2012 MARSHFIELD TOWN PLAN

Adopted September 18, 2012

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A SENSE OF PLACE IN MARSHFIELD

EARLY HISTORY

The independent Republic of Vermont chartered the Town of Marshfield in 1790 and named it for Isaac Marsh, one year before Vermont became the 14th state to join the United States of America. Located in the northeast part of Washington County the 44 square mile Town of Marshfield is wooded, hilly, and bisected by the fertile valley of the Winooski River.

The Abenaki were the aboriginal inhabitants of the land that came to be known as Marshfield. From their seasonal camps, they hunted game, fished and gathered food in the Winooski River Valley and surrounding hills. The forced northern retreat of the Abenaki opened the area to settlement by English families from southern New England.

Land controversies, the French and Indian War, and the onset of the American Revolution had kept the number of actual settlers coming into Vermont low. While their numbers were low, the first Yankee settlers from Connecticut, New Hampshire and Massachusetts, traveled upcountry to this northern frontier to develop small farms in the 1790s. There were only 172 people in 20 families when the first Marshfield Town meeting was organized in 1800. Initially, trees were the land's primary resource and the old-growth rock-laden forests were cleared for four interrelated reasons: farmland, fuelwood, potash and lumber. Today's roads in Marshfield generally follow the same migration trails that were cut from the forest during the settlement period.

THE RIVER AND THE VILLAGE

The Winooski River has been an important factor in the development of Marshfield. The name Winooski derives from the Abenaki word meaning 'onion place' and the river was known in the earliest days of settlement as the Onion River. Several small streams join the winding Winooski River as it flows southwest through the township in a fertile and picturesque valley. Today the course of the river, the floodplain and ecology is a natural resource protected by the Marshfield Town Plan.

A village center evolved where the stagecoach roads to Cabot, Danville, and Montpelier converged with the small industries along the falls of the Winooski River. A network of roads linked the dispersed farms to stores, shops and water-powered mills in the village center. Farmsteads prospered throughout the town early in the 19th century and by 1830 the population had increased to 1271. Marshfield, like the majority of Vermont towns, suffered rural de-population beginning in the 1830s and by 1950 the population had declined to only 830.

AGRICULTURE

The development of Marshfield into a rural agricultural community in the 19th century was caused by the terrain, climate and geographic location that favored small farms. The topography of the land established the historical pattern of growth on the landscape

where agriculture was the predominant occupation throughout the century. In the 1840s farms produced bushels of wheat, barley, oats, rye, buckwheat, corn, and potatoes, as well as hay, wool and maple sugar. A typical livestock inventory in the1850s included sheep, cattle, dairy cows, hogs, oxen, horses and hens. Additional farm products included cheese, apples and honey. Many significant barns were built for livestock and several have survived in the 21st century.

Agriculture went through three general periods: self-sufficiency, commercial agriculture and decline. With the decline in farming, the forested landscape began to recover. The dairy industry emerged as the most viable enterprise within agriculture and evolved through three phases: cheese, butter and fluid milk. When the cooperative creamery association was organized in 1896, the town boasted 39 dairy cows per square mile.

BUILDINGS AND BRIDGES

The log houses of the first settlers soon gave way to more sophisticated dwellings. Houses of wood frame or brick were built in a variety of architectural styles including Federal, Greek Revival, and French Second Empire. Marshfield Village still has a concentration of historic houses, stores and churches that retain their historic architectural character. Of the many wooden covered bridges that once served travelers, only one covered bridge remains; the 1890 privately-built Martin Bridge that once allowed farm animals to pasture on the east side of the Winooski River. The Martin Bridge is the only original covered farm bridge left in Vermont. This historic bridge is now owned by the town and was restored in 2009.

CULTURE AND EDUCATION

In the 19th century residents organized churches, civic and fraternal organizations, as well as a town band and orchestra. A bandstand was a focus of community pride on the small town common near the Marshfield Village Store. A circulating library that began shortly before the Civil War moved to the new Jaquith Library near the town common in 1899. As the population grew public one-room schoolhouses were built in eleven districts throughout the township. Gradual consolidation led to the building of a single village high school in 1929. This former school building is now known as the Old Schoolhouse Common and provides offices for the Town Clerk, the Jaquith Library, the Marshfield Historical Society and several small businesses.

THE RAILROAD

The Montpelier and Wells River Railroad came up the Winooski Valley in 1873 and a station was built on Depot Road near the village. All of the commercial and political activities in the state's capitol were now only a short train ride away and two years later a telegraph line was set along the route of the railroad. The railroad continued east through the small community of Lanesboro that was organized in 1883 around a very large sawmill.

THE TWENTIETH CENTURY

In the early twentieth century Marshfield experienced changes in business, communication, industry and transportation. The first telephone and electric service arrived in the village about 1900 and Rural Free Delivery of mail began about 1907. Marshfield Village was incorporated in 1911 where residents constructed a sewage system, street lighting, and a fire station with an organized volunteer fire department.

By 1920 the town's professions included an auctioneer, a beekeeper, a blacksmith, four carpenters, a coal dealer, three horse dealers, a jeweler, two lumber dealers, a milk dealer, two painters and paperhangers, and a shoe repairer. Other occupations included a clergyman, five justices of the peace, and two physicians. Local businesses included agricultural implements, a drug store, two fertilizer dealers, a grain merchant, five general stores, a boarding house, two saw mills, a stable and a stove salesman. The railroad station had an express company and a telegraph company. The town also boasted its own hydroelectric power plant and a large stone dam that contained the Marshfield Reservoir.

The Groton State Forest, established in 1919, is located along the town's eastern border. From 1933 until 1941 the Civilian Conservation Corps built park shelters and hiking trails to provide year round recreational opportunities. The CCC also worked on forestry projects and constructed a permanent road through the forest to the town of Groton.

The old stagecoach road along the Winooski River, known as the River Road, was paved in 1932 between Plainfield and Marshfield and given the designation U. S. Route 2. Automobile travelers vacationed overnight at five private tourist cabin locations along the highway. Electric lines reached local houses and barns in the late 1930s and in the early 1950s bulk milk tanks were introduced to the dairy farms. The bulk tank led to the demise of many marginal farms that could not afford the new technology.

The fires of 1905 and 1909 destroyed many buildings in the village, the devastating flood of the Winooski River in 1927 and the national depression of the 1930s made it difficult for the town to recover economically. Later in the 1960s, the population began to increase with a back-to-the-land movement that attracted new residents from urban and suburban living to Marshfield's countryside.

MARSHFIELD NOW

In 1970 the town population grew to 1033 and Marshfield joined the neighboring town of Plainfield in building a public school. The mission of the Twinfield Union School community is to educate all students to become responsible, productive, critical-thinking, life-long learning citizens in a safe, nurturing environment of mutual respect, high standards, creativity and academic excellence.

The Marshfield landscape represents the accumulated total of the decisions and compromises made by generations over time. Houses, roads and hills all have their stories. Today's landscape was created by a decline in agriculture, the return of the forests, a growth in population and the introduction of conservation zoning and land-protection programs. Also significant has been the increasing conversion of the town into

a bedroom community of residents who commute to employment opportunities in larger towns. This has led to the building of houses in forests and fields, fragmenting the landscape for agriculture, forestry and wildlife.

Marshfield has evolved over time from an almost self-sufficient agricultural and small manufacturing economy to a more complex mixture of economic activity. In the 2000 Census there were 1496 people in Marshfield. The Town introduced zoning and planning to encourage responsible growth while maintaining the historic rural character of the community. Our Town Plan recognizes that Marshfield is, and through the planning process can remain, a small, rural, primarily residential community characterized by a population that is both economically and demographically diverse.

Living in the hills that form the watershed of the Winooski River provides an opportunity to build a healthy and sustainable community where a diverse group of people live together in ways that create a sense of common interest in a common landscape. The economic, scenic and wildlife values of the natural environment, in combination with the historic values of the built environment, provide a distinctive 'sense of place' in the Town of Marshfield. This 'sense of place' is preserved and enhanced when concerned citizens take action locally to protect and conserve the heritage and natural resources of our rural community.

CHAPTER 1

INTRODUCTION

I. PURPOSE

This Town Plan provides guidelines and recommendations for how Marshfield will accommodate growth, development and opportunities for improvement without losing its rural character.

This Plan recognizes the Town is, and through the planning process should remain, a small, rural, primarily residential community which has an economically and demographically diverse population.

This Plan is designed as a guide to:

- Promote the health, safety, and welfare of Marshfield residents;
- Prevent overcrowding of land and foster its wise and sound use;
- Manage concentrations of buildings, commercial activity, and small scale industry;
- Provide for transportation, water, waste disposal, schools, recreational opportunities, affordable housing, and other public needs while making adequate provisions for protection of the environment.

II. COMMUNITY VALUES AND PRIORITIES

A community-wide survey was conducted by the Marshfield Planning Commission in the summer of 2004 as part of the previous plan update. A summary of the results of the survey (Appendix A) and public meetings on this plan are on file in the office of the Marshfield Town Clerk.

III. IMPLEMENTATION

The Town of Marshfield will implement the goals, objectives, and strategies of this Plan at a minimum in the following ways:

- By using this document as the foundation for future land use regulations (i.e., zoning and/or subdivision) that the voters of the Town can amend or authorize over the life of the Plan;
- By using this Plan as a guide in all relevant government decision-making processes;
- By reviewing the plans and activities of State agencies to ensure that they are consistent with this document (and taking appropriate action if they are not);

- By promoting the philosophy of this Plan with neighboring towns and at the regional level through continued participation in regional organizations such as the Central Vermont Regional Planning Commission;

- Through the Town's participation in the VT Act 250 process as a "statutory party," particularly under criterion 10 (conformance with the local plan).

- By participating in the state's groundwater protection program, including state regulations regarding groundwater withdrawal rules, in order to ensure that the use of groundwater in Marshfield is consistent with the protection of groundwater as a public trust resource.

IV. BASIC GOALS AND PRINCIPLES OF THE MARSHFIELD TOWN PLAN

1. To protect and preserve the integrity and function of Marshfield's important natural resources, environmentally sensitive areas, and historic features. (Chapter 3)

2. To realize an efficient system of public facilities, services and schools to meet future needs. (Chapter 4)

3. Promote and maintain a transportation system which is safe and efficient for vehicles and pedestrians, enhances the economic vitality of village areas, and preserves the quality of Marshfield's environment. (Chapter 5)

4. To promote awareness of the opportunities for renewable energy sources, and the conservation of energy resources. (Chapter 6)

5. To encourage housing development/redevelopment consistent with the Town's desire that residents have a safe and affordable place to live. (Chapter 7)

6. To stimulate appropriate economic development and provide opportunities for individuals to establish locally-based business ventures, while maintaining high environmental standards. (Chapter 8)

7. To maintain the rural character of the community as defined by its traditional village areas, open spaces and forested hills, as well as the human activities thereon. (Chapter 9)

8. To maintain and enhance recreational opportunities.

9. To present a Land Use Plan and proposed zoning regulations which will help to achieve the goals within this plan while using language that is clearly understandable.

V. COMPATIBILITY STATEMENT

According to Vermont statute, a municipal plan is considered to be "compatible" with the plans of its neighboring towns and the region if it "will not significantly reduce the desired effect" of the same. By virtue of its geography and planning goals, Marshfield's potential for inter-municipal land use conflicts is limited.

This Plan's basic focus is to preserve the Town's rural character while accommodating reasonable growth and development; this plan does not appear to threaten or obstruct the planning goals of any neighboring community or the Central Vermont Regional Planning Commission.

CHAPTER 2

A STATISTICAL PROFILE OF MARSHFIELD

I. MARSHFIELD IS STILL RURAL, BUT GROWING

At the time of preparation of this plan update, only limited 2010 Census data was available. Statistics available for 2010 were included if available. Marshfield is one of the more rural towns in the Central Vermont Region. However, on a percentage basis, its population grew rapidly through 2000. Between 1990 and 2000, Marshfield grew at a rate two times faster than the rest of the Central Vermont region and nearly one and one half times faster than the rest of the State. However, growth has slowed since 2000 to approximately half of the growth rate for previous decade. The largest town population previous to the 1970's was in 1890 when the population was 1121.

Table 1
Population Growth 1970-2010

Population:	Marshfield	Central VT	Vermont
1970	1,033	50,688	444,732
1980	1,267	56,284	511,456
1990	1,331	59,619	562,758
2000	1,496	63,276	608,827
2010	1588	65,034	625,741
% Change 1970-00	45%	25%	37%
% Change 1990-00	12%	6%	8%
% Change 2000-10	6%	2.8	2.7%

Source: U.S. Census

Table 2
Age Distribution 2010

	Marshfield	
	Number	% Population
Under 5 yrs.	103	7%
5 - 18	327	20%
19 - 65	942	59%
Over 65	216	13%
Median Age: 42.6		

Source: U.S. Census

Not only has Marshfield grown faster than the rest of the region, but its growth has been of a different character, as well. In Marshfield one third of the growth between 1990 and 2000 was attributable to in-migration. Elsewhere in Central Vermont in-migration accounted for only one quarter of all new population growth. Marshfield's population density continues to increase, although significantly less than the 1970's and 1980's.

Table 3 Population Density (Persons/sq. mile)				
	1970	1980	2000	2010
Marshfield	23.6	30.0	34.7	36.4
Central Vt.	67.4	74.8	79.4	
State	48.1	55.3	65.8	67.87

Source: Extrapolated from U.S. Census and VT. Dept of Health.

As these statistics suggest, Marshfield's population growth has been accompanied by new residential development. Even without experiencing the pressure of large subdivisions or large-scale residential developments, the Town was among the fastest growing in the Region in terms of new housing units previous to 2000. The number of housing units in Town increased by eighty percent from 1970 to 2000: from 378 in 1970 to 686 in 2000 (see Table 4). Over forty percent of the current housing stock has been built since 1970. A portion of the Town's housing boom can be attributed to the trend toward fewer people living in each house (requiring more housing for the same amount of people) (see Table 5).

Table 4 Housing Unit Growth						
	1970	1980	2000	2010	% Change ('70 - '00)	% Change (00-10)
Marshfield	378	494	686	729	81%	6.2
Region	17,208	23,634	29,912		74%	

Source: U.S. Census, VT, Dept. of Health

Table 5 Number of Households, Average Size, 1970, 1990, 2000								
	1970 #	Average Size	1990 #	Average Size	2000 #	Average Size	2010	Average Size
Marshfield	307	3.36	480	2.77	572	2.61	729	2.17
Region	14,960	3.39	22625	2.64	25,681	2.46		

Source: U.S. Census

A total of 79 new units have been permitted to be built since 2000. It is unclear why the number of units permitted does not correspond to the increase of only 43 units according to the US Census. A total of 634 units were identified on the 2009 Marshfield Grand List. Another 61 units were identified as camps or vacation homes, resulting in a total of 695 units, 34 less than counted by the Census. The Grand List may not accurately reflect all existing accessory apartments in homes or the Census may be inaccurate in its counting. However, although the number of Census units may be not completely concise with other records, the Census data do provide a view of the overall housing development trends.

The permit history also shows that most of the new unit construction occurred previous to 2008. This would correspond to the national decline of housing construction in recent years.

Single-Family Dwelling Permits		
Year	New	Replacement
2000	11	0
2001	8	0
2002	13	0
2003	10	0
2004	5	0
2005	11	0
2006	10	6
2007	7	1
2008	1	2
2009	1	1
2010	2	1
Totals	**79**	**11**

Source: Marshfield Zoning Permits

The 2009 grand list includes 514 homes listed as homestead sites meaning that these homes are the property owners' primary resident that they owned. The 2009 grand list classified 65 properties as having mobile homes and 517 properties as having a year-round houses for a total of 582 homes serving as non-vacation homes. The 2009 assessed values of these 517 homes was $169,746. As indicated below there is a mix of housing values.

Continued population and housing growth in Marshfield presents planners with several challenges. Demands for municipal services are certain to increase as are impacts on the Town's natural resources. It will take wise and careful planning for Marshfield to continue to accommodate the future while retaining its rural character and identity.

II. MARSHFIELD IS A "BEDROOM COMMUNITY"

In earlier times, Marshfield's economy placed greater emphasis on the use of its natural resources. Until the second half of the 20th century, agriculture, water-powered manufacturing, quarrying, and forestry, were the Town's employment mainstays and most residents made their living in town. Several retail establishments catered to the population drawn by such industry. Now, with few Marshfield residents working in Town, only a small number of retail establishments, and no large employers, Marshfield has clearly evolved into a "bedroom community."

Based on the 2000 census Marshfield represents 2.4% of the total population of the Central Vermont Region, yet supplies only 198 jobs (.6 percent of the Region's total) distributed among 26 employers. In 2000, Marshfield residents occupied approximately 150 of these positions, and there were 120 self-employed individuals living in the community. There are 504 members of the workforce employed outside of the town, mostly in Montpelier, Barre and St. Johnsbury. Although complete 2010 Census data is

not yet available at this time, the employment pattern is not expected to change significantly based upon anecdotal evidence.

Table 6
Place of Work, 2000

	Marshfield	Region	State
Resident workforce	783	33,680	317,134
% Residents working outside community	64.4%	64.0%	54.8%

Source: U.S. Census

Table 7
Employment by Industry, 2000

	Marshfield		Wash. County	State
	#	%	%	%
Agri., mining, forest	21	2.7	2.1	3.0
Information	38	4.9	3.3	2.4
Manufacturing	87	11.1	10.3	15.1
Construction	41	5.2	6.4	6.7
Transportation	27	3.4	2.7	3.7
Wholesale Trade	27	3.4	3.2	3.1
Retail Trade	92	11.7	11.1	12.0
Finance, RE, Ins.	47	6.0	6.9	4.7
Bus & Rep. Svcs.	46	5.9	7.3	7.1
Pers, Rec, Entertain	43	5.5	8.1	8.6
Ed & Health Svcs.	201	25.7	23.3	24.1
Public Admin.	76	9.7	10.1	4.6
Other Prof. Svcs.	37	4.7	5.1	4.7
Total	**783**			

Source: U.S. Census

With Marshfield's continuing transition from a resource-based economy to a commuter economy, the land has declined as a source of significant economic activity. Marshfield, like most Vermont towns, has lost much of its agricultural base, and in 2000 trailed the State average of residents employed in agriculture, quarrying and forestry (see Table 7). Overall job mix is now much like the region and the state.

As Table 8 suggests, self-employment plays a significant role in Marshfield's economy. Home employment is important too, and probably growing with the emergence of "telecommuting." As of 2000, almost 15 percent of Marshfield's workforce was based out of the home.

Table 8 Employment by Organizational Category, 2000				
	Marshfield		State	
	#	%	#	%
Private Wage & Salary	507	64.8	238,678	75.3
Government Workers	156	19.9	45,010	14.2
Self Employed	120	15.3	33,446	10.5

Source: U.S. Census

III. MARSHFIELD HAS A MIX OF INCOME LEVELS

For decades Marshfield has displayed statistics which reflect a degree of economic distress. This trend appears to have reversed since 1990. Poverty levels, which began to decline in the1980's, continue to decline and in 2000 the poverty level in Town was below that of the State level (see Table 10). A total of 33 families were considered in poverty by the US Census in 2000. In 2005, 8 families were in the Reach-Up Program (formerly ANFC) and 41 households received food stamps. Income levels in 2000, while still below average for the Washington County and the State, have improved at a rate somewhat above the rest of the region. In 2007, the median adjusted gross income (after tax deductions), as determined by the Vermont Department of Taxes, continues to be below the country and state.

Table 9 Median Family Income 1990, 2000			
	1990	2000	% Change
Marshfield	$29,107	$44,063	51%
Washington County	$35,395	$51,075	44%

Source: U.S. Census

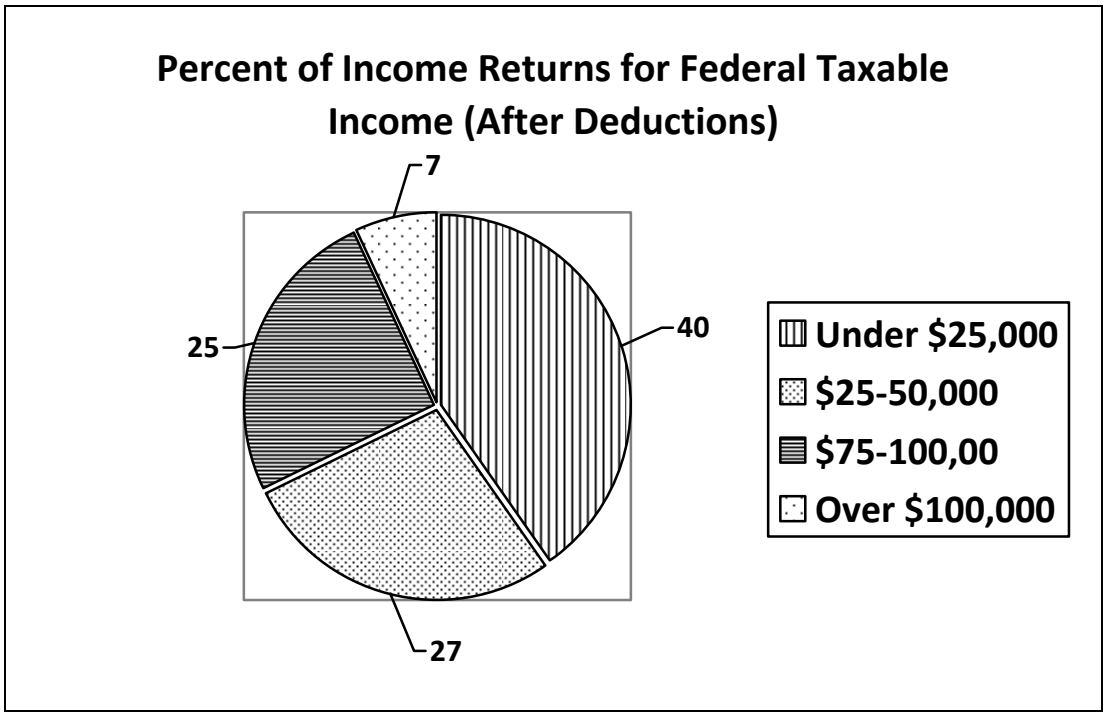
Median Adjusted Gross Income per Family 2007	
Marshfield	$50.962
Washington County	$59,463
State	$57,433
Source: The median measure of adjusted gross incomes from the Vermont State tax forms of families, including those filing as Married filing jointly, Civil union filing jointly, Head of household, and Widow(er) with dependent children. This data excludes people who did not file tax returns and certain others.	

Table 10 Persons Below Poverty Level 1990 and 2000 (Percent Total Population)				
	1990		2000	
Marshfield	154	11.5%	135	9.1%
State	53,369	9.0%	55,506	9.4%

Source: U. S. Census

Federal taxable individual incomes covered a wide spectrum of income levels as indicated below (Note that federal taxable income is income after subtracting deductions). However, although there are a variety of income levels, 34% of the total federal taxable income in Marshfield is accounted for by only 7% of the total number of returns.

2009 Personal Income Tax Returns				
AGI Income Class	Number Returns	Percent of Returns	Total Amount of Federal Taxable Income	Percent of Total Taxable Income
Loss or None	12	1.6%	0	0.0%
0 – 4999	91	12.3%	$7,443	0.0%
5000 – 9999	51	6.9%	$15,188	0.1%
10,000 – 14,999	50	6.7%	$103,573	0.5%
15,000 – 19,999	48	6.5%	$190,659	0.9%
20,000 – 24,999	47	6.3%	$369,988	1.8%
25,000 – 29,999	39	5.3%	$449,812	2.2%
30,000 – 34,999	46	6.2%	$742,563	3.7%
35,000 – 39,999	55	7.4%	$1,138,164	5.6%
40,000 – 44,999	37	5.0%	$843,072	4.2%
45,000 – 49,999	26	3.5%	$727,226	3.6%
50,000 – 59,999	58	7.8%	$1,961,749	9.7%
60,000 – 74,999	66	8.9%	$2,822,221	14.0%
75,000 – 99,999	64	8.6%	$3,861,651	19.1%
100,000 – 149,999	34	4.6%	$3,066,087	15.2%
150,000 +	18	2.4%	$3,919,516	19.4%
Grand Total	742		$20,218,912	
Source: VT Tax Dept				



However, while the outlook appears to be improving, it should be noted that poverty statistics are often criticized as outdated and deceiving, especially for cold-climate, rural communities where factors such as fuel and transportation costs are not considered. Accordingly, more communities are adopting "livable wage" criteria as their economic indicators and goals.

The economic hardships of Marshfield's residents may, for instance, be more accurately reflected in its housing costs. Housing values increased rapidly in Marshfield from 1990 to 2000. Rents in 2000 were actually higher in Marshfield than in the rest of the region (see Table 12).

Table 11
Median Housing Unit Value 1990, 2000

	1990	2000	% Change
Marshfield	$68,077	$92,100	135%
Wash. County	$86,422	$105,200	121%

Source: U.S. Census

Table 12
Median Contract Rent 1990, 2000

	1990	2000	% Change
Marshfield	$406	$546	34%
Wash. County	$349	$519	49%

Source: U.S. Census

The education levels have risen considerably over the past two decades. In 1980 seventy three percent of town residents completed twelve or more years of formal education, the most recent census records that over ninety percent of town residents have completed 12 or more years of formal education – a twenty percent increase. This change in the education pattern in Town has contributed to the improving economic picture.

Table 13
Highest Grade Achieved for persons 25+ Years of Age

	K-8	9-11	12th Grade	1-3 yrs. College	4+ yrs College	Total
Marshfield #	43	48	368	194	328	981
% of total (2000)	4.4%	4.9%	37.5%	19.8%	33.4%	
% of total (1990)	9.5%	8.3%	37.1%	21.1%	24.0%	
Region #	1,996	3,218	14,039	10,418	13,036	42,707
% of total (2000)	4.6%	7.5%	32.9%	24.4%	30.6%	
State #	20,769	34,127	130,804	99,498	119,025	404,223
% of total (2000)	5.1%	8.4%	32.4%	24.6%	29.5%	

Source: U.S. Census

CHAPTER 3

THE LAND AND ITS RESOURCES

I. OVERVIEW

The landscape is the stage and source for all human activity. In Marshfield, natural features have determined the character of the community in its settlement patterns and have served as a source of livelihood and beauty to Town residents over the last two centuries. These resources continue to provide both opportunities and constraints to development.

However, as recent decades have demonstrated, the resources that the land can provide are finite and vulnerable. This is particularly true during periods of rapid growth and development. It will be in Marshfield's long-term best interest therefore, to use land and its resources efficiently and wisely so that they may continue to provide opportunities for human endeavor and growth and the long term viability of these natural resources.

This chapter describes:

- The physical landscape of Marshfield; its geology, topography and soils.
- The resource production lands.
- The resource protection lands and waters.
- The land based cultural resources.
- The goals, objectives, and strategies designed to maintain a harmonious and mutually beneficial balance between people and the land.

II. PHYSICAL GEOGRAPHY

The Town of Marshfield is located in Washington County in Northeastern Vermont. It is bounded by the Towns of Plainfield, Groton, Peacham, East Montpelier, Calais, and Cabot, and contains approximately 27,904 acres, or 43.6 square miles, of land. It is about 74 percent forested, with only about 2.6 percent of its land area developed. Approximately 12 percent of Marshfield's land area is cropland, pasture, or open land and another 6 percent is formerly open land in the process of reverting to forest. Wetlands (including only those mapped by the state) and surface waters comprise about 5.4 percent of the Town's total area (See Table 14).

Table 14 Land Use in Marshfield				
Category	1999		2005	
	Acreage	% Total	Acreage	% Total
Forest Land	21,172	75.9	20,675	73.9
Ag/Open Land	3,127	11.2	3,263	11.7
Scrub/Shrub	1,782	6.4	1793	6.4
Wetlands	831	3.0	844	3.0
Developed Land	710	2.5	727	2.6
Surface Water	287	1.0	692	2.4

Source: CVRPC _ LULC Data

A. GEOLOGY

The Winooski River is the approximate boundary between the granite rock of the Knox Mountain Pluton to the east, and the calcareous quartz-mica schist of the Waits river and Gile Mountain rock to the west. The valley and the land to the west is the best agricultural area, and has historically been the location of the most productive farms, and intensive settlement. Parts of the granite rock are plastered with alluvium and glacial outwash, such as Maple Hill, the Nasmith Brook drainage, and along VT Route 232. The outwash has produced small pockets of sand and gravel in these areas, such as the field on the old John Fowler farm, and the town sand pit on the Nasmith Brook Road. Where it is lacking the alluvium and outwash the granite has weathered to produce a thin, acidic soil that is unsuitable for agriculture or development, and the early attempts at settlement in these areas have been abandoned.

The schists are about 350 million years old, deposited as muds in a shallow warm sea, and the granite arrived as red hot magma that pushed up under the schists a few million years later. The over lying schists were slowly eroded away by water and thousands of years of glaciation to expose the under-lying granite and the topography we see today, with the many visible reminders of the sedimentation, volcanism, glaciation, and weathering of our stormy past.

B. TOPOGRAPHY

Topography, the lay of the land, is defined by elevation and slope. Both of these are natural features that influence past and future settlement patterns and uses of the land. With just over 1,500 feet of topographic relief inside its boundaries, Marshfield is rugged and picturesque. Hilly, but not mountainous, it is part these physiographic region known as the Vermont Piedmont - a plateau that has been dissected by streams and subdued by glaciation. Generally, slopes are moderately steep. From a minimum elevation of just about 730 feet along the Winooski River at the Plainfield border, the terrain climbs to over 2,000 feet in many places. The highest peaks include: an unnamed mountain on the west side of Pigeon Pond at 2,308 feet; Hardwood Mountain at 2,245 feet; and Burnt Mountain at 2243 feet. The Winooski River divides the Town into two clearly different portions, while the river's flood plain

provides the flat areas of Town. East of the river there are a number of distinct hills and mountains with significant slopes and high elevations. On the western side of the Winooski River, are a series of hills including Hollister Hill, Gritt Hill, Knob Hill, which form a north-south upland plateau of lower elevation than the peaks on the eastern portion of Town. Steep slopes in the east portion of Town exist because the land rises quickly on either side of the Winooski River and in the area adjacent to the several brooks which run generally southeast into the river.

The steepness of the land as determined by slope can restrict the viability of septic tank systems, building locations, utility and safety service, and road building. Elevation is also important in evaluating the fragility of landforms, as soils are thinner, erosion more extensive, vegetative cover more sparse, and climatic conditions more severe as elevation increases, especially above 2,000 feet.

Slope is a factor taken into consideration when determining where development is permitted. Generally, proposed development on land with slopes greater than 15 percent require more detailed design, construction criteria, and consideration of soil parameters, thereby increasing development costs and potential environmental damage due to erosion and runoff. With slopes of greater than 20 percent the likelihood of environmental damage due to erosion and runoff is increased.

C. SOILS

Soil is the layer of earth that lies directly over the bedrock. It is the layer through which rain and nutrients filter, upon which crops and trees grow, and where wildlife and humans create their lives and homes. The type of soil that develops in an area is dependent on its parent material (bedrock and glacial deposits), vegetation, topography, climate and time. Understanding the characteristics and capabilities of these soils is important for planning the types, locations, and intensities of future land uses. Soils information can be an important guide for reviewing individual development proposals.

Scientists of the USDA Soils Conservation Service (SCS) (now known as Natural Resource Conservation Services, or NRCS) have mapped the soils in Marshfield and the data has been transferred to GIS mapping. A soil interpretation sheet for each soil type is available which describes the soil and evaluates its capability for certain uses. Information on slope, texture, density, permeability, depth to bedrock, flood hazard, frost action, depth to seasonal high water table, and other characteristics is available. Soils are evaluated for their suitability for construction, septic systems, water supply, recreation, farming, woodland management, and wildlife and resource material uses. In general, unfavorable soil types for development typically contain excessive slopes, shallow depth to bedrock or hardpan, wet soils, excessively drained soils, unstable soils, and erodible soils.

The majority of soils identified in the survey of Marshfield by the Soil Conservation Service have severe limitations for septic tank absorption due to depth to rock, wetness, slow percolation, flooding, and/or poor filtering. Those soils with slight or moderate limitations for septic tank absorption fields are limited to those existing on

3-8 percent slopes are not greatly in evidence. In many of the soils that have moderate or even severe limitations for septic absorption, it may be possible to install special systems.

III. RESOURCE PRODUCTION LANDS

Resource production lands benefit society on many levels - economic, aesthetic, recreational, and environmental. They provide habitat for wildlife, undeveloped sites for flood storage and watershed protection, scenic vistas, open spaces for a variety of outdoor pursuits, and increased utilization of local sources of food and wood products. Agricultural lands are particularly vulnerable to encroachment and conversion as they are often level, cleared and on good building soils.

A. AGRICULTURAL LAND

Although Marshfield, with its rugged landscape and narrow valleys, may not fit the image of an agricultural community, it does contain some good farmland soils. Prime and statewide important agricultural soils in Marshfield are located primarily along the Winooski River Valley, Route 232, Maple Hill, and along the Hollister Hill road on the western Town boundary. These soils are extremely important for agriculture because they are primary soils on land that remains open and in active agricultural use. In the southern portions of town and along Route 2 where significant views, open space, active farms and prime agricultural soils combine with important historic landscapes and buildings, conservation of these areas becomes especially important.

The Natural Resources Conservation Service (NRCS) has classified Vermont's soils into twelve categories, called Agricultural Value Groups, according to their limitations, management requirements, and potential for crop production. Soil map units in Group 1 have the most potential for crop production, while units in Groups 11 and 12 have the least potential. Soils in Groups 1 and 3 are rated prime, and those in Groups 2 and 4 – 7 are rated as statewide important. Designations of prime and statewide important soils are used both in a regulatory context (i.e., as a potential trigger for Vermont's statewide Land Use Law, Act 250, criterion 9(b)), and as a key criteria in determining which farmland should be permanently protected with state and federal funds. There are 613 acres of prime and 3,199 acres of statewide soils in the town of Marshfield, representing approximately 14% of the town's total soils resource.

Some of Marshfield's agricultural land is enrolled in Vermont's Use Value program. Through this program the landowner's property taxes are assessed on the basis of the land's current use (as opposed to its development potential). In return, the landowner pledges to abide by a management plan for the parcel. 93 parcels of land, including 13,263 acres in Marshfield, representing 47.5% of the town's total land, are enrolled in the Use Value Appraisal program. (This figure includes land enrolled both in the agricultural and forestry use value categories.)

Seven of Marshfield's farm properties are protected with permanent conservation easements; in some cases the landowners sold the easement, and in others, it was

donated. The Vermont Land Trust is the primary steward of all of the conserved farm easements in the town.

Marshfield presently has over 14 farms, but most of the owners of these properties do not farm full-time. Marshfield's farms range in size and scale, and include:

- a thriving and well-supported Community Supported Agriculture (CSA) operation that grows organic vegetables;
- a conventional dairy;
- several small-scale beef farms, including at least two former dairies;
- a diversified livestock and Bed & Breakfast operation with a self-serve farm store;
- a flower farm;
- a small-scale greenhouse and vegetable operation
- at least 2 horse farms

Although the majority of Marshfield's agricultural landowners are not full-time farmers, the open spaces they steward play an important role in defining the character of this rural community. The growing localvore movement has helped to increase the demand for locally produced food statewide. It is interesting to note that while the number of dairy farms in town shipping bulk milk has dwindled over the past several years from three to one, the farms with full-time operations sell the majority of their products directly to consumers.

B. FOREST LAND

Critically important to Marshfield's identity are the vast forestlands within its borders. In addition to providing intangible benefits, many of Marshfield's large, managed parcels are important sources of lumber and cordwood. The bounty of Marshfield's forestland and the extent to which its resources are harvested probably accounts, in part, for the fact that Marshfield residents heat their homes with wood at more than twice the rate of the rest of the region (40 percent vs. 18 percent).

About 3,800 acres of the Town's forestlands are protected and managed within the boundaries of Groton State Forest. The State Forest is managed for multiple uses. Consequently, timber harvesting is allowed and occurs in many locations.

The majority of Marshfield's forests are privately owned. With the recent initiation of the U.S. Forestry Service's "Forest Legacy" program, forest landowners may have another option and incentive for the voluntary conservation of their land (provided funding is continued). Under this program, federal funding is available for the purchase of conservation easements on eligible, privately owned forestlands.

The Natural Resource Conservation Service has rated most soils in Marshfield for their forest productivity or the ability to grow wood. Forest productivity is measured in cubic feet of wood grown on an acre per year or using a concept known as site index. Site index is the average height in feet that dominant and codominant trees of a

given species attain in a specified number of years. For the northeast, site indices use height at a base age of 50 years for rating forest productivity. High site indices usually mean high rates of forest productivity for a given species on a given soil. Vermont's Use Value Appraisal Program considers good growing sites – those with site class I – to have site index >49 for spruce and fir, >69 for white pine and >59 for northern hardwoods. For a listing of soil types found in Marshfield which have good forestry potential (see map). Given the desire of the Town to conserve forest land, soils with good forestry potential should be considered in development proposals. However, NRCS ratings only reflect physical and chemical compositions of the soils and do not consider location, current land use, parcel size, or other relevant factors. A geographic information system (GIS) study could include other criteria for determining the conservation potential of important forestland in the Town such as potential natural community and erosion potential. When prime forestlands are thus identified, the Town could take steps to ensure the land remains productive. If large parcels of forest are fragmented through subdivision, the natural and economic value of the forest decreases.

C. EARTH RESOURCES

Another type of resource-based production that should not be overlooked is that of earth materials extraction. Gravel deposits in Marshfield are glacial in origin and like human residences, agricultural operations, and groundwater supplies, generally follow the courses of streams and rivers. While these deposits may yield important and needed materials for road and building construction, Marshfield's coincidental development patterns render their extraction a matter of some sensitivity. There is one rock quarry and crushing operation in Town.

It is vital that care be taken in the siting and operation of future extraction operations in order to avoid land use conflicts and environmental damage.

IV. RESOURCE PROTECTION LANDS

A. NATURAL AREAS

A natural area is defined by the State as "an area of land or water that, in contrast to the normally encountered landscape of a region, retains or has reestablished its natural character and retains unusual or significant flora, fauna, geological features or similar features of scientific interest." Such places, often remote, quiet and beautiful, are of great, but unquantifiable value to local residents and visitors alike. Some of the Town's natural areas are identified on the Vermont Agency of Natural Resources Natural Heritage inventory.

Perhaps the most significant natural area in Marshfield is the 25 acre stand of old growth forest on the west side of Lords Hill in Groton State Forest. Several other sites containing significant natural communities or rare or threatened species are scattered throughout the Town and include a peregrine falcon nesting area on Marshfield Mountain, a population of the state threatened Eastern Pearlshell Mussel in the Winooski River, and a significant red maple-black ash seepage swamp with a

population of a state threatened orchid. Other significant areas include two significant poor fens, one on the Calais line the other near the Cabot line, the shallow emergent marsh at Beaver Meadow, populations of a rare and an uncommon species of orchid in the vicinity of Knob Hill, and a population of the Black Meadowhawk, a rare dragonfly near Marshfield Pond. There are also three historical (not recent) heron rookeries: one on King Brook, another farther to the north on Hollister Hill, and the last along the Calais town line, and a historic collection of an uncommon fern on Maple Hill. These areas should be protected in ordinances developed from this plan.

In addition there are a number of significant natural communities and rare plants and animal populations in the portion of town within Groton State Forest. These include populations of the state endangered bronze sedge and Drummond's rock cress, a nesting pair of common loon, and a state significant bog and poor fen, the latter containing a very rare moss. Descriptions of the remaining natural features can be found in the Groton State Forest Plan.

Two waterfalls in Town are recognized in the Vermont Agency of Natural Resources inventory entitled "Waterfalls, Cascades and Gorges." Molly's Falls on Molly's Brook are described as "one of the two or three highest woodland falls in Vermont, and probably the tallest continuous falls of any kind in the State."

The Town of Marshfield owns three large, undeveloped parcels of land. Most significant among these is the Virginia Stranahan Memorial Town Forest which encompasses 620 acres along the western boundary of the town. It was deeded to the town by the Vermont Land Trust (VLT) in Oct. 2007 with a conservation easement held by VLT to conserve forestry and agricultural values, wildlife and aquatic habitats, biological diversity, natural communities, riparian buffers, wetlands, soil productivity, water quality, and native flora and fauna on the property while allowing non-motorized, non-commercial recreational opportunities. A management plan was drafted by the Marshfield Conservation Committee and approved by the Selectboard on 2/16/10. The Selectboard also created a Stranahan Stewardship Committee that advises them on management decisions.

The second of these is the Martin Covered Bridge Park encompassing 71 acres along the Winooski River approximately 2miles east of the Plainfield-Marshfield town line. There is presently an Interim Management Plan that was completed in July, 2006 which allows for all types of non-motorized dispersed recreational and education activities. Snowmobile access is also allowed as is logging following the development of a forestry management plan.

The third parcel is the Old Town Forest comprising approximately 52 acres on Drew Mountain in the northeast quadrant of town. This property is more remote than the preceding parcels and has no road frontage. It presently has no management plan.

B. CRITICAL WILDLIFE HABITAT

Marshfield boasts considerable wildlife habitat for a variety of species, including many associated with wilderness or near - wilderness settings (e.g. moose, bear,

fisher, bobcat, etc). Residents value native wildlife for a variety of reasons - hunting, wildlife viewing, and indirect income.

Our most critical wildlife species are generally thought of as those which yield significant economic returns, provide for sport and subsistence hunting, are symbolic of wilderness values, or face the threat of extirpation or extinction. We know that viable habitat is the single most important survival need for most of these species, yet for many, habitat loss or fragmentation is a real and present threat.

Critical habitats are defined as: those habitats that provide a critical source of food, water, shelter, space, breeding territory, or travel that is decisive to the survival of a species including, but not limited to, deer wintering areas, wetlands, vernal pools, bear feeding areas and travel corridors, habitats of threatened and endangered species, and rare and irreplaceable natural areas.

Winter deer ranges are generally located in south-facing coniferous stands offering food and relief from icy winds and deep snows. Such areas are often desirable sites for human activities as well. Marshfield possesses an abundant winter deer range. Areas designated as winter deer range on the map are located generally on the western half of the Town and on Maple Hill.

Much of the entire eastern half of Town is mapped as "bear production habitat" by the State. Such areas support relatively high densities of cub-producing females and as such are important to the survival of the species. Beech stands and wetlands within these zones are particularly important fall and spring feeding areas.

Vernal pools provide breeding areas for many amphibians, some of which breed only in such areas. Because vernal pools typically dry up during the summer, fish and other predators of amphibian eggs and larvae typically are absent. Most vernal pool breeders show a high degree of fidelity and typically return every year to the same pool.

Trees and other vegetation along streams, rivers, and lake shores serve to:

- Protect property from floods and ice jams.
- Prevent bank erosion and enhance aesthetic appeal.
- Maintain the oxygen level of the water for fish habitat and effluent assimilation capacity.

C. SURFACE RESOURCES

Marshfield's water resources are a large, interconnected hydrologic system of aquifers, lakes, ponds, streams, rivers (collectively known as surface waters) and wetlands. In addition, riparian areas and floodways provide protection for Marshfield’s surface waters. The quantity and quality of water is affected by natural factors such as precipitation, run-off, soils, geology, and vegetation. Because of the

manner in which precipitation flows from the land into drainage networks, there is a direct relationship between land use and surface water quality. Poor land use practices and development within watersheds may disturb the natural balance between ground and surface water resources and result in flooding, erosion and sedimentation. This occurs when development creates a more impervious surface causing a change in hydrology, and when erosion is created during construction that runs off into water bodies. Loss of aquatic habitat, decreased aquifer recharge, irregular stream flows and water pollution are all possible impacts of poor watershed land use and development practices. The quality of water resources in Marshfield is important for public health and safety, recreation, aquatic biological integrity, diversity of wildlife, environmental quality, and scenic beauty and requires special consideration in land use planning.

Surface Waters

The Vermont Water Quality Standards (VWQS) and Vermont statutes set forth a water quality classification system which governs Vermont's surface waters and specifies (1) water quality goals to be attained or maintained and (2) the minimum standard to be maintained for a designated Class of water quality. The Classification system includes two broad categories of waters. Class A waters are the highest classifications of waters in Vermont that receive the most protection. Class A waters are of two types, Class A1 ecological waters and Class A2 water supplies. All waters located above 2,500 feet are designated as Class A1 by Vermont statute (10 V.S.A. § 1253 (a). Any other waters designated as Class A1 must be classified through a regulatory process. No waters in Marshfield have been specially designated as Class A1. Accordingly, there are no Class A1 waters in the Town of Marshfield.

There is a public water supply for the Village of Marshfield. The public water supply for the Village emanates from a groundwater spring off Folsom Hill Road, not from a surface water (see subsection on Groundwater for protections for springs and groundwater). Class B waters are all waters that are not designated as Class A. Accordingly, most of the surface waters in Marshfield have been classified as Class B Waters.

There is also a public water supply for Twinfield Union School.

Under Vermont law, Class B streams must "consistently exhibit good aesthetic value and provide high quality habitat for aquatic biota, fish and wildlife." They should also be suitable for drinking with filtration and disinfection; irrigation and other agricultural uses; swimming and recreation.

Under Vermont law, mixing zones and waste management zones are areas of no more than 200 feet from a permitted sewage treatment plant discharge where the state recognizes that the waters have not fully assimilated the discharge of treated wastes, and may have a higher risk for contact recreation. Currently both the village of Marshfield and Cabot operate Wastewater Treatment Facilities (WWTF) that directly discharges into the main stem of the Winooski River. A 200 ft mixing zone is designated below both WWTF's.

It is State policy (the Anti Degradation Policy of the VWQS and the state water quality policy set forth in 10 V.S.A. § 1250) to maintain and enhance the quality of waters of the state. In recognition of this policy, the VWQS contain sub-categories for Class B waters of type B1, B2, and B3, with B1 being waters with the highest water quality within Class B and B3 being waters with the lowest quality within Class B. Class B type 1 are to be managed at a very high quality, but allowing for minor departures from the "natural" Condition. A Class B type 2 and 3 are to be managed to a high quality allowing for a moderate departure from "natural" condition. In general Class B type 3 waters are of similar quality to Class B type 2 waters but have more limited quantity of habitat. They are typically used to address minimum flow needs of waters affected by water withdrawal of hydro dam bypass reaches.

All surface waters in Marshfield are currently designated Class B, cold water. If the town identifies certain surface waters it would like to see managed at a higher level of quality, and thus require a higher level of protection, it should advocate for a higher Class A or B type 1 designation for these waters through the State Watershed Planning process. This planning process is underway for the Upper Winooski River. Members of the Marshfield Planning Commission are following the process and will advocate for waters that are classified as A, ecological waters, or type B1 waters where appropriate.

The Green Mountain Power (GMP) dam at Molly's Falls Affects flows in Molly's fall brook and the Winooski River due to the release of large quantities of water from the hydroelectric facility. This facility is currently not licensed by the state or federal government. Accordingly, there is no permit restriction on GMP's ability to alter flows as part of its operation the hydroelectric facility. Rather than designating any water affected by the GMP facility as type B3, the Town should advocate for any such waters to be typed as at least B2, and work to have regulations over the GMP facility be imposed by the state and/or federal government.

There are approximately 12.5 miles of river on the main stem of the Winooski River as it runs thru Marshfield. The majority of stream miles are small 1-3rd order streams. There are seven named streams in Marshfield, and numerous small unnamed streams including the stream along Creamery Road. Recent water quality monitoring has shown that due to the geologic influence on a water body's mineral content as mentioned above, the streams on the western side of the Winooski River are of significantly higher alkalinity, than streams on the eastern side. This is due to the higher amounts of calcium carbonate found in the bedrock and soils, which is then dissolved by the water. Monitoring has also shown that the small tributaries are all low in bacteria, but the main stem of the Winooski has chronically higher then acceptable levels of bacteria. The sources of which are likely from nonpoint agricultural runoff, road runoff, and possibly natural sources of animal waste (beaver). In addition, as noted above, flow levels in the main stem are also highly influenced by almost daily releases of water from the GMP Hydroelectric Station located just above the Village of Marshfield.

There are a number of surface waters that serve as important recreation areas in Marshfield. Swimming, boating and/or fishing are important uses of the Marshfield

Reservoir, Turtlehead Pond, Bailey Pond, Kettle Pond and Peacham Pond addition, Marshfield's rivers and streams serve as important recreational resources for Marshfield. For example, the reach of the Winooski River that flows through Marshfield Village where the river flows past the Old Schoolhouse Common is a popular fishing access. Another popular fishing access is on the Winooski River as it flows by the restored Martin Covered Bridge, and the Winooski as it flows by the Old Schoolhouse Common. The Town of Marshfield maintains a recreation path that follows the Winooski River around the Old Schoolhouse Common. Accordingly, the river in this area is an important resource for swimming and wading. In particular, the confluence of Marshfield Brook and the Winooski River along the recreational path is an important swimming and wading area.

Nasmith Brook is one of the best natural trout streams in Marshfield. In addition, people fish the Winooski River as it flows through Marshfield Village, the Marshfield Reservoir, and many of the tributaries, lakes and ponds in Town.

Wetlands

Wetlands are swampy or marshy areas which are not quite water and not quite earth, but some mix of both or, more technically, "those areas that are inundated by surface or groundwater with a frequency sufficient to support significant vegetation or aquatic life that depend on saturated or seasonally saturated soil conditions for growth and reproduction." They are inhabited by a unique variety of plants and animals and help make our environment more livable by purifying surface and underground water supplies, storing flood waters during wet periods and replenishing water supplies in dry weather, and providing for productive and diverse biological communities. Wetlands may be threatened or destroyed by building and other human activity.

Marshfield contains numerous wetlands, totaling approximately 844 acres, which are listed on the National Wetlands Inventory (NWI). The State of Vermont regulates all wetlands that are on the NWI maps and the Vermont Wetland Inventory (VWI) maps. In addition, legislation passed by the Vermont Legislature in 2009, and regulations adopted by the ANR in 2010, will allow the Vermont Agency of Natural Resources (ANR) to determine in the field if a wetland should be regulated by the state, and utilize information gathered by municipalities to add wetlands to the VWI maps. Accordingly, if the Town of Marshfield maps wetlands in the town, and ANR approves the Town's information, these wetlands will be protected by the State of Vermont. In addition, as part of the Marshfield DRB review of a project, the DRB can request that an applicant confirm with ANR whether wetlands that may be affected require a permit from ANR.

As part of their review it is also suggested that the DRB check the ANR Environmental Locator Maps for the presence of Rare, Threatened, or Endangered Species or Significant Natural Communities. If there is a likely impact, the VT Fish & Wildlife Dept should be notified to determine the need for a permit.

Wetlands are important natural resources in Marshfield. Wetlands provide important wildlife habitat, protect surface waters, and help prevent flooding. Marshfield's

zoning and subdivision bylaws should provide protection for wetlands by directing development out of wetland and into upland areas.

Flood Hazard and Riparian Areas

Flood Hazard and Riparian Areas are important for protecting public investment infrastructure, such as roads and culverts, and private investment in developing property. Floods can destroy such investments by washing out development that occurs too close to rivers and streams. In fact, in 2011 two widespread floods caused significant damage to most of Marshfield's roads and infrastructure.

In addition, trees and other vegetation along streams, rivers, and lake shores serve to:

- Protect property from floods and ice jams.
- Prevent bank erosion and enhance aesthetic appeal.
- Maintain the oxygen level of the water for fish habitat and effluent assimilation capacity.

In recognition of the importance of respecting flood hazard and riparian areas, Marshfield has recently updated its bylaws that protect flood hazard and riparian areas. In 2008, the Town approved substantial changes to Flood Hazard District (previously titled the Floodplain and Water Conservation District) regulations in order to bring the regulations into conformance with FEMA minimum standards. In 2009, additional minor amendments were approved to ensure compliance with the Federal Emergency Management Agency (FEMA) minimum standards. This is required by FEMA in order to make flood insurance available to the residents of Marshfield.

In 2008, the Town also approved creating a Watercourse Conservation District that restricted development activities near streams and lakes. Previously, these restrictions were contained within the Floodplain and Water Conservation District regulations. Creation of a separate overlay district helped clarify the regulations. Currently no development is allowed within certain setbacks from streams and lakes. The 2008 amendment also allowed for some minor activities to occur within the setback areas.

Groundwater

The importance of groundwater to the residents of Marshfield cannot be overstated. So dependent is the community on underground sources for domestic water supply, that pollution or significant depletion of its aquifers would spell hardship for many years to come. Marshfield, therefore, must consider the protection of groundwater resources in planning for its future.

While the Village of Marshfield has a public water supply that serves the village residents, the majority of Marshfield residents are served by private wells that tap groundwater. The Village water supply source is a spring off Folsom Hill Road. The Village recently transferred to this spring at the urging of the federal Environmental Protection Agency (EPA). When the Village went to bring the spring on line in 2001, it was discovered that the spring water had elevated levels of naturally occurring

uranium. To address this issue, the Village extracts the uranium from the spring and then discharges the rinse water into a permitted septic system.

Vital to the protection of groundwater sources is an awareness of their "recharge" areas. Aquifer recharge areas are zones that contribute to subsurface supplies. A recharge area consists not only of the land area directly above the aquifer through which precipitation percolates, but also of upland areas from which runoff drains towards the aquifer. Uses of these lands, which may have the potential for spills of toxic or dangerous substances, also have the potential to pollute the aquifer. Uses which render the land impermeable (e.g. parking lots, buildings, etc.) will deplete the groundwater supply. Also, as there is exchange between surface and ground waters, land uses which pollute upstream waters may in time damage downstream aquifers. Obviously, the regulation of potentially hazardous land uses is a vital part of aquifer protection.

Recognizing this fact, the Agency of Natural Resources (ANR) has designated several wellhead protection areas (WHPA's) for public water supplies within the Town of Marshfield. Four of these are located in the northeast quadrant of Town (see Wellhead Protection map). The northeast four Wellhead Protection Areas range from two located northeast of the Village and southeast of Route 2 and two farther south nearer to the central portion of Town east of the Winooski River. Another in the south center portion of Town is near the Plainfield line and east of Route 2 on the east side of Maple Hill. Another recharge area is located in Plainfield Village and extends north into Marshfield, with a large interim Wellhead Protection Area delineated.

Vermont's groundwater protection law (10 VSA, Chapter 48) sets forth general policies for WHPA's and ANR's Water Supply Division has published recommended land use guidelines for WHPA's. In addition, in 2008 the Vermont Legislature passed Act 199 that enhanced groundwater protection in Vermont. Act 199 declares groundwater to be a public trust resource that must be managed by the state for the benefit of all Vermonters.

Act 199 also established a large groundwater withdrawal permitting program. According to Act 199, any commercial groundwater withdrawal of more than 57,600 gallons per day (gpd) must obtain a permit from ANR. One of the criteria that a large groundwater withdrawal must meet under Act 199 is that the withdrawal must conform to any town or regional plan. As such, Vermont municipalities have the authority to control where and to what extent large groundwater withdrawals occur through their town plan.

As noted above, the Town of Marshfield is rich in water resources. In addition to the Town’s abundant rivers, streams, lakes and ponds, the Town has numerous springs and seeps that provide water for our surface water resources and vital drinking water for Marshfield’s residents.

The Town recognizes that large groundwater withdrawals can threaten our groundwater resources. The Town further recognizes that the withdrawals that pose the greatest threats to groundwater are those that involve inter-basin transfers of

groundwater. That is groundwater that is withdrawn, and then removed from the watershed. The clearest example of such an inter-basin transfer of groundwater is a large groundwater withdrawal for the purposes of bottling water.

In recognition of the authority of the Town of Marshfield to protect groundwater through its Town Plan, and the Town's concerns about the adverse effect of large groundwater withdrawals Town Plan states the following:

Groundwater is a vital and finite resource that must be protected from depletion and contamination. Groundwater is a public resource that should be used to the benefit of all the residents of Marshfield. Marshfield is rich in groundwater and has numerous springs and seeps that provide water for Marshfield's wetlands, streams, rivers lakes and ponds. The Town recognizes that large groundwater withdrawals where water is transferred out of the basin, or watershed has the greatest potential to adversely affect surface waters fed by groundwater or drinking water supplies for Marshfield residents. Accordingly, the Town declares that groundwater in Marshfield should not be used for a large withdrawal that requires a permit under Act 199 of 2008 and involves an inter-basin transfer of groundwater due to the potential of these withdrawals to adversely affect Marshfield's natural resources. Groundwater withdrawals that involve an inter-basin transfer include but are not limited to groundwater withdrawals for the bottling of water, whether the withdrawal is for a bottling facility in the Town, or a bulk water transfer of water to a facility that is not located in Marshfield. Other large groundwater withdrawals are allowed only if they will not adversely affect surface waters fed by groundwater or drinking water supplies for Marshfield residents.

V. LAND-BASED CULTURAL RESOURCES

The special way in which people have interacted with the natural environment over time has resulted in a complex and rich heritage in Marshfield. The resulting cultural environment - the historic buildings, sites, landscapes and scenic vistas - work together to evoke a "sense of place" that gives Marshfield its identity. The identification of these vulnerable cultural elements that comprise community character is necessary before taking measures to plan for change, to influence the scale of change, and mitigate the nature of the impact of change on the character of Marshfield.

A. HISTORIC AND ARCHEOLOGICAL RESOURCES

Many of Marshfield's historic buildings and other features are listed in the Vermont Division for Historic Preservation's "Inventory of Historic Sites and Structures." The Division categorizes Marshfield Village as an historic district. Most of the structures listed in the inventory are private residences, although a few public and semi-public buildings are listed as well. A listing in the inventory affords no specific protection for a structure or benefits for its owner; it is merely intended to catalogue historic resources to facilitate owner-initiated or local protection efforts.

The State inventory reveals that, in the outlying farming districts, the majority of the houses and barns appear to have been built between 1830 and 1860, a period when the

Greek Revival style was popular. One outstanding exception is the Theodore Wood House on Hollister Hill, which is a rare example of the French Second Empire style. Many of these individual architectural resources, when combined with the important surviving farms, create rural districts suitable for inclusion on the National Register of Historic Places. The most outstanding of these districts which should be targeted for protection in local ordinances and National Register listing is that northwest of Plainfield Village on Hollister and Gritt Hills, extending to Town Highway 55 and Route 2 on the east, and to the intersection of Town Highways 42 and 46 on the west. Two farmhouses of outstanding architectural detail, the Tibbitts and Smith Farms are situated near the Hollister Hill Schoolhouse and the Rich-Hollister Cemetery. The Eaton cemetery, the Wood home, and Hollister Hill Farm are also located in this area. All of the resources are of outstanding historic/cultural value with a common agricultural theme.

The map of Marshfield from Beers Atlas of 1873, when compared with existing development, is valuable in identifying historical archaeological sites. Industrial archaeological sites along the rivers and streams in the eastern part of Town have not been surveyed. Archaeologically sensitive lands are important and should be given consideration during project planning because they are likely to contain either Native American and/or historic archaeological sites.

B. RURAL CHARACTER

The rural character of the Town is of great value to residents: it helps give a sense of identity to Marshfield. Development which is insensitive to aesthetic resources will diminish the quality of life of Town residents. The rural character exists due to the scenic vistas, large uninterrupted forested areas, open fields, agricultural uses, and limited and scattered development along back roads. Eighty-eight percent of residents who responded to a survey in 2004 found that “rural character” was important in town planning. The importance of protecting natural areas, forest lands, and scenic vistas were ranked by over 80% of the respondents as high or medium. A more complete discussion of rural character is found in Chapter 9, the Land Use Plan.

VI. LAND RESOURCE GOALS, OBJECTIVES, AND STRATEGIES

GOAL: To protect and preserve the integrity and function of Marshfield's important natural resources and environmentally sensitive areas.

OBJECTIVES:

1. To encourage and strengthen the agricultural and forest industries.

2. The fragmentation and use conversion of important agricultural and timberland should be discouraged.

3. To preserve prime and statewide agricultural soils.

4. To encourage the voluntary protection of farms through conservation easements.

5. To encourage best management agricultural practices.

6. To provide for the wise and efficient use of Marshfield's productive resources and to facilitate the appropriate extraction of earth resources and the proper restoration and preservation of the aesthetic qualities of the area.

7. To provide the organizational and policy framework necessary to oversee and implement Marshfield's natural resource protection goals.

8. To protect environmentally sensitive or unique areas.

9. To maintain and enhance the quality and quantity of soil and water resources and the benefits they provide.

10. To identify and protect critical wildlife habitat.

11. To identify and preserve Marshfield's historic and archeological heritage.

12. To preserve Marshfield's scenic beauty.

ISSUE SPECIFIC STRATEGIES:

a. Encourage the protection of important agricultural and forest land by promoting concentrated settlement patterns, site-sensitive development (i.e., "clustering" or "open space development"), the voluntary purchase of development rights, use-value taxation policies, and other appropriate measures. Development that does occur on such lands should be situated so as to leave the most productive portions of the site available for continued use.
b. The Selectboard will target public investment, including the construction or expansion of infrastructure, for the Village or other growth area so as to minimize development pressure on important agricultural and timber lands.
c. Consider adding land use regulations to preserve prime and statewide soils.
d. Zoning bylaws should be modified to allow for variances in minimum lot sizes for parcels excluded from conservation easements.

Promote the wise and efficient use of Marshfield's productive resources:

a. Planning Commission to create earth excavation regulations to ensure that gravel extraction, like other commercial/industrial uses, is compatible with their surroundings and with surrounding land uses.

Implementation of Marshfield's natural resource protection goals:

a. Selectboard will consider the acquisition of natural resource lands as deemed appropriate.
b. Planning Commission, in conjunction with the Conservation Commission, will

review the management plans from the State Agency of Natural Resources for Groton State Forest.
c. Research options for creating a town conservation fund.
d. The Conservation Commission is encouraged to complete wetland mapping.
e. Bylaws should be modified to address wetland protection issues.
f. The town should participate in the upcoming state watershed planning.
g. The Conservation Commission is encouraged to draft a management plan for the Old Town Forest.

Maintain and enhance the quality and quantity of soil and water resources:

a. Ensure zoning regulations protect against erosion by, regulating development on slopes.
b. Restrict potentially polluting land uses from Marshfield's Wellhead Protection Areas and wetlands.
c. Zoning regulations are compatible with the requirements, but may be more restrictive than, those of the Federal Emergency Management Agent's Federal Flood Insurance Program.
d. Seek grant funds for groundwater mapping.
e. Amend Zoning Bylaws to ensure that large commercial groundwater withdrawals do not interfere with the use and availability of water for farming and use as a drinking water source.
f. The Conservation Commission should map wetlands for submission to ANR to ensure that significant wetlands in Marshfield are regulated by the state.
g. Maintain, at a minimum, existing protection for surface waters, including riparian area protections in the Zoning Bylaws.
h. Participate in State Watershed Planning Process to ensure that surface waters in Marshfield are properly classified and regulated by the state.
i. Work with the state to regulate the operation of the Green Mountain Power dam on Marshfield Reservoir to address current impacts to water quality.

Identify and protect critical wildlife habitat:

a. Protect deer wintering areas, black bear production zones, and habitats critical to the survival of rare or endangered species from development.

Maintain and preserve Marshfield's historic and archeological heritage:

a. Town Historical Society will develop an inventory and study historic resources.
b. Encourage historic preservation through public participation and education.
c. The Planning Commission in consultation with the Historical Society will explore strategies and incentives for encouraging historic preservation.

CHAPTER 4

UTILITIES, FACILITIES, MUNICIPAL PROPERTY AND SERVICES

OVERVIEW

Public and private utilities, facilities and services play a critical role in providing for the health, safety and welfare of Marshfield residents. The location, timing and capacity of such infrastructure can also have a profound influence on growth and development within a community. (see Utilities and Government Facilities map for locations of facilities)

Through thoughtful infrastructure planning and maintenance, Marshfield may encourage growth where it is most suitable and least expensive to the community.

I. UTILITIES

A. SEWAGE TREATMENT

The Marshfield Wastewater Treatment Facility, located near the Schoolhouse Common, serves over 100 residences, 5 commercial establishments, and 6 "other" users in the Village of Marshfield. It has a design capacity of .45 mgd (million gallons per day), an average daily flow of .214 mgd, a committed reserve of .018 mgd, and an uncommitted reserve of .218 mgd. With an uncommitted reserve exceeding its current flow, the system appears to have the capacity to accommodate a significant amount of new development.

The Village system operates under a permit from the State of Vermont. Effluent is monitored daily to ensure that discharges are within allowed limits. According to Village ordinance, no on-site septic systems are allowed within the Village limits. Due to current state law, any new connection or any increase in use (such as adding a bedroom or an apartment) must be approved by the Village and also requires a State permit. A schedule of user rates and connection fees is available from the Village Clerk.

In 2010 and 2011, sludge was removed from the two lagoons and, because it contained uranium that had been captured from the new Village water system during the years 2001-2003, was disposed of at a lined landfill. The cost of this procedure was approximately $74,000. Sludge from the next cleanout, scheduled for approximately 2020, may be disposed of by land application depending on laws and policies in effect at that time. About 5.1 dry ton are produced each year.

Increasing development of the Village sewer system might allow additional development outside of the Village limits; however, this would require additional funding that must be balanced against potential revenue from new users. The institutional capacity of the Village to manage the system is inadequate. Any take-over by the town would require approval by the Village Trustees and by the State.

The Plainfield Sewage Treatment Facility serves users within the Town of Marshfield. It has a design capacity of 1.0 mgd, an average daily flow of .776 mgd. With an uncommitted reserve of .0224 mgd, the system has the potential to accommodate some new growth. However, currently no new connections are available for the Marshfield properties serviced by the Plainfield sewer system due to a lack of an intra-municipal agreement for such connections to occur.

TABLE 15
Sewage Treatment Flows

Facility	Permitted Capacity	Avg. Daily	Avg. Daily	%
Marshfi	.45	.20	.214	7.0
Plainfiel	1.00	.61	.776	27.2

Almost 70 percent of Marshfield households depend on on-site treatment of septic wastes. On-site systems require specific soil and site characteristics to enable effective treatment. Where soils are impermeable, too permeable, shallow, or wet, or where slopes are steep, conventional septic systems are problematic and potentially hazardous. Accordingly, areas displaying such site limitations are generally not suitable for development. Restricting such areas however, intensifies development pressures on soils that can accommodate septic systems, including most prime agricultural soils.

The proper treatment of septic waste is essential to a clean, healthy environment. Faulty on-site septic systems can pollute soils, surface waters and groundwater and endanger public health. As Marshfield's population grows, sanitary disposal will become even more critical. It is important then, that the Town require the safe and efficient treatment of sewage, for current and future residents alike. In 2007, the State took over jurisdiction for all new and modified septic systems. Although the Town has no control over the septic design, it can require that a Vermont Potable Water and Wastewater Permit be in place before any construction takes place.

B. WATER SUPPLY

While the Village of Marshfield has a public water supply that serves most of the village residents, the majority of Marshfield residents are served by private wells that tap groundwater. The Village system was developed more than 100 years ago and operates under a permit from the State of Vermont. The current water source is a deep well on Folsom Hill Road. The Village developed this source and began using it in 2001. In 2003, when new water quality standards were adopted by the Environmental Protection Agency and the State of Vermont, the well water was determined to exceed the maximum allowed limit (20 parts per billion) of naturally occurring uranium. To address this issue, the uranium is extracted from the water with an ion exchange system, and water used to backflush the system is discharged into a permitted, onsite, underground wastewater system. The water is also treated for

radon. It is tested regularly for a variety of potential contaminants and an annual Water Quality Confidence Report is sent to users of the system that explains any problems. A copy of the current Confidence Report and a schedule of user rates and connection fees may be obtained by contacting the Village Clerk.

Residents in the south end of town are served by the Plainfield village water system.

The Agency of Natural Resources (ANR) has designated several wellhead protection areas (Public Water Source Protection Areas or PWSPA's) for public water supplies within the Town of Marshfield. One is for the village water supply, which is located on Folsom Hill Road. Four of these are located in the northeast quadrant of Town. The northeast four Wellhead Protection Areas range from two located northeast of the Village and southeast of Route 2. Wellhead protection areas have also been designated for systems within the Groton State Forest, Twinfield Union School and the Onion River Campground. Water systems are also located in the south center portion of Marshfield near the Plainfield line and east of Route 2 on the east side of Maple Hill, and in Plainfield Village. Each PWSPA has a written Plan developed by the Water System Operator. Implementation of the Plan involves cooperation with landowners of the protected areas, and certain activities within PWSPA's may be restricted in accordance with state and federal regulations.

As mentioned in the previous chapter, wellhead protection areas (WHPA's) delineating recharge zones for public water supply aquifers have been prepared by the State. The Town must be vigilant regarding land use within the zones if it is to avoid costly and inconvenient problems in the future.

It is also important to note that any private wells drilled into granite bedrock in the eastern portion of the town may have elevated uranium levels and although private wells are not subject to the same rules as public water sources, residents may wish to have water from such wells tested to determine if the uranium level is safe.

C. ELECTRICITY

Marshfield residents along the Route 2 corridor receive their power from Green Mountain Power Corporation (GMP), while those in the hills are supplied by the Washington Electric Cooperative (WEC). GMP is the region's largest utility. WEC is a member-owned utility managed by an elected, nine-member board. GMP operates a 5 mw hydroelectric station located on the Cabot Road.

Electricity is a vital component of modern life, but one not without costs. Its generation, distribution and transmission raise issues of environmental protection, public health, land use, aesthetics, and consumer affordability.

D. SOLID WASTE

Marshfield is a member of the Northeast Kingdom Solid Management District which is a cooperative effort among northeastern cities and towns to ensure cost-effective and environmentally sound waste management programs.

E. TELECOMMUNICATIONS

Telephone service for the 426 exchange is provided by Fairpoint New England. Verizon provides service for the 454 exchange. Cellular access is also becoming widely available. However, with the increasing demand for cellular capabilities comes an increasing demand for cellular towers. It will be important to balance aesthetics, signal quality, health, business and personal needs when deciding whether, and where, to build additional telecommunication towers.

Developers of three or more interconnected towers currently have the option of having their projects reviewed by the Marshfield DRB or by the Vermont Public Service Board (PSB). The PSB Section 248 review evaluates the project to see if it merits approval for a Certificate of Public Good. PSB must give substantial deference in making its determination to land conservation measures in the plans of the affected municipalities, as well as the recommendations of the municipal and regional plans. Marshfield currently has a Wireless Telecommunications Facilities Bylaw. The Telecommunication Bylaw includes the purposes for the bylaw. Said purposes are adopted by reference in this Town Plan and are meant as a guideline for any Section 248 review.

F. HEALTH AND EMERGENCY SERVICES

The Fire Station was constructed in 1990 in the Village almost directly across US Route 2 from the former station now in private ownership. The Fire Department celebrated its 100th anniversary in 2009. In 2010, the Department responded to 77 calls, with the majority (25) being motor vehicle accidents. The Fire Department has one pumper (1991) and one tanker (1996). The fire-fighters are volunteers, with mutual aid among the towns of Cabot, Plainfield, Walden and East Montpelier. Ambulance service is provided by Cabot Emergency Ambulance Service and the Plainfield FAST squad. The service also responds to calls from Cabot, Walden and Plainfield. East Montpelier Ambulance Service provides backup.

Marshfield is now part of the Statewide E-911 program. All roads have received official names and all residences a number to allow emergency service providers to find callers even if they are unable to give their location. The state police are also relied upon to provide services and Washington County sheriffs provide speed control on Route 2.

The Plainfield Health Center is widely used by Town residents. The Health Center maintains a growing staff of health care professionals and provides comprehensive medical care, dental care, psychological services, medications, laboratory services, physical rehabilitation and health education/community services. Central Vermont Medical Center in Berlin is the nearest acute care hospital.

G. COMMUNITY SERVICES

Various area agencies and other organizations serve special groups in Marshfield. These include: Washington County Youth Services Bureau, Central Vermont Council on Aging, Vermont Center for Independent Living, Retired Senior Volunteer Program, Central Vermont Community Action Council, Community Capital of Central Vermont, Battered Woman Services, Central Vermont Home Health Agency, Inc., Sexual Assault Crisis Team, Vermont Green-Up, Inc., and Central Vermont Regional Planning Commission. The Schoolhouse Commons also serves as the Twin Valley Senior Center which serves Seniors 55+ in Cabot, Calais, East Montpelier, Marshfield, Plainfield, and Woodbury. The Center is currently open Mondays, Wednesdays, and Fridays 10 – 2 and provides meals, entertainment, exercise programs and classes.

Planning decisions on the location, type and amount of growth can have significant implications for educational services. The Town of Marshfield is fortunate to be located within easy commuting distance to several institutions of higher education: Goddard College in Plainfield, and Vermont Community and Woodbury Colleges and the New England Culinary Institute in Montpelier.

H. EDUCATION

Public education in Marshfield from preschool to grade 12 is provided by Twinfield Union School in the Washington NE Supervisory Union (see Utilities and Governmental Facilities map for school location). Expenses are shared with the Town of Plainfield. High quality education for all children in Marshfield is one of the most significant and basic services that the Town must provide.

Twinfield Union School began to serve students in 1970. In the past five years, enrollment has dropped from 547 in 1999-00 to 491 in 2003-2004. Based on projections for the next ten years, the student enrollment from the two towns will continue to decline. Barring unforeseen changes, there is no need for expansion in the future. Over the past five years, grades K-4 have had an average of 35 students per grade; in grades 5-8 an average of 42 students per grade and in grades 9-12, an average of 41 students per grade.

I. CULTURAL FACILITIES

The Jaquith Public Library in Marshfield Village celebrated its 100th anniversary in 1999. Its current location is in the Old Schoolhouse Common building. It currently serves well over 500 cardholders and owns over 8,000 volumes. In addition, it provides computer and Internet access as well as audio and video tapes. The library offers a free home delivery service to members of the community who are homebound. It also sponsors many free programs and events throughout the year, including a weekly story hour, book discussions, reading series, craft workshop, musical programs and literacy workshops. Over 2,000 people attended such events in 2004. The library depends in part on the services of community volunteers.

Marshfield residents depend on the Twinfield Union School, the Marshfield Historical Society, and facilities in larger surrounding communities for cultural enrichment as well.

J. RECREATION

Perhaps Marshfield's greatest recreational resource is its outdoor environment. For those who seek it, the landscape offers excellent opportunities for outdoor recreation.

Marshfield possesses ample public lands in which residents and visitors alike may pursue a variety of recreational offerings. Most notable among these is Groton State Forest. About 3,800 acres of this 15,000-acre plus tract of forests, lakes, and mountains is located in Marshfield. The Forest is managed for multiple uses and provides opportunities for swimming, boating, hiking, nature study, cross-country skiing, snowmobiling, hunting, horseback riding, fishing, bicycling, and more. It is an invaluable resource to the community and the State.

While Marshfield has abundant public lands, it is important to note that private lands are still an integral part of the Town's recreation picture. They too support a great variety of recreational uses thanks to the generosity of landowners.

The Recreation Committee has made possible a number of activities over the years. With the goal to fulfill the recreational needs of varied age groups in the community, programs have been organized and conducted with a seasonal perspective. The committee hosts a summer swimming program, an Easter egg hunt, a spring fishing derby, a Halloween party with entertainment and refreshments and an "Afternoon with Santa." Holiday parties and breakfasts are regularly held. The committee also maintains and cleans the area around the Schoolhouse Common.

A ball field, walking path, skating rink, playground, and gazebo, where evening concerts take place during the summer, have been built near the Old Schoolhouse Common. Trails and playing fields also exist on the grounds of Twinfield Union School.

A local snowmobile club, the Twinfield Snow Travelers, maintains trails and uses the old railroad right-of-way. Parts of the railroad bed are also used for cross-country skiing and bicycling and there is interest in its use in the creation of a Cross Vermont Trail.

The former Montpelier to Wells River railroad bed is being considered for addition to the Cross Vermont Trail. The town is positioned to aid this recreational opportunity and potentially benefit the retail establishments in the Village. However, the railroad bed is under private ownership from Bemis Farm Road to Plainfield. Therefore, the official current Cross Vermont Trail leaves the railroad bed at Bemis Farm Road. Users are then redirected down Upper Depot Road and along Route 2 to Plainfield.

II. MUNICIPAL PROPERTY

The Town owns several properties. The properties were acquired by purchase, bequests from legal owners, legal process (tax sale), and eminent domain.

The Selectboard has overall responsibility for property maintenance and management and makes recommendations on the disposition of town owned real property. Voters make the final decision on such recommendations.

PROPERTY CLASSIFICATIONS

Town owned property is classified into four primary categories:

- Municipal buildings and adjourning land
- Cemeteries
- Natural and scenic areas
- Other properties

A. MUNICIPAL BUILDINGS AND ADJOINING LAND

Municipal buildings are the Old Schoolhouse Common, the Town Garage, the Water Treatment Facility, and the Fire Station. The first three of these buildings and the adjourning land consist of approximately fifteen acres and are located within the Village District. The land is bordered on the north and west by the Winooski River, the east by School Street, and the south by Marshfield Brook. The fire station is located at the east end of the Village.

The municipal offices are housed with the Old Schoolhouse Common. Other tenants include the library, historical society, local food shelf, and local businesses. The building also is used for meetings by various organizations, indoor recreation, and is the polling place for elections The building recently had various energy improvements including weatherization and installing additional insulation.

This area provides a variety of recreation uses which include a ball field, basketball court, play ground, walking path, winter ice rink, and a gazebo.

The Fire Station and Town Garage provide facilities for workers and storage of equipment and materials (road sand and salt). The water treatment facility is discussed earlier in this chapter.

The town is well served by these buildings and the surrounding land, and the parcel should be retained.

The land is available to meet future needs for additional municipal buildings and recreational opportunities.

B. CEMETERIES

The town owns several modest sized cemeteries which are widely located. Historically these properties were named after a family, geographic location, or adjourning road.

The town cemeteries and their locations are as follows:

Table 16 Cemetery Name and Location	
Dwinell	Beaver Meadow Road
Eaton-Davis	Eaton Cemetery Road
New Discovery	Groton State Forest Road
Rich-Hollister	Hollister Hill Road
Maple Hill	Holt Road
Nasmith	Holt Road
Jaquith/Wooster	US Route 2 Marshfield Village
Pike	Pike Road
Hudson	English Cemetery Road
Bolles	Maple Hill near junction w/Pigeon Pond
Loveland	US Route 2

Several of the Town cemeteries are no longer active and provide a place of historic value and quiet repose.

The need for additional cemetery space may continue. The Selectboard should work with the Cemetery Commission to monitor and address the need for addition cemetery space.

C. NATURAL AND SCENIC AREAS

The town owns a forest consisting of 50 acres located just outside the Village District on Folsom Hill Road, and a 120 acre meadow located along the U.S. route 2 corridor, across the Winooski River, where the Martin Covered Bridge is located.

C1. TOWN FOREST

The Town Forest should be evaluated again for potential harvesting opportunities if it is needed for the better health of the forest. If logging is prescribed then recreational trail development should be considered as part of this. Other trail connectors should be evaluated to help provide more access to this town resource.

C2. MARTIN COVERED BRIDGE

The 120 acre meadow contains a significant historical town asset - the Martin Covered Bridge. It is the only remaining farm bridge and the last covered bridge

in Marshfield, and one of only two covered bridges remaining on the Winooski River; consequently it is a treasured asset of the town and has significant historic value.

The bridge was restored in 2009 and a parking lot was constructed. Funding included $40,000 from the Vermont Housing & Conservation Board, $240,000 from the Vermont Agency of Transportation and local fund raising efforts and donated work. Some trails have also been built in recent years.

It is the Town's desire to implement the following improvements over time as funding permits:

- Stabilization of eroded stream banks
- Signage, canoe launch, picnic area(s)
- Trail development including nature trails and access to the Cross Vermont Trail
- Preservation of seasonal wetlands
- Preservation of endangered species (mussels)
- Haying or bush hogging of fields to preserve open space and views
- Development of forest management/use plan

For any of these projects related to town properties, the Town should actively seek grants from the State and other sources.

The area around the Martin Bridge will continue to be of interest and have long term value. Removing the barriers to accessing this area is important and should continue to be pursued.

C3. STRANAHAN TOWN FOREST

The Stranahan Property was conveyed to the town of Marshfield on October 12, 2007 and is now known as the Virginia Stranahan Memorial Town Forest (Town Forest). A management plan for the Town Forest was developed by group of stakeholders and was adopted by the Selectboard.

Encompassing 620.3 acres, the Town Forest has been privately owned as farm and forest land since Marshfield was settled. The most recent owner was the Stranahan Trust. The residents of Marshfield and surrounding towns have used the Town Forest for winter and summer recreation with the tacit permission of the owners or their agents. The Town Forest was offered to the Vermont Land Trust for purchase with subsequent conveyance to the Town of Marshfield. Knowing that the land would be held in public ownership by the Town, the Stranahan Trust generously offered to sell the Town Forest at a greatly reduced price. Both public monies and private donations were provided to help fund the acquisition, including a large grant from the Vermont Housing and Conservation Board

Current and future uses include: sustainable agriculture and forestry uses, animal habitat, hunting, and recreational opportunities such as snowmobiling on VAST trails, cross country skiing, hiking, mountain biking and horseback riding. The tract may also serve as an outdoor classroom for the Twinfield Union School. The passing of the Town Forest from private ownership into the public domain will assure that the Town Forest will be available to all members of the community in perpetuity.

The Management Plan will be reviewed and up-dated on a five year schedule, after any major change to the Town Forest, or at any other time as needed by the Selectboard. The recommendations of the Management Plan are considered as an extension and part of this Town Plan.

D. OTHER TOWN OWNED PROPERTY

The town owns a four acre gravel pit, located on Nasmith Brook Road, the old railroad depot property, located at the top of Depot Hill and several other smaller parcels.

The gravel pit is a source for road maintenance materials. The railroad depot property and all other parcels consist of raw land.

The gravel pit is adjacent to the railroad bed which is now a snowmobile trail maintained by VAST. Recreational opportunities would be enhanced if the town would develop a connector between the gravel pit and the rail bed. However, the railroad bed north of the gravel pit currently remains in private ownership, limiting the potential use as a public trail at this time.

The railroad depot parcel should be retained and its use reevaluated after the decisions on the Cross Vermont Trail are made.

The Selectboard should continue their current process to evaluate town owned property making recommendations in the best interest of residents.

III. GOVERNMENTAL AND ADMINISTRATIVE SERVICES

The Town of Marshfield provides administrative services for its residents. Administrative services are provided by a elected Town Clerk, an assistant town clerk, and other Town officers. The Old Schoolhouse Common has housed the Town Offices since 1993.

The Selectboard oversees the management of Town affairs, the condition of the Town's roads and facilities and various boards and commissions. The Village Trustees manage the affairs of the Village. There are several other appointed and elected Town boards, including the Planning Commission and the Development Review Board. The contributed services of board officials are an important asset to the Town's management.

The Town Clerk's position involves maintaining Town records as well as handling license and record search requests.

The Public Works Department presently has a Town Garage on Lower Depot Road.

IV. UTILITIES, FACILITIES, MUNICIPAL PROPERTY AND SERVICES GOALS, OBJECTIVES AND STRATEGIES

GOALS: To realize an efficient system of public utilities, facilities and services to meet future needs.

Evaluate highest and best use of town owned property.

OBJECTIVES:

1. Encourage recycling, source reduction, and composting as ways to reduce the volume and toxicity of solid waste and continue participation in the Northeast Kingdom Solid Waste District.

2. Promote access to a wide range of recreation experiences to all sectors of the population.

3. Marshfield encourages landowners to not post their property when appropriate to allow for additional recreational uses.

4. Support current and future recreational uses of Town owned property

5. Study need for additional cemetery space.

6. Engage in the planning of the Cross Vermont Trail through or in close proximity to Marshfield

7. Promote the continued safe and effective operation of the Village of Marshfield water and sewer systems.

ISSUE SPECIFIC STRATEGIES:

Sewage Treatment and Disposal:

a. The Selectboard should continually evaluate the current systems with respect to their ability to accommodate the land use goals of this Plan.
b. The Development Review Board will work cooperatively with the appropriate officials in the Town of Plainfield to ensure appropriate consideration is given to the capacity in the Town of Plainfield Sewage Treatment system when considering development applications which, if approved, are likely to impact the Plainfield system.

Water Supply:

a. The Village Trustees should continue to work to provide a safe and abundant water supply to meet the needs of the residents in Marshfield Village. In addition,

the Trustees should continue their work monitoring and addressing the issues of uranium in the water supply.

b. For both water and sewer supply, the Selectboard and Village Trustees should explore whether a merger between the Town and Village would in the best interest of operating and maintaining the sewer and water system.

Electric Power:

a. Town policy is to promote transmission and distributions lines which are designed to minimize negative impacts on natural and scenic resources.

Solid Waste:

a. The Planning Commission will consider the Northeast Kingdom Waste Management District solid waste implementation plan.

Telecommunications:

a. Town policy is to promote and require that proposed commercial satellite dishes, radio towers, antennae, and other transmission and receiving equipment are sited, designed, maintained and operated so as to minimize negative impacts on natural and scenic resources.
b. Encourage the expansion of broadband availability to residents.

Emergency/Health Services:

a. Planning Commission should ensure that zoning ordinances provide adequate access to emergency vehicles.

Education:

a. The Selectboard should engage in planning activities with the administration at Twinfield Union School to continually plan for providing access to high quality educational and vocational opportunities.

Recreation:

a. The Selectboard should establish a commission to participate in and make a recommendation on the feasibility of connecting the Town's planned or existing transportation/recreation paths, including the old railroad bed, to those of other communities in the region.
b. The Selectboard should work closely with the State Agency responsible for the management of Groton State Forest to ensure that the forest provides the maximum recreational opportunities for the citizens of Marshfield.
c. Enhance the Town's web site by making available information on the various types of public recreational opportunities available locally.

d. Selectboard to continue to monitor the activities to create a Cross Vermont Trail and if appropriate to form a sub-committee to participate in the development of the initiative.

Municipal Property:

a. Selectboard will continue to provide funding for present and future development of recreational opportunities on town owned property.
b. Selectboard to explore the possibility of acquiring additional land abutting present active cemeteries.

Government Services:

a. The Selectboard ensures adequate and reliable government services are available to Marshfield residents at reasonable costs.

CHAPTER 5

TRANSPORTATION

I. OVERVIEW

Transportation facilities available to residents in the future will be a major factor in defining quality of life, and the pattern and type of development in Marshfield. The Town must maintain a transportation infrastructure that enables safe and efficient travel for commuters, tourists, freight transport and agricultural vehicles and encourages economic vitality, while preserving Marshfield's environmental quality and small town rural character. (see Transportation map for road classifications)

Public transportation is limited. The nearest airport, Knapp in Berlin, is approximately 20 miles away, and currently supports private and charter flights. It currently has no scheduled airline service, but the airport was formerly served by Air New England. The airport began a major construction project in April 2010, constructing a new taxiway, as well repaving the runway and expanding the apron near the terminal area. The $6.2 million project was funded by the American Recovery and Reinvestment Act of 2009.

Vermont Transit Lines travel only major highways, its closest stop to Marshfield is Montpelier. Vermont Agency of Transportation coordinates Rideshare Vermont, offering carpool contacts and interest free loans for van pooling. Various community service organizations coordinate volunteer drivers for transportation for local populations without access to any other form of transport.

In 2010, the Green Mountain Transit Agency (GMTA) and Rural Community Transportation (RCT) started operations of a US 2 corridor commuter service to provide connecting service between St. Johnsbury and Montpelier. Connections are available from the Route 2 commuter bus to the Burlington bus service. Currently bus service into Montpelier is available twice in morning and twice in the late afternoon. Locally, the bus has stops at the Old Schoolhouse Common, Twinfield School (by request), and the Plainfield park and ride lot. Additional stops to meet individual needs can be arranged with GMTA where it is deemed to be safe.

The bus can transport a limited number of bicycles so that users can complete their commute from the final transit stop to work by bike. Users can also make the return trip home by bicycle instead of the bus. The Green Mountain Transit Agency (GMTA) is a private not-for-profit organization providing public transportation services in Washington County, Franklin/Grand Isle County, the towns of Stowe and Morrisville in Lamoille County, and the towns of Williamstown, Washington and Orange in Orange County. GMTA is funded with a mix of federal, state, and local money. The current service has funding through 2012 at which time ridership demand will be evaluated.

Given the limited public transit, the automobile will continue to be the dominant mode of transportation in Marshfield for the foreseeable future. Therefore, Marshfield's road

network dominates consideration of the Town's transportation infrastructure.

Marshfield Citizens encourage the use of the old rail bed for recreational purposes (including the Cross Vermont Trail) provided that issues of maintenance, access and privacy can be addressed to the satisfaction of affected property owners.

II. ROAD NETWORK: FUNCTIONAL CLASSIFICATIONS

Marshfield's road crew maintains approximately 51.80 miles of local roads.

Class 2 town highways are the most important highways in town; they are trunk lines of improved highway between towns, and to places which by nature have more than a 'normal' amount of traffic. The Vermont Agency of Transportation and the Selectboard determine Class 2 highways. Class 3 highways are defined for the purposes of state aid, and must be negotiable under normal conditions all seasons of the year by a standard passenger car. Class 4 roads are designated by the Selectboard.

III. ROAD NETWORK: TRENDS, ISSUES, AND CONFLICTS

Table 17
Road Miles by Type in Marshfield

Managed by	Highway Type	Mileage	% Total
Town			
	Class 2	6.04	9.38
	Class 3	39.55	61.42
	Class 4	6.23	9.68
	Total Town Maintained	51.82	80.48
State			
	Route 14	nil	
	Route 232	4.36	6.77
	Route 2	8.21	12.75
	Total State Maintained	12.57	19.52
	Total Maintained Roads	64.39	100.00

Source: Central Vermont Regional Planning Commission

While local traffic causes problems on back roads, Route 2 has felt the strain of largely external pressures. Its status as the only major east-west highway in northern New England has resulted in a steadily growing traffic stream, an increasingly large volume of commercial trucking as well as long distance and high speed driving. This brings inherent conflicts all along Route 2 as this traffic enters and passes through village areas. Marshfield Village is no exception to this problem.

It is important to acknowledge that different classes of highways are compatible with different land use and travel patterns. That is, major arterials are not compatible with residential neighborhoods or with intensive non-residential areas where frequent road access is required. Local land use and transportation decisions need to be considered in

the context of any regional network, at the same time local highway improvements are considered in a regional context. These relationships are crucial as Marshfield plans for future development.

IV. ROAD MAINTENANCE

Keeping the local road network safe in a cost effective manner is currently the most important aspect of any transportation plan. At present the road crew is three full-time employees who maintain the roads and the town's inventory of road equipment. Major transportation improvements (new roads, major reconstruction and/or capacity expanding of existing roads) have a direct relationship to land use. Road improvements, in general, result in changes in land use, increases of land value, and may result in congestion due to traffic. It is important to make the most of the system in place, which necessitates an efficient road maintenance program and complementary improvements to the existing system. The size of the road crew and the inventory of equipment should reflect the direction the town will take on road maintenance and improvements in the future.

Trails shall not be considered highways and the town shall not be responsible for any maintenance including culverts and bridges.

V. ACCESS MANAGEMENT

Curb cuts and the location of points of access directly affect the safety and efficiency of all town roads. Design of curb cuts is important with regard to road maintenance and drainage. Some access management methods are appropriate to residential development, some to non-residential development, and some equally to both. Specific standards for improving access management, cited in the Central Vermont Regional Transportation Plan, include:

- Minimum sight distances at a driveway or road intersection
- Maximum number of driveways per lot
- Mandatory shared driveways
- Optimal corner turning radius
- Maximum width of curb cuts
- Minimum and maximum driveway lengths
- Minimum or maximum on-site parking, shared parking, and parking design

These measures may be incorporated in zoning regulations, road policies and ordinances, as well as curb cut permits.

Access management requires consistent and comprehensive policies to balance the needs of motorists, pedestrians, bicyclists, and other users of the road system and improve safety and highway efficiency.

VI. TRANSPORTATION GOALS, OBJECTIVES, AND STRATEGIES

GOAL: Coordinate transportation and land-use planning to assure access to services while judiciously limiting new road development.

Objectives:

1. Encourage development of local public transportation with public participation in planning, including when appropriate, neighboring/adjacent towns.

2. Plan and maintain a safe and adequate network of roads that respect the integrity of the natural environment.

3. Maximize safety on town roads with reasonable access for pedestrians, bicyclists, landowners.

4. Encourage development of paths for non-motorized traffic.

5. Encourage and promote cost effective energy efficiency and the benefits of alternative modes of transportation.

6. Continue to work cooperatively with Central Vermont Regional Planning Commission and state agencies to coordinate transportation plans and projects, especially changes to Route 2.

7. New roads or private driveways must meet minimum design and safety standards, including site distances at intersections and accessibility for emergency vehicles.

8. Enhance existing Old Schoolhouse Commons parking to better accommodate commuters using the new bus service including possibly adding a bus shelter and bike racks.

9. Review options to reduce traffic speeds on Route 2 through the village.

10. Control stormwater runoff to minimize damage to town roads and private property.

Issue Specific Strategies:

a. Selectboard policies for construction and maintenance of roads shall continue to focus on safety, adequacy, and access, and to complement goals of this plan.
b. Planning Commission will draft zoning regulations which establish clear design and safety standards for new private roads and shared private driveways.
c. Selectboard cooperate with Marshfield Village Trustees for improvements around the Village Store to provide better access and aesthetics, as well as simplified parking and circulation.

d. Planning Commission should institutionalize in zoning regulations the sharing of curb cuts for new development along arterial roads (especially the Route 2 corridor).
e. Planning Commission to research the potential benefits that may be available from The Vermont Scenic By-way Program.
f. New roads shall be constructed to Class 3 standards at the expense of the builder/developer.
g. Complete a traffic study to see if a lower speed on Route 2 through the village is feasible.
h. Select Board should explore other methods (such as traffic calming), other than a lower speed limit, to reduce traffic speeds on Route 2 through the village. This could include enhanced enforcement and/or signage indicating the speed of vehicles entering the village area.
i. Promote the use of the new commuter bus service.
j. Pursue a separate bike/pedestrian lane or widen shoulders on Route 2.
k. Explore the option for an interconnecting public path between Groton State Forest, the Covered Bridge Park and the Stranahan Forest.
l. Consider drainage issues when issuing curb cut and/or zoning permits.

CHAPTER 6

ENERGY

I. OVERVIEW

As a rural Vermont community Marshfield is dependent on energy for virtually every aspect of our material existence. We use energy in our homes for heat, to provide us with light, and to power our household appliances. We rely on energy for transportation, to run our businesses and to raise our food. With very few exceptions (primarily heating with wood and limited use of solar energy) we depend on imported sources to provide us with the power we need to live our lives. That power comes at a high cost, both economically in terms of increasing electric rates and gasoline prices, and ecologically, as manifested most dramatically by global climate change. While these issues are not strictly local in nature there is much that we can do as a town to address our energy needs, saving money and reducing our carbon footprint in the process. In order to do this we must think long term about how we can create a sustainable, secure energy future for our town, and this involves planning.

The Town Plan is mandated to address energy consumption and production in four areas: energy conservation, generation of energy through renewable sources, transportation, and land use. Each of these areas presents a unique set of challenges and potentialities.

II. ENERGY GOALS, OBJECTIVES AND STRATEGIES

GOAL: The Town's overall goal is to build an efficient and healthful community. Particular goals within that larger framework include:

1. Saving money for the town and its residents.
2. Increasing energy efficiency and decreasing overall energy use in the town.
3. Reducing carbon emissions.
4. Increasing energy self reliance.
5. Maintaining traditional settlement and land use patterns in our community.
6. Encouraging and creating energy efficient transportation alternatives.
7. Ensuring that renewable energy production developed in Marshfield, at either a community utility scale, is appropriately and properly sited in order to preserve the rural character and so that the production does not have an adverse impact on the natural resources.

II. ENERGY REDUCTION EFFORTS THROUGH 2010 BY MARSHFIELD ENERGY AND CLIMATE CHANGE COMMITTEE

Resident Energy Survey

About 90 residents completed this survey to identify current use and homeowner energy opinions. The survey found the following:

- Percentage of residents considering climate change very important: 71%
- Average annual electricity use (kwhrs) 6356 /home

(State average 6,800/home)

- Highest annual electricity use: 16,000 kwhrs
- Percent over 8,000: 22%
- Average round trip daily commute: 55 miles
- Average miles driven/year: 21,096
- Average annual gasoline use: 901 gallons
- Willing to Share a ride: 23
- Willing to use public transportation: 52
- Use Compact Fluorescent Lamps 71%
- Average heating oil use (2010) 937 gallons ($2,800 at $3.00/gal)
- Highest annual oil use: 1,700 gallons

Energy Home Visit Program

About 48 homes were visited to help identify energy use reduction possibilities. Results found;

- Average annual energy used/ square foot: 70,925 BTU/square foot/year (A reasonably well air-sealed and insulated home should be down around 40,000 BTUs/square foot/year)
- Homes above 60,000 BTUs/sq ft/year: 30
- Homes above 100,000 BTUs/sq ft/year: 8
- Energy materials installed CFLs 258, Water heater blankets 8, Low flow showerheads 22, Programmable thermostats 23
- Significant weatherization improvements 7 (reported but could be more)

Route 2 Commuter Bus

This is a joint project of the East Montpelier, Marshfield and Plainfield Energy Committees with AOT and the Green Mountain Transportation Association. Service is provided between Montpelier and Saint Johnsbury with three trips in the morning and three in the afternoon from Marshfield

- Service began: April 2010
- Ridership from Marshfield at end of 2010: 5/day and increasing

Old Schoolhouse Common Improvements

- Air sealing and insulation oil savings: 1,500 gallons annually ($4,500)
- Efficient lighting upgrades: $ 900/year electricity savings
- Carbon Savings (1,500 x 8.34 x 3.2) /year

Compact Fluorescent Lamp Promotion

- 5,000 cfl's (plus many more since promotion)

Educational Efforts

- Energy Fair (6 workshops, exhibits) 250 attendance
- Solar Hot Water Workshop 31 attendance
- Weatherization Workshop 25 attendance
- Website Not yet promoted

Electricity Use (town-wide)
2007 5.3 million kilowatt hours

Alternative energy systems (at a minimum, in 2010)

- Solar electric 8 homes
- Solar hot water 4 homes
- Renewable heating fuel Unknown

III. Issue Specific Strategies

According to the 2011 Vermont Comprehensive Energy Plan, approximately 60% of our energy use is derived from the burning of imported fossil fuels, which are becoming increasingly expensive, are being rapidly depleted, contribute most of the greenhouse gasses that are leading to climate change, and are extracted at a high environmental cost. In order to decrease our dependence on these costly and destructive sources of energy we must implement strategies for energy conservation and for the development of local, renewable sources for energy production. These strategies include:

Conservation and efficiency

a. Educating the community about the benefits of conservation through forums, publications, school programs, and other forms of public outreach.
b. Retrofitting all Town facilities and equipment for energy efficiency using the most cost effective technologies available.
c. Offering direct services to homeowners to increase energy efficiency in residential structures, like energy audits and energy improvements facilitated by the Town Energy Committee.
d. Offering similar services to local businesses.
e. Encouraging greater efficiency in transportation through the use of bicycles and other alternatives modes of transport, and providing facilities, like bike racks to support their use.
f. Creating additional public transit options by adding more bus routes and more runs on existing routes, like a noon run on Route 2 for shopping in Montpelier.
g. Encouraging efficient patterns of settlement that maintain our historic Village center.
h. Encouraging efficient patterns of land use that preserve forest resources, agricultural land, and open spaces.
i. Providing all applicants for building permits with detailed information regarding the benefits of efficiency and specific resources they can use to achieve it in their projects.
j. Developing a pool of low cost capital, like Vermont's Property Assessed Clean Energy (PACE) Program, to be loaned to residents for use in making their homes more energy efficient.

Development of renewable energy sources

a. Educating community members about the benefits of local, renewable sources of energy through forums, publications, school programs, workshops, and tours of

existing systems.

b. Mapping potential resources for individual and community scale solar, wind, hydro, and biomass energy.
c. Transitioning all Town facilities to cost effective, local, renewable sources of energy.
d. Facilitating the development of community scaled energy production through group net metering and other co-operative forms of energy production by making appropriate town resources available for their use.
e. Insuring that Town Planning and Zoning ordinances encourage the development of such facilities.
f. Developing a pool of low cost capital, like PACE, to be loaned to residents for the development of renewable energy resources.

Energy Committee Objectives

a. Increase Marshfield Rte 2 bus ridership to 20/day by end of 2013.
b. Reduce town-wide electricity use to 4.8 mwhrs/year by end of 2015.
c. Increase solar electric systems in town 10 homes by end of 2015.
d. Increase solar hot water systems in town 10 homes by end of 2014.
e. Install solar electric system at OSC by September, 2013 (if feasible).
f. Develop community solar electric project(s) by end of 2015 (if there is interest).
g. Finish fire station weatherization by end of 2012.
h. Implement town –wide effort to engage more residents in discussion of climate change/energy and in goal setting by end of 2011.
i. Maintain a complete website to assist residents with energy improvements by end of 2013.
j. Resurvey residents on energy use and alternative energy systems by end of 2012.
k. Assist Twinfield to reduce electric use.

CHAPTER 7

HOUSING

I. OVERVIEW

Shelter is among the most basic of human needs. The availability, affordability and location of housing within a community can have far-reaching implications. These factors can affect land use, employment, and transportation patterns, and the social and economic mix in any given Town. One of the most difficult challenges facing communities in Vermont is how to provide an adequate supply of decent and affordable housing for all residents without compromising community character or overburdening physical infrastructure.

II. GROWTH

As discussed in Chapter 2, even without experiencing the pressure of large subdivisions or large scale residential developments, Marshfield is presently among the faster growing Town's in the Region. This is probably due to the Town's desirable location with respect to regional job centers, combined with its rural character. Population growth between 1990 and 2000 has been at twice the rate of the Central Vermont Region. However, growth from 2000 to 2010 has slowed down from earlier decades. According to zoning permit records, 79 new units were constructed between 2000 and 2010. Based upon assessment data, two maps are included in this plan. One map shows all housing ages and a second map shows new housing since 1990. Both map show that both longer historic development and more recent housing development since 1990 has been scattered throughout the town and is not concentrated to only one area. It is going to be challenging for Marshfield to retain its identity as a small, rural community.

Marshfield's household unit growth of 20 percent between 1990 and 2000 (86% since 1970) along with the continued decline in the average size per household strongly suggests community municipal services will be tested in the future.

III. AFFORDABILITY

Between 2000 and 2010, on the average, there were 15.6 homes sold each year. In 2010, the average home sale price was $144,475. This is lower than Washington County with an average sale price of $199,164 or the state average of $227,733. Average sale prices over recent years have been in the low $140,000's.

According to the 2000 census, average median monthly owner costs are $760 in Marshfield, compared with $1,008 for Washington County (32 percent less). The above statistic does not tell the whole story, however. It is important to note that 2000 median household income figures for Marshfield are substantially lower than those for Washington County ($44,063 vs. $51,075 - 16 percent less). As a result, less expensive housing may not be more affordable housing. Still, applying the standard definition of "affordability" (total housing costs should consume no more than 30 percent of household income), it appears that the average household in Marshfield can afford the average house

in Marshfield. According to the Vermont Housing Financing Agency, an income of $43,385 is needed to purchase a $146,000 house. The 2007 adjusted gross median income was $50,962 according to the Vermont Tax Department records.

This does not mean that there is no housing affordability problem in Marshfield. Almost half the families do not make enough to afford buying a house using available earned income. Therefore, many of these families need to rent unless they have other income sources or were fortunate enough to purchase a house in earlier years when housing was more affordable. It is the rental market where problems are evident. In 2000, median monthly cash outlay for renters was somewhat higher here than in the county as a whole ($546 vs. $519 - 5 percent more).

IV. AVAILABILITY

There is reason to expect that demand for housing in Marshfield will continue. The 2000 occupancy rate in Marshfield was 95%, comparable with the occupancy rate in Central Vermont. The availability of rental units reversed a negative trend, and increased dramatically since 1990.

Table 19
Rented Housing 1990, 2000

	Renter Occupied Yr-End Units 1990	% Total Year-End Housing Rented 1990	Renter Occupied Yr-End Units 2000	% Total Year-End Housing Rented 2000	% Change 1990-00
Marshfield	77	12%	111	16%	44.0%
Region	6,829	31%	7,441	27%	+16.0%

Source: U.S. Census

V. HOUSING AGE

In addition to affordable housing, several other housing issues exist within the community. The aging housing stock in Marshfield Village will need an increasingly larger number of repairs and renovations to continue to be safe and adequate. According to the grand list, approximately 23% of the dwellings were built prior to 1900. The large number of historic buildings in Marshfield as identified in the plan will require a balance between economical and sensitive rehabilitation in order to preserve the historic/architectural integrity and consequent higher resale value of this housing stock. The preservation of community character, a priority for residents, depends upon renovations and new construction that respect the integrity of the existing historic homes and the accompanying historic cultural landscape. As new residences have joined the Marshfield community and taken ownership of some of these older houses, there has been a revived effort to make improvements to these important older houses.

VI. CENTRAL VERMONT REGIONAL HOUSING DISTRIBUTION

The current Central Vermont Regional Plan projects a regional housing demand of 8,835 new housing units between the years of 2000 and 2020 for the region. The regional plan included a proposed regional housing distribution plan by municipalities needed in order to meet this projected demand. The plan allocated 99 new units to be built between 2000 and 2009 in Marshfield. According to town permits, 79 new dwellings have been constructed, or about 80% of the projected allocation. The regional plan calls for another 118 dwellings in Marshfield to be constructed between 2010 and 2020. Given the current recession and housing downturn, this is unlikely to occur. The two maps depicting the age of homes included in this plan show the geographic distribution of housing over both the long and short terms. It is preferred to see additional housing first in the Village Residential District and second in the Agricultural and Rural Residential Districts. The Zoning map included in the plan depicts the zones desirable for development. Adequate vacant land is available within these districts for new development. New housing is undesirable in the Forestry and Conservation District and Flood Hazard District.

VII. HOUSING GOALS, POLICIES AND RECOMMENDATIONS

GOAL To encourage housing development/redevelopment consistent with the Town's desire that all current and future residents have a safe and affordable place to live.

Objectives:

1. Explore strategies for the provision of affordable housing.

2. Allow for the continued use of houses that are non-conforming uses.

3. Future housing development/redevelopment should reinforce the land use goals of this Plan.

Issue Specific Strategies:

Explore strategies for the provision of affordable housing:

a. Planning Commission shall amend the zoning regulations to encourage concentrated settlement patterns and creative site designs, including clustering, as a means to reduce the cost of infrastructure and land, and thereby promote affordability.
b. The Town will actively pursue partnerships with housing development non-profit agencies, including community land trusts and the Vermont Housing and Conservation Trust Fund, to provide assistance in financing affordable housing projects.
c. The Planning Commission will examine the Town bylaws to consider incentives to create affordable housing.
d. The Town should conduct a housing needs analysis.

Future housing development/redevelopment should reinforce the land use goals of this Plan:

a. Encourage housing development that reinforces and compliments existing and future neighborhoods. High density and multi-family housing will be encouraged in Village and other desirable areas.

CHAPTER 8

ECONOMIC DEVELOPMENT

I. OVERVIEW

A healthy economy is essential to maintaining Marshfield's quality of life. A diversified, dynamic, and sustainable economy provides employment, stimulates social and cultural interaction, and provides the resources for the provision of community services, education and infrastructure. On the individual level, a diversified economy offers greater opportunity for people to engage in satisfying and meaningful pursuits. Economic vitality is a balance between human, natural and capital resources and it is the interaction of these factors which determines the scale and intensity of growth and development.

Marshfield is a rural community with modest commercial and industrial activity. Like the rest of Vermont, Marshfield has evolved from an almost self-sufficient agricultural/manufacturing economy to a more complex mixture and pattern of economic activity. It is now, by all standards, a "bedroom community" - that is to say much of its resident workforce holds jobs in other cities and towns (64 percent). As seen in the 2000 Census data, residents tend to be occupied in trade, construction, seasonal business, home occupations, or professional pursuits outside of the community. The number of people working in their homes (i.e., in home offices) appears to be growing dramatically. One website lists 118 businesses in Marshfield, ranging from well-known and established operations such as Tim’s Convenience Center and gas station and Country Floors near Plainfield village, and the Marshfield Inn on Route 2, to a variety of home-based services and businesses including consultants, contractors, etc. It is difficult to identify exactly how many businesses operate in Marshfield. The Secretary of State registration of corporations includes 16 businesses and 27 non-profit corporations. The Secretary of State also has 47 active registered business names with Marshfield mailing addresses. A review of this list found that some business appear not to be on this list. The available data seems to indicate that small businesses are still an important element of the Marshfield economy.

Residents have voiced strong support for economic development that retains Marshfield’s rural character and protects important natural resources. , Economic development in Marshfield should maintain the quality of life provided by a landscape dominated by forests, farming, and many opportunities for outdoor recreation, while supporting the harvesting of forest products and other land based economic development.

In keeping with this philosophy, traditional economic growth should be encouraged in areas where infrastructure already exists or may be easily extended in order to minimize environmental degradation and costs to the taxpayer and developer. Marshfield Village is serviced by municipal water and sewer systems. Community facility planning must address possible infrastructure limitations in order to target the village area as logical traditional growth center. Further growth center analysis is required in Town.

Encouraging business activities in the villages/growth centers also helps to reduce the likelihood of strip development along Route 2. Strip development leads to traffic, safety

and environmental concerns, contributes to declining economic activity in the villages, and works to destroy the rural character of the Town.

Non-traditional economic growth, supported by use of the internet, is taking place in Marshfield. An increasing number of residents, many with home based businesses, are using the internet to sell products, services, or in-lieu of driving to the traditional place of work. Such economic growth is highly desirable because it is "clean" and generally provides a higher wage. The success of these non-traditional businesses is highly dependent upon the use of technology, particularly high speed reasonably priced internet access. Some Marshfield residents have enjoyed high speed internet access through their local phone company, Fairpoint Communications, for a number of years. Others are able to access such service through Cloud Alliance, and other broadband service providers. However, there are still many unserved areas. The Vermont Telecommunications Authority is charged with providing broadband service to all Vermont residents. Currently Vermont Telephone Company (VTEL) is proposing to develop the Wireless Open World (WOW) to bring 4G/LTE wireless broadband to every unserved home and business in rural Vermont. The WOW project will be rolled out over a three-year period and is estimated to be completed in late 2013. Partial funding for WOW was made possible through U.S. Rural Broadband Stimulus funding.

II. CHILD CARE

Ensuring accessible, affordable, quality childcare is important to sound economic development. Recognizing the reality that most families lead lives that require full or at least part-time childcare outside of their homes, childcare is seen as a community need.

Accessible, affordable and quality of child care in the area affects parents' ability to enter the workforce, be productive while at work, and remain employed. In addition, the child care industry itself contributes to the local economy, through the jobs it sustains, the revenues childcare workers take in, and the taxes they pay.

Current childcare programs fulfill some of the need for after-school day care, but there remains a need for full-day, high-quality year-round childcare programs for children of all ages.

Presently in Marshfield, childcare services are provided by four registered or licensed Family Child Care Homes or Day Care Facilities, and other non-registered facilities. The Twinfield Learning Center (TLC) provides after-school services for children in grades 1 – 6, four days a week, when school is in session. Grant funds subsidize the cost of TLC's programming, making the childcare more affordable to Twinfield parents. Future funding is not secure, which could threaten the existence of this important program. The Center School in Plainfield provides Montessori-based preschool and kindergarten for area children, including Marshfield residents. Some parents seek childcare in communities closer to where they work, such as Montpelier, Barre or St. Johnsbury.

It is in the interest of the town of Marshfield to encourage and support the creation of additional registered or licensed childcare facilities that meet the diverse work requirements of its working population.

III. ECONOMIC DEVELOPMENT GOALS, OBJECTIVES AND STRATEGIES

GOAL To stimulate appropriate economic development and provide opportunity for individuals to establish locally based business ventures.

Objectives:

1. To encourage development that creates jobs that pay a livable wages.

2. Economic Development should reinforce traditional settlement patterns, protect rural character and revitalize village and growth centers.

3. To encourage economic development that promotes the viability of the working landscape – forestry and agriculture-related enterprises.

4. To promote accessible, affordable and quality daycare facilities for the children of Marshfield.

Issue Specific Strategies:

To encourage business development that creates jobs that pay a "livable wage".

a. Create an economic development strategy for the town that identifies and encourages development around the villages and growth centers, and explores other opportunities for creating jobs that require the skills and experience of town residents.
b. The Planning Commission will ensure that Town zoning regulations do not impose any unnecessary or inappropriate impediments to reasonable business/industrial activity or development.
c. The Planning Commission will continue to track and report economic/employment statistics and trends in Marshfield in order to chart progress.
d. Seek financial support from state, federal and private sources to support community development programs that includes housing, employment, and public facilities development and coordination.

Economic Development should reinforce traditional settlement patterns:

a. To provide the infrastructure (including automobile and pedestrian facilities) necessary if new growth and development is to be directed to Village and growth centers.
b. To support land use policies that would avoid commercial strip development, maintain open space, and promote "in-fill" development.
c. To encourage adaptive use of existing structures in the Town (for example, the Old Schoolhouse Common project).
d. Consider providing financial and tax incentives for development in village and growth centers.
e. Encourage the creation and expansion of locally based industries that utilize the

region's natural resources and raw materials, with particular emphasis on value-added processing of agricultural and wood products.

f. Encourage natural resources based tourism.

Provide accessible affordable and quality daycare facilities:

a. Encourage the Selectboard to appoint a committee of interested residents to study the childcare needs of Marshfield and make recommendations so accessible, affordable, and quality childcare is available to parents.
   Topics to be addressed by the committee:

   i. Conduct a survey of parents to find out their needs for childcare.
   ii. Support present childcare providers by listening to their needs for funding, training and facilities.
   iii. Supply information to parents concerning what subsidies are available to them for childcare services.
   iv. Research and apply for state, federal, and other financial resources that are available for childcare.
   v. Research possibilities in existing town buildings for childcare facilities. (i.e. Old Schoolhouse Common, school, etc.)
   vi. Encourage childcare providers to use available training opportunities.
   vii. Encourage the school to stimulate interest in early education careers through community service and apprenticeship programs.
   viii. Encourage present business owners with business expertise to work with childcare providers to help them with the business aspects of their childcare services.

CHAPTER 9

LAND USE PLAN

I. OVERVIEW

Historically in Marshfield, as in many Vermont towns, the villages have been the focal point of commerce, industry, social and civic life. Accordingly, infrastructure and population have been concentrated in these areas. The surrounding countryside and forests supplied the raw materials (e.g., lumber, wool, grains, milk, vegetables, etc) needed by the people and industries of the villages. The village and countryside were physically distinct and served distinctly different functions. This pattern of development helps to create a landscape, culture and lifestyle still treasured by residents and visitors alike. The use of land is inextricably linked to "rural character." In survey after survey, Marshfield residents have expressed their desire to retain the Town's rural character.

The past several decades have witnessed changes in the pattern of growth and development in Marshfield. The freedom and mobility afforded by private automobiles now makes it easy for those who do not work the land for their livelihood, to enjoy living in the countryside while maintaining access to the jobs and services of the cities and villages. Consequently, Marshfield has, over the past thirty or forty years, evolved into a "bedroom community" with much of its new residential growth occurring outside of the villages and away from public infrastructure. This new growth pattern could ultimately result in a loss of rural character, less vibrant villages, the waste and/or destruction of natural resources, and greater public costs.

It is in the community's declared best interest to see that new development occurs in a manner that does not change the basic land use patterns, and consequently the character of the Town. Therefore, the villages and growth centers should be the focus for mixed-use, higher intensity development and new growth. Outlying areas should be designed and managed so as not to compromise the Marshfield rural character or its important natural resources.

The land use goals for the town must be achieved in a manner that affords landowners reasonable options for the use of their property and provides local regulators with the flexibility to allow for non-traditional and more site sensitive development proposals. Hence, this Land Use Plan encourages the planning commission to consider changes to the existing zoning regulations.

II. BUILD OUT ANALYSIS

In 2008, the Town completed a build-out analysis. The study was conducted by the Central Vermont Regional Planning Commission (CVRPC). Funding for the study was provided by a Vermont municipal planning grant. A build-out analysis, which uses Geographic Information System (GIS) technologies, allows a community to test its existing regulations and to evaluate development constraints due to existing natural features (such as floodplain areas, wetlands, steep slopes, etc.), conserved lands, and already developed lands. Factoring in these constraints gives a “weighted” number of possible new housing units – a number

based more on reality than theory. CVRPC staff worked closely with the Planning Commission to help develop the criteria for completing the analysis. Public forums were held to discuss the results and possible future actions to consider. The analysis dealt only with residential development and did not consider the potential for commercial development. A more detailed description of the methodology, analysis, and mapping is available from the Planning Commission.

The study first examined what development potential exists when natural constraints, conserved lands and already developed lands are taken into account and without any zoning regulations in place. Without considering any zoning regulations:

- Almost 30% of the land in Marshfield is undevelopable because it is either conserved, publicly owned, or already built upon.
- Approximately 40% of the land has minimal, low, or moderate development potential.
- 31% of the land has high development potential.

The build-out analysis then evaluated both current zoning and several alternative zoning regulations. (By selecting alternative regulations to evaluate, the Planning Commission was not recommending these alternatives, but merely seeking to demonstrate the consequences of various zoning regulation changes and the impact they could have on potential future growth.)

The build-out analysis focused primarily on two factors: road frontage requirements and minimum lot size (for the Agricultural and Rural Residential District). Currently, the regulations require a specific amount of road frontage to create a new lot through a subdivision. However, a right-of-way at least 50 feet wide can also be used to access a rear lot, in which case the rear lot may have no frontage on a public road. The build-out also considered increasing the minimum lot size in the Agricultural and Rural Residential District from 2 to 5 acres, prohibiting new housing in the Forestry and Conservation District, and moving lands more than 600 ft. from roads within the Agricultural and Rural Residential District to the Forestry and Conservation District (see Zoning map for these areas). All alternative regulations also considered pre-existing (grandfathered) lots which are allowed to be developed for the uses permitted in the district even though they might not meet the minimum lot size requirements.

Build-Out Results by Zoning District (weighted results only)

Flood Hazard District
Current zoning does not allow new houses in this district. Approximately 30 houses exist in this district now. Under our current zoning, these dwellings can be enlarged, but no new houses can be built.

Forestry and Conservation District
The Forestry and Conservation District generally includes lands more than 600 feet from state roads and Class 2 and 3 roads (with some exceptions — See zoning map) and not in the flood hazard area. It also includes state forest lands. New residential development is allowed only through a Planned Unit Development (PUD) (also sometimes known as

cluster development). Only a few PUDs have been permitted in this district, and the Environmental Court recently upheld a decision by the Marshfield Development Review Board to deny a request for a four-lot PUD in the Forestry and Conservation District because it was inconsistent with the Town Plan which stresses limiting development in the Forestry and Conservation District.

- Approximately 14 single-family dwellings exist in this district.
- Approximately 829 residential units could theoretically be developed in this district under current zoning. (However, this is highly unlikely given the existing regulations and recent court case.)

Village District
The Village District includes Marshfield Village with the exception of areas in the Flood Hazard District. Only a 10,000-square-foot lot with 90 feet of road frontage is required to develop a single-family dwelling in this district.

- Approximately 155 residential units exist in this district.
- Another 835 units could be built in this district under current zoning (which was considered unlikely, given existing land ownership patterns).
- Requiring established road frontage (and not accepting right-of-ways for access to back lots) for all development would reduce this potential to 99 units.
- A further, more extensive parcel-by-parcel evaluation is recommended before reaching conclusions about potential development in this district.

Agricultural and Rural Residential District
Much of the more recent development has occurred in this district. A two-acre lot is currently required for development. To create lots over 10 acres, 350 feet of road frontage is required and 250 feet of road frontage is required to create lots under 10 acres. However, it is currently possible to subdivide parcels and to create new lots with no road frontage, with access via a 50-foot wide right-of-way easement.

- Approximately 453 residential units exist in this district.
- The following additional units could be built in this district given the current zoning and various alternative zoning regulations considered.
    - Current zoning allowing front and back lots: 2,049 units
    - Change minimum lot size from 2 to 5 acres and do not require road frontage: 621 units
    - Change minimum lot size from 2 to 5 acres and do require road frontage: 323 units
    - Leave minimum lot size as 2 acres and do not require road frontage: 1,825
    - Leave minimum lot size as 2 acres and do require road frontage: 437

Conclusions of Build-Out Analysis

Based upon the above analysis, the Planning Commission recommended the following steps be taken:

- Undertake a more extensive parcel-by-parcel evaluation in the Village District before reaching conclusions about potential development in the village.
- Obtain public input on whether PUDs in the Forestry and Conservation District should be allowed.
- Obtain public input on whether the four-fold increase of potential development in the Agricultural and Rural Residential District under the current zoning would conflict with the goal in the Town Plan to maintain a rural character in this district.
- Obtain public input on changes in the Agricultural and Rural Residential District including: to change the minimum lot size to 5 acres or to require road frontage for all new lots.
- Obtain public input on whether to change the lands more than 600 feet from roads that are presently in the Agricultural and Rural Residential District to the Forestry and Conservation District (see map classifying Agricultural and Rural Residential District by distance to road).

The Selectboard made the following recommendation:

- Consider developing standards and a process for permitting lots that do not have adequate road frontage under the zoning regulations.

A forum in October 2008 provided some public input on the above changes in the Town land use regulations. Although various views on the possible changes were expressed, there appeared to be a consensus that it was important to preserve the existing rural character of the town while still allowing for limited development. The results of the build-out analysis and comments made at the public forum were taken into consideration when developing this version of the Town Plan.

III. RURAL CHARACTER

Marshfield has been able to maintain a rural character through limited development and due to land use regulations, adopted in 1969, that recognized the need to preserve large portions of the town. There has been discussion in past Town Plans about the importance of rural character and its importance is often mentioned at public forums. The purpose of this section is to define rural character as used in this Town Plan. The rural character exists due to the scenic vistas, large uninterrupted forested areas, open fields, agricultural uses, and limited and scattered development along back roads. Eighty-eight percent of residents who responded to a survey in 2004 found that “rural character” was important in town planning. The importance of protecting natural areas, forest lands, and scenic vistas were ranked by over 80% of the respondents as high or medium.

The rural character needs to be evaluated from three perspectives: Route 2, Marshfield Village, and back roads. The first is the vantage from Route 2, the major arterial road through the town. Route 2, outside of the village areas, is characterized by views of fairly open areas adjacent to the Winooski River. More distant views of uninterrupted forested ridgelines are also found. Several large farms along Route 2 add to the rural character. Scattered single family dwellings, some newer and some historic, are also located along this road. Route 2 is used by local residents, tourists, and those traveling to other parts of the state.

A viewshed analysis from Routes 2 and 232 was developed (see Viewshed Analysis map). The map shows the areas that can be viewed from these roads. The viewshed was divided into two categories: those areas that have some protection and those without protection. The protected areas included those areas within the Forestry and Conservation District, Flood Hazard District, conserved lands, and publicly-owned lands. These areas all limit development through more restrictive zoning, through conservation easements, or through direct municipal or state control of the land. As evident from the map, the more distant views have some level of protection from development. The areas adjacent to Route 2 have limited protection. Many of these unprotected areas are open fields and farms where future development would be highly visible. Some more distant areas to the east also have limited protection from development. Development guidelines should be established to help protect the open fields along Route 2 while still allowing controlled development.

The second perspective is from the Marshfield Village. Marshfield has well-defined entry points from the north and south on Route 2 and from Route 214. The lots become smaller and development density quickly changes upon entering the village area. The village is characterized by a mix of residential uses, several churches, the Old Schoolhouse Common, and pockets of commercial uses. The Village Store and adjacent to the Starch Factory building are historic and have served as the commercial center for the village. The density of development allows for residents to walk to village destinations. The Schoolhouse Commons serves as the cultural hub of the village. Senior citizen activities are held weekly; summertime concerts, movies, children activities and readings are hosted by the library; and the park includes playground equipment and a ball field. The small, compact development of the village with defined entry points and the fact that it serves as a center for local commercial and cultural activities defines its rural character. Development guidelines should allow and encourage the continuation of the village-style development. Similar development patterns are also found in the portion of Marshfield immediately adjacent to Plainfield. This area, although in Marshfield, is generally thought of as being part of the Plainfield village area.

The last perspective is from the back roads. These roads are characterized by more limited distant views from the roadway itself due to the existing forested areas. However, distant views are sometimes found from the house sites on the adjacent parcels. Although open fields exist on some sections of back roads, forested areas predominately exist along these roads. These roads are used mostly by local residents.

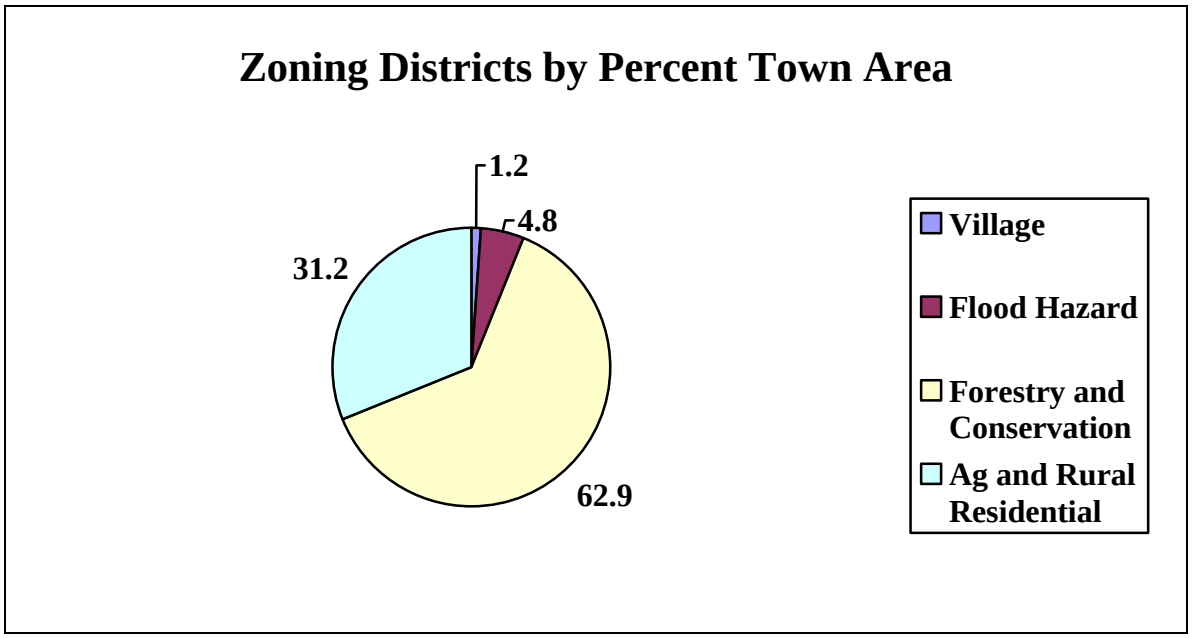
The rural character of the back roads is due to limited development, some open fields and farms, the adjacent forested areas, and limited traffic. Development on the back roads needs to preserve the open fields and farms and provide a visual and functional relationship of structures to the surrounding landscape. Individual lots and building envelopes can be delineated so as to mitigate the visual impact of new development on views from existing roadways, adjacent properties, and offsite vantage points. Development review should include the impact of additional traffic on rural back roads not just from a functional carrying capacity, but also in regards to the effect on the rural character of the area.

Certain strategies are recommended later in this chapter to help preserve the rural character within each of the zoning districts.

IV. LAND USE DISTRICTS

Four identifiable land use districts are described below. These districts generally represent present land use patterns. Future development should be limited to densities and types which preserve the identity of these districts, and limited to a scale which is in keeping with the nature of the various districts.

Zoning District	Sq Miles	% Town Area
Village	0.5	1.2%
Flood Hazard	2.1	4.8%
Forestry and Conservation	27.4	62.9%
Agricultural and Rural Residential	13.6	31.2%



In establishing the land use districts, the following conditions were taken into consideration:

- Current and historic settlement and land use patterns.
- The need to accommodate a reasonable level of growth and development for the foreseeable future.
- Existing infrastructure and the reasonable future expansion thereof (including proximity to present and prospective Town and community services).
- Soil, slope, and elevations.
- Flood hazard areas.
- The location of important natural resource lands and resource production lands.
- Present and prospective access by improved public roads and public utilities.

- The rights of landowners to the reasonable economic use of their property.
- Future needs and desires of the Town of Marshfield as discussed elsewhere in this Plan.

Based on these considerations, the following land use districts were established.

VILLAGE DISTRICT

A. PHYSICAL CHARACTERISTICS AND BOUNDARIES

The Village District includes all land within both Marshfield and Plainfield villages, plus some areas now served, or capable of being served by public water and/or sewer. Land within the district lies in the valley of the Winooski River, generally on soils and terrain suitable for development, although some flood-prone areas may occur along the River. Those areas within the 100-year flood hazard area are not part of the Village District.

B. CURRENT LAND USES, TRENDS, CHALLENGES/ISSUES

This District currently contains mixed uses at higher densities than the surrounding countryside. It is also home to many civic/public buildings and resources (i.e., library, post office, town offices, etc.). The Town of Marshfield has designated the Village of Marshfield as a growth center. Although this designation does not qualify as a "growth center" under current state laws, it is meant as an indication that this is the area of the town most suitable for higher density development.

According to the 2008 build-out study, approximately 155 dwellings exist in the Marshfield Village portion of this district. There are 0.5 square miles in the Village District. The build-out study found that more development could occur in the Marshfield Village if some of the larger parcels were developed to their maximum allowed density. However, little new development is occurring here (especially residential). In-fill development and expansion may be limited by infrastructure problems, flood hazard areas, water quality issues and individual choices/desires. Currently no new connections are available for the Marshfield properties serviced by the Plainfield sewer system due to a lack of an intra-municipal agreement for such connections to occur. However, wastewater treatment facilities in the Village of Marshfield have an excess capacity to accommodate new single-family three-bedroom homes (see Chapter 4). Traffic/pedestrian safety, functional and aesthetic issues along Route 2 (as identified in Chapter 5) significantly impede land use in this District.

C. DESIRED FUTURE CONDITIONS:

In keeping with the desire to encourage new growth to the Village District, Marshfield would like Marshfield Village to exhibit the following characteristics for the foreseeable future.

- High density, mixed-use development.

- Village remains the hub of Town's commercial and civic activity.
- Expanded/improved infrastructure to accommodate new growth (as necessary).
- A safe and attractive Route 2 corridor for pedestrians and vehicles alike.
- New development is consistent with village character.
- Affordable housing is available (especially rental housing).
- Alternative/public modes of transportation are available.

AGRICULTURAL AND RURAL RESIDENTIAL DISTRICT

A. PHYSICAL CHARACTERISTICS AND BOUNDARIES

The Agricultural/Rural Residential District includes all land within 600 feet of Town and State maintained highways (with some exceptions designed to include farmland and exclude wellhead protection areas), as well as significant tracks of land identified on the Town Zoning Map as prime agricultural land. The major exceptions to the 600-foot rule are indicted on the Zoning map. The district is characterized, generally, by a mix of residential uses, agricultural and open land, and forested land.

B. CURRENT LAND USES, TRENDS, CHALLENGES/ISSUES

While this District contains most of the Town's actively used farmland, it is also where most new residential development is occurring (due to pleasing surroundings, generally favorable soils and terrain, and accessibility). These land uses may conflict with each other and result in the loss of good farmland. In addition, residential "strip development" can place pressure on roads and other infrastructure, and diminish the rural character that attracted residential growth in the first place. Currently, there are approximately 453 homes in this district according to the 2008 build-out analysis. There are 13.6 square miles in this district. The build-out analysis found a potential of approximately 2,049 units additional homes could be built under the current zoning regulations, or approximately a four-fold increase. More intense development of limited areas within this district could result in a loss of rural character for portions of the town unless there are modifications of the existing land use regulations. [Discuss historical development over past decades]

C. DESIRED FUTURE CONDITIONS

In keeping with desire to accommodate new development while protecting important resources within this District, Marshfield would like this zone to exhibit the following characteristics for the foreseeable future:

- The rural character and landscape is maintained. New development is generally residential in nature and sited so as to maintain the productive capacity and visual integrity of the landscape.
- The District will accommodate some portion of new residential growth.
- Curb cuts and strip development along rural sections of Route 2 are

effectively controlled.

- New commercial and light industrial uses along Route 2 are encouraged to be clustered together and developed in a manner to preserve the rural character of Route 2.
- New development does not overburden capacity of existing road network or place undue stress on Town's ability to provide public services.
- The regulatory framework is conducive to thriving yet compatible home occupations.

FORESTRY AND CONSERVATION DISTRICT

A. PHYSICAL CHARACTERISTICS AND BOUNDARIES

The Forestry and Conservation District is all the land in the Town of Marshfield not included in other districts. This district is the most unsettled part of Marshfield. It is distinguished by rugged topography, mountaintops and ridges, swamps, wetlands, and streams. The steep terrain, shallow soils and lack of public access have preserved the district in a largely undisturbed and natural condition. It includes all State Forest lands and most land along Class 4 roads.

This district is comprised of many woodland areas, productive and unproductive fields, uplands, steep slopes, and wetlands. The district provides vital wildlife habitat and significant opportunities for outdoor recreation. Disturbance of the land in this district must be done with the utmost care in order to prevent soil erosion, contamination to waters, or the destruction of wildlife habitat and other resources, as well as visual blight.

B. CURRENT LAND USES, TRENDS, PROBLEMS/ISSUES

This district contains the most important forestry resources and some of the most important natural areas in the town. The district remains largely undeveloped. According to the 2008 build-out study, approximately 14 single-family dwellings exist in this district. There are 27.4 square miles in this district. New dwellings are currently not permitted to be built in this district unless they are part of a Planned Unit Development. However, there are limited constraints on Planned Unit Developments in this district. Because of the many natural/ecological resources (including wildlife habitat, wetlands, wellhead protection areas and other unique and fragile areas) and physical limitations (soils, slope and topography) within this district, even small scale, limited development can be problematic. Widespread development in the district could prove costly from a public services and environmental perspective. Consequently, new development in this zone should be considered with great care, limited in scope, and closely monitored.

C. DESIRED FUTURE CONDITIONS:

- District is devoted primarily to resource production, recreational and ecological uses. The vast majority of the District remains undeveloped.

- Prominent landscape features (i.e., ridgelines, hilltops) remain free, or nearly free, of visible development.

- Class 4 roads and legal trails should not be "thrown up" nor legally upgraded to higher levels.

FLOOD HAZARD DISTRICT

A. PHYSICAL CHARACTERISTICS AND BOUNDARIES

This District includes land within the 100-year flood hazard area as defined by the Federal Emergency Management Agency (FEMA). In 2009, riparian buffer zones near streams and near ponds over 5 acres in size, previously part of this district, were removed from the Flood Hazard District. The regulations for riparian buffer zones are now contained in a new Water Conservation Overlay District. Much of the Winooski River's flood hazard area is agriculturally productive land.

B. CURRENT LAND USES, TRENDS, PROBLEMS/ISSUES

Shoreline areas, floodways, and flood hazard areas perform many valuable ecological functions which should not be compromised by development. How land is used within these areas can profoundly influence water quality, aquatic habitats, and landscape aesthetics. In addition, undeveloped floodways and flood hazard areas serve to store floodwaters, reducing the severity of downstream flooding and avoiding property damage. There are 2.1 square miles in this district. According to the 2008 build-out study, approximately 30 single-family dwellings exist in this district. New dwellings are currently not permitted to be built in this district.

C. DESIRED FUTURE CONDITIONS

- The Winooski River Floodway remains undeveloped and the various ecological, agricultural and flood storage functions of the flood hazard area be preserved.

- Surface waters are clean and attractive and continue to be protected by development setbacks and vegetative buffers.

III. LAND USE GOALS, OBJECTIVES AND STRATEGIES

GOAL Provide landowners reasonable options for the use of their property and provide local regulators with the flexibility to allow for non-traditional and more site sensitive development proposals.

OBJECTIVES:

1. Continue to develop clearly written zoning regulations that inform the citizens of Marshfield of their rights and responsibilities, and the process they must follow to achieve their development goals.

2. Review lot sizes and regulations in the Village District to ensure they allow for the historical compact village development.

3. Require residential developments of four or more units and all mixed-use development within the Agricultural/Rural Residential District to be developed according to Planned Unit Development (PUD) standards in order to conserve natural resources and protect important landscape features.

4. Ensure zoning regulations continue to meet the minimum requirements of Federal Emergency Management Agency and the National Flood Insurance Program.

ISSUE SPECIFIC STRATEGIES:

Village District

a. Consider existing infrastructure and review physical locations to consider providing for higher density, mixed use development, contiguous to currently built-up areas and serviceable (now or in the future) by public infrastructure.
b. Planning Commission to consider re-development within the Village District through higher density by reviewing the existing density of the district and comparing to current zoning regulations to determine if the regulations are overly restricting infill development.
c. The Selectboard is encouraged to direct future municipal construction projects such as civic buildings to the Village District.
d. . Review the benefits of seeking state designation as a Village Center.
e. The Selectboard should explore financial/tax incentives for development within the Village District.
f. Study the need for further expanding the senior center, food shelf, and food drop.
g. Study the impact of Route 2 traffic in the village and opportunities for traffic calming.
h. Study potential for developing senior housing.
i. Review opportunities for improvement of rental housing conditions.
j. Support existing and new commercial development consistent with the village character.
k. Review opportunities for village beautification.

Agricultural and Rural Residential District

a. The Planning Commission will consider revising PUD criteria and requirements to make sure they clearly provide the appropriate protections, incentives, and review process. Included in this review should be an evaluation of the minimum number of units required for a PUD and whether a PUD should be required for developments with over a certain number of units.
b. The Development Review Board when considering development proposals should seek to minimize development impacts on municipal services, limit fragmentation of land, and protect the Town's important natural resources.
c. Consider standards for screening, landscaping and façade materials for

commercial development that help preserve the rural character of the district.

d. Consider changing the areas the Rural Residential District areas that are more than 600 feet from the roads to the Forestry and Conservation Zone.
e. Study the pros and cons of modifying the Rural and Residential District areas that are 600 foot from roads to include some areas more than 600 feet from the road.
f. Consider developing regulations that the scale and siting of new structures are in keeping with the surrounding rural character, landscape and architecture.
g. Consider developing regulations that ensure large open fields and farms along arterial roads are preserved through either conservation easements or through requirements to cluster and screen new development to preserve large open space areas.
h. Identify scenic views that are of particular significant and consider means to ensure that they will remain in the future.
i. Consider developing regulations to ensure that individual lots and building envelopes are delineated so as to mitigate the visual impact of new development on views from existing roadways, adjacent properties, and offsite vantage points in order to preserve the rural character of the district.
j. Consider developing regulations to allow for flexibility in subdivision development to promote the most appropriate use of land and the protection of productive agricultural or forest land, scenic views, historic sites, shorelines, wetlands, important habitat areas, and other resources of importance to the community, while minimizing the alteration of the natural topography of the land.
k. Consider developing regulations to discourage ridgeline development or conspicuous development on locally prominent landscape features unless it is effectively screened or clearly in the best interest of the public.

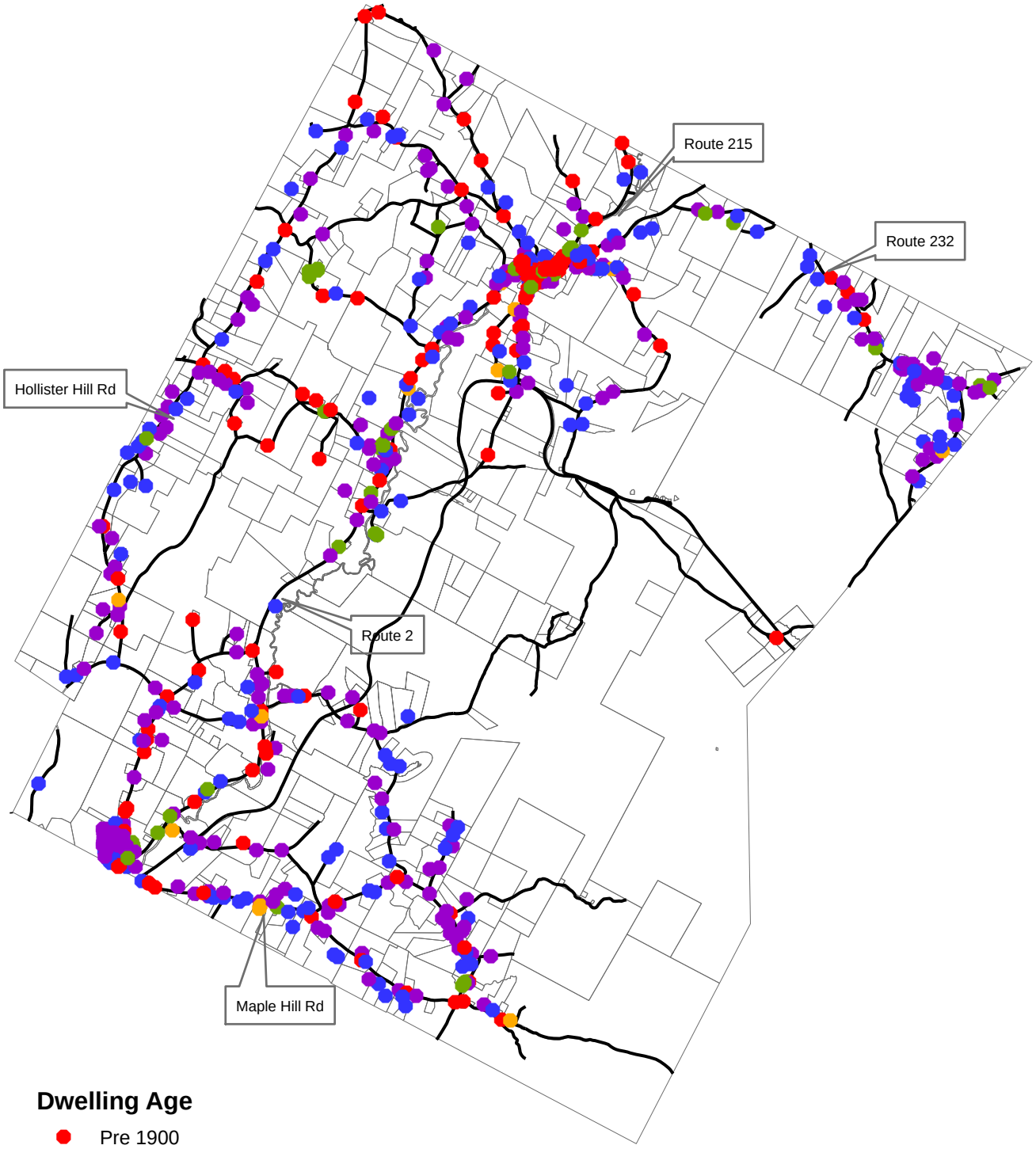
Forestry and Conservation District

a. Maintain, at a minimum, the current zoning regulations in the Forestry and Conservation zoning districts in order to limit development which helps protect the rural character of Marshfield.
b. Remove the allowance for PUD's within the Forestry and Conservation District.
c. Consider modifications of the boundary between the Agricultural and Rural Residential District and the Forestry and Conservation District (see Agricultural and Rural Residential District strategies).

Flood Hazard District

a. Maintain basic requirements of the Town's flood hazard regulations while updating them to comply with changes in the requirements of FEMA and the National Federal Flood Insurance Program.
b. Maintain, at a minimum, the current zoning regulations in the Flood Hazard zoning district in order to limit development which helps protect the rural character of Marshfield.
c. Explore options for adopting Fluvial Erosion Hazard regulations.

Marshfield Town Plan 2011
Dwellings Classified by Age



Dwelling Age

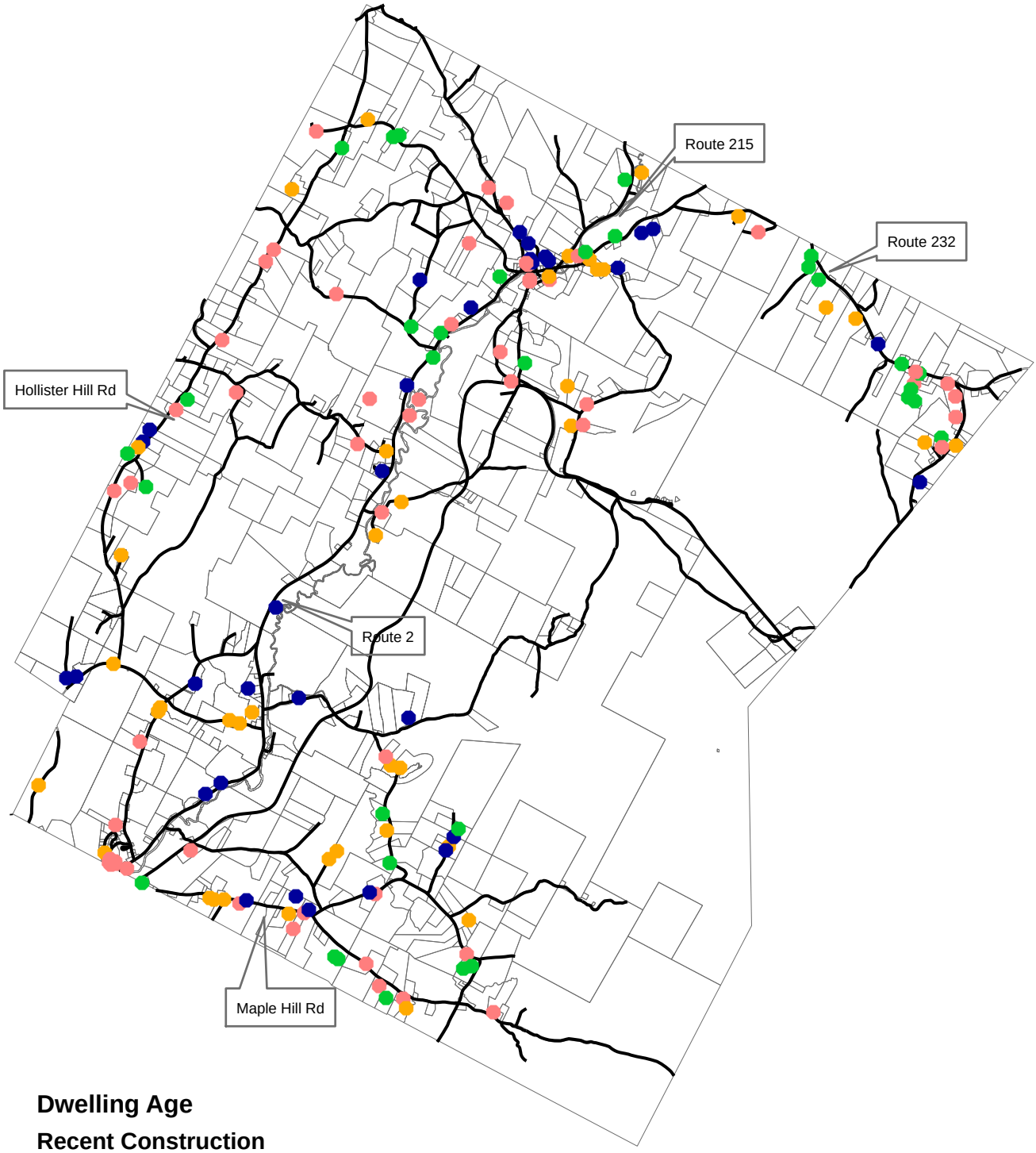
- Pre 1900
- 1900 to 1930
- 1930 to 1959
- 1960 to 1989
- After 1990

N

Source: Marshfield Assessment Data
Note: A small portion of dwellings did not have age data

0 2 Miles

Marshfield Town Plan 2011
Dwellings Classified by Age 1990 to 2009



Dwelling Age

Recent Construction

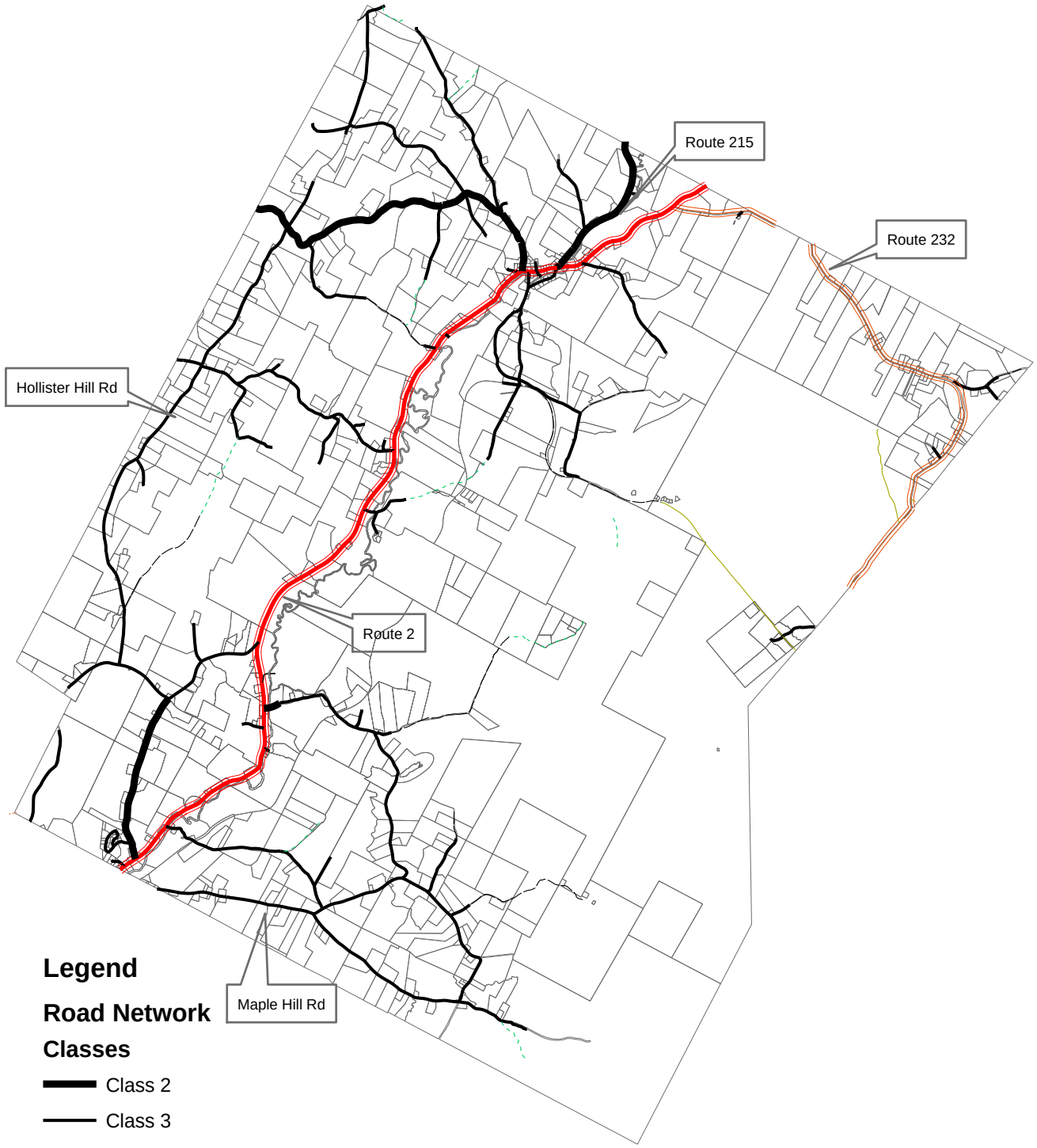
- 1990 to 1994
- 1995 to 1999
- 2000 to 2004
- 2005 to 2009

N

Source: Marshfield Assessment Data
Note: A small portion of dwellings did not have age data

0 2 Miles

Marshfield Town Plan 2011
Marshfield Transportation Map



Legend

Road Network

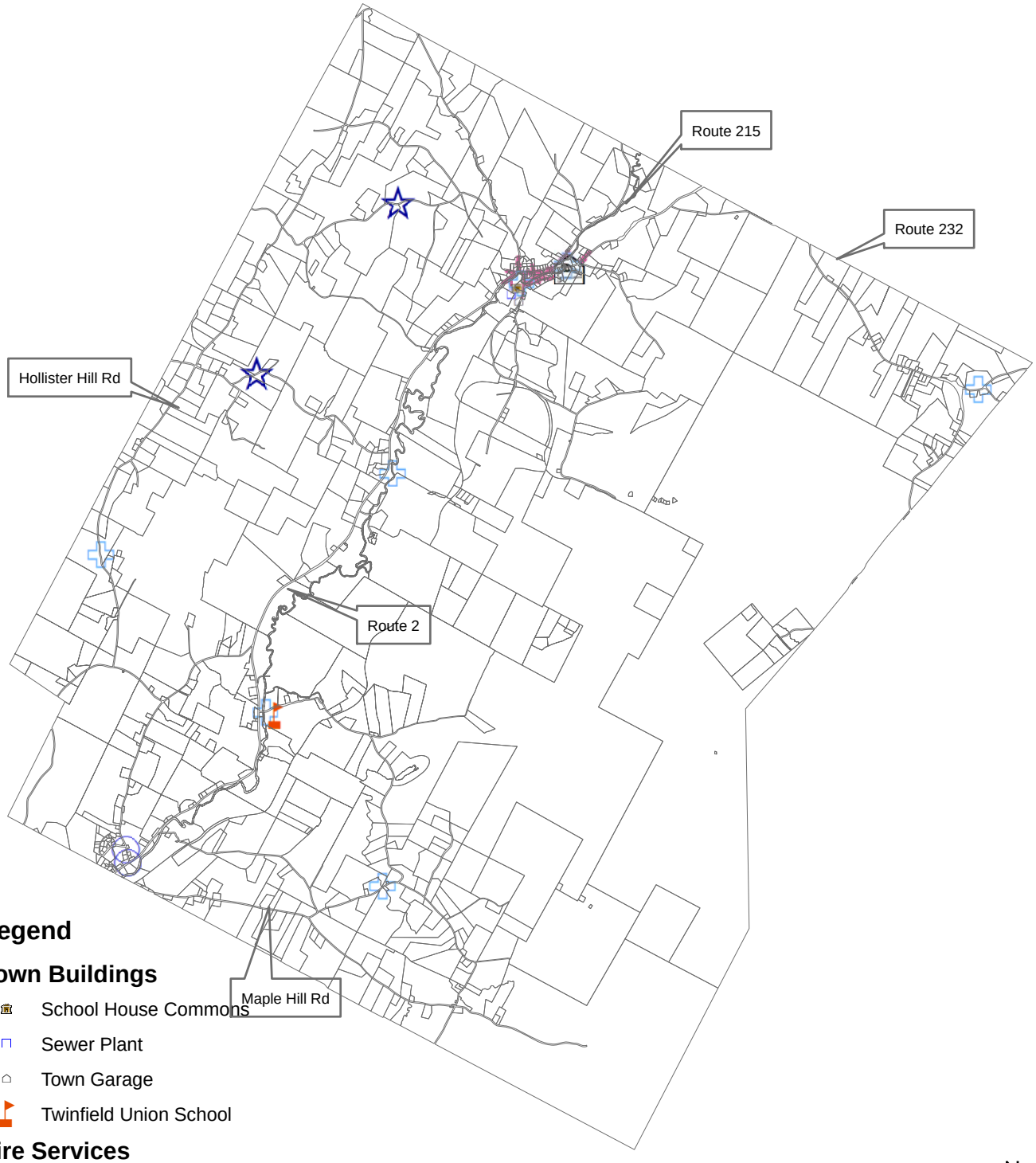
Classes

- Class 2
- Class 3
- Class 4
- State Forest
- Trail
- State Highway
- US Highway
- Parcels (2010)

N

0 2 Miles

Marshfield Town Plan 2011
Utilities, Governmental & Education Facilities



Legend

Town Buildings

- School House Commons
- Sewer Plant
- Town Garage
- Twinfield Union School

Fire Services

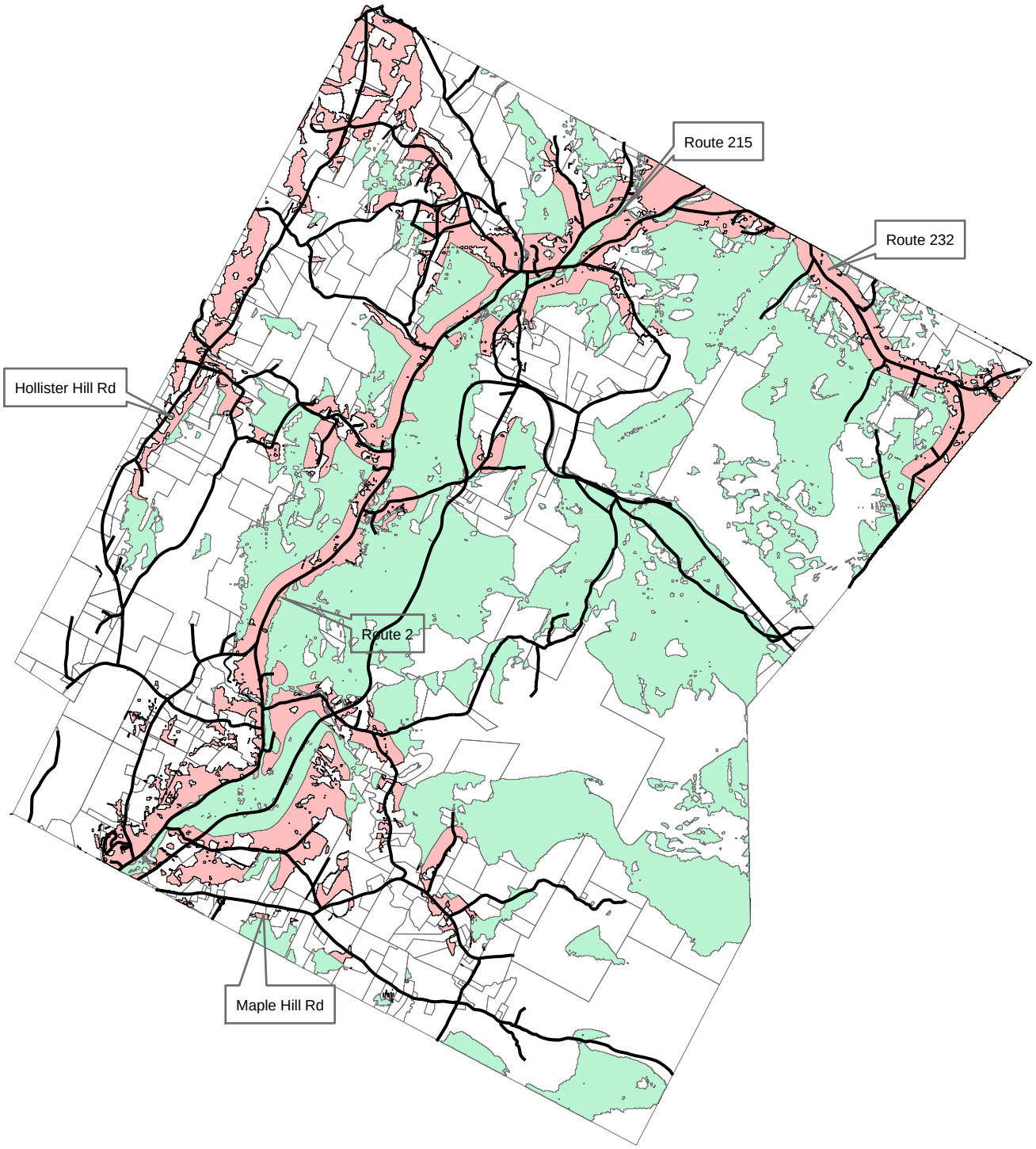
- Dry Hydrant
- Fire Station
- Fire Pond
- Hydrant
- Marshfield Sewer Lines

N

0 1.6 Miles

Marshfield Town Plan 2011
Marshfield Public Wellhead Protection Areas

Marshfield Town Plan 2011
Viewshed Areas From Route 2 and Route 232



Legend

- Road Network
- Protected Viewshed
- Unprotected Viewshed
- Parcels (2010)

Protected Viewshed includes areas publicly owned, conserved areas, or areas within the Forestry and Conservation District

N

0 2 Miles

Marshfield Town Plan 2011
Agricultural and Rural Residential District
Classified by Distance to Roads

Legend

- Parcels (2010)
- Road Network
- Ag Rural Residential Within 600 Feet of Roads
- Ag Rural Residential Beyond 600 Feet of Roads

N

0 2 Miles

Marshfield Town Plan 2011
Marshfield Zoning Map

Legend

- Road Network
- Parcels (2010)

Zoning

District

- AGRICULTURAL & RURAL RESIDENTIAL
- FLOOD HAZARD DISTRICT
- FORESTRY & CONSERVATION DISTRICT
- VILLAGE RESIDENTIAL

N

0 2.4 Miles