational activity with the school department, youth groups, youth sports programs, and the senior citizens group.
- Involve as sponsors of recreation special interest groups, business organizations, neighborhood groups, professional groups, and news media who are interested in helping to improve Marshfield.
- Better utilize and upgrade parks, ball fields, and conservation land.
- Better utilize, protect, preserve, and beautify Marshfield’s beaches.
- Setup new programs as self-supporting and explore ways of generating additional revenue through grants, donations, and fundraising.

Recreation facilities in the Town of Marshfield include Peter Igo Park, Tower Avenue Park, a street hockey/basketball complex, Marshfield Hills Playground, Green Harbor Beach, and Rexhame Beach. Table 6-7 details these facilities.

Table 6-7 Recreation Facilities

Facility Name	Location	Facilities Offered
Peter Igo Park	Marshall Ave. & Dyke Rd.	Basketball court, tennis courts, swings, open field, picnic tables, bike rack
Tower Avenue Park	Colonial Rd. & Tower Ave.	Picnic tables, tee ball field, sings, open field, basketball court, merry-go-round, bike rack
Street Hockey/Basketball Complex	Forest St. & Furnace St.	Basketball courts, street hockey rink
Marshfield Hills Playground	Old Main St. at the Fire Station	Bike rack, basketball court, picnic tables, open field, swings, see saw
Green Harbor Beach	Beach St. & Bay Ave.	Beach
Rexhame Beach	Standish St., off of Ocean St.	Beach, snack bar, basketball court, picnic tables

Source: Marshfield Recreation Department. (<http://www.townofmarshfield.org/government-departments-recreation-facilities.htm>)

Overall, the Town has 32 ball fields, a number of which are shared for different sports. Only a few are rested for up to three months. According to the 2013 survey and the Open Space and Recreation Plan, Marshfield does not currently have an adequate number of playing fields and parks. Additional fields for football, soccer, baseball, softball, and lacrosse, with another five to eight fields would help to meet the needs of youth programs. With additional fields, some fields could be rested each year. The Town also contains one indoor recreational facility, which is heavily used and in high demand.

Marshfield contains approximately 15 miles of hiking trails, with the longest trail stretching only two miles. Increasing the amount of hiking trails has been a goal and request of the public in the past. Designating parking at trailheads has also been requested. A portion of the Old Colony Railroad bed currently is used as a bridle trail.

Five canoe or kayak launching areas are located in the community, to access the rivers or ocean. The community has expressed interest in increasing the number of canoe or kayak launches in the area. One possible location for a new launch site is the area of the Marshfield Recreation Department headquarters at the base of Coast Guard Hill along the South River. This site also offers parking for a new launch site.

The Recreation Department would like to develop a playing field, walking path, and fitness area at the top of Coast Guard Hill. In the near future, ball field additions and renovations/repairs to Town playgrounds are planned. Including restrooms at ball fields was also suggested. Long-term, interest in developing a Recreation Barn (i.e., a building for large gross motor activities and department community sponsored events).

The Recreation Department issues seasonal brochures to residents detailing recreation program offerings. Programs are generally grouped into several categories which include: recreation trips and outings; pre-school programs; youth and teen programs; adult programs; family programs; and concert/entertainment. Table 6-8 presents recreation program offerings for winter/spring 2014 as an example.

Table 6-8 Recreation Programs: Winter/Spring 2014

Recreation Trips and Outings Bahamas Boston Celtics Boston Red Sox Boston Pops Cooperstown (baseball Hall of Fame) Disney on Ice Long Island Day Trip Nantucket Island New Hampshire Turkey Train Pre School Programs Basketball Buddies Community Playgroups Little Kickers Soccer Open House Tot Jam Sports Jam	Youth and Teen After School Sports Baby Sitting Training for Kids Boating Safety Fencing Flag Football Girls Karate Kids Horseback Clinic Hula Hoop Clinic Karate Gals Karate Kids Kids Fit R.A.M.S Skateboard Skaters Spring Golf Spring Archery Summer Basketball Summer Street Hockey Super Snacks andMore! Tennis Table Tennis (ping pong) Triple Threat Basketball Clinic Volleyball Stars	February School Vacation Lego Engineering Event Board Game Day Music Marathon Vacation Archery & Rock Climbing Adult Programs Badminton Basketball Beawell Yoga CPR/First Aid Fitness Fun! How to Read a Nautical Chart Hula Hoop Party Old Man Yoga Table Tennis (ping pong) Taiji Volleyball Families Community Garden Community Green House Let's Go
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Source: Marshfield Town website

The Recreation Department regularly (in season) maintains the community skate park, playgrounds, and recreation grounds at the recreation center. Maintenance to recreation facilities is also handled by the Department for Public Works. Recreation Department volunteers and staff provide additional support in maintaining fields, playgrounds, and facilities. In the future, the Recreation Department would like to better define maintenance roles.

Studies show that future population trends will experience a decrease in the number of school age children and an increase in the number of retired citizens. Any future plans for recreational resources in the town must consider this population trend.

Beaches

Unique among towns, Marshfield has a Beach Department. The Department employs a part-time, year-round Beach Administrator who works out of an office at 870 Moraine Street. The Beach Department also employs 30 seasonal employees. During the warmer months, the Department holds office hours from 8:30 AM to 4:30 PM Monday through Friday with extended hours (until 7:00 PM) every other Monday. Residents have the option of purchasing a Beach Sticker for \$30, which allows them to park free-of-charge at several of the Town beaches.

Table 6-9 Beaches

Name	Location	Existing Facilities
Rexhame Beach	350 Standish Street	Lifeguards, snack bar, restrooms, basketball courts, parking.
Fieldston Beach	End of Hartford Road	Lifeguards.
Sunrise Beach	End of 9 th Road	Lifeguards.
Brant Rock	Ocean Street & Dyke Road	Lifeguards, restrooms, parking.
Green Harbor	End of Beach Street	Lifeguards, portable toilets, parking.

Source: Marshfield Town website: <http://www.townofmarshfield.org/government-departments-recreation-facilities.htm>

The Beach Department maintains two buildings, Comfort Station and the Rexhame Snack Bar. Comfort Station was built in 1930 and was updated in 2008 for handicap access. The building is currently in need of a new roof, as the last roof was installed in 1978. The Rexhame Snack Bar was built in three stages during the 1950s. The bathrooms were updated in 2008 to provide handicap access. The snack bar was updated in 2008 and 2009. The current size of the building is inadequate for current demand; more toilets and a larger snack bar are needed. The facility is also in need of a new parking lot and would benefit from being connected to the Town sewer system.



Rexhame Beach

Seawalls

In 2013, a Sea Level Rise Study was prepared for the Towns of Marshfield, Scituate and Duxbury. The following is a description of the Marshfield seawall from the report.

There are numerous coastal stabilization structures along the Marshfield coastline, including concrete sea walls, stone revetments, groins, and breakwaters. Rising sea levels, combined with the effects of the projected higher frequency and intensity of coastal storms, will result in more damage to coastal stabilization structures and more over-topping of the structures due to storm wave action. Many of the existing sea walls experience over-topping today during major storms. Over-topping, and the associated damage of structures and public infrastructure located behind sea walls, will only increase as sea levels rise in the future.

Higher tidal elevations will result in deeper water depths in front of coastal stabilization structures during high tides, which will result in larger ocean waves hitting the structures, which will in turn accelerate structural damage of the structures and increase the rate of erosion in front of the structures. Deeper water will increase not only the force of wave impacts, but also the frequency of interaction between the wave energy and the structure, further eroding the beach fronting the seawall. This self-reinforcing cycle (eroding beach creates deeper water creates more wave interaction creates eroding beach) ultimately leaves the seawall/structure without adequate coastal beach to provide stability or protection during a storm. Currently, due to coastal erosion and sea level rise, many areas have little or no beach in front of structures constructed in the 1930s through 1950s which can absorb wave energy. In these areas, the structures are the first and only lines of coastal defense. Where this is the case, increasing the height of seawalls may not be the best solution. A better solution is to raise structures while recreating landform in front of the structures to help absorb wave energy and to stabilize the structures.

There are several openings in the existing sea walls and revetments in the Rexhame Beach area that allow water to pass through the structures and flood neighborhoods behind the structures during storm events. The inundation map for the 75 year sea level rise and storm surge does not indicate water flooding through the wall openings, because the storm surge used does not take into account wave heights above the mean surge level. Based on discussions with Town staff, water is known to pass through these openings today under the right tidal and storm conditions.³

The storms of the 2014 – 2015 winter has exacerbated the deteriorating condition of these seawalls.

³ Sea Level Rise Study - Towns of Marshfield, Duxbury, Scituate, MA, Kleinfelder, July 18, 2013



Photos of the seawall from the January 2015 Blizzard.

Stormwater

The Town of Marshfield has developed a comprehensive Stormwater Management Plan to comply with the requirements of the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Phase II stormwater regulations. The Stormwater Management Plan aims to protect Marshfield's water bodies and groundwater and to safeguard public health, safety, and welfare. The Plan describes best management practices (BMPs) that Marshfield will implement in order to meet the requirements of its NPDES permit. The Plan's goals are to reduce the impacts of stormwater runoff

to surface waters through a comprehensive program of improvement projects, resource protection, and public awareness and involvement.

Public Education and Outreach on Stormwater Impacts

Marshfield will, at minimum, plan and conduct an ongoing public education and outreach program designed to describe the impacts of stormwater discharges on water bodies and how stormwater pollutants can be reduced.

Illicit Discharge Detection and Elimination

The Town has a program to detect and eliminate illicit discharges into the storm sewer system. An illicit discharge is any discharge to a storm sewer system, such as a catch basin, which is not composed entirely of stormwater and which is a significant contributor of pollutants. For example, a sanitary sewer connection to a storm drain is considered illicit.

Construction and Post-Construction Runoff Control

The DPW routinely observes construction sites within the Town to ensure that proper erosion and sediment control techniques are employed; this measure helps to reduce downstream pollution. The DPW also reviews public filings to ensure that adequate stormwater controls are provided in new developments. This review helps to minimize the discharge of pollutants and potential flooding impacts.

Pollution Prevention/Good Housekeeping

The DPW performs street sweeping and cleaning of catch basins to reduce sediment in the drainage system and prevent localized flooding.

Capital Plan

A capital improvements plan (CIP) is a road map for planning and funding public facilities and infrastructure. It typically incorporates both the construction of new facilities and the rehabilitation or replacement of existing capital. Typically, a CIP covers a period of three to six years and serves as a declaration of intent by a locality to make capital expenditures on the schedule indicated. A CIP may or may not consider multiple forms of funding. Marshfield has a five year Capital Plan. Table 6-10 depicts the amount of capital improvements planned by departments through Fiscal Year 2018. Expenditures during this period include but are not limited to: vehicle replacement, fire-fighting equipment, police training, boat ramp and dock repairs, technology upgrades, bridge repairs, stormwater management improvements, wastewater pump station upgrades, water main upgrades, and facility improvements (e.g., replacement of gymnasium bleachers).

Table 6-10 Long Range Capital Plan by Department

Fiscal Year	Department	Capital Plan (dollar amount)
FY2014	DPW – Cemetery	98,000
	DPW – Engineering	5,925,000
	DPW – Highway	1,448,000
	DPW – Maintenance	110,000
	Information Technology	62,000
	Fire	906,325
	Police	97,745
	Town Hall	122,000
	School	1,065,780
	Conservation	25,000
	Animal Control	28,895
	Council on Aging	51,310
	Harbormaster	85,000
	Wastewater Enterprise Fund	1,905,000
	Solid Waste Enterprise Fund	175,000
	Water Enterprise Fund	2,130,000
	Total FY2014	14,235,055
FY2015	Assessors	35,000
	DPW – Cemetery	226,000
	DPW – Engineering	5,000,000
	DPW – Highway	2,010,000
	Information Technology	264,500
	Fire	589,725
	School	3,926,580
	Wastewater Enterprise Fund	2,895,000
	Solid Waste Enterprise Fund	125,000
	Water Enterprise Fund	2,281,000
	Total FY2015	17,352,805
FY2016	DPW – Engineering	4,550,000
	DPW – Highway	16,095,000
	Information Technology	180,000
	Fire	218,600
	School	2,777,000
	Wastewater Enterprise Fund	2,070,000
	Water Enterprise Fund	986,000
Total FY2016	26,876,600	
FY2017	DPW – Engineering	4,550,000
	DPW – Highway	445,000
	Fire	85,936
	School	300,000
	Wastewater Enterprise Fund	850,000
	Water Enterprise Fund	1,446,000
Total FY2017	7,676,936	

FY2018	DPW – Engineering	4,550,000
	DPW – Highway	295,000
	Fire	1,740,200
	Wastewater Enterprise Fund	195,000
	Water Enterprise Fund	461,000
	Total FY2018	7,241,200
Source: Marshfield Town website		

Public Services and Facilities Recommendations

Public Safety

- PSF-1. Increase staffing and improve facilities to meet current needs and future growth.
- PSF-2. Develop a plan to address the required upgrades to correct the Police Department headquarters deficiencies.

Recreation and Beaches

- PSF-3. Ensure adequate staffing, programs, and facilities.
- PSF-4. Continue maintenance of existing parks. Many cities and towns establish routine maintenance plans that describe what is to be done at each park and ballfield on a revolving basis to address short-term maintenance issues and identify where repairs are needed so that they do not become long-term problems into the future. This can also help to extend the life of each field and minimize the effects of overuse and allow the fields to rest.
- PSF-5. Increase connectivity, includes sidewalks and bike paths. Improve bike paths and safe biking options. See *Chapter 7 – Transportation and Mobility* for more details.
- PSF-6. The Sea Level Rise Study recommends rebuilding the existing seawalls at least two feet higher to accommodate rising sea levels over next 25 years to help protect the Town’s existing infrastructure. Storm closure panels at openings in sea walls should also be constructed that can be closed in advance of a storm to ensure that water does not pass through openings during storm events to minimize penetrations in sea walls. Additionally, the report recommends raising sections of several roadways to reduce flooding and maintain access to floodprone areas.
- PSF-7. Investigate, permit and develop off-shore breakwaters to aid in the protection of the shore line and beach nourishment efforts.
- PSF-8. Look for opportunities to increase the recreational facilities in Town.
- PSF-9. Enhance ADA accessibility to the Town’s parks and beaches.
- PSF-10. Ensure that recreation programming meets the needs of a changing demographic in Marshfield, particularly for the aging population.

Library

PSF-11. Pursue plans and funding to renovate the existing library footprint and expansion of facility.

Public Schools

PSF-12. Continue to support the elementary school redistricting process, to evenly balance student enrollment numbers in these schools.

PSF-13. Options for upgrading and improving the Daniel Webster Elementary will need to be evaluated in the future as this facility is in fairly poor condition.

Water and Wastewater.

PSF-14. Consider the expansion of town-wide sewer capabilities to the Industrial area or consider a package treatment facility for the PMUD and Industrial areas to enhance protection of sensitive natural resources.

Capital Improvement Planning

PSF-15. The Town could consider developing a town-owned property inventory for the CIP to identify surplus property and conduct an assessment of a site's suitability for municipal facilities or open space. The properties should be ranked by relative importance to the Town, based upon criteria that are established for potential suitability to meet the Town's needs.

PSF-16. The Town's Capital Budget Committee should continue its oversight of the CIP; conduct a consensus process for ranking capital project requests, with staff support from the Town Planner; identify potential sites for municipal facilities; and monitor progress toward implementation. The Committee should build upon the planning efforts that have already been undertaken by each department. A new or updated capital plan should be prepared and updated on an annual basis.

PSF-17. Continue to explore how to meet the space and staffing needs of municipal services. As Marshfield grows and changes in how it provides municipal services throughout the Town, it will need to continue to consider how to meet space and staffing needs of its municipal services. With the need to provide more space for the Town Hall, as well as addressing inadequacies of existing facilities, such as the Police Department headquarters building, it is important to move forward with applicable space studies, site identification and design to move these potential projects forward in a timely manner. A continued assessment of similar municipal services and their facilities will enable the Town to plan for where it needs to grow and reduce space and staffing needs.

Municipal Operations

PSF-18. The Town should take a leadership role in "greening" Marshfield through its operations, governance, and management. This is particularly true with respect to municipal buildings and facilities. As an example, the Town has been upgrading energy efficiency in some municipal buildings and seeking ways to reduce energy costs across all municipal operations. These are substantial projects that can serve as models for making cost-effective, sustainable planning and building practices part of project design,

planning, construction, and operations. The Town should seek ways to reduce the cost of municipal energy use and its carbon footprint. This strategy could advance efforts to develop public and private partnerships to also reduce residential and business energy use.

Transportation and Mobility

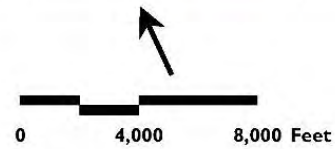
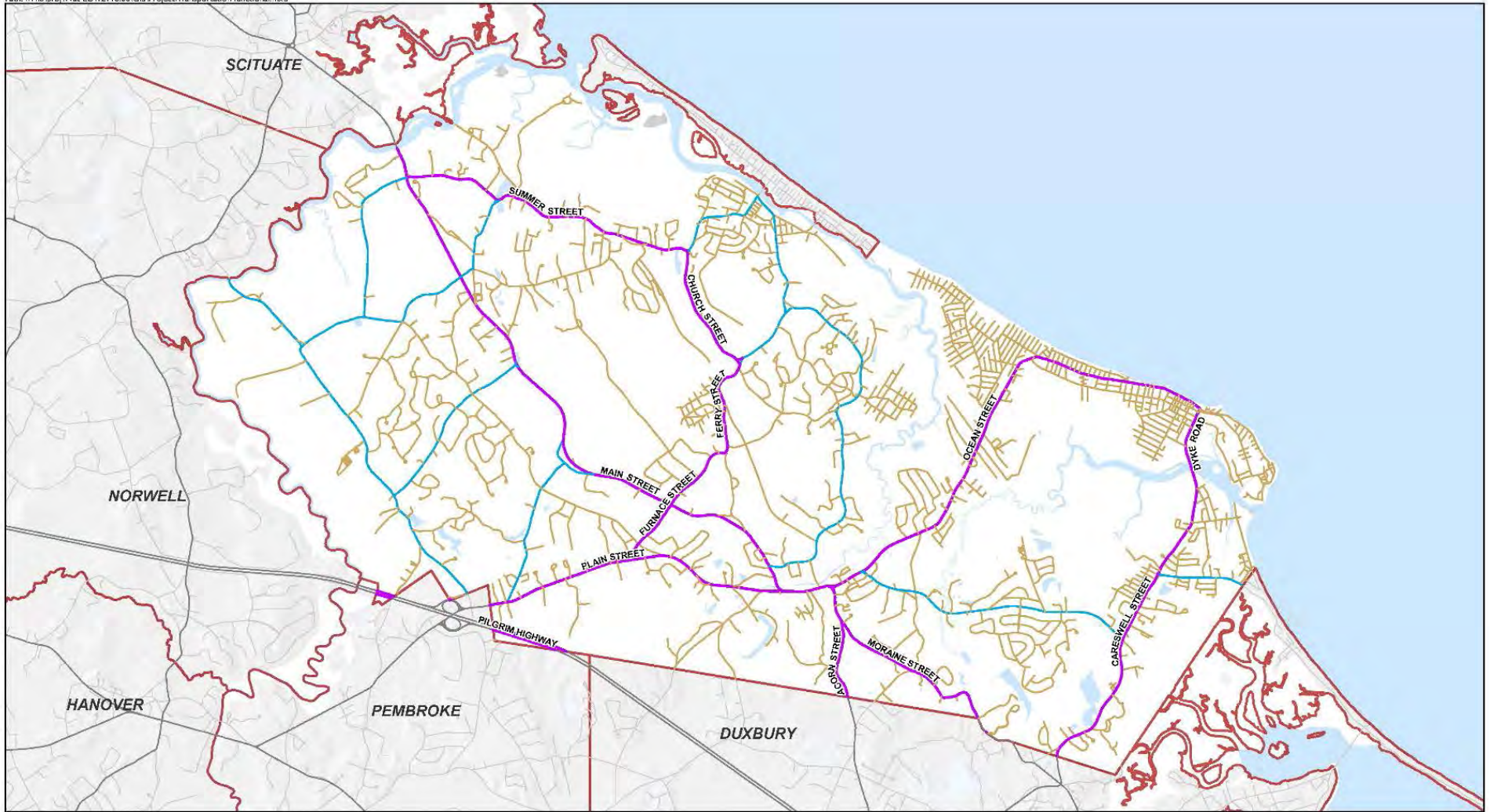
Transportation Overview

The Town of Marshfield is located in Plymouth County on the South Shore of Massachusetts. The South Shore region has a mix of cities, suburbs, and rural areas. The community is bordered by Scituate and Norwell to the north, Pembroke to the west, and Duxbury to the south. Marshfield (Town Hall) is approximately 30-miles southeast of Boston and offers direct access to the region via Route 3, Route 139 and Route 3A. The following provides a brief summary of these highways:

- **Route 3:** is a limited access 4 lane highway that touches the western corner of the town. Marshfield does not have a direct interchange onto Route 3. Access to Route 3 is provided in Pembroke at exit 12 and Duxbury at exit 11.
- ***Route 3A:*** is an arterial that bisects the Town providing north-south mobility and access to a significant number of the Town's residential neighborhoods, as well as the Marshfield Fair Grounds. Route 3A is commonly referred to as Main Street for most of its length; however, the section south of Route 139 is also known as Moraine Street.
- ***Route 139:*** is a collector/ arterial roadway that "loops" through Town in an east-west direction to/ from Route 3 in Duxbury and Route 53 in Rockland. The roadway provides access to development along the Atlantic Ocean shoreline and (in Town) this roadway is also known as Careswell Street, Dyke Road, Ocean Street, and Plain Street. A significant amount of the Town's retail/ commercial uses are along Plain Street.

Figure 7-1 Transportation Network and Functional Classification

Path: \\vhb\proj\Wac-LD\12118.00\GIS\Project\Transportation functional.mxd



 **Vanasse Hangen Brustlin, Inc.**

Transportation Network
and Functional Classification

Master Plan Update
Town of Marshfield, MA



Figure 7-1 illustrates the Marshfield transportation network. Marshfield does not have direct access to the MBTA Commuter Rail. Marshfield residents have to drive ten to twenty-five minutes to the nearby towns of Scituate, Kingston, Halifax, and South Weymouth in order to gain access to commuter rail. Access to the Red line (Braintree) is a minimum thirty minute drive and often there is no parking spaces available in the MBTA garage after 7 AM.

Greater Attleboro Taunton Regional Transit Authority (GATRA) provides one route that runs along Route 139 in Marshfield with continuing service to Duxbury and Kingston. While this route provides peak hour stops at the Kingston commuter rail station, it takes a minimum of thirty minutes of additional travel time (due to traveling reverse direction) for Marshfield residents to gain access to public transportation to Boston.

Prior planning efforts locally and regionally identified a number of challenges for the community; which should be considered as a whole to ensure that the Master Plan strategies complement each other. One challenge for the community is the expansion of retail and commercial development; which comes with an increase in traffic, congestion, or new safety issues. Through outreach meetings and discussions with key stakeholders in Town, the following transportation themes were identified:

- Traffic congestion;
- Land development transportation impacts;
- Sidewalk connectivity;
- Bicycle accommodations; and
- Public transportation.

This Transportation and Mobility Element is part of the Marshfield Master Plan; which identifies the range of transportation issues, needs, and deficiencies over the near- and long-term and establishes goals and strategies for physical enhancements and policies worth implementing.

The following provides an overview of the transportation goals:

- Improve and enhance pedestrian connectivity through Town.
- Improve bicycle connections between destinations in Town.
- Protect the Town's rural roadways and enhance major arterials and collector roadways through gateway enhancements.
- Provide new or enhance existing public transportation alternatives to improve access to rail transportation and improve service in Town.
- Reduce vehicle-conflicts along major corridors.

- Develop new local zoning bylaws that incorporate new transportation initiatives (such as complete streets, access management, traffic impact study guidelines).

- Identify sustainable transportation and infrastructure improvements that minimize the impact of new development or redevelopment.
- Perform corridor and/or intersection studies that identify specific improvements for areas with safety concerns and traffic congestion.

Regional Context

Regionally, Marshfield is positioned on the south shore of Massachusetts. The Town is approximately 30 miles southeast of Boston. Marshfield is on the border between two regional planning agencies Metropolitan Area Planning Commission (MAPC) to the north and Old Colony Planning Council (OCPC) to the south.

Regional Planning

For the development of this Master Plan, it is important to acknowledge and understand past transportation planning and land use efforts in Town and the region to ensure that recommendations are consistent and complimentary. Regional planning agencies (RPAs) as overseers of a larger area, help ensure that master plans are complementary to each community. The MAPC is the RPA to which Marshfield currently belongs (Marshfield is seeking to change membership to the OCPC). The MAPC also provides support for the Boston Region Metropolitan Planning Organization (BRMPO). Plans that have been prepared include:

BRMPO Regional Bicycle Plan (2007): The Boston Regional MPO Bicycle Plan outlines a number of goals and strategies related to bicycle travel for the future of the region. This plan built off the *MAPC Regional Bicycle and Pedestrian Plan (1997)* and the Massachusetts *Statewide Bicycle Transportation Plan (1998)*. The following summarizes the regional goals that were identified:

- Encourage more trips by bicycle in all communities.
- Make bicycling and bicycle accommodations a part of “standard operating procedure”.
- Improve the evaluation and prioritization of bicycle project proposals.
- Assist and encourage community initiatives.
- Work with state and federal agencies to simplify and coordinate funding programs.
- Increase regional knowledge about bicycling.

Path's to a Sustainable Region BRMPO Long-Range Transportation Plan – Needs Assessment (2011): The BRMPO Long-Range Transportation Plan summarizes existing transportation conditions within the region as well as providing a needs assessment for the specific locations and the region as a whole. The following summarizes some of the regional visions that were identified:

- Envisions a highway system that is well maintained and has less congestion and fewer crashes (and less severe crashes). Route 3 from Braintree to Marshfield, and Route 139 between Pembroke and Marshfield were noted as critical bottleneck areas.
- Envisions a transit system that is safe and maintained. This system would increase ridership and reduce the dependency on the automobile and reduce vehicle emissions; which have been linked to cause climate change.
- Envisions a transportation system in which all freight modes operate efficiently.
- Envisions for linking bicycle, pedestrian and transit facilities in a network, increasing the use of sustainable modes and improving options and accessibility for all modes of transportation. The lack of roadways with on-road bicycle accommodations was noted as a concern.
- Envisions a transportation system that provides affordable transportation options and accessibility and does not inequitably burden any particular group.

Greenbush Commuter Rail Before-and-After Study (2010): This study conducted by the BRMPO, for the MBTA, provided information on the effects of the MBTA's re-opening of the Greenbush commuter rail line. The Greenbush Station is located just east of the Route 3A/ Route 123 roundabout in Scituate; which is approximately one mile over the Marshfield town line. The plan discusses some of the impacts that the new rail line had on several of the adjacent communities, including Marshfield.

Local Master Plans: Several Towns within the region have developed Master Plans within the last ten years, including Scituate (2004) and Norwell (2005). While these plans focus on specific more local issues, each has the following underlying goals:

- Create a network of safe pedestrian and bicycle routes.
- Improve access to public transportation.
- Implement traffic calming strategies on high-traffic and cross-town roads.
- Take an active role in regional efforts to manage traffic.

Local Planning

For the development of a Master Plan, it is also important to acknowledge and reflect on previous plans developed by the Town. The Town of Marshfield has undertaken several planning efforts over the past ten years that should be reflected on. The following summarizes past efforts:

The Townscape Plan (1998/2002): This plan serves as the current Master Plan for the Town. Several transportation concerns were raised as part of this plan including the increase in congestion on north-south roadways and on Route 139, with Access Management being noted as a critical issue. Specific transportation goals included:

1. Provide a transportation system that allows for convenient automobile movement while encouraging the growth of non-automobile transportation modes that will reduce congestion, reduce negative environmental impacts, and provide convenient transportation options.
2. Protect the character of Marshfield's rural roadways and enhance the visual appeal of non-rural roadways.
3. Plan for and accommodate local transportation strategies that will maximize the benefit that local residents will gain from the rail service improvements in the South Shore.

Route 139 Corridor Improvement Plans: The Town has been working with MassDOT since 2003 to develop a traffic mitigation plan along Route 139. This began with the Route 139 Corridor Study in 2003. One of the off-shoots of that study is the design and ongoing construction of roadway widening improvements along an approximately one mile stretch of Route 139 between School Street and Furnace Street. This project was funded through the Statewide Transportation Improvement Program (TIP). It is noted that Route 139 from Route 3A to Route 3 is under the jurisdiction of the MassDOT.

Statewide Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) and Air Quality Conformity Determination is an intermodal program of transportation improvements produced annually by BRMPO. The TIP serves as the implementation arm of the BRMPO's Regional Transportation Plan by incrementally programming funding for improvements over the next four-year period. It programs federal-aid funds for transit projects and state and federal aid funds for roadway projects.

Table 7-1 summarizes Marshfield's current list of projects on the TIP. As noted, one project has been targeted for funding in the 2014 to 2017 funding years. This project, which is the replacement of the Beach Street Bridge over the Cut River, is

scheduled for the spring of 2017. Projects that are scheduled beyond 2017 are basically in the MPO's queue of projects that are considered for future funding.

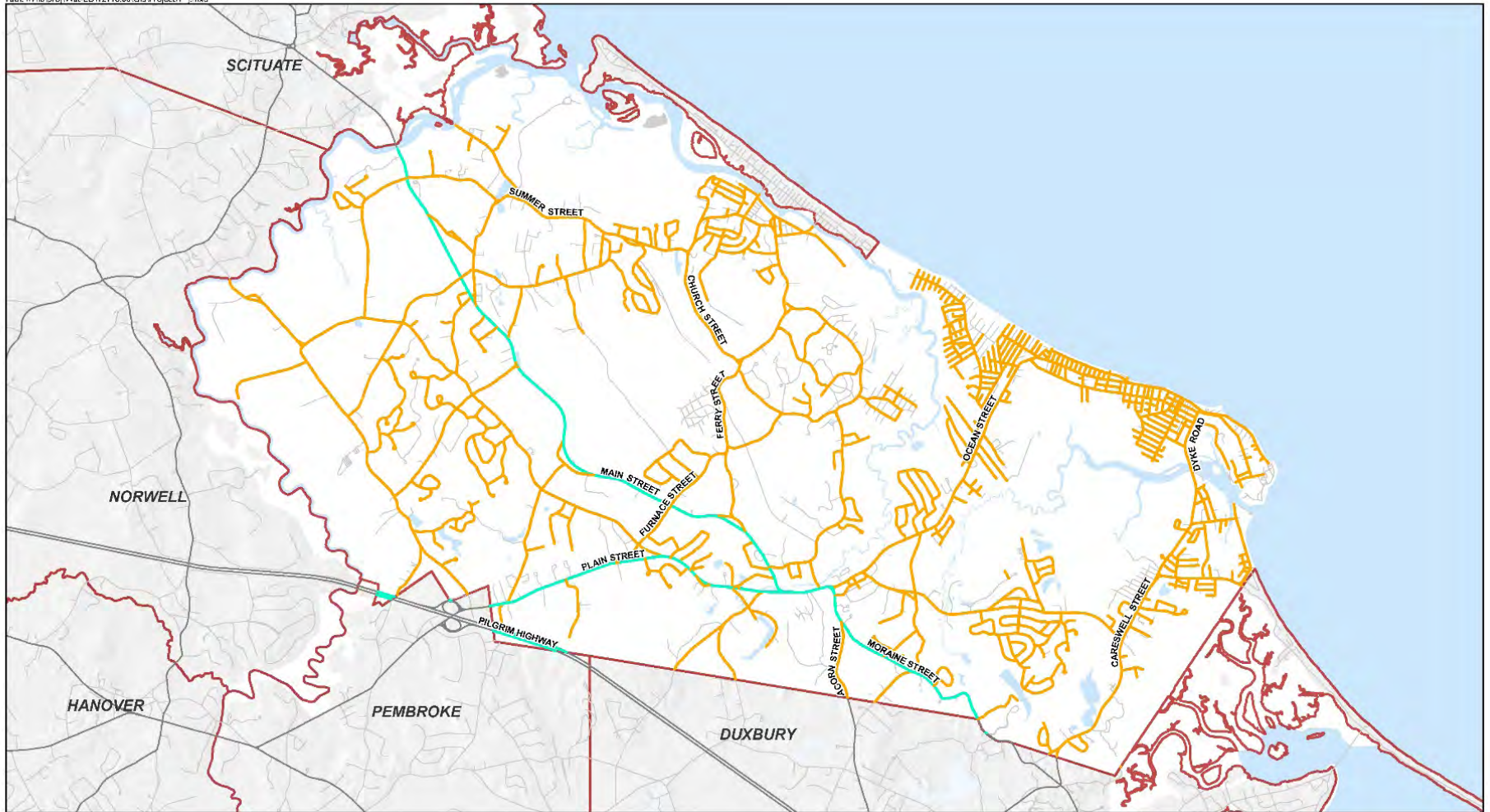
Table 7-1 Transportation Improvement Projects

MassDOT Project #	Description and Location	Project Type	Status	TIP Year
604655	Bridge Replacement, M-07-007, Beach Street over the Cut River	Bridge Replacement	Design	2018
605664	Marshfield-Scituate-Cohasset – Resurfacing & Related Work on Route 3A	Resurfacing	Design	tbd

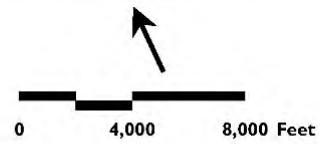
Source: MassDOT, 2013

Figure 7-2 Transportation Jurisdiction


Path: \\Vh\loron\Wac-LD\12118.00\GIS\Project\T...mxd



- Legend
- Town Boundaries (MassGIS)
 - MassDOT
 - Town



VHB Vanasse Hangen Brustlin, Inc.
 Transportation Jurisdiction
 Master Plan Update
 Town of Marshfield, MA



Existing Conditions

Mobility in and around Marshfield is the central theme of the Transportation Element of the Master Plan. The sections below discuss the components that comprise the existing transportation network in Marshfield.

Roadway Jurisdiction/Functional Classification

The jurisdiction of roadways in Marshfield is depicted on Figure 7-2 and summarized on Table 7-2. The jurisdiction of a roadway indicates the ownership and responsibility for maintenance, enhancements, and repairs.

Table 7-2
Jurisdiction of Roadways in Marshfield

Roadway Ownership	Length (miles)	Length (%) ^a
Town-owned roads	156	93%
MassDOT roads	11	7%
<u>Other</u>	<u>0</u>	<u>0%</u>
Total	167	100%

Source: Office of Geographic Information (MassGIS), Commonwealth of MA Information Technology Division

The majority of the roadway system falls under the jurisdiction of the Town of Marshfield (156 miles, or 93 percent). The state owned roadways include the segment of Route 3, Route 3A, and the segment of Route 139 between the Pembroke Town Line and Moraine Street (Route 3A south). MassDOT jurisdiction roadways total 11 miles or approximately seven percent of the roadway network.

The functional classification of roadways in Marshfield is depicted on Figure 7-1 and summarized in Table 7-3. A roadway functional classification indicates its design function to serve local demands with multiple driveways to maximize access; or to serve regional demands with limited access points to maximize mobility.

**Table 7-3
Functional Classification of Roadways in Marshfield**

Functional Classification	Length (miles)	Length (%)
Local Roadways	126	75%
Arterial	24	14%
Collector	17	10%
Interstate	0	0%
Total	167	100%

Source: Office of Geographic Information (MassGIS), Commonwealth of MA Information Technology Division

The majority of the roadways in Marshfield are classified as local roadways totaling 126 miles, or 75 percent of the total roadway miles in Town, followed by arterial roadways that comprise 14 percent of the roadway network. Based on the hierarchy of roadway functional classifications, arterials and interstates typically provide mobility, whereas local and collector roadways typically provide more access to land developments. After reviewing the data in Table 7-3 above, the Town has more roadways that should promote access rather than mobility.

Roadway Network

Vehicular traffic in Marshfield is carried on several key roadways. The major north-south roadway in Marshfield is Route 3A, and the major east-west roadway is Route 139. These roadways provide access both within the Town and the region. Route 3, which travels in the north-south direction along the Pembroke-Marshfield Town Line, serves as a regional highway providing connections to Route 44 to the south and I-93 to the north.

Route 3A (Main Street/Moraine Street)

Route 3A provides the primary north to south access through the Town of Marshfield. Route 3A is also known as Main Street north of Route 139 and Moraine Street south of Route 139. The land use and roadway characteristics along this roadway are predominantly low-density residential. Other uses include the Marshfield Fair Grounds (north of Route 139) and the Marshfield Country Club (south of Route 139). Route 3A also provides access to several residential neighborhoods. The following provides a summary of other key statistics along the Route 3A corridor:

- The speed limit generally varies between 35 mph and 45 mph; however, the segment of Main Street adjacent to the Marshfield Fair Grounds is posted at 30 mph, and at the northerly segment of Moraine Street between Route 139 and Snow Road the speed limit is posted at 20 mph.

- The roadway generally consists of a single lane in each direction; however, turn lanes are present at major intersections. The corridor is under MassDOT jurisdiction/ ownership.
- Narrow shoulders are present along the majority of the corridor.
- Sidewalks are generally absent along the corridor. A sidewalk is provided on the east side of the roadway along Main Street between Ferry Street and Route 139. A sidewalk is also provided on one side of the road along Moraine Street between Route 139 and the Tea Rock Gardens complex.

Route 139

Route 139, which is also known as Plain Street, Ocean Street, Dyke Road and Careswell Street, provides the primary east-west access throughout the Town. Route 139 forms a “loop” roadway extending from Route 3 in Pembroke (Exit 12), traveling east to the Atlantic Ocean shoreline, turning south and running parallel to the shore before turning west and returning to the Route 3 interchange in Duxbury (Exit 11). Land use and roadway characteristics along this roadway vary from retail and commercial, to high-density residential along the coast, to low-density residential along the southern segment.

Vehicular Traffic

To gain an understanding of existing travel patterns, historical traffic data and transportation mode choice data were obtained.

Traffic Volumes

Table 7-4 summarizes traffic volumes on various roadways throughout Marshfield using MassDOT¹ historical traffic volume data and traffic volume data collected in the town for other transportation or land development projects. The volumes presented below are in order from the highest to lowest traffic volumes.

¹ <http://www.mhd.state.ma.us/default.asp?pgid=content/traffic01&sid=about>, accessed October 12, 2013

Table 7-4
Traffic Volumes on Select Roadways in Marshfield

Route	Source	Count Date	Average Daily Traffic Volume ¹
Route 3 – South of Route 139	MassDOT	2012	53,500
Route 139 – At Pembroke Town Line	MassDOT	2005	27,800
Route 139 – West of Route 3A	MassDOT	2012	18,100
Route 139 – East of Webster St	MassDOT	2012	15,400
Route 3A – South of Route 139	MassDOT	2012	11,100
Route 139 – North of 9 th Road	MassDOT	2012	7,900
Route 139 - South of Beach Street	MassDOT	2012	7,700
Route 139 – South of Hutchinson Rd	MassDOT	2009	6,000

Source: Historical MassDOT and traffic study traffic count data
¹ Average daily traffic volumes expressed in vehicles per day (vpd).

Based on the traffic counts presented above, traffic volumes significantly increase along Route 139 as you travel to the west toward Route 3. The volumes are fairly consistent along Route 139 when traveling to/ from Route 3A.

Journey-to-Work

A review of US Census American Community Survey journey-to-work data² for Marshfield residents and employers reveals commuting trends; specifically work location and mode choice. Tables 7-5 and 7-6 summarize these data.

² U.S. Census Bureau, 2006-2010 American Community Survey

Table 7-5
Census Journey-to-Work Data for Marshfield Residents

Location of Employment	Percent of Residents
Marshfield	19%
Boston	19%
Quincy	6%
Plymouth	4%
Hanover	4%
Hingham	3%
Norwell	3%
Weymouth	3%
Pembroke	3%
Braintree	3%
Rockland	2%
Scituate	2%
Brockton	2%
116 other communities (totaled)	27%

Source: U.S. Census Bureau, 2000 Census Journey-to-Work Data

1. Other towns and cities not listed comprise one percent or less each of employment locations of Marshfield residents.

Approximately 19 percent of the 12,618 Marshfield residents surveyed were also employed in Marshfield. The top commute destination (by a large margin) outside Marshfield was Boston; which also accounted for 19 percent of residents surveyed. The remaining commute destinations represent a variety of Massachusetts cities and towns, the majority of which are located within 15 miles of Marshfield. The table above illustrates 11 other communities that have between two and six percent of residents working outside Marshfield. The balance of the residents, or approximately 27 percent, worked in a total of 116 other communities.

The journey-to-work census data was also reviewed to determine where people live who commute to Marshfield; Table 7-6 summarizes this data.

Table 7-6
Census Journey-to-Work Data for Marshfield Employees

Location of Residence	Percent of Employees
Marshfield	48%
Plymouth	7%
Pembroke	4%
Brockton	4%
Duxbury	4%
Rockland	3%
Scituate	3%
Weymouth	2%
Boston	2%
59 other communities (totalled)	23%

Source: U.S. Census Bureau, 2000 Census Journey-to-Work Data

1. Other towns and cities not listed comprise one percent or less each of resident locations of Marshfield employees.

Approximately 48 percent of 5,093 Marshfield workers also live in Marshfield. Approximately seven percent of people employed in Marshfield reside in Plymouth. The majority of the remaining locations of residence for employees of Marshfield are within Plymouth County. The table above illustrates seven other communities that have between two and four percent of workers in Marshfield. The balance, or approximately 23 percent, traveled from 59 other communities.

Mode Choice

Similar to the journey-to-work evaluation, Table 7-7 summarizes the mode choice for Marshfield residents. Approximately 90 percent of Marshfield residents drive an automobile to work, either alone (84 percent) or with others/ carpool (6 percent). Approximately three percent of Marshfield residents use public transportation.

The low transit mode share for Marshfield residents and workers seems to reflect the limited public transportation options in the Town.

**Table 7-7
Marshfield Journey-to-work Mode Choice**

<u>Mode</u>	<u>Percent of Employed Residents</u>
Single-Occupant Automobile	84%
Multiple-Occupant Automobile	6%
Transit	3%
Walk	0%
Other Means	1%
<u>Work at Home</u>	<u>6%</u>
<i>Total</i>	<i>100%</i>

Source: U.S. Census Bureau, 2007-2011, American Community Survey

Safety

Potential transportation safety issues in the Town of Marshfield were identified through previous studies and through the MassDOT crash cluster database. The MassDOT database depicts locations in Town that could be considered eligible for safety funding under the Highway Safety Improvement Program (HSIP). The following provides a list of key areas in Town:

- *Old Stage Stop Village Road:* The area of Plain Street between Old Stage Stop Village Road and Fox Run are the only locations that could meet the 2010 HSIP eligibility requirements.
- *Route 3A/ Furnace Street:* The intersection of Route 3A and Furnace Street was listed as eligible as recently as 2009, suggesting that it should be monitored in future years.
- *Pembroke:* Interchange 12 (Route 3 and Route 139) and the intersection of Route 139 and Old Oak Street both could meet the 2010 HSIP eligibility requirements. While these locations are both in Pembroke, they are critical locations used to access Marshfield.

In 2007, MassDOT began a Road Safety Audit (RSA) program to study roadways in which fatal and incapacitating injury cross median crashes had occurred. Today the RSA program has become an integral part of their HSIP program. MassDOT now requires that all HSIP locations have a RSA performed to determine if they are eligible for HSIP funding.

Transit

The Town of Marshfield receives bus service through the Greater Attleboro Taunton Regional Transit Authority (GATRA). The Massachusetts Bay Transit Authority (MBTA) provides commuter rail service to several nearby Towns. The availability of public transit provides greater mobility to populations that do not

have access to a private automobile such as low income, young adults, and the elderly.

The closest MBTA commuter rail stop to Marshfield is the Greenbush station in Scituate; which is located approximately 1.5 miles north of the Marshfield/Scituate town line. The commuter rail runs twelve round-trips daily between the Greenbush Station and South Station in Boston with the last train arriving at Greenbush at 10:57 PM. A commuter rail stop is also provided in Kingston; which provides eleven round-trips daily to Boston.

Currently there is one fixed bus route (GATRA) operating within Marshfield that provides access to surrounding Towns. The current bus route runs between the Stop & Shop Plaza in Pembroke and the MBTA commuter rail station in Kingston. The route follows Route 139 through Marshfield and Route 3A in Duxbury and Kingston. This route also provides connections to the Plymouth Area Link to the south. GATRA is considering a possible change in the current route at the Marshfield Town center with one route continue south to Kingston and the other would continue west past the stop and shop plaza in Pembroke through Hanover to the Hanover Mall. The northern portion of Marshfield is not served by public transit. Marshfield is interested in a third route from the downtown north to Greenbush and Scituate Harbor.

Bicycle Facilities

Currently, there are no designated off-road bicycle facilities (rail trails, multi-use paths, etc.) within the Town. Bicycle accommodations are currently limited to wide shoulders on a number of streets, but there are no continuous routes through Town. Roadways with shoulders that are greater than five feet are typically acceptable widths for accommodating bicycles (a MassDOT standard). Currently most roads in Marshfield do not meet that standard. Marshfield has recently created a Recreation Trails committee.

Pedestrian Facilities

Pedestrian connections are limited in Marshfield. Sidewalks are provided along Route 139 and portions of Route 3A; but generally on one side of the roadway. The majority of residential side streets do not have sidewalks. Marked shoulders along sections of Route 139 are approximately four feet wide on both sides of the roadway, while shoulders on Route 3A are generally two feet or less.

Bridges

There are 18 bridges in Marshfield, of which 5 are under the jurisdiction of MassDOT and 13 are under the jurisdiction of the Town. Of these bridges, eight

(8) are listed on the National Bridge Inventory (NBI) reflecting that they are eligible for federal funding.

Bridges listed on the NBI are routinely inspected using National Bridge Inspection Standards (NBIS). The primary purpose of the NBIS is to locate, evaluate, and act on existing bridge deficiencies to ensure that the bridges are safe for the traveling public. Each NBIS bridge is inspected at regular intervals of two years with certain types or groups of bridges requiring inspections at less than two-year cycles.

Of the 18 bridges within Town, nine (9) were rated as “requiring high priority of corrective action” based on NBIS structure evaluation standards. One of these bridges, Canal Street over the Cut River, is a Town-owned bridge listed on the NBI. The remaining bridges listed as needing corrective action are:

- Willow Street over South River (Town);
- Webster Street over Green Harbor River (Town);
- Dyke Road over Green Harbor River (Town);
- Summer Street culvert over Little Creek (Town);
- Old Ocean Street over South River (Town);
- Plain Street (Route 139) over South River (MassDOT);
- Plain Street (Route 139) over Waste Water Stream (MassDOT);
- Route 3 over Huldah Brook culvert (MassDOT); and
- Pedestrian walkway over South River (Town).

Future Conditions

The next step in the planning process is to identify growth trends in the Town. These trends are often identified based on previous traffic volume patterns (as described in Table 7-4), past and forecasted population growth, and major development projects.

Planned Developments

Since development tends to have a negative impact to transportation (increase in traffic and congestion), future development areas should be reviewed in a broader context (overall road network). Table 7-8 illustrates developments in Town that are currently planned or under review. The current 127 homes shown below would produce approximately 1,270 average daily trips onto the road network.

**Table 7-8
Planned or Projects Currently Under Review**

Project Name	Address	Project type	Status
Christmas Cove	Highland Street	Single-family subdivision – 12 lots	Under review
Adelaide Way	Webster Street	Single-family subdivision – 15 lots	Approved
Cranberry Cove	South River Street	Single-family subdivision – 13 lots	60% complete
John Sherman Way	Route 3A/Church Street	Single-family subdivision – 13 lots	Under construction
Marsh Hawk Way	Grove Street	Single-family subdivision – 13 lots	Completed
Horseshoe Farm	Spring Street	Single-family subdivision – 24 lots	Under construction
Chestnut Hill	South River Street	Single-family subdivision – 25 lots	50% complete
White Oak Farm	Ferry Street	Single-family subdivision – 12 lots	50% complete

Source: Town of Marshfield Planning Department

Strategies and Implementation Measures

Marshfield transportation must meet the needs of its residents, commuters, and businesses through vehicular, public transportation, bicycle and pedestrian means. Transportation must be convenient, safe, aesthetically pleasing and environmentally friendly as it meets the complex needs of residents and travelers. A thorough transportation plan which both provides active and passive connectivity internally to neighborhoods within Marshfield (and to the greater region) is essential to ensure a sustainable system over the long-term. The goals and strategies described in this section are based upon this framework.

Marshfield’s transportation network must meet the needs of its residents, commuters, and businesses through vehicular, public transportation, bicycle and pedestrian means. Transportation must be convenient, safe, aesthetically pleasing and environmentally friendly as it meets the complex needs of residents and travelers. A thorough transportation plan which both provides active and passive connectivity internally to neighborhoods within Marshfield (and to the greater region) is essential to ensure a sustainable system over the long-term.

Taking into account the existing and future issues, needs, and the goals of this transportation element, the following specific strategies have been developed.

Pedestrians

Issue: The need to provide a safe and walkable environment.

Description: Overall, there is a general need to enhance pedestrian accommodations throughout the Town. In addition, pedestrian accommodations need to be reviewed and enhanced along the portion of Ocean Street/Route 139 that follows the shore line.

Implementation Measures:

- Develop a sidewalk/ pedestrian route plan.
- Provide sidewalks on both sides of roadway along major roadways including Route 139 and Route 3A.
- Work with land owners during development/ redevelopment plans to provide pedestrian connectivity between parcels.
- Review ADA accommodations at key intersections or roadways that have pedestrian activity and develop an improvement plan to address issues or needs.

Bicyclists

Issue: The need to make areas within Town more bikeable, for both commuter and recreational purposes.

Description: Providing a safer means of travel for bicycling could help reduce the dependency of the automobile in Town. Improvements could include on-road bicycle accommodations or off-road trails.

Implementation Measures:

- Develop a bicycle master plan that identifies potential on- or off-road accommodations and incorporates Complete Streets initiatives.
- Provide wider shoulders on major corridors to accommodate bicycles (Route 3A).

Gateway Enhancements

Issue: The need to provide a welcoming feel to the Town, as well as, safe, efficient and attractive travel corridors.

Description: This strategy is aimed to seek opportunities to use streetscape, hardscape, and/or landscape enhancements to create a sense of place at key nodes throughout the community.

Implementation Measures:

- Develop a gateway enhancement plan that incorporates streetscape or hardscape improvements.

Expand Public Transportation Options

Issue: Too much dependency on the automobile.

Description: Transit planning is an important part of the complete streets focus area for the transportation system in any community.

Implementation Measures:

- Work with GATRA to provide bus service to the northern part of Town and a connection to the Greenbush Station in Scituate.
- Work with GATRA or a private transit company to create a fee based internal bus loop

Access Management

Issue: Too many conflict points or driveways along a corridor can create safety issues and traffic congestion.

Description: Infrastructure or commercial redevelopment/ development projects should consider the consolidation of commercial driveways to reduce vehicle-conflicts.

Implementation Measures:

- Develop an access management plan in coordination with MassDOT for Route 139
- Incorporate access management guidelines into a traffic impact study requirements in the Zoning Bylaw.

Land Development Transportation Permitting

Issue: Land development in Town is reducing open space and increasing vehicle conflicts along major corridors.

Description: Strengthen access management and traffic impact study requirements. Require greater separation between driveways to improve safety and appearance. An access management approach could benefit Route 3A and the northerly segment of Route 139.

Implementation Measures:

- Promote complete streets on future local roadway resurfacing or improvements.
- Develop a transportation/parking/land use study for downtown.

Sustainable Transportation Practices

Issue: Infrastructure projects should consider all forms of transportation modes.

Description: The approach of creating a sustainable transportation network includes the incorporation of a multimodal design into roadway projects to ensure that streets are shared by all users and not just dominated by the automobile.

In addition, complete streets often look to place an emphasis on green design elements that promote an environmentally sensitive, sustainable use of the public right-of-way. Greener designs incorporate street trees, rain gardens, bioswales, paving materials and permeable surfaces, with plants and soils collecting rain water to reduce flooding and pollution.

Lastly, smarter technology-assisted design elements incorporate intelligent signals, electric vehicle sharing, car and bicycle-sharing, wayfinding and social networks for greater system efficiencies and user convenience.

Implementation Measures:

- The Town should develop a sustainable transportation practices checklist that is appropriate for the community and includes the most appropriate practices, complete street, access management, traffic calming, Green DOT initiatives, etc. Elements should be respectful of the specialized needs and environmental resources within the Town, but these should also be balanced with the overarching goal of providing for all modes of transportation.

Intersection / Corridor Improvements

Issue: Traffic congestion, vehicle queues, vehicle delay, and roadway safety.

Description: For intersections that are state-owned, or constructed with state or federal funding, any improvements would need to be vetted with MassDOT. Improvements could consist of implementation of lane additions, roadway realignments, or signal enhancements. This strategy should be pursued in close coordination with the Complete Streets strategy previously mentioned.

Implementation Measures:

- Develop an improvement matrix identifying issues and needs at key intersections and roadways. Prioritize projects and pursue projects on the State TIP. The following areas have been identified in the past as needing improvements.
- Work with MassDOT and the Town of Pembroke to develop an improvement plan for Route 3/ Route 139 or Interchange 12.

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Climate Change Adaptation

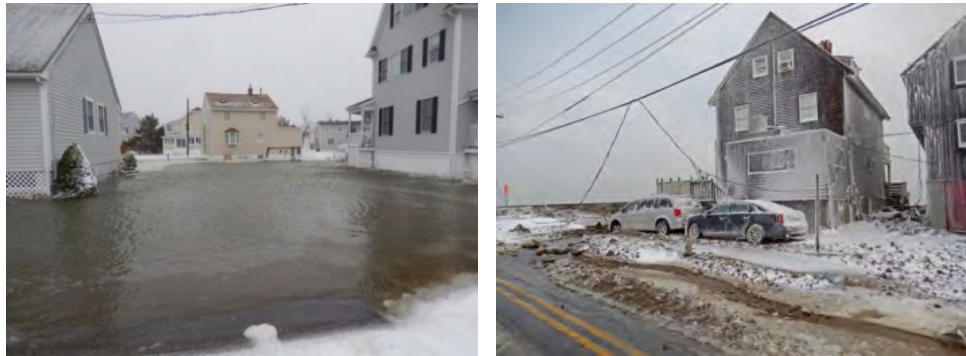
Introduction

The following is a summary of the full Climate Change Study undertaken by the Regional Planning Department of the University of Massachusetts, Amherst. The full and detailed plan can be viewed in the appendix of this Plan.

Climate change, understood as a statistically significant variation in the mean state of the climate or its variability, is the greatest environmental challenge of this generation (Intergovernmental Panel on Climate Change, 2001). Marshfield is already being affected by changes in the climate that will have a profound effect on the Town's economy, public health, coastal resources, natural features, water systems, and public and private infrastructure. Adaptation strategies have been widely recognized as playing an important role in improving a community's ability to respond to climate stressors by resisting damage and recovering quickly.

Decisions about adaptation strategies made by public and private sectors can protect the financial stability of a Town by limiting the costs associated with recurrent property damage. The best adaptation strategies address current weather risks like storms and flooding, while also preparing the community to better respond to the climate of the future.

Based on review of 5 climate projections for the region, we developed a projection of likely climate changes for Marshfield. By the year 2100, Marshfield can expect sea level rise of approximately two feet, 16 - 30 more days with heat over 90 degrees in summers, and increased precipitation in the winters. Along with this will come more severe and frequent flood events.

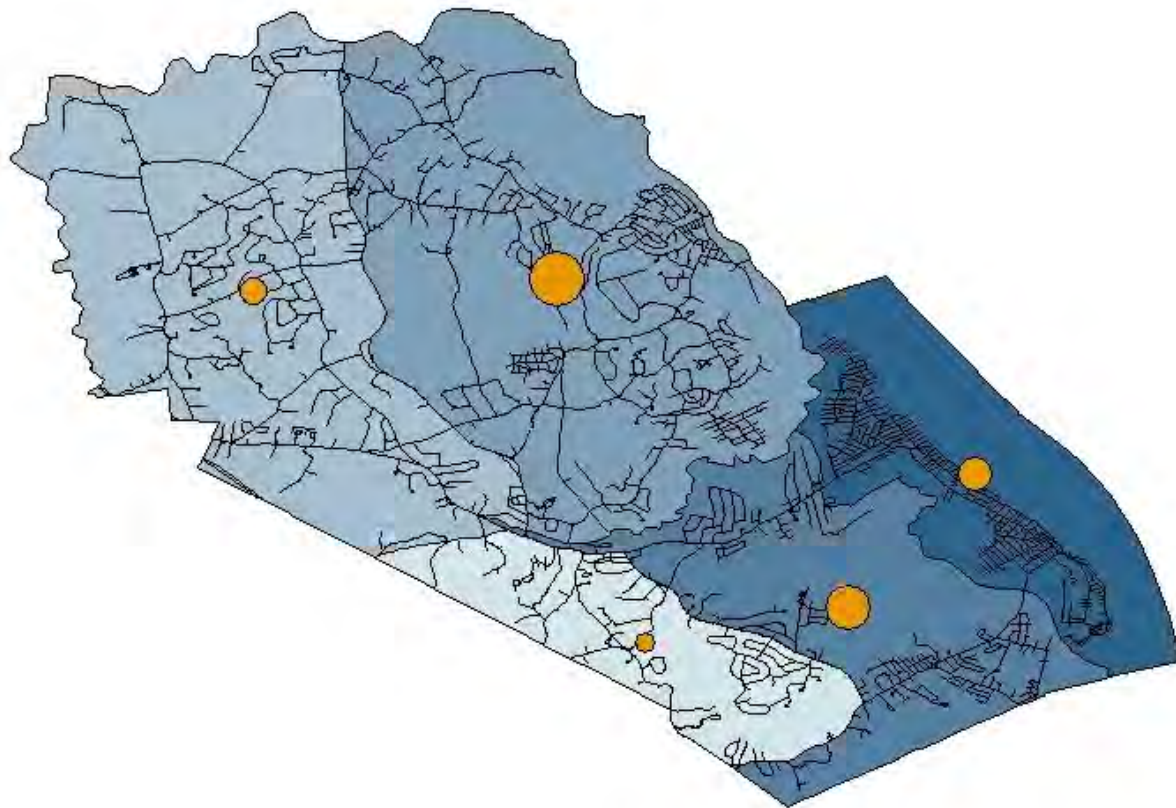


Climate change does not impact everyone equally. To assess how different groups and areas of Town will be affected by those climate projections, we evaluated the existing social and biophysical conditions in the Town of Marshfield. Residents with disabilities, lower income, aging housing stock, and the very young and the very old are likely to be the most impacted by climate change. Development patterns, in particular density, have a strong impact on the biophysical vulnerability, as does poorly draining soils. Ultimately, the assessment found that the areas of both greatest social and biophysical risk include the area behind Humarock (Ridge Road) near Ferry Hill, Ocean Bluff, and Brant Rock, where there is a larger concentration of socially vulnerable populations, a higher population density, and soils with lower storage capacity.

	2020s	Mid-Century	Late-Century
"10-Year Storm"	8 - 10 years	3 - 6 years	1 - 3 years
"100-Year Storm" (NPCC)	65 - 85 years	35 - 55 years	15 - 35 years
"100-Year Storm" (Kirshen)	-	< 2 - 15 years	< 2 - 5 years
"500-Year Storm"	380 - 450 years	250 - 330 years	120 - 250 years

Table 1.1: Projected Storm Surge Frequency
Data sources: NPCC, 2009; Kirshen, 2008b.,

Marshfield Percent Population in Poverty & Households with a Member Age 65 and Over



— Marshfield Roads % Population in Poverty

65+Households

F2

- 277
- 278 - 447
- 448 - 507
- 508 - 570
- 571 - 683

F2

- 2.1%
- 3%
- 4.4%
- 4.6%
- 7.1%

0 1 2 4 Miles



The full report is located in the appendix. The following issues have been inventoried and analyzed for vulnerabilities and impacts from climate stressors: natural resources, coastal infrastructure, stormwater, water supply, wastewater, soft municipal infrastructure, transportation, and private property. Based on review of local conditions, case studies of other communities who have undertaken adaptation planning, and the best practice literature, we recommend that Marshfield begin by considering living shoreline treatments, which act as a natural barrier to alleviate damages caused by storm surge and sea level rise. Living shoreline treatments utilize the natural growth patterns of vegetation, rocky outcroppings, and dunes that were once present in coastal settings. Segments of Marshfield's coast without seawall protection are primary candidates for this program. Another strategy that Marshfield should look to utilize is resurfacing of the paved areas, especially in the Brant Rock esplanade section and the Standish Street parking lot by replacing impervious pavements with pervious pavement materials.



Brant Rock Esplanade

Climate Change

Climate change is understood as a “statistically significant variation in the mean state of the climate or its mean variability, persisting for an extended period” (p. 711). This is the definition used by the Intergovernmental Panel on Climate Change (IPCC), the leading body in climate change research (IPCC, 2001). Massachusetts has already seen changes in the climate: since 1970, air temperature has risen by almost 2°F, sea surface temperature has risen by almost 2.5°F, there are now more days above 90°F than there used to be, there is less snowpack each winter, and snow melt and spring peak flows are occurring earlier. (Climate Change Adaptation Advisory Committee, 2011; Frumhoff et al., 2006, 2007; Hayhoe et al., 2006). The warmer the air and oceans get, the warmer they will continue to get. Carbon builds up over time in the atmosphere, and climate outcomes lag behind. As a result, regardless of what new emissions may occur globally, there is broad agreement in the climate science community that the decades in the near future will see climatic change. Projections diverge as time progresses towards the end of the century, as this time period will be influenced by the policy choices made in the next decades.

In terms of ways to deal with climate change, one can address the issue through mitigation or adaptation. Mitigation is the effort to reduce greenhouse gas emissions in the hopes that it will curtail climate change. The IPCC has generated a range of climate projections based on various levels of emissions and actions taken to reduce them; research suggests that a reduction in atmospheric greenhouse gases would mitigate the impact on the climate, hence the term “mitigation”. Examples of mitigation actions include adopting policies that restrict permissible emissions, or the development of technology to capture emissions from the atmosphere, rendering them inert.

Adaptation, on the other hand, refers to actions taken to improve the resiliency of a place in the face of climate change threats. The IPCC (2007b) defines adaptation as “adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderate harm or exploit beneficial opportunities” (p. 869). Examples of adaptation measures are raising a section of a road in a vulnerable location, or restricting rebuilding in a frequently flooded area.

Methods

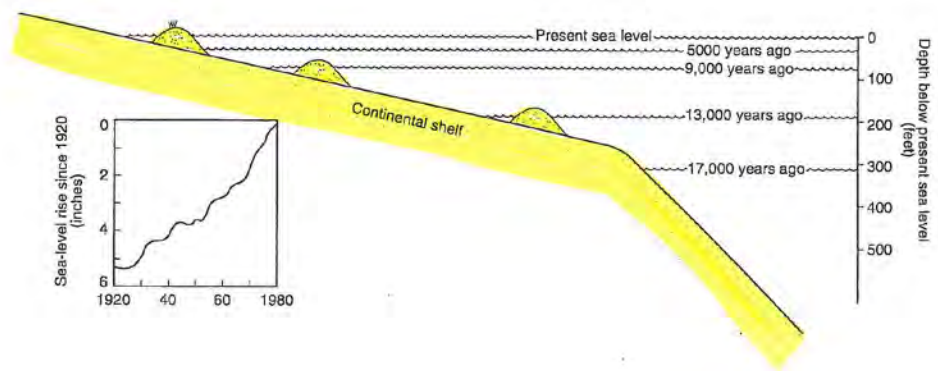
In order to develop a climate projection for Marshfield, the findings of peer-reviewed studies and adaptation reports were evaluated and, giving more weight to sources dealing specifically with the local region, predictions for changes in sea level, storm surge, temperature, and precipitation were thoughtfully selected. For municipal planning purposes, these four climate stressors were decided to be the most pressing challenges for Marshfield. The sources that are most heavily referenced are the Massachusetts Climate Change Adaptation Report by the Executive Office of Energy and Environmental Affairs and the Climate Change Adaptation Advisory Committee [CCAAC] (2011); the Climate Risk Information document by the New York City Panel on Climate Change (2009); and Kirshen et al. report, *Climate Change and Coastal Flooding in Metro Boston: Impacts and Adaptation Strategies* (2008a). The Metropolitan Area Planning Council's *South Shore Coastal Hazards Adaptation Study* (2011) also proved a particularly useful guiding document. A full list of sources may be found in Appendix C. Each source's methods were examined and supporting research studies were consulted to ensure that all projections represented in this chapter are based on similar assumptions, and follow similar expectations for rates of change. The climate changes discussed in this chapter are based on moderate projections within the range of established climate science; also worth noting is that the chapter's specific projections align closely with other local guiding documents such as those mentioned above.



Entrance to Green Harbor

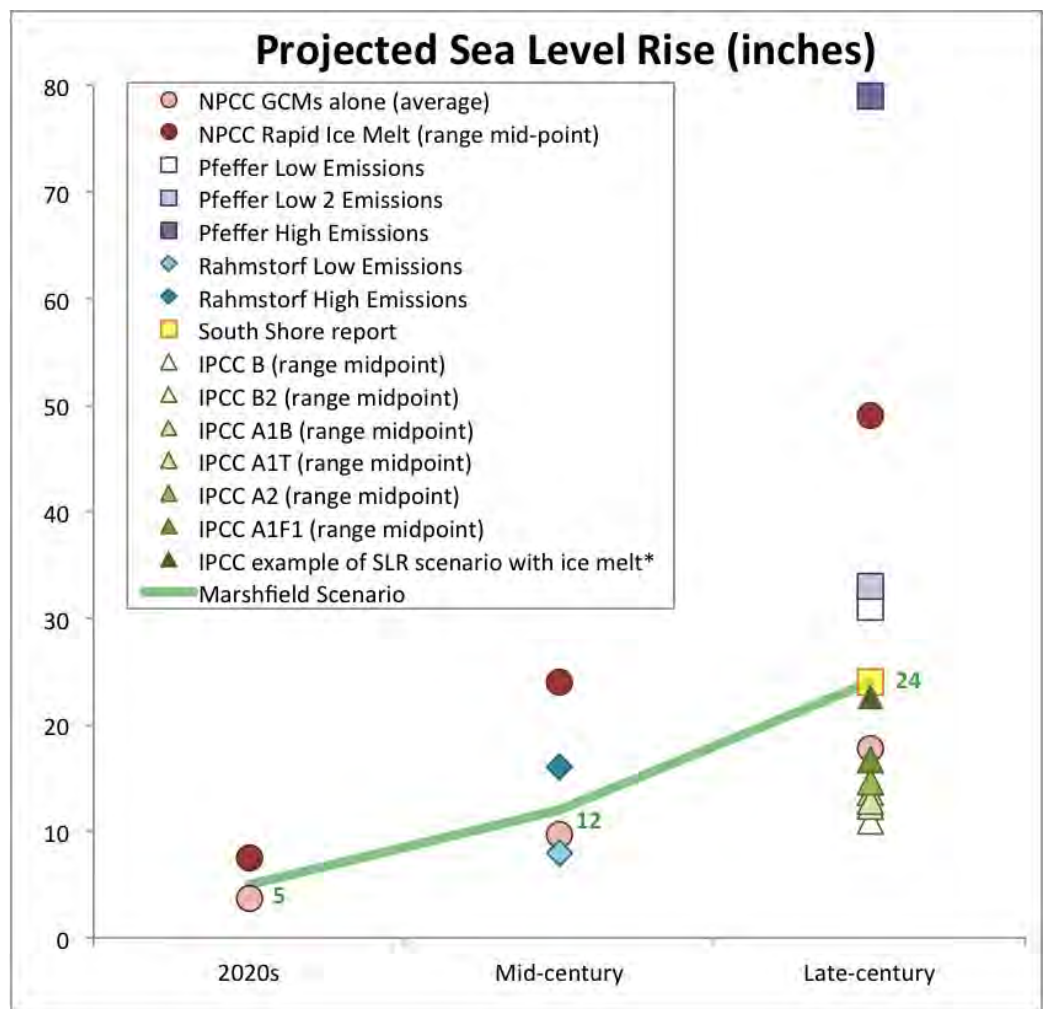
Sea Level Rise

For roughly the last eighteen thousand years, sea level has been rising as a result of melting glacial ice. One theory is that barrier islands have existed at that time and have moved upland and the sea level has risen. Evidence that supports this theory can be found along Duxbury Beach where the remains of the marsh can be seen at low tide. In large storm events over topping of the beach will result in material (sand and cobble) being pushed back from the shore onto the inland marsh to the rear. This natural process allows the beach to retreat upland as the sea level rises. The insert shows the current rate of sea level rise (approximately one foot every 100 years) along the Atlantic coast.



From *The Corps and the Shore*, Orrin H. Pilkey and Katharine L. Dixon, 1996, Island Press

When addressing sea level rise in coastal Massachusetts, in most cases it is appropriate to refer to relative sea level, which is the interaction of eustatic sea level rise and land subsidence or other processes that affect elevation. Eustatic sea level rise is the result of thermal expansion of oceans as they warm and the melting of continental ice (ice sheets located on land as opposed to sea ice which floats) (Kirshen et al. 2008a, citing Pugh 2004). Land subsidence is lowering in the elevation of a landform because of post-glacial adjustment or tectonic movement; coastal Massachusetts is estimated to have experienced 1.5 mm/year of subsidence over the last 100 years. The combination of eustatic sea level rise and land subsidence has yielded a relative sea level rise of approximately 11.8 inches over the past century (Kirshen et al. 2008, citing Nucci Vine Associates, Inc. 1992).

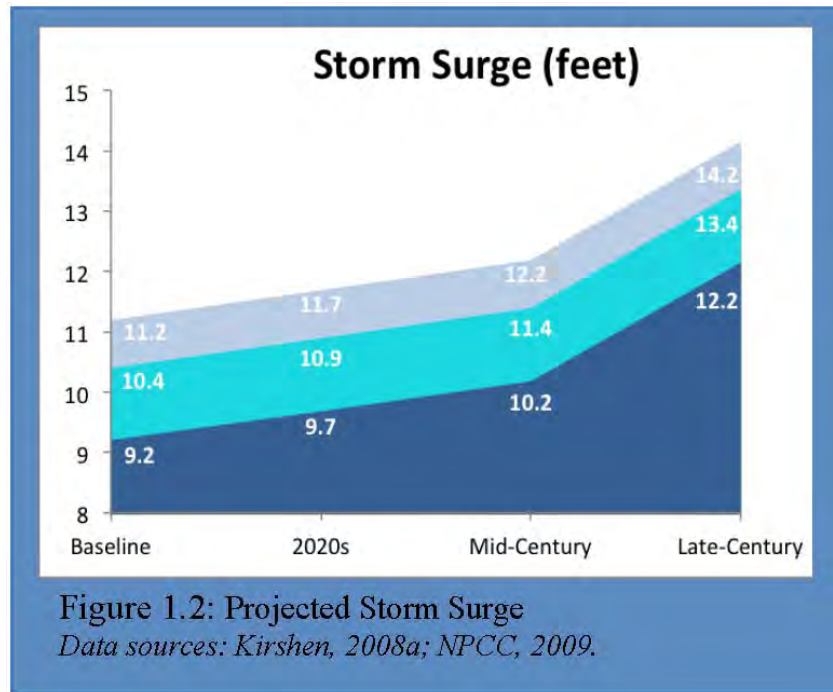


Relative sea level is projected to rise approximately 5 inches by the 2020s over the baseline level, which was averaged over 1971-2000 (NPCC, 2009). Marshfield can anticipate a rise in sea level of approximately 12 inches by mid-century (CCAAC, 2011), and 24 inches by late-century (MAPC, 2011). The projection for Marshfield

(see figure above) does not take into account continental ice melt, which would significantly and rapidly elevate sea levels.

Storm Surge

Storm surge refers to the water pushed onto land by storm winds (National Hurricane Center, 2012). As the sea level rises, storm surge will increase due to the larger quantity of water available to be pushed onshore by a storm. The potential for storm surge impact will also increase because of the diminishing relative height of the barrier the stormwater must breach in order to cause flooding. Current average storm surges, as measured nearly a decade ago by the Army Corps of Engineers, are already high enough to cause significant flooding and damage in Marshfield. In a 10-year storm, or a storm whose strength, statistically, has a 10 year recurrence interval, the average storm surge is 9.2 feet; in a 100-year storm, the average storm surge is 10.4 feet; in a 500-year storm, the average storm surge is 11.2 feet (Weiner, 1993).



Vulnerabilities and Impacts

Private property can be affected by the impacts of sea level rise, storm surge, increased precipitation, and temperature. Severe coastal storms can cause widespread flood damage to physical property and enterprises. With an increase in sea level and precipitation, flooding will be more severe and occur more often. In Marshfield, these impacts are already seen with a spring, or astronomically high, tide. Wind damage is another hazard. Category 2 hurricanes can bring sustained wind speeds of 100-110 miles per hour and while category 3 or 4 hurricanes are currently uncommon in New England, warming temperatures may enable tropical storms to maintain their strength as they travel further up the East Coast. These stronger storms have the potential to bring wind speeds of 150 miles per hour or higher to Marshfield. Changes in climate also have the potential to alter the shoreline, making it necessary to rebuild docks and other facilities, and to decrease lot sizes and the effectiveness of septic systems as the sea and marshes encroach on private property. In addition, revenue losses associated with the closure of businesses due to physical damage is an economic impact that should be of concern to the Town. Frequent damage to physical property may result in decreased property values and disinvestment in structures that are too costly to maintain. Marshfield's most vulnerable areas, with regards to private property, are centered in two areas: east of Humarock (Ridge Road), and the area comprising Ocean Bluff and Brant Rock.

The area to the east of Humarock, at the bottom of Ferry Hill, is at a very low elevation. While Humarock peninsula provides some protection to this area, water traveling in the South River could also cause flooding. In the area of Ocean Bluff and Brant Rock, the properties adjacent to and south of Ocean St (Rt. 139), with the exception of the area of higher elevation around the Brank Rock fire station Hewett's Island, are in danger of inundation from a major storm surge event. While these two areas are of primary concern, a comprehensive list of vulnerable locations is included in the biophysical vulnerabilities section. There are currently approximately 2,500 parcels in danger of inundation from a 100-year storm. However, by the end of the century, a 100-year storm could place over 4,000 parcels in danger of flooding.

Proposed Approach

The town of Marshfield should employ multiple strategies to mitigate the impacts of climate change on the Town's most vulnerable populations and areas. Integrating multiple strategies that complement one another by targeting different stressors simultaneously will reduce the intensity and frequency of impacts.

Each of the key strategies identified below has capital costs. Further study is required to reliably estimate these costs, but where possible we have highlighted opportunities for cost sharing with state and federal agencies. The Town of Marshfield needs to anticipate some significant coastal infrastructure costs in the capital improvement planning process, regardless of whether the chosen approach remains rebuilding and increasing the height of the sea wall, or utilizing a more diversified selection of strategies from those proposed below. The costs associated with the proposed strategies could be viewed as alternatives to the complete reconstruction of the seawall – a project with an estimated price tag of \$48 million. In light of this, funding for the following alternative strategies may be more reasonable than would first appear.

Climate Change Recommendations

CCA-1. Explore the potential benefits of developing a beach management plan that will (1) comprehensively identify beach management needs and issues throughout the Town, and (2) provide recommendations to strategically address those needs and issues.

CCA-2. Develop a plan to guide, funding and scheduling for beach re-nourishment.

CCA-3. The Seal Level Rise Study recommends rebuilding the existing seawalls at least two feet higher to accommodate rising sea levels over next 25 years to help protect the Town's existing infrastructure. Storm closure panels at openings in sea walls should also be constructed that can be closed in advance of a storm to ensure that water does not pass through openings during storm events to minimize penetrations in sea walls.

CCA-4. Consider raising sections of several roadways (Bay Avenue, Dyke Road, Ocean Street, Island Street, Cove Street, Maccombers Ridge, Maccombers Way, Bartletts Isle Way) to reduce flooding and maintain access to flood prone areas.

CCA-5. Study the impacts of constructing offshore breakwaters or other attenuation devices to absorb wave energy to preserve beach re-nourishment efforts and protect seawall.

CCA-6. Investigate possibility of instituting a home buy-back plan in repetitive loss areas.

CCA-7. Conduct an assessment of health of the tidal salt marshes and develop restoration strategies.

CCA-8. Investigate the possibility of implementing rolling easements in the flood prone sections of town. (Note: Rolling easements are not likely in areas with lot sizes under 10,000 square feet.)

9

Harbor, Rivers and Waterways

Introduction

The following is a summary of the issues, goals, objectives, and recommendations of the Town of Marshfield Harbor, Rivers and Waterways Management Plan. The full and detailed plan can be viewed in the appendix of this plan or online at TownofMarshfield.org in the Waterways Section. The comprehensive plan is somewhat overwhelming to read and understand. It is over 100 pages long and contains over 49,000 words. It is intended as a guide for the Marshfield Waterways Committee to improve public access and safety on the Marshfield waterways in the years to come.



This document is intended as a comprehensive summary of the plan that can be read and digested in a relatively short period of time. We would recommend that all folks having any interest in our plan read this document first, and then consult the actual plan for more information and detail. The issues, goals, objectives, and recommendations are ordered according to broad themes which include navigable waterways; natural resources; public access; recreational boating; working waterfronts and infrastructure; water quality; administration/finance; collaboration; and climate change and sea level rise.

Navigable Waterways

Issues

There are several opportunities to improve navigation with in Town waters.

1. The Narrows at the entrance channel at Green Harbor is subject to frequent filling in with sediment which results in navigational and safety problems for recreational boats and commercial fishing vessels. Due to the inadequate design of the existing jetties, a large amount of sediment is carried into the harbor from offshore and alongshore sources. Regular dredging provides a short-term solution, but is costly and temporary. Redesign and reconstruction of the jetties should be undertaken as a long-term and cost-effective solution. Funding for this project is the major barrier.
2. Dredging is needed for safe navigation in parts of the North and South Rivers. Specific locations include the South River at the Sea Street Bridge and spots at the mouth of the North and South Rivers.



3. A plan needs to be developed for maintenance dredging, including the beneficial reuse of dredged materials.
4. Dredging of the Narrows, Green Harbor, and the Rivers is costly and dependent on securing sufficient funds. The Town has considered participating in a shared dredging program with other communities in Plymouth County to reduce the costs of dredging projects, but the model that was discussed (where each town contribute annually to the program) is not optimal for Marshfield.

Recommendations

Goal 1: Maintain Marshfield’s waterways in a safe navigable state for all users.

Objective I - Ensure adequate dredging to promote safe navigation.

- a. Create and update a long-term maintenance dredging plan for critical points in Green Harbor and the North and South Rivers. Work with the state and federal agencies on a 10-year comprehensive maintenance dredging permit for all Town waterways, based on the maintenance dredging plan.
- b. Immediately undertake dredging the entrance channel at Green Harbor to a navigable depth of eight feet for a width of 100 feet, and maintain these dimensions by dredging as needed.
- c. Complete dredging of the South River from the Sea Street Bridge to the south, and north to the Spit.



- d. Share all future costs for permitting and dredging in the North and South Rivers equitably with the towns that share the waterway. This arrangement should be in the form of a Memorandum of Understanding (MOU) with Scituate, approved by the respective Boards of Selectmen.

Objective II – Develop a long-term, cost-effective solution to improve safe navigation and reduce the frequency and severity of shoaling in Green Harbor.

- a. Petition the U.S. Army Corps of Engineers to address the shoaling at the jetties due to their design and configuration, taking into consideration the studies conducted in 1980 and 1988, for the purposes of ensuring long-term, safe navigation.
- b. Continue sand management activities to reduce the impact of aeolian sand transport in Green Harbor.
- c. Develop a plan to guide beach renourishment. As part of this plan, where feasible, use a dredging method that would allow dredge spoil to be used for beach renourishment. Pursue permitting for shoreward expansion of the existing dredge material placement site at Green Harbor Beach and identification of a new secondary site near Rexhame Beach. Particular locations for renourishment include Rexhame Beach, Hewitt's Point, and Burke's Beach.
- d. Work with other relevant entities to complete an engineering and hydrodynamic study of the Brant Rock Dyke's effects on the harbor.
- e. Explore cooperative dredging efforts with other communities.

Natural Resources

Issues

Boating: Use of the Town's waterways and near shore areas may have impacts that are intensified/worsened when considered along with other uses of the nearshore areas or waterways.

- 1. The cumulative impacts of boating activities (e.g., dock building, water quality issues from boat waste, erosion issues from boat wakes) can negatively impact the Town's natural resources.

Shellfish and Shellfishing: Marshfield used to have abundant shellfish resources, and interest exists to rebuild those resources for commercial and recreational harvesting purposes and for water quality and shore stabilization purposes.

- 1. The existing shellfishing season on the North and South Rivers is short, but expanding it will require more research and coordination with DMF. Expanding the season may also require the Town to provide additional monitoring and enforcement.

2. Shellfishing in Green Harbor is prohibited, but there is interest in working with MA DMF to have it re-opened. There is interest in re-planting some of the clam beds in Green Harbor.
3. Water quality and shore stabilization could be at least partially addressed by restoring shellfish beds and introducing a shellfish growing program.
4. Shellfish stocks are unknown. A stock assessment would provide useful information in terms of understanding the conditions of shellfish populations as well as the potential for harvesting.

Anadromous Fish: The Town's waterways have historically supported migratory fish spawning events, but some fish passages are now compromised by dams, poor water flow, and other impairments, affecting the ability of fish to spawn.

1. The dam at Veteran's Park impairs spawning for herring and shad, but is used to maintain water levels in the pond.
2. The dam at Chandler Pond impairs spawning and migration.

Beach Management: The beaches of Marshfield provide important recreational and natural resource benefits to the Town. Beach management planning could enhance this coastal resource.

Recommendations

Goal 1: Conserve, protect, and restore where appropriate, the valuable natural resources of Marshfield's shoreline, rivers and waterways.

Objective I - Minimize the impact of coastal and water-based activities on natural resources.

- a. Conduct an inventory of docks and piers in waterways to understand the potential impacts of existing and additional docks and piers so as to adequately protect natural resources, navigation and public trust rights in the waterways.
- b. Develop criteria for assessing applications for new or expanded docks in the Town's waterways.
- c. Ensure adequate and convenient pump-out facilities to prevent water quality impairments resulting from vessel-based waste. Require all facilities with a vessel pump-out to certify annually that the equipment is operational and to provide the Harbormaster with the days and hours the pump-out is available. Each new boating facility should be required to provide a convenient public pump-out, as appropriate.

Objective II - Encourage the improved management of the Town's beaches.

- a. The Town should explore the potential benefits of developing a beach management plan that will (1) comprehensively identify beach management

needs and issues throughout the Town, and (2) provide recommendations to strategically address those needs and issues.

Objective III – Encourage the local re-use of dredged sediment.

- a. Work with the Department of Public Works, the Conservation Commission, the Coastal Advisory Committee, the Beach Commission, the Harbormaster, and others as appropriate, to document and address the Town's beach nourishment needs.

Objective IV – Monitor long-term marsh health and movement.

- a. In coordination with other Town departments, explore opportunities to engage a university in a long-term marsh monitoring program to track marsh health and movement.

Goal 2: Develop a sustainable shellfishery in all approved and conditionally approved Marshfield waterways.

Objective I – Expand shellfishing locations and duration in Marshfield waterways.

- a. Take necessary measures to expand the duration and locations of shellfishing, with an ultimate goal of keeping shellfish beds open year-round.
- b. Evaluate the potential for expanded commercial shellfishing.

Objective II – Ensure that shellfishing is conducted in a manner that does not deplete the resource or impair the habitat.

- a. Conduct an independent scientific shellfish stock assessment to determine harvesting yield potential.
- b. Work with the Harbormaster, DMF, and the NSRWA to enhance shellfish populations through the expansion of seeding and relay activities, both for harvesting and for natural resource improvements (e.g., water quality and shore stabilization).

Objective III – Determine the potential for establishing shellfish aquaculture in the Town's coastal waters.

- a. Explore the regulatory and technical opportunities and constraints and the benefits of shellfish aquaculture, including the use of upwellers.

Goal 3: Improve habitat for migratory fish.

Objective I – Restore tributaries to support natural spawning events in Marshfield's tidal rivers.

- a. Working directly with the NSRWA and other partners, support efforts to improve migration in key tributaries of the North & South Rivers (e.g., at Veteran's Park, Parsons Pond, and Chandler Pond), and along the Green Harbor River (e.g., at the dyke).

Public Access

Issues

There is a need and many opportunities to create and/or enhance public access to and along the Town's waterways for recreational boaters and pedestrians.

1. Access along the South River should be enhanced. Possibilities include a walkway in the downtown area, the addition of parking and seasonal floats at Ireland Road and Ferry Street, and/or the addition of parking and a float near Rexhame Beach.
2. Public access along Joseph Driebeck Way is a concern. Pedestrian and road traffic are not adequately separated. Physical and visual access could be enhanced via the development of a walkway or boardwalk on the west side of the roadway from Dyke Road to the marina.
3. Additional launching sites for small (< 12') boats are needed, along with associated parking.
4. Access to the Green Harbor River could be improved in conjunction with restoration efforts at Peter Igo Park.
5. There are opportunities to increase access on the Town's waterways through the rental of canoes, kayaks, and stand-up paddle boards.
6. Residents may come to appreciate their waterfronts and water-dependent activities in Town if they had better access and a reason to come to the water (such as to witness the blessing of the fleet or a safety day or other activities scheduled along the shores).
7. Parking at Green Harbor Beach is limited.

Recommendations

Goal 1: Provide and promote public access points to Marshfield's waterways while maintaining a healthy ecology.

Objective I - Improve small boat (human-propelled craft) access to the Town's waterways

- a. Improve existing launch facilities, including bathroom access and parking as appropriate. Potential locations: (1) Peter Igo Park; (2) Union Street; (3) Ferry Landing; (4) Corn Hill Lane.
- b. Identify new launch facilities, specifying the potential amenities each site might offer (e.g., parking, restrooms, picnic tables). Potential locations include at the Rexhame Beach parking lot and the end of Ireland Road. Explore opportunities to improve recreational fishing access, including opportunities linked to State funds (e.g., MA DMF).
- c. Provide support and act as a liaison with Town officials to organizations whose purpose it is to advocate for waterways access.

- d. Advertise and promote launch facilities by publishing a map of Town landings and launch facilities.

Objective II – Promote small boat use of the Town’s waterways.

- a. Encourage the establishment of a kayak/canoe rental facility on the Town’s waterways. Explore the interest in and opportunities, benefits and liabilities of a publicly- vs. privately-operated facility.

Objective III – Increase public access to Town beaches.

- a. Support Town efforts to increase parking at Town beaches, as appropriate.

Objective IV – Increase public awareness of and participation in water related events.

- a. Increase the coastal and marine programming and events for residents and visitors.
- b. Develop, maintain, and promote a Town calendar of water and beach related activities and events to draw people to the Town’s waterfronts and waterways.
- c. Promote camping opportunities at specific river sites.
- d. Initiate a campaign to promote the North River as the only Designated Scenic Protected River in the Commonwealth of Massachusetts.



Recreational Boating

Issues

Boating is a primary activity along the Town's waterways, and opportunities exist to make boating activity safer while also minimizing its environmental impact.

1. There is a concern that funding for the existing patrols on the North River may be cut. The DCR currently provides approximately \$30,000 for that patrol for safety and environmental reasons. In recent years, this funding has been cut or threatened to be cut as the state budget becomes tighter. Efforts to restore the funds have been successful recently, but the long-term viability of this funding source has been questioned. The North River Commission, the North and South River Watershed, and the towns must continue to document the value of the river's resources and the unique protective designation, and make these values known to the general public to broaden support for this commitment of state resources.
2. The "Spit" is a popular location for recreational boaters to congregate; but safety concerns are abundant. Increased patrols would require additional Town resources, and would benefit from coordination with Scituate.
3. Speed is a concern on the South River. The area is currently patrolled by the Town, but additional patrols and/or boater education would be helpful.
4. While pump-outs are available at the Town Pier, Green Harbor, and at private boating facilities and on the rivers, additional (and reliable) pump-out services are needed.

Marshfield waters along with almost all of the state's coastal waters are designated a No Discharge Area. This designation is based on the availability and adequacy of boat pump-outs. Though equipment failure and occasional downtime is inevitable, existing equipment needs to be maintained in operational condition to ensure adequate capacity. Opportunities for additional installations should be considered during permitting of all new or expanded public and private boating facilities. The Harbormaster should initiate an annual review and certification of the operational condition of all pump-outs in the Town.

5. The locations of existing docks are unmapped, and there is no sense of the individual and cumulative impacts of those docks, nor is there any sense as to what the potential build-out of docks might be.

Recommendations

Goal 1: Support a safe and pleasurable recreational boating environment in Marshfield's navigable waters.

Objective I - Provide signage, training, and patrols to promote safe boating.

- a. Work with the Harbormaster, the Recreation Department, and the Massachusetts Environmental Police to coordinate Town of Marshfield-sponsored Boating Safety training programs.
- b. Ensure proper and sufficient regulatory signs are in place and maintained in key locations to promote safe navigation.
- c. Increase law enforcement patrols to maintain the safe operation of recreational boats. Coordinate with Scituate in shared waters.
- d. Develop and maintain an inventory of permitted docks.

Working Waterfronts and Infrastructure

Issues

Shoreside support infrastructure and access can be improved.

1. Additional parking (or management arrangements) and facilities are needed to support the multiple commercial and recreational water-dependent uses of Green Harbor.
2. The local fishing fleet does not have easy access to ice.
3. The current configuration of North Pier is not ideal for fishermen. The pier is too high and there is unused space that could be made usable.
4. With the filling in of the Narrows, access for fishing boats can become unreliable and may lead to unsafe conditions or the loss of time (and money) while waiting for passage to become safe.

Recommendations

Goal 1: Support water-dependent uses and businesses for their economic benefit to the Town of Marshfield.

Objective I - Maintain the infrastructure necessary to support Marshfield's commercial fishing fleet and charter boat operations.

- a. Explore the feasibility of providing reliable high-capacity ice service for commercial and recreational fishermen.
- b. Ensure that the public infrastructure and shoreside arrangements (e.g., parking/trailer space, dockage, moorings, unloading) are identified and planned for in terms of current and future needs.

Objective II - Promote and support marine-based activities at the Town's working waterfronts.

- a. Develop a branding strategy to promote Marshfield's local waterfront businesses.

- b. Create events for the public to become more aware of activities along the Town's waterfronts.
- c. Explore every opportunity to expand the use of Marshfield's working waterfronts to accommodate new uses (e.g., activities related to the Ocean Campus Center) and the growth of existing uses.



Water Quality

Issues

1. Improvements in coastal water quality have been achieved, but the contributions of nonpoint sources need to be identified, assessed, and minimized.
2. A protein-rich foam, generated by the dyke, is impacting boaters in Green Harbor. The occurrence of the foam has been particularly noticeable during the 2013 summer, possibly related to heavy rainfall and a Conservation Commission project upstream of the dyke. The foam is problematic in that it is very difficult to wash off of boats. Initial efforts to keep the foam away from and off of boats have not been successful.

Recommendations

Goal 1: Ensure that water quality and quantity is adequate to support healthy ecosystems and the various human uses of the Town's waterways.

Objective I - Improve coastal water quality testing and awareness of testing results.

- a. Coordinate the synthesis and review of surface water quality testing information to identify and address potential sources of water quality impairment.

Objective II - Promote water quality improvements.

- a. Monitor the outcomes of the 2014 shellfish growing program to better understand the potential for growing shellfish to improve the estuarine ecosystem.
- b. Ensure adequate functioning pump-out facilities to minimize vessel-related water quality impairments. Conduct a survey of operability each year at the start of the boating season. Establish a program to promote use of pump outs.
- c. Work with the Conservation Commission, Green Harbor Marina, the Harbormaster and any other agencies or organizations to reduce impacts of foam to vessels docked at Green Harbor Marina.

Administration/Finances

Issues

1. The Town has experienced success in securing funding for dredging and waterfront improvements. These efforts need to continue along with pursuing options for stable sources of revenue dedicated to the waterways.

Recommendations

Goal 1: Ensure adequate and stable funding for waterfront and waterway activities.

Objective I – Pursue funding to support management of the Town’s waterways and waterfronts

- a. Review, catalog, and assess the trends of existing sources of funding for harbor and waterways-related operations and capital improvements and increase efforts to secure new financial support, e.g., grants.
- b. Work with the Town to obtain a consolidated quarterly report of all Waterways income and expenses. Include information from all relevant accounts such as police salaries, capital expenses and state launch ramp income.
- c. Explore establishing a separate account for all user fees and other existing and future revenue sources attributed to Waterways operations, the balance of which may be rolled over from year to year as retained earnings.
- d. Explore the desirability and possibility of waterways-related expenses being paid for by existing and future waterways-related revenue

Objective II – Ensure that the Town is capturing all revenue to which it is entitled from the economic value that is generated from the Town’s waterways assets.

- a. Work with the Assessor’s office and boating businesses to ensure the Town is collecting excise taxes on boats in accordance with state law.

Collaboration

Issues

Many entities have interests in the Town's Waterways. Efforts to enhance communication, coordination, and collaboration will be important to the implementation of recommendations in this plan and will more broadly ensure better management of and access to the waterways.

1. The North River is shared by the towns of Marshfield and Scituate. Addressing many of the issues along the North River (e.g., improving public access, dredging, monitoring, pump-outs, and shellfishing activities) will be enhanced by (if not require) the collaboration of Scituate.
2. Greater coordination among local entities with interest in the Town's water resources (e.g., the North River Commission, the North and South River Waterways Association, and the Town Department of Recreation) would improve stewardship and management.

Recommendations

Goal 1: Communicate with other entities whose activities directly or indirectly impact the Town's waterways.

Objective I - Ensure regular meetings and outreach with other relevant organizations, committees, boards, and neighboring towns to improve management of the waterways and waterbodies.

- a. Assign members of the Waterways Committee to represent the Committee to each Town board or commission having overlapping responsibilities with the Committee (e.g., the Conservation Commission, Coastal Advisory Committee, Beach Administrator, and Planning Board). Regularly share Waterways Committee agendas and approved minutes with these boards and commissions, as well as with the Board of Selectmen. Invite representatives from these groups to attend any or all Waterways Meetings of interest. Dedicate one Waterways Committee meeting per year to discussion of overlapping areas of concern with these boards and commissions.
- b. Dedicate one Waterways Committee meeting per year to gathering input from all waterways stakeholders on any and all waterways issues and concerns.
- c. Report annually to the Board of Selectmen on the progress of implementing the Town of Marshfield Harbor, Rivers and Waterways Management Plan.

- d. Develop an email contact list of organizations and businesses for use in informing stakeholders of Waterways Committee activities. On that list would be marina owners, tackle shop owners, the North and South Rivers Watershed Association, the Ocean Campus Center staff, boards and officials from neighboring towns, the Massachusetts Office of Coastal Zone Management, etc.
- e. Coordinate with the Town of Scituate on activities impacting shared waterways, e.g., dredging, shellfishing, patrols, pump-outs. Schedule one meeting each year with the Scituate Waterways Commission.
- f. Collaborate with surrounding towns – Pembroke, Norwell, Hanover, Duxbury, and Scituate – on matters related to the health and enjoyment of the Town’s waters, including water quality and quantity issues.

Climate Change and Sea Level Rise

Issues

1. There is increasing concern among coastal communities about the impacts from climate change and sea level rise, including changes in storm intensity and frequency. Nearshore areas of Town may be vulnerable to flooding because of their low elevation and or/sea walls in poor condition. The potential risk to life, property, and natural resources need to be better understood.

Recommendations

Goal 1: Prepare for changes in climate and sea level.

Objective I – Increase understanding of the impacts of local changes in sea level and climate.

- a. Work with the Coastal Advisory Committee, Town Planner, the Conservation Agent, the Massachusetts Division of Marine Fisheries, the Massachusetts Office of Coastal Zone Management, and others to explore climate change and sea level rise impacts in the Town and the region. Topics might include species migration and impacts on fisheries; increased storm inundation impacts on land value and public safety; land acquisition strategies to protect against sea level rise and storm inundation (e.g., allowing for upland migration of marshes); and strategies being explored in other locales to deal with impacts.

Objective II – Protect existing and future waterfront infrastructure against sea level rise.

- a. Work with other Town entities to make sure that Waterways Committee's interests are coordinated and represented in any appropriate climate change and sea level rise initiatives.

Over the last century, the coastal Town of Marshfield has transformed from an active commercial fishing port to an accessible and desirable residential community with easy access to Boston and other job centers in the greater Boston Metropolitan area. Residents appreciate Marshfield's scenic beauty, including its beaches, scenic marshland, and rolling hills. The Town embarked on this effort to update its Master Plan to chart a future that builds on the Town's many assets while also addressing potential vulnerabilities.

Residents appreciate the high quality of life in Marshfield from its solid performing schools, distinct residential neighborhoods, and abundant community amenities. This Master Plan creates a comprehensive framework for preserving and enhancing the Town's economic, natural, neighborhood, and cultural/historic resources through a series of actionable recommendations. Through the Town's actions thus far, and through the implementation of the goals of this 2014 Master Plan, the Town will continue to thrive and build further upon its many assets.

10

Implementation

Introduction

The implementation element is based on the goals and objectives of this Master Plan and the data that was collected and analyzed. It summarizes the recommendations from each of the Master Plan elements. The Planning Board, Board of Selectmen and other Town Boards, Commissions and Committees, with the assistance of the Town staff, should use this Master Plan as a guidance and policy document for the time period of 2015 to 2025.

It is important to note that planning is a dynamic process and priorities can shift over time. The intent of the Planning Board is to update sections of the plan as new data becomes available. This update and review process allows for issues to be acknowledged while keeping each specific recommendation on the table unless a situation dictates that it be reconsidered. This regular follow-up will allow the Master Plan to remain current and address concerns or events as conditions change.

Although the Planning Board played an oversight role as the plan was being drafted, it will be important to consider the establishment of a separate entity to coordinate implementation of the Plan. The Planning Board will be responsible for a number of the Plan's recommendations, so a separate Committee can help in moving forward on recommendations that are beyond the Planning Board's authority. The appointment of a Master Plan Implementation Committee could assist in the oversight and coordination of the Plan's implementation.

The implementation plan intends to deliver on the promise of the goals and objectives expressed throughout this process, with a program of tangible steps for the Town to take over the next ten years and beyond. There is a high level of activity on these issues, based upon the input received during the planning process.

Table 10-1 below summarizes the specific recommendations found at the end of each of the plan's elements. Repetitive recommendations from the various sections have not been repeated. Also certain very specific recommendations from other reports or plans have not been included in order to keep the focus of these recommendations on the overall Master Plan. As a result, the recommendations may not appear in numerical order as some have been deleted from this section in order to reduce duplication. The timing for implementation of the recommendations is estimated for specific years (or range of years) to assist in determining the timeframe in which each item is to be considered. Some recommendations are noted as ongoing in nature. The responsible parties are also listed. If more than one entity could be charged with implementing a particular strategy or recommendation, the "lead agency" is listed first in bold.

The following list identifies the acronyms used for responsible parties in the table:

- AG - Agricultural Commission
- Assessor - Assessor's Office
- BC - Beach Commission
- BD - Building Department
- BOH - Board of Health
- BOS - Board of Selectmen
- CAC- Coastal Advisory Committee
- CoC - Chamber of Commerce
- ConCom - Conservation Commission/Conservation Agent
- CoA - Council on Aging
- DPW - Department of Public Works
- FD - Fire Department
- HM - Harbor Master
- HC - Historical Commission
- HP - Housing Partnership/Housing Coordinator
- Lib - Library
- OSC - Open Space Committee
- PB - Planning Board/Town Planner
- PD - Police Department
- RPA - Regional Planning Agency
- Rec - Recreation
- RTC - Recreation Trails Committee
- SD - School Department
- TA - Town Administrator

- WC – Waterways Committee
- ZBA – Zoning Board Appeal

Implementation Matrix

Table 10-1 Plan Recommendations – Priority and Responsible Party

Land Use Recommendations	Time for Implementation	Responsible Party
LU-1 Based upon the build-out analysis, inventory all under-utilized commercial or industrial properties of 2 acres or more and assess how the property can be developed or redeveloped to maximize its potential land use, particularly for commercial, industrial, and mixed-uses.	2016 – 2017	PB, ConCom, BOS, BD
LU-2 Review and revise zoning to encourage reinvestment and redevelopment of existing commercial or industrial properties. Such incentives could include density bonuses, mixed use, streamlined permitting, etc.	2017 – 2019	PB, BD
Zoning Recommendations		
LU-3 Review the parking standards and consider including both minimum and maximum parking standards.	2017 – 2018	PB, ZBA, BD
LU-4 Revise R-3 zoning for the Ferry Hill area that currently allows 10,000 square foot lots to R-1 (minimum one-acre lot size), to increase lot size in character within this area and minimize impacts to water quality.	2016 – 2017	PB, ZBA, BD
LU-5 Consider changing a portion (400 feet in depth) of the I-1 district fronting along Route 139 to B-2. Consider changing the PMUD to underlying zoning instead of overlay zoning.	2016 – 2017	PB, ZBA, BD
LU- 6 Review Airport District and consider updating the list of uses.	2016 – 2017	PB, CoC, ZBA, BD
LU-7 Consider allowing Hotels and Bed and Breakfast as uses to the Brant Rock Overlay district	2017-2018	PB

Table 10-1 Plan Recommendations – Priority and Responsible Party

Land Use Recommendations	Time for Implementation	Responsible Party
Downtown Recommendations		
LU-8 Develop a Downtown Wayfinding signage program.	2016	PB, DPW, BD
LU-9 Move forward with design guidelines for major building renovations, streetscape improvements, new construction, and new signage.	2017 – 2018	PB, ZBA, BD
LU-10 Renovate Downtown sidewalks and incorporate streetscape improvements to provide for a more pedestrian-friendly environment.	Ongoing	DPW, ZBA
LU-12 Consider allowing by special permit, mixed use development with commercial uses on the first floor and residential uses on the second and third story in the Downtown.	2016 – 2017	PB, BD
LU-13 Encourage streetscape improvements that create gateways to Marshfield along Ocean Street in Downtown.	2018 – 2020	PB, DPW, ZBA
LU-14 Develop a Complete Streets plan for the Route 139/Ocean Street corridor to encourage more pedestrians and bicyclists to frequent the shops and restaurants in the Downtown.	2017 – 2018	PB, DPW, ZBA
LU-15 Create a mixed-use overlay district and revise the use regulations to discourage auto-dependent uses (gas stations, auto repair, etc.) from the Downtown area.	2016	PB, ZBA, BD
Route 139 Recommendations		
LU-16 Review the Route 139 corridor to ensure there is adequate transition between the single family residential and the commercial areas, and that appropriate, possibly mixed use development is allowed.	2017 – 2018	PB, ZBA, BD
LU-17 Establish access management standards to	2017- 2018	PB, DPW, BOS, ZBA,

Table 10-1 Plan Recommendations – Priority and Responsible Party

Land Use Recommendations	Time for Implementation	Responsible Party
control curb cuts along the Route 139 corridor.		BD
LU-18 Consider a river front overlay zone for Route 139/Ocean Street to protect the water quality in the South River, one of the Town’s greatest natural resources.	2017 – 2018	PB, ConCom
Procedural Recommendations		
LU-19 For major development proposals, consider having monthly or regular cross-department review meetings with representatives from the Planning Department, Housing, Fire Department, Department of Public Works, Building Department, Zoning Board of Appeals and Conservation Commission to review issues and make recommendations regarding developer proposals.	Ongoing	TA, BD, BOS, PB, HP, FD, PD, DPW, ConCom
Farmland Preservation		
LU-20 Educate agricultural landowners about the state’s voluntary Agriculture Preservation Restriction Program, which provides an alternative to selling or developing their land. The program pays farmland owners the difference between the fair market value and agricultural value of their land, and in return, a deed restriction is placed on the land that prohibits uses that would negatively impact the property’s agricultural viability.	Ongoing	AG, ConCom, PB
LU-21 Encourage local agriculture through the development of farmers’ markets. The state Department of Agricultural Resources provides technical assistance to people interested in starting farmers’ markets. The Town should also consider establishing additional community gardens on Town-owned land. This could be done on a seasonal basis.	Ongoing	AG, CoC

Table 10-1 Plan Recommendations – Priority and Responsible Party

Housing Recommendations	Time for Implementation	Responsible Party
H-1 Inventory Town-owned land and tax title property to identify potential parcels for use as affordable housing sites, which can be developed/rehabilitated by the Town or private developers.	2016 initially, then ongoing	HP
H-2 Consider a policy whereby projects with a certain amount of on-site affordable housing receive priority for sewer service.	Ongoing	HP, DPW
H-3 Review and revise the Inclusionary Zoning Bylaw.	2016 – 2017	HP, PB, BD
H-4 Provide high-quality affordable housing in attractive neighborhoods through modification of zoning bylaws, regulations and programs. Ensure that housing choices are available to meet the needs of current and future generations of Marshfield.	Ongoing	HP, PB, BD
H-5 Encourage more mixed-use and infill development where appropriate, mainly in the Downtown, Planned Mixed-use Development overlay district, and the B-4 zoned areas in Brant Rock. This encourages the reuse of vacant or under-developed parcels and can allow for development at higher densities where the infrastructure can support it.	Ongoing	HP, PB, BD
H-6 Consider revising the Zoning Bylaw to encourage the development of a greater range of dwelling types in order to increase these types of affordable units.	2016	PB, BD
H-7 Adopt housing design guidelines for privately sponsored affordable housing development.	2017 – 2018	PB
H-8 Consider revising the current accessory apartment bylaw.	2017 – 2018	HP, PB, ZBA, BD

Table 10-1 Plan Recommendations – Priority and Responsible Party

Housing Recommendations	Time for Implementation	Responsible Party
H-9 Review the feasibility of pursuing housing in the Town Center and other areas, such as Brant Rock. Any redevelopment plans involving the Town Center should promote the incorporation of affordable housing.	Ongoing	HP
H-10 Continue to hold educational campaigns for affordable housing. The Town has held general informational sessions in the past on resources available for affordable first time homebuyers. Marshfield should continue doing these to increase awareness of affordable resources.	Ongoing	HP
H-11 Hold educational programs for preventing and dealing with foreclosure. Doing this will help retain the Town’s residents and increase the awareness of foreclosure resources.	Ongoing	HP
H-12 Continue to fund the Town’s Housing Coordinator position, as this has proven to be beneficial for providing expertise in the affordable housing field.	Ongoing	TA, BOS

Table 10-1 Plan Recommendations – Priority and Responsible Party

Economic Recommendations	Time for Implementation	Responsible Party
Downtown Recommendations		
ED-1 Consider consolidating the Downtown area into one overlay zoning district that incorporates a mix of uses.	2016 – 2017	PB, BD
ED-2 Consider financial incentives such as property tax abatement to encourage rehabilitation and redevelopment of downtown buildings for mixed-use.	Ongoing	BOS, Assessor
ED-3 Review whether regulations inhibit development of restaurants, nightlife or arts/performance uses that would help activate the downtown during the evening (e.g., updating the parking regulations to encourage more shared parking, limitations on outdoor dining, etc.).	2016	PB, CoC, ZBA, BD
ED-6 Continue making improvements to Downtown sidewalks and incorporate streetscape improvements to provide for a more pedestrian-friendly environment.	Ongoing	DPW, ZBA, PB, BD
ED-8 Consider designating the downtown area as a Cultural District, which is an area where there is a concentration of cultural facilities, activities, and assets. The Town would partner with other organizations to create an area that can: <ul style="list-style-type: none"> • Attract artists and cultural enterprises • Encourage business and job development • Establish the district as a tourist destination • Preserve and reuse historic buildings • Enhance property values • Foster local cultural development 	2017 – 2018	CoC, PB
ED-9 Work with downtown property owners and local artists to install temporary “pop-up” exhibits or public art installations in vacant ground floor retail spaces in order to avoid empty facades that contribute blighting or depressing influence.	Ongoing	CoC

Table 10-1 Plan Recommendations – Priority and Responsible Party

Economic Recommendations	Time for Implementation	Responsible Party
Enterprise Park Recommendations		
ED-10 Rezone the I-1 frontage on Rt. 139 to B-2 so that both sides of Rt. 139 are consistently zoned along that stretch of the road.	2016 – 2017	PB, BD
ED-11 Recruit a hotel with event meeting space and a medical facility to locate in the Enterprise Park area.	Ongoing until developed	CoC, BOS
ED-12 Continue to work with Massasoit Community College to develop the Ocean Campus Center for Marine and Environmental Studies.	Ongoing until developed	TA, BOS
Brant Rock Recommendations		
ED-13 Create a business investment district (BID) to help with renovations.	2017 – 2019	CoC, TA, BOS, PB
ED-14 Explore a stormwater management system for the Brant Rock commercial district that will alleviate the chronic flooding during coastal storms.	2017 - 2022	DPW, ConCom, BOS
ED-17 Clarify that residential use is allowed on both the second floor and the ½ story above the second floor for mixed-use buildings in the Brant Rock Village Overlay District.	2016	PB, BD
Harbor Management Working Waterfronts and Infrastructure Recommendations		
ED-18 Explore the feasibility of providing reliable high-capacity ice service for commercial and recreational fishermen.	Ongoing	HM, WC
ED-19 Ensure that the public infrastructure and shore side arrangements are identified and planned for in terms of current and future needs.	Ongoing	HM, WC
ED-20 Develop a branding strategy to promote the Town’s local waterfront businesses.	Ongoing	CoC, HM, WC
ED-21 Create events for the public to become more aware of activities along the Town’s waterfronts.	Ongoing	CoC, HM, WC

Table 10-1 Plan Recommendations – Priority and Responsible Party

Economic Recommendations	Time for Implementation	Responsible Party
Other Economic Development Recommendations		
ED-25 Continue to review the Town’s permit review process to identify ways in which the process can be made more efficient and streamlined.	Ongoing	TA, BOS, PB, BD, ZBA, BOH
ED-26 Create a comprehensive marketing plan that enlists local businesses to shape the brand and image of Marshfield.	2017 – 2018	CoC
ED-27 Update the Town’s website regularly, on a weekly basis if possible, to enhance the Town’s image and business profile.	Ongoing	TA
ED-28 Explore best practices and innovative solutions to address the infrastructure capacity constraints. For example, the Town could fill gaps in cellular service by leasing Town-owned property to cellular companies.	Ongoing	TA, BOS
ED-29 Engage state agencies or organizations in marketing the Town, and take advantage of state and local business incentives available through the state and federal governments.	Ongoing	CoC, TA
ED-30 Support public-private partnerships to provide specific workforce training.	Ongoing	CoC
ED-31 Explore opportunities for creating a regional Transportation Management Association (TMA) with neighboring communities and private employers.	Ongoing	RPA, PB
ED-32 Consider establishing a shuttle service with private employers to the North Scituate commuter rail stop.	Ongoing	RPA, PB
ED-33 Consider rezoning the Town Pier to commercial (B-4) to encourage more maritime/commercial fishing related business along the waterfront.	2016 – 2017	PB, BD

Table 10-1 Plan Recommendations – Priority and Responsible Party

Natural Open Space and Historic Resources	Time for Implementation	Responsible Party
NR-1 Continue to protect the drinking water for the Town of Marshfield.	Ongoing	DPW
NR-2 Develop, maintain and improve public access to water resources (particularly along the North, South, and Green Harbor Rivers), open space and trails.	Ongoing	Rec, RTC, OSC, ConCom
NR-3 Consider adopting a Low Impact Development (LID) Bylaw to minimize post-development stormwater runoff and further protect the Town’s water resources and surface and groundwater drinking supplies. Ideally, such a bylaw should apply town-wide, but it could be targeted specifically to areas that are especially sensitive from an environmental perspective. Review the design, construction, and maintenance of storm water “best management practices” both by the Town and private developers to ensure that the Town is taking advantage of the most recent and effective approaches to LID.	2016 – 2017	PB, DPW
NR-4 Evaluate effectiveness of waste water systems in Zone II areas. Work with DPW and Town Planner to determine parcels that are within Zone II and are currently unprotected.	Ongoing	DPW, PB, OSC
NR-5 Continue monitoring the water quality of water features to determine which, if any, are in need of cleanup or protection.	Ongoing	DPW, BOH, ConComm
NR-6 Acquire or otherwise protect available parcels that will buffer wells from Volatile Organic Compounds (VOC’s), nitrogen and other contamination sources.	Ongoing	BOS, DPW, OSC
NR-7 Evaluate opportunities and locations that could be used to facilitate wildlife crossings and connect habitat areas within the Town. Develop Management Plans for the most heavily used properties that address safety, conservation, and biodiversity.	Ongoing	ConCom, RTC

Table 10-1 Plan Recommendations – Priority and Responsible Party

Natural Open Space and Historic Resources	Time for Implementation	Responsible Party
NR-8 Seek funding through NHESP, DFW, and other partners to fully evaluate and document the wildlife habitat values and natural communities in Marshfield.	Ongoing	ConCom
NR-9 In the course of updating the Zoning Bylaw, ensure that any revisions consider and incorporate appropriate best practices for such environmental protections as stream buffers or shoreline setbacks.	2016 – 2018	PB, ConCom
NR-11 Create a storm water utility to help facilitate better stormwater management.	2018 – 2020	DPW, TA, BOS
NR-12 Protect the water quality in the South River by limiting the type of development adjacent to the river to protect it from pollution.	Ongoing	PB
NR-13 Work with the abutting towns to protect groundwater in Zone II areas that extend beyond Marshfield’s borders.	Ongoing	DPW, PB
NR-14 Ensure that post-development runoff does not exceed pre-development runoff by requiring on-site stormwater retention.	Ongoing	DPW, PB
NR-15 Reduce imperviousness in site design where appropriate by encouraging design features such as smaller parking lots, reduced road and driveway dimensions, the use of pervious paving materials, and other measures to reduce overall impervious surfaces.	Ongoing	DPW, PB
NR-16 Ensure adequate treatment of stormwater before it reaches surface and groundwater.	Ongoing	DPW
NR-17 Establish an inspection system to ensure continued operation of required stormwater management systems.	Ongoing	DPW
NR-18 Identify opportunities to improve infiltration and stormwater management in existing developed areas.	Ongoing	DPW

Table 10-1 Plan Recommendations – Priority and Responsible Party

Natural Open Space and Historic Resources	Time for Implementation	Responsible Party
Recreation Recommendations		
NR-19 Create connections between currently protected parcels to make a greenway and trail network throughout the Town. Develop a larger, multi-use trail.	Ongoing	RTC, Rec
NR-20 Increase the amount of recreational trail based activities, such as walking and biking. Increase the number of ball fields (five to eight needed) to meet the needs of youth programs. Develop an additional indoor recreational facility.	2016 – 2022	Rec, RTC
Historical Resources Recommendations		
NR-21 Consider granting tax credits to property owners who restore buildings to their original character and style.	2018 – 2019	HC, BOS
NR-22 Continue to acquire preservation covenants. Maintain, and support the creation of cultural points of interest along the Pilgrim Trail.	Ongoing	HC
NR-23 Continue the inventory and study of archaeological resources and consider further state designation of archaeological sites.	Ongoing	HC
NR-24 Recommend development of an archeological preservation plan by way of a S&P grant from MHC.	2016	HC
NR-25 Have an archeological sensitivity map prepared for use by property owners and reviewing boards.	2017	HC

Table 10-1 Plan Recommendations – Priority and Responsible Party

Public Services and Facilities Recommendations	Time for Implementation	Responsible Party
PSF-1 Increase staffing and improve facilities to meet current needs and future growth.	Ongoing	TA, BOS, All Departments
PSF-2 Develop a plan to address the required upgrades to correct the Police Department headquarters deficiencies.	2016 – 2017	PD
Recreation and Beaches Recommendations		
PSF-3 Ensure adequate staffing, programs, and facilities.	Ongoing	Rec, BC, RTC
PSF-4 Continue maintenance of existing parks.	Ongoing	Rec
PSF-5 Increase connectivity, including sidewalks and bike paths. Improve bike paths and safe biking options.	Ongoing	RTC, Rec
PSF-6 The Sea Level Rise Study recommends rebuilding the existing seawalls at least two feet higher to accommodate rising sea levels over the next 25 years to help protect the Town’s existing infrastructure. Storm closure panels at openings in sea walls should also be constructed that can be closed in advance of a storm to ensure that water does not pass through openings during storm events to minimize penetrations in sea walls. Additionally, the report recommends raising sections of several roadways to reduce flooding and maintain access to flood prone areas.	2016 – 2040	DPW, CAC, BOS
PSF-7 Investigate, permit and develop off-shore breakwaters to aid in the protection of the shore line and beach nourishment efforts.	2015 -2020	CAC, BOS, PB, ConCom, DPW
PSF-8 Look for opportunities to increase the recreation facilities in Town.	Ongoing	Rec
PSF-9 Enhance ADA accessibility to the Town’s parks and beaches.	Ongoing	Rec, BC
PSF-10 Ensure that recreation programming meets the needs of a changing demographic in	Ongoing	Rec, CoA

Table 10-1 Plan Recommendations – Priority and Responsible Party

Public Services and Facilities Recommendations	Time for Implementation	Responsible Party
Marshfield, particularly for the aging population.		
Library		
PSF-11 Pursue plans and funding to renovate the existing library footprint and expansion of facility.	2017 – 2019	Lib
Public Schools		
PSF-12 Continue to support the elementary school redistricting process to evenly balance student enrollment numbers in these schools.	2016 – 2018	SD
PSF-13 Options for upgrading and improving the Daniel Webster Elementary school will need to be evaluated in the future as this facility is in fairly poor condition. New flood maps should also be taken into consideration when considering the upgrades or improvements.	2017 – 2019	SD
Water and Wastewater		
PSF-14. Consider the expansion of town-wide sewer capabilities to the Industrial area or consider a package treatment facility for the PMUD and Industrial areas to enhance protection of sensitive natural resources.	2018 – 2022	DPW
Capital Improvement Planning		
PSF-15 The Town could consider developing a Town-owned property inventory for the CIP to identify surplus property and conduct an assessment of a site’s suitability for municipal facilities or open space. The properties should be ranked by relative importance to the Town, based upon criteria that are established for potential suitability to meet the Town’s needs.	2016 – 2017	TA, BOS, PB

Table 10-1 Plan Recommendations – Priority and Responsible Party

Public Services and Facilities Recommendations	Time for Implementation	Responsible Party
PSF-16 The Town’s Capital Budget Committee should continue its oversight of the CIP; conduct a consensus process for ranking capital project requests.	Ongoing	TA, BOS, PB
PSF-17 Continue to explore how to meet the space and staffing needs of municipal services. Facilities to be reviewed include Town Hall, DPW Barn, Library, as well as addressing inadequacies of existing facilities, such as the Police Department headquarters building.	2016 – 2020	TA, BOS
Municipal Operations		
PSF-18 The Town should take a leadership role in “greening” Marshfield through its operations, governance, and management.	Ongoing	All Departments

Table 10-1 Plan Recommendations – Priority and Responsible Party

Transportation Recommendations	Time for Implementation	Responsible Party
T-1 Develop a sidewalk/ pedestrian route plan.	2017 – 2018	DPW, PB, Recreation Trails Committee
T-2 Provide sidewalks on both sides of roadway along major roadways including Route 139 and Route 3A.	2019 – 2022	DPW
T-3 Work with land owners during development/ redevelopment plans to provide pedestrian connectivity between parcels.	Ongoing	PB, DPW
T-4 Review ADA accommodations at key intersections or roadways that have pedestrian activity and develop an improvement plan to address issues or needs.	Ongoing	DPW
T-5 Develop a bicycle master plan that identifies potential on- or off-road accommodations and incorporates Complete Streets initiatives.	2017 – 2018	Recreation Trails Committee, PB, DPW,
T-6 Provide wider shoulders on major corridors to accommodate bicycles (Route 3A).	2019 – 2022	DPW
T-8 Provide bus service to the northern part of Town and a connection to the Greenbush Station in Scituate.	Ongoing	RPA, PB
T-9 Work with GATRA or a private transit company to create a fee based internal bus loop	Ongoing	RPA, PB
T-10 Develop an access management plan in coordination with MassDOT for Route 139	2017 – 2018	DPW
T-11 Incorporate access management guidelines into traffic impact study requirements in the Zoning Bylaw.	2018 – 2019	PB, DPW
T-12 Promote Complete Streets on future local roadway resurfacing or improvements.	2017 – 2018	DPW, PB

Table 10-1 Plan Recommendations – Priority and Responsible Party

Transportation Recommendations	Time for Implementation	Responsible Party
T-13 Develop a transportation/parking/land use study for downtown.	2018 – 2019	PB
T-14 The Town should develop a sustainable transportation practices checklist that is appropriate for the community and includes the most appropriate practices, complete street, access management, traffic calming, Green DOT initiatives, etc. Elements should be respectful of the specialized needs and environmental resources within the Town, but these should also be balanced with the overarching goal of providing for all modes of transportation.	Ongoing	PB, DPW
T-15 Develop an improvement matrix identifying issues and needs at key intersections and roadways. Prioritize projects and pursue projects on the State TIP.	Ongoing	DPW, PB
T-16 Work with MassDOT and the Town of Pembroke to develop an improvement plan for Route 3/ Route 139 or Interchange 12	2018 – 2019	DPW, PB

Table 10-1 Plan Recommendations – Priority and Responsible Party

Climate Change Adaptation Recommendations	Time for Implementation	Responsible Party
CCA-1 Explore the potential benefits of developing a beach management plan that will (1) comprehensively identify beach management needs and issues throughout the Town, and (2) provide recommendations to strategically address those needs and issues.	2016 – 2017	BC, CAC
CCA-2 Develop a plan to guide with funding and scheduling for beach re-nourishment.	2016 – 2017	BC, CAC, ConCom, HM, WC, DPW
CCA-4 Consider raising sections of several roadways (Bay Avenue, Dyke Road, Ocean Street, Island Street, Cove Street, Macomers Ridge, Macomers Way, Bartletts Isle Way) to reduce flooding and maintain access to flood prone areas.	2019 – 2022	DPW
CCA-5 Study the impacts of constructing offshore breakwaters or other attenuation devices to absorb wave energy to preserve beach re-nourishment efforts and protect seawalls.	2017 – 2018	CAC
CCA-6 Investigate possibility of instituting a home buy-back plan in repetitive loss areas.	2017 – 2018	CAC
CCA-7 Conduct an assessment of the health of the tidal salt marshes and develop restoration strategies.	2017 – 2018	ConCom, CAC
CCA-8 Investigate the possibility of implementing rolling easements in the flood prone sections of Town.	2017 – 2018	CAC

Table 10-1 Plan Recommendations – Priority and Responsible Party

Harbor, Rivers and Waterways Recommendations	Time for Implementation	Responsible Party
HRW-1 Petition the U.S. Army Corps of Engineers to address the shoaling at the jetties due to their design and configuration, taking into consideration the studies conducted in 1980 and 1988, for the purposes of ensuring long-term, safe navigation.	2016	HM, WC
HRW-2 Continue sand management activities to reduce the impact of aeolian sand transport in Green Harbor.	Ongoing	HM, WC, ConCom, CAC
HRW-3 Work with other relevant entities to complete an engineering and hydrodynamic study of the Brant Rock Dyke's effects on the harbor.	2016	HM, WC, ConCom, DPW
HRW-5 Explore cooperative dredging efforts with other communities.	Ongoing	HM, WC
HRW-5 Explore every opportunity to expand the use of Marshfield's working waterfronts to accommodate new uses (e.g., activities related to the Ocean Campus Center) and the growth of existing uses.	Ongoing	PB, BOS, ConCom, HM
HRW-6 Collaborate with surrounding towns – Pembroke, Norwell, Hanover, Duxbury, and Scituate – on matters related to the health and enjoyment of the Town's waters, including water quality and quantity issues.	Ongoing	BOS, ConCom
Natural Resources		
HRW-7 Conduct an inventory of docks and piers in waterways to understand the potential impacts of existing and additional docks and piers so as to adequately protect natural resources, navigation and public trust rights in the waterways.	2016 – 2017	HM, WC
HRW-8 Develop criteria for assessing applications for new or expanded docks in the Town's waterways.	2016 – 2017	HM, WC, ConCom
HRW-9 Ensure adequate and convenient pump-out facilities to prevent water quality	Ongoing	HM, WC

Table 10-1 Plan Recommendations – Priority and Responsible Party

Harbor, Rivers and Waterways Recommendations	Time for Implementation	Responsible Party
<p>impairments resulting from vessel-based waste. Require all facilities with a vessel pump-out to certify annually that the equipment is operational and to provide the Harbormaster with the days and hours the pump-out is available. Each new boating facility should be required to provide a convenient public pump-out, as appropriate.</p>		
<p>HRW-10 In coordination with other Town departments, explore opportunities to engage a university in a long-term marsh monitoring program to track marsh health and movement.</p>	2018 – 2019	WC, ConCom
<p>HRW-11 Take necessary measures to expand the duration and locations of shellfishing, with an ultimate goal of keeping shellfish beds open year-round.</p>	Ongoing	HM, WC
<p>HRW-12 Evaluate the potential for expanded commercial shellfishing.</p>	Ongoing	HM, WC, ConCom
<p>HRW-13 Conduct an independent scientific shellfish stock assessment to determine harvesting yield potential.</p>	2017 – 2018	HM, WC
<p>HRW-14 Work with the Harbormaster, DMF, and the NSRWA to enhance shellfish populations through the expansion of seeding and relay activities, both for harvesting and for natural resource improvements (e.g., water quality and shore stabilization).</p>	2017 – 2018	HM, WC

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