TOWN OF WARDSBORO

VERMONT

TOWN PLAN

Plan Adopted by the Wardsboro Selectboard July 9, 2019
Plan Approved by Windham Regional Commission
Amendments Adopted by the Wardsboro Selectboard December 7, 2021

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INTRODUCTION

Purpose of the Town Plan

The geographic placement of Wardsboro, Vermont, located near two prosperous ski areas in the Green Mountains, results in developmental pressures on the town that require careful thought and consideration. As development is inevitable, and often irreversible, it is the purpose of this Plan to chart a carefully considered course which will conform to the wishes of Wardsboro's citizens by avoiding adverse and potentially irreversible effects often associated with development, thus encouraging actions that benefit the Town as a whole. The Town Plan must remain in harmony with the plans of our neighboring towns, the Windham region, and the State of Vermont.

The Town Plan reflects the intentions and requests of the majority of the participating town residents. It is intended for use by public officials, businesses, land owners and residents. The following describe some, but not all of these ways:

1. To guide local decision-making in the review of development proposals, including site plans, conditional uses and subdivision reviews.

2. To provide a framework for zoning, any other bylaws, and ordinances the Town may adopt. These bylaws may include, though are not limited to such subjects as zoning, health, physical integrity of structures and disposal of wastes, to help assure an appropriate quality of life for Wardsboro's inhabitants.

3. To recommend future community programs, actions and studies that will help ensure a continuing planning program.

4. To serve as a reference in response to development proposals requiring Act 250 permits or any other similar State or Federal review proceeding.

5. To provide a source of information about our Town.

The Wardsboro Town Plan is adopted by the Board of Selectmen for an eight-year period, though may be amended anytime.

Structure of the Town Plan

The Wardsboro Town Plan provides:

1. Descriptions of various assets (see Town planning maps at Town Office), activities, and general statistics of the Town as it is presently constituted. This information is updated whenever Federal Census results are applicable.

2. Goals and policies that represent the townspeople's wishes for the future;

3. Recommendations to guide the future growth of the Town.

COMMUNITY PROFILE

Brief History of the Town of Wardsboro

The Town of Wardsboro is a small, trapezoid-shaped piece of land in south-central Vermont, located among the towns of Stratton, Jamaica, Dover, Newfane and Townshend. Its odd shape results from being missed somehow in the land-grab by settlers crossing eastward from New York and westward from New Hampshire. We are forever grateful to Clarence S. Streeter, who researched the Town's history so diligently that, after his death in 1956, his wife and others were able to carry on and publish *Return to Yesterday, a History of Wardsboro, Vermont* in time for the Town's bicentennial in 1980. Streeter recounts that, in 1780, William Ward, representing Newfane in the legislature, surveyed a piece of wilderness previously granted by New York (called "Camden") and petitioned the Republic of Vermont to grant to him and some 62 associates 23,040 acres of that wild land, to be known as the township of Wardsborough. Our charter is dated November 7th of that year. A transfer to the Town of Dover of some large holdings that lay on the other side of a high ridge to the South leaves Wardsboro with about 18,800 acres today, although an accurate modern survey of some of the Town's boundaries does not exist.

In spite of having been organized in such an unusual way, Wardsboro's beginnings were much the same as most other rural towns in Vermont. Would-be settlers formed a group of "proprietors" who organized a township and then cleared the land, built homesteads, constructed a meeting house for church services and government, set up mills and other manufactories. Wardsboro had its share of grist mills, tanneries and other small industries to support the needs of a growing agricultural economy. Over the years many changes have taken place, but many of the descendants of the founding families still live here and the economy remains that of a small, rural community.

Wardsboro is situated near two of southern Vermont's large ski areas, Stratton Mountain and Mount Snow. These two large developments afford employment for many of Wardsboro's 900 or so citizens.

Vermont Route 100 runs directly through town, from the Stratton border on the southwest to the border with Jamaica at the north end of town. It follows an original trail alongside the Wardsboro (originally "The Branch" of the West River) Brook, which flows northeast and empties into the West River in Jamaica. That river, in turn, flows southeast to join the Connecticut River near Brattleboro.

The Branch and its tributaries provided water power for many mills and manufacturing operations in old Wardsboro' (so spelled in the Vermont Register of 1842 when the "ugh" was replaced with an apostrophe). There were mills for processing wool, grain and wood products and there was a chair factory and a wheelwright at places along the Branch which probably used water to power lathes for making spindles and spokes, etc. These industries account for many of the names used for the various villages over the years. One section in the middle of town, known earlier as Unionville, is still known today as "Bucketville" to its residents, suggesting there may have been a bucket and pail

maker there at one time. Wardsboro itself has been known variously as Martin's Mills, North Wardsboro, Wardsboro Center, Wardsboro City, or what the 1856 atlas calls just plain "Wardsboro." West Wardsboro was earlier known as Hammond's Mills after the family of Samuel Hammond who settled there shortly after the Revolutionary War. Samuel Hammond is best known for having been an active soldier and patriot in the War for Independence and a participant in the Boston Tea Party. Still used is the name "Podunk," a nickname given to District 4 and the town road that runs through it.

Wardsboro remains so rural today that only about 16% of its roads are paved. It is still possible to hike undisturbed on forest trails that used to provide the only connection between the villages of West Wardsboro and South Wardsboro. Wardsboro's current land-use pattern is characterized by extensive forest areas, rural residential development, small villages, and a regional highway that passes through ski and vacation home development on the eastern slopes of the Green Mountains. One can notice from the location of old cellar holes that a great deal of the early settlement was at higher elevations rather than in the valley areas favored by people today. There were at one time seven school districts, each with its own school building; Walton's 1842 Vermont Register and Farmers' Almanac shows that 386 students were reported in the 1840 census, whereas today there is only one grade school in Wardsboro with under 50 students enrolled.

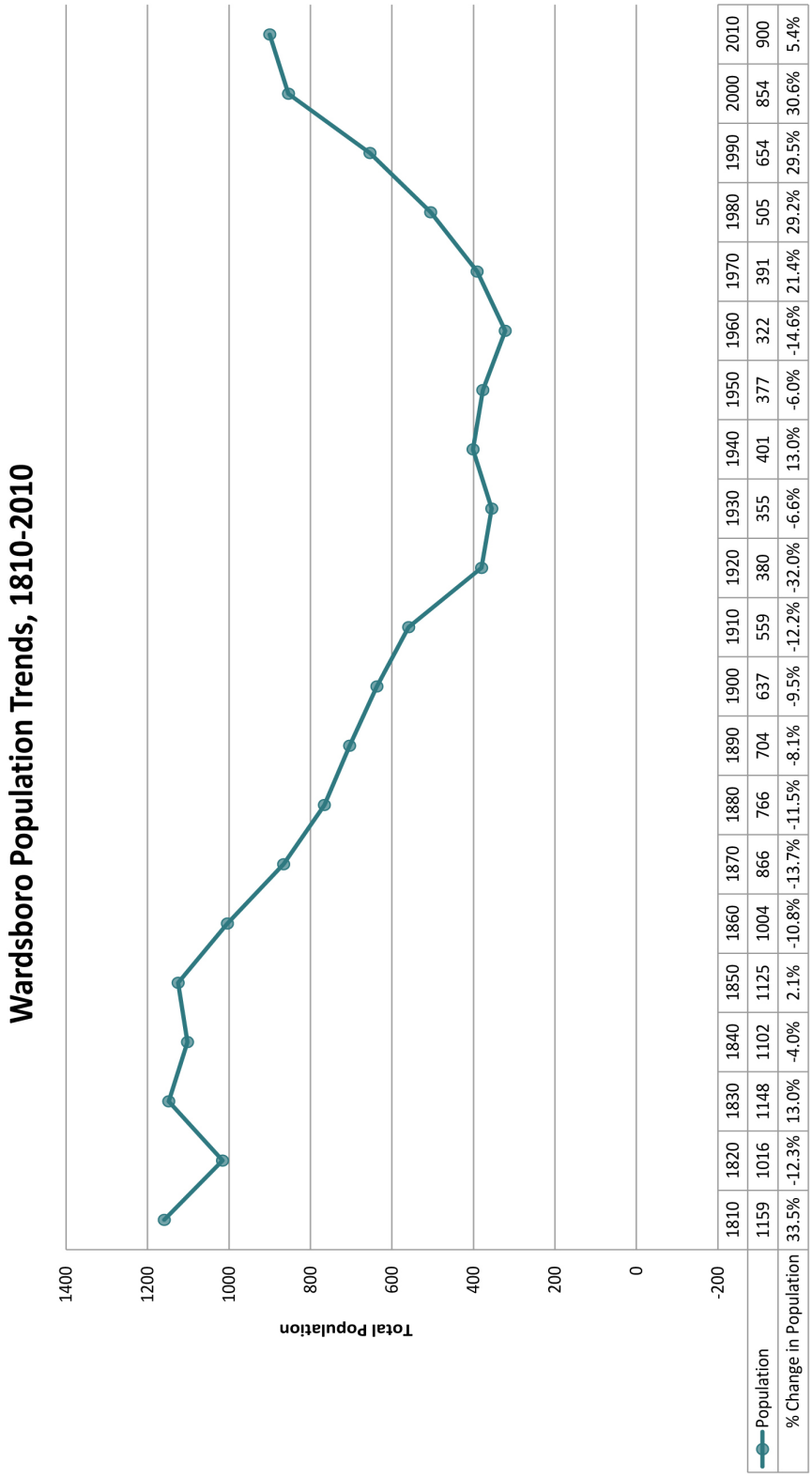
In an effort to document and preserve Wardsboro's history, the Wardsboro History Group was formed in 2007. The old Plimpton Store building was purchased the same year to provide a place to display exhibits on historical subjects. Many active committees of the group are working on areas of interest, e.g. photography, old house research, businesses, and people of Wardsboro. The group has exhibited at the Vermont History Expo and the Windham County History Fair.

Population

The 2010 Census reported Wardsboro's population as 900, a 5.4% increase from the 2000 US Census report of a population of 854. In 2000, the Town ranked as the sixteenth largest town in the Windham Region, which encompasses 27 towns; in 2010 it ranked twelfth largest in the Region. In 1990, the Town ranked seventeenth with a population of 654. Table 1 illustrates the decennial populations beginning in 1900. After experiencing mostly decreases in population during the first half of the 20th Century, Wardsboro began to experience population growth. From 1970-2000, Wardsboro's population doubled, growing at approximately 30% per decade. That rate slowed dramatically the last 10 years, to 5.4% as noted above. The absolute numbers for these changes follow: 1978 to 1980 is 110, 1980 to 1990 is 150, 1990 to 2000 is 200, and 2000 to 2010 is 100.

Population trends are of interest in projecting future housing, facility, and service needs. Population figures for Wardsboro over the last 200 years are shown in Figure 1, below.

Figure 1: Wardsboro Population Trends



	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
Population	1159	1016	1148	1102	1125	1004	866	766	704	637	559	380	355	401	377	322	391	505	654	854	900
% Change in Population	33.5%	-12.3%	13.0%	-4.0%	2.1%	-10.8%	-13.7%	-11.5%	-8.1%	-9.5%	-12.2%	-32.0%	-6.6%	13.0%	-6.0%	-14.6%	21.4%	29.2%	29.5%	30.6%	5.4%

(Source: 1970-2000 Data Source: Vermont Indicators, http://www.vcgi.org/indicators/, 2010 Data Source: 2010 U.S. Census)

Table 1: Population Trends in Wardsboro

Year	*Annual Population*	*Percent Change*
2010	900	5.4
2000	854	31
1990	654	30
1980	505	29
1970	391	21
1960	322	-15
1950	377	-6
1940	401	13
1930	355	-7
1920	380	-32
1910	559	-12
1900	637	

(Source: U.S. Census, UVM Center for Rural Studies)

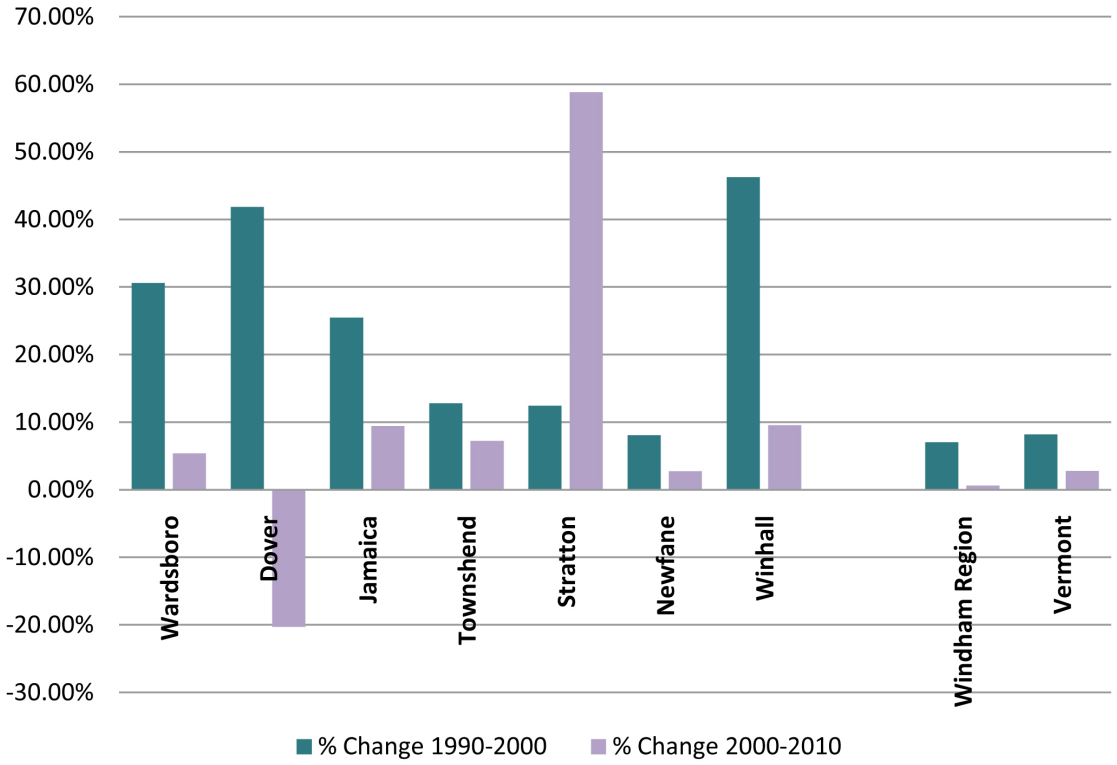
Table 2 shows Wardsboro's growth as compared with data from nearby towns. The town of Stratton, home to a major ski resort, was the fastest growing town near Wardsboro.

Table 2: Population Trends in Nearby Towns

Town	*2000*	*2010*	*Percent Change*	*Actual Change*
Wardsboro	854	900	5%	46
Dover	1410	1124	-20%	-286
Jamaica	946	1035	9%	89
Townshend	1,149	1,232	7%	83
Stratton	136	216	59%	80
Newfane	1680	1726	3%	46
Winhall	702	769	10%	67

(Source: 2000 & 2010 U.S. Census)

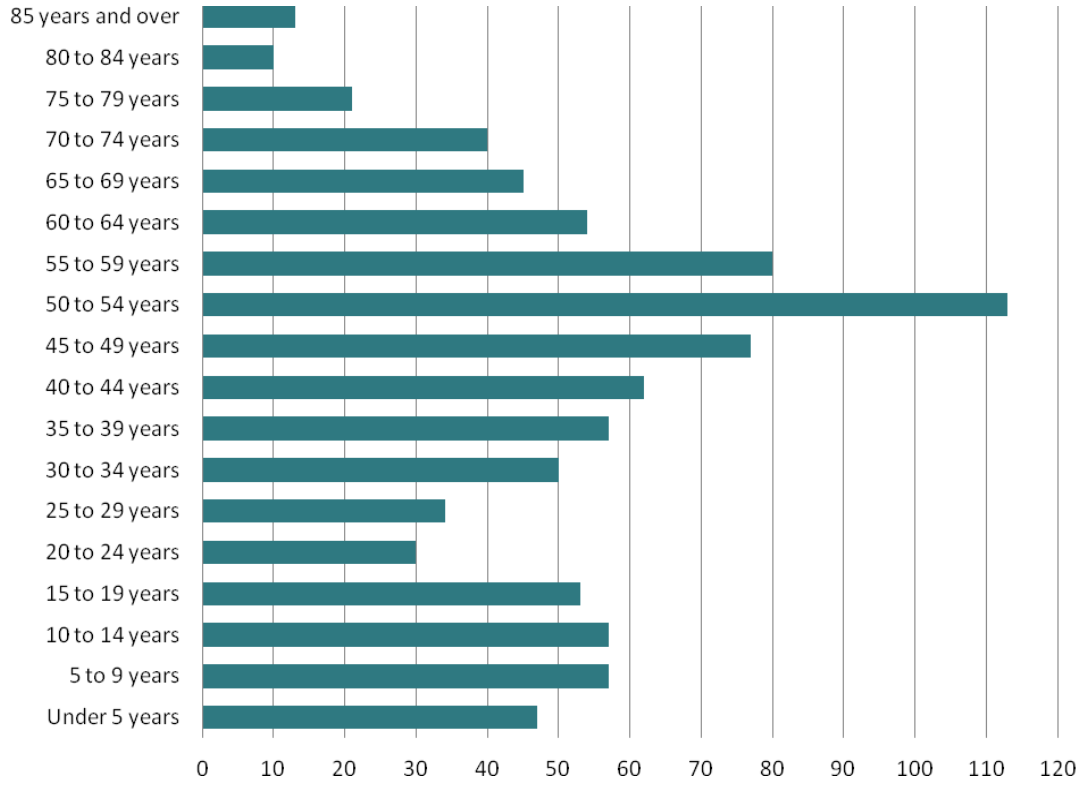
Figure 2: Comparison of Population Trends for Nearby Towns, Windham Region, and Vermont



(Source: U.S. Census, UVM Center for Rural Studies)

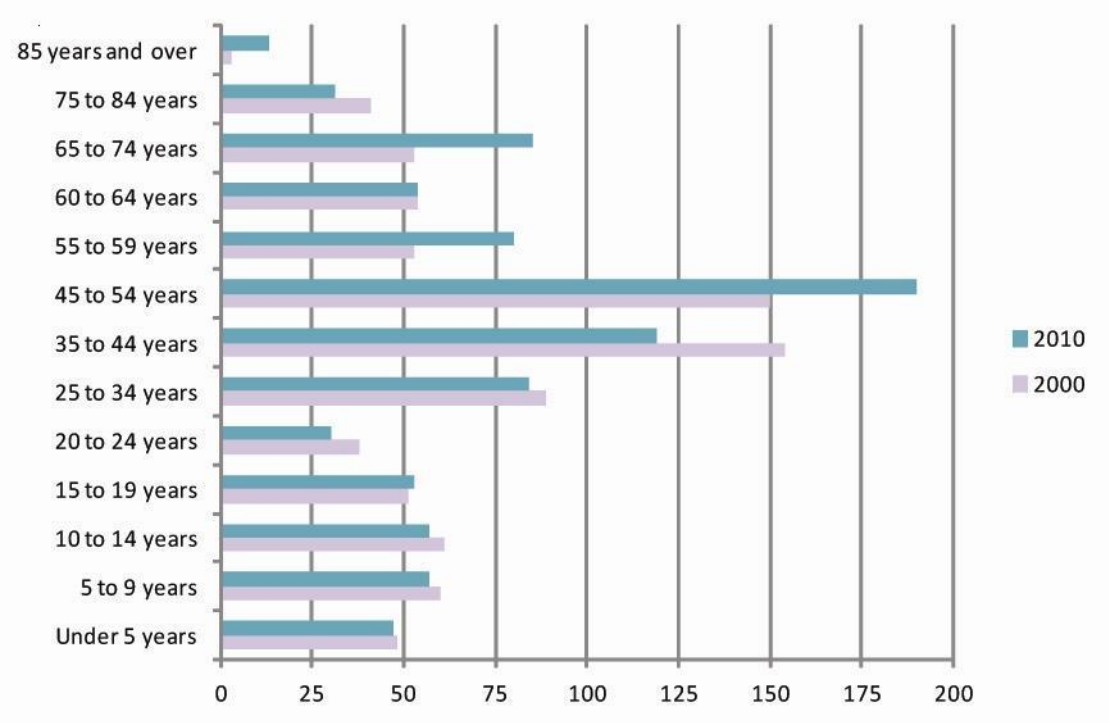
The age distribution in Wardsboro has remained relatively stable over the past 20 years. There have been some significant changes, however, and one appears to reflect the continued aging of the Baby Boomer population. The Baby Boomers are an unusually large segment of population throughout the United States who were born following World War II. Most of them are now between the ages of 55 to 65 years of age. This bulge in age distribution is graphically illustrated in Figure 3. The second trend is the decrease in the number of residents between the ages of 20-45. This trend is illustrated in Figure 4.

Figure 3: Town of Wardsboro Age Distribution



(Source: 2010 U.S. Census)

Figure 4: Town of Wardsboro Age Distribution Trends, 2000 & 2010



(Source: 2000 & 2010 U.S. Census)

Housing

Wardsboro had a total of 849 housing units according to the 2010 Census. Table 3 provides a comparison of housing types between Wardsboro and nearby towns and a breakdown of the type of housing in Wardsboro over the twenty years from 1980 to 2000. Wardsboro has continually had more seasonal homes than owner occupied homes. Between 1980 and 1990 there was a significant increase in seasonal housing. This was concurrent with the expansion of the nearby ski resorts. Between 1990 and 2000 there was a decrease in the number of actual seasonal units.

In 2010, of the 374 occupied housing units, 320 (86%) were owner-occupied, with the remaining 54 (14%) being renter occupied. The number of owner occupied and renter occupied housing increased between 1980 and 2000. This reflects the growth in the year round residential population of the town, which is also reflected in the decrease of seasonal units from 1990 to 2000.

Figure 5 shows the total number of seasonal homes in Wardsboro and neighboring towns and Figure 6 illustrates the quantity of seasonal homes as a percentage of total homes in the same communities. In Wardsboro's case, over the last 10 years both the absolute number of seasonal homes (380 in 2000 versus 453 in 2010) and the percentage they constitute of the total housing stock (49.6% in 2000 versus 53.4% in 2010) have increased.

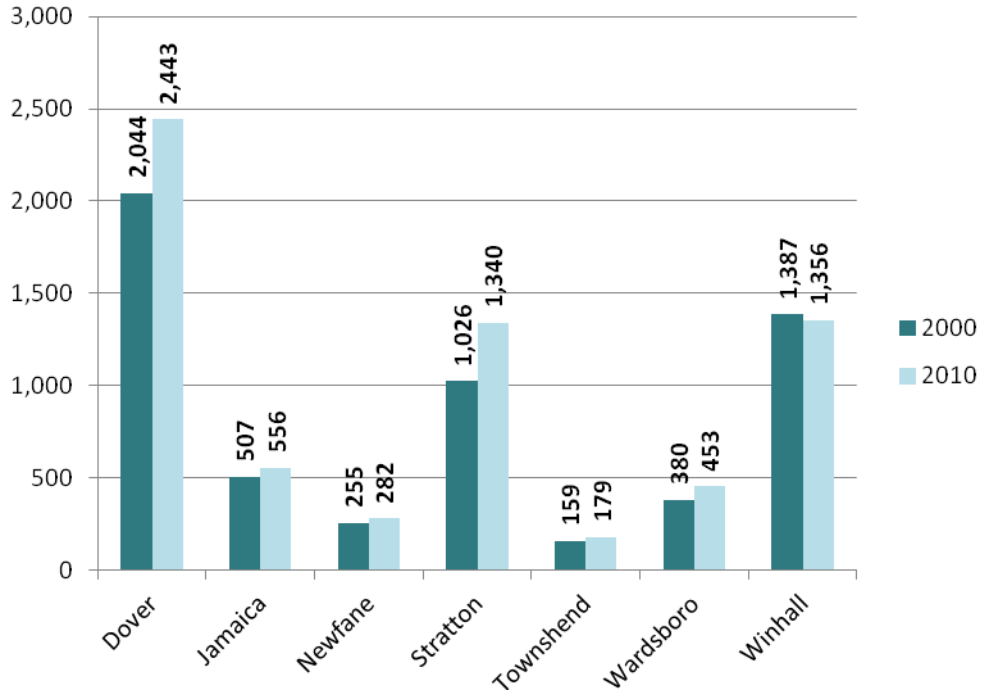
Table 3: Housing by Unit Type, Wardsboro and Surrounding Towns, 2010

	Occupied housing units	Owner-occupied housing units	Renter-occupied housing units	Vacant housing units	For rent	Rented, not occupied	For sale only	Sold, not occupied	For seasonal, recreational, or occasional use	All other vacants
Dover	537	388	149	2517	25	3	30	1	2,443	15
Jamaica	460	377	83	595	17	2	7	3	556	10
Newfane	771	649	122	319	12	0	11	0	282	14
Stratton	98	77	21	1349	5	0	3	0	1,340	1
Townshend	574	421	153	210	17	1	10	0	179	3
Wardsboro	**374**	**320**	**54**	**475**	**8**	**0**	**4**	**0**	**453**	**10**
Winhall	343	267	76	1406	26	1	9	0	1,356	14

Unit type	1990	2000	2010	% change 1990-2000	% change 2000-2010
Seasonal	450	380	453	-16%	19%
owner occupied	200	299	320	50%	7%
renter occupied	52	59	54	13%	-8%
Vacant	30	28	22	-7%	-21%
TOTAL UNITS	732	766	849	5%	11%

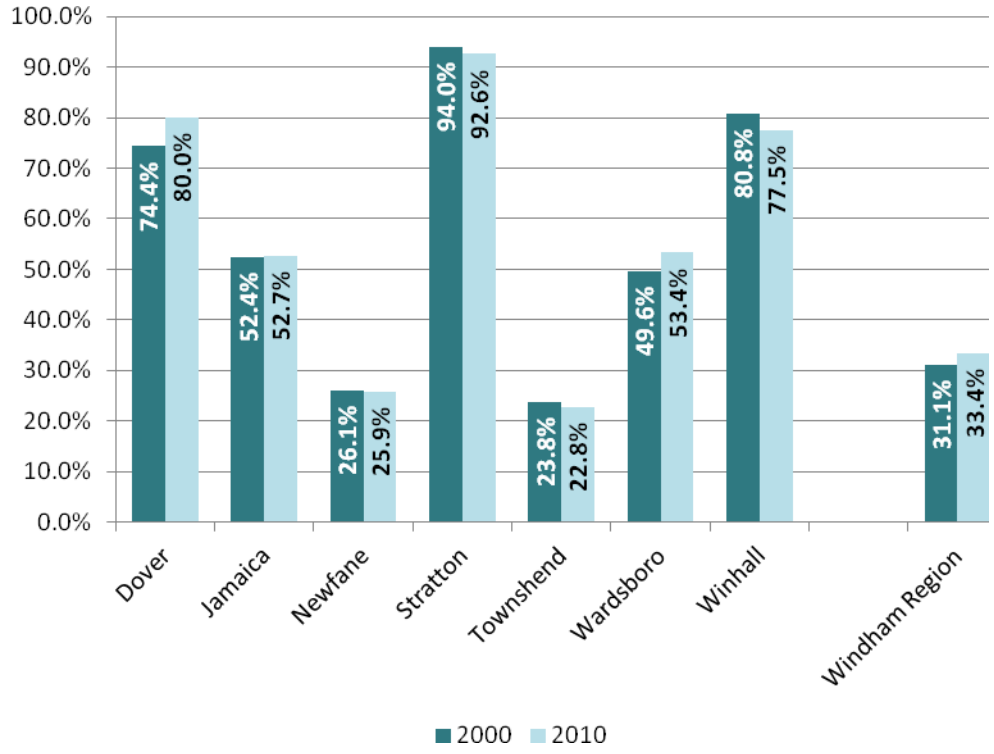
(Source: US Census)

Figure 5: Total Number of Seasonal Homes, Wardsboro and Surrounding Towns, 2000 & 2010



(Source: 2000 Data Source: Vermont Indicators, http://www.vcgi.org/indicators/, 2010 Data Source: 2010 U.S. Census)

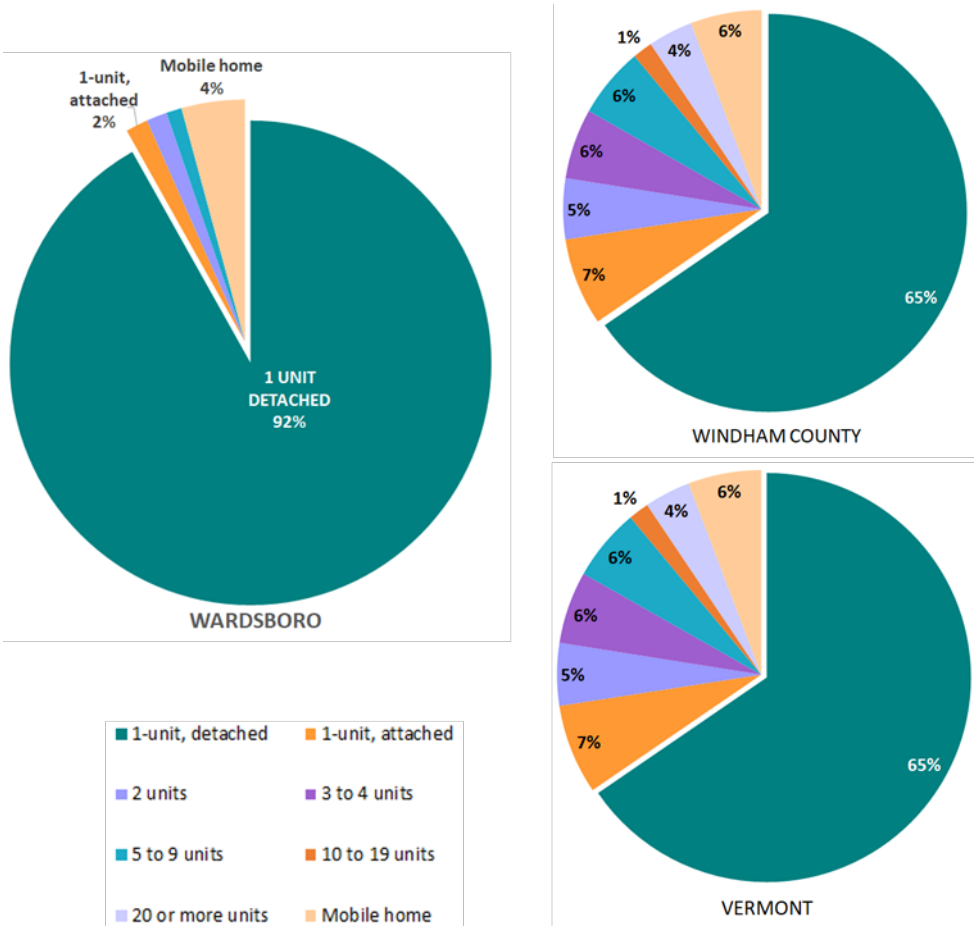
Figure 6: Seasonal Homes as a Percent of All Homes, Wardsboro and Surrounding Towns, 2000 & 2010



(Source: 2000 Data Source: Vermont Indicators, http://www.vcgi.org/indicators/, 2010 Data Source: 2010 U.S. Census)

In Figure 7, the distribution of the number of units in a structure are only **estimates** provided by American Community Survey and do not represent the actual number of units in a structure for Wardsboro. There is only one structure in Wardsboro having more than two units in the structure. What is noteworthy about Figure 7 is that the predominant type of housing in Wardsboro is single-family homes.

Figure 7: Types of Housing in Wardsboro (Estimated)



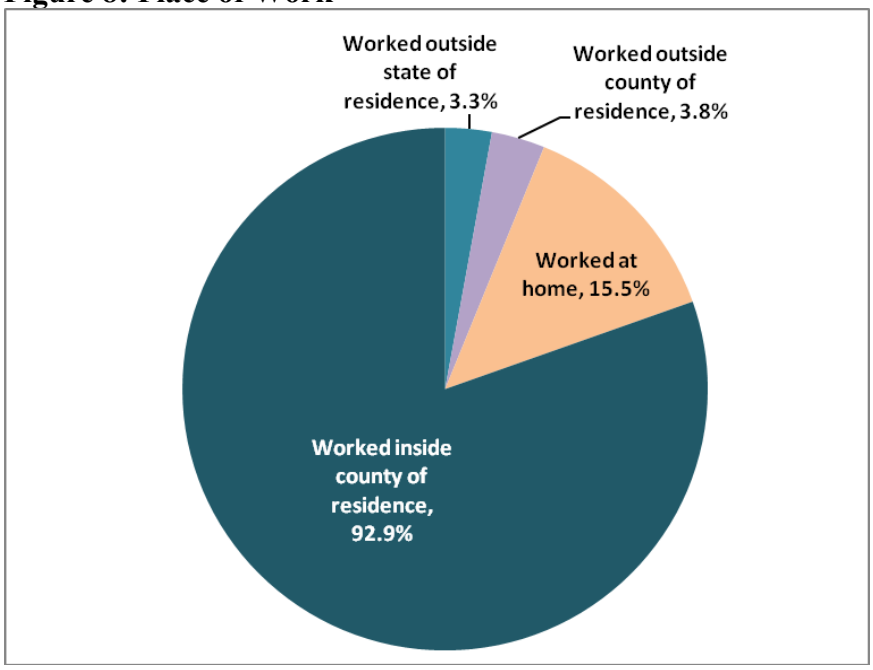
(Source: 2012-2016 American Community Survey 5 Yr Estimates)

Economy

At the time of the 2010 Census, 420 Wardsboro residents aged 16 and over were employed in the regional work force and 30 (1.6%) were unemployed. The number employed represents approximately 75% of the population in the 19 to 65 age group. These numbers compare to 285 (70%) in the 1990 Census and 450 (74%) in the 2000 census. This 5% increase possibly reflects the number of two income families in the later part of the two decade time frame. Figure 8 shows general place of work for Wardsboro residents. 15.5% of residents worked at home; an increase of 1.5% over the 2006-2010

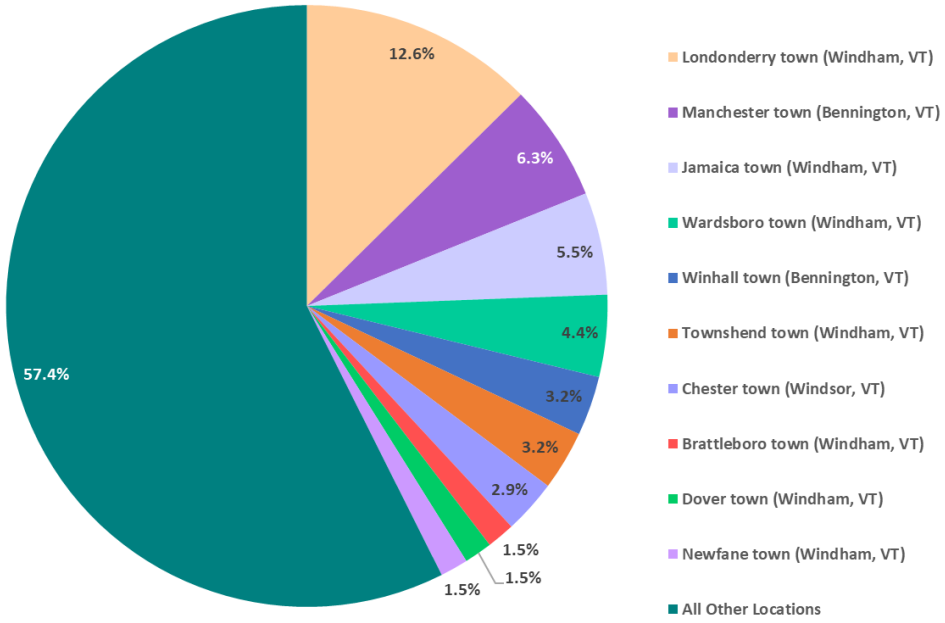
estimates. Figure 8 also shows 92.9% of residents worked in Windham County; an increase of 13.9% over the 2006-2010 estimates. Figure 9 provides more detailed information about the towns where Wardsboro residents worked.

Figure 8: Place of Work



(Source: 2012-2016 American Community Survey 5-Year Estimates)

Figure 9: Job Counts by Town for Where Wardsboro Residents are Employed, 2016

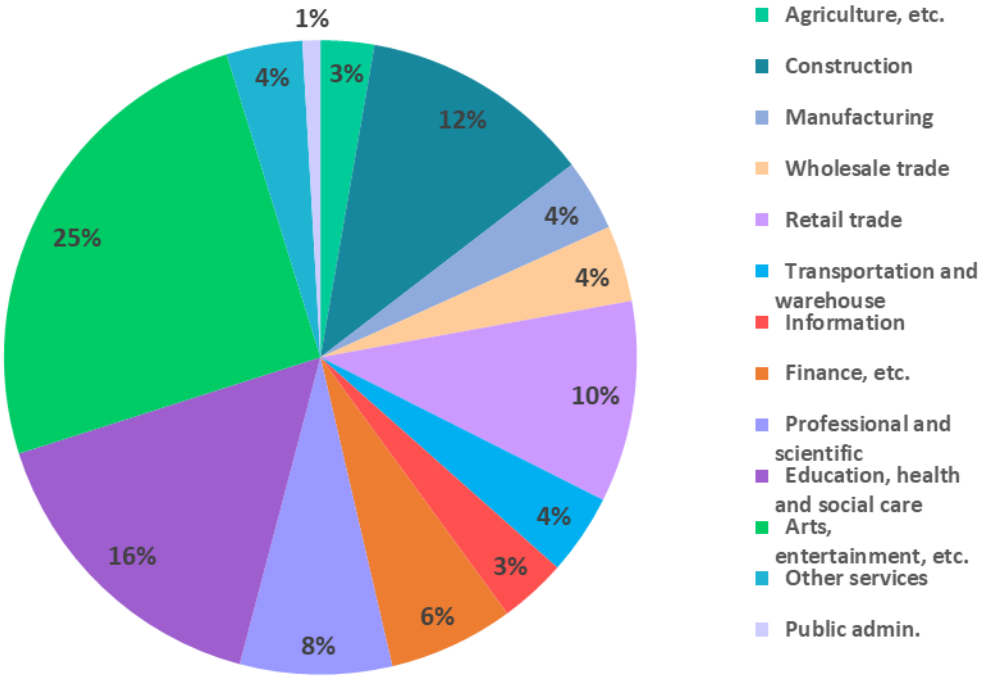


(Source:* U.S. Census Bureau. 2016. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. http://onthemap.ces.census.gov/ [1] *)

Wardsboro residents are employed in a variety of industries (Figure 10). The 2012-2016 American Community Survey indicated that the largest percentage (25%) of Wardsboro residents are employed in arts and entertainment, followed closely by 16% in education, health, and social care, 12% in construction and 10% in retail trade.

[1]Note that while the sources of the data for the OnTheMap analysis include the U.S. Census data, this website also sources other employment data for its analysis. Employees of the federal government, military, self-employed individuals, or informally employed individuals are not included in the analysis. As such, the total job counts reported for towns may be lower than figures reported in the U.S. Census.

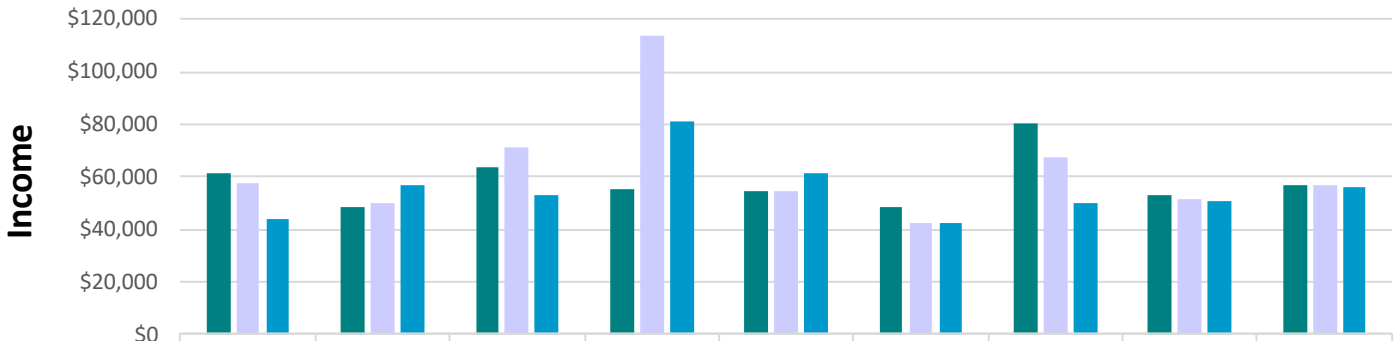
Figure 10: Employment by Industry



(Source: 2012-2016 American Community Survey 5-Year Estimates)

The median household income in Wardsboro, according to the 2016 American Community Survey estimates, was $42,188; the comparable figure for 2010 was $42,648. This indicates that the median household income decreased slightly, as shown in Table 4, below.

Table 4: Median Household Income in Wardsboro, Nearby Towns, County, and State



	Dover	Jamaica	Newfane	Stratton	Townshend	Wardsboro	Winhall	Windham County	Vermont
2000, (Adj 2016)	$61,128	$48,704	$63,794	$55,360	$54,799	$48,820	$80,554	$53,290	$56,989
2010, (Adj 2016)	$57,928	$49,760	$71,206	$113,595	$54,451	$42,684	$67,781	$51,457	$57,104
2016	$43,750	$56,719	$53,060	$81,250	$61,591	$42,188	$50,000	$50,917	$56,104

(Source: 2000 U.S. Census, 2010 U.S. Census, 2012-2016 American Community Survey 5-Year Estimates) 2000 and 2010 values were calculated to adjust for economic fluctuations (inflation and stagnation) to 2016 values. This makes the numbers comparable side by side.

Implications of the Data

Wardsboro should carefully consider the changing demographics of its population as it plans for its future. The population in Wardsboro and its neighboring towns has experienced significant growth over the past four decades and this trend is expected to continue, possibly at a slower rate. The community should seek means to mitigate the impact of this growth.

Wardsboro's population continues to reflect the baby boomer ages as the number of residents between the ages of 25-44 has decreased while the 45 to 64 age group has increased. What type of services may be needed to provide for its aging population? The community may also want to investigate why it is not attracting residents between the ages of 25-34. The WPC town survey indicates the need for greater broadband and cell phone service in Wardsboro. In addition, is there a need for an increase in affordable housing or jobs in Wardsboro or the surrounding area?

Wardsboro's owner occupied housing and seasonal housing have been increasing collectively since 1990. Seasonal housing units have increased by 17% between 2000 and 2010 and owner occupied homes have increased by 7%. As this change continues, the Town should consider the impact on town services and understand the desire for different types of services.

It is the intent of this Plan to encourage discussion leading to a pathway for the future of the Town of Wardsboro. This pathway should be carefully crafted to lead us through this century, attempting to answer the questions above, and tempering inevitable development with a responsibility to our environment.

LAND USE

Goals

1. Sustain the Town's rural character and historic settlement pattern of village centers separated by agricultural and forest land.

2. Plan the Town's growth in a way that is consistent with the Town's ability to provide and pay for essential public services while maintaining the quality of the environment.

3. Ensure that public investments reinforce the general character and planned growth patterns of the Town and minimize development pressure on agricultural and forest land.

4. Protect and preserve environmental assets.

Existing Land Use

The Existing Land Use map provides an overall picture of how land is developed and used in Wardsboro. Approximately 90 percent of the town is forested, about four percent is wetlands and water, and the remainder is open land, brush, or developed as roads or buildings. Nearly all the primary buildings in town are used for either primary or secondary residences, with the remaining few being commercial, public, or institutional. The U.S. Forest Service owns 3,044 acres, or 16 percent of Wardsboro, in one large tract in the southern part of town.

Table 5: Land Use and Percent of Total Acreage

Land Use Classification	**Percent of Total Acres**
Residential/Commercial	1
Transportation/Utilities	2
Mixed Open/Brush	4
Wetlands/ Water	4
Forest	89
Total	**100%**

The villages of the Town of Wardsboro are Wardsboro, West Wardsboro and South Wardsboro. In each of the villages lot sizes are varied and there is a diversity of densities in housing and commercial activities. Wardsboro Village functions as the center of civic and commercial activity in the Town. Facilities open to the public such as the Town Office, Town Hall, Library, History House, Church, Post Office, Fire/Rescue Station, Town Garage and the Elementary School are located in Wardsboro Village. A Post Office and a Church are also found in West Wardsboro. A Church is also located in South Wardsboro.

The majority of residential development has occurred as low-density residential development along Class 2 or 3 highways. While development has remained largely scattered throughout Town, three larger housing developments have been built. These are Snow Mountain Farms, Snow Mountain Farms West and Scandia Village. Snow Mountain Farms West is partially located in the Town of Stratton, but the housing development is solely accessed through Wardsboro.

Wardsboro has several land areas that are being conserved, either publicly or privately. For example, a conservation easement exists for a parcel along Gilfeather Road. The Green Mountain National Forest (GMNF), the largest publicly owned parcel in Wardsboro, is under the federal government's jurisdiction. In addition, approximately two-thirds of the Town of Wardsboro is located within the GMNF Proclamation Boundary. With the consent of interested parties, lands located within the Proclamation Boundary can also be purchased if the federal government is interested and the town agrees to the sale. The Town owns the Wardsboro Town Forest which comprises 60 +/- acres managed under a forest management plan.

In the late 1970's, the State of Vermont created the Use Value Appraisal Program, better known as Current Use. The Current Use Program is administered by the VT Department of Taxes and offers landowners use value property taxation based on the productive value of land rather than the traditional "highest and best" use of the land. According to the Vermont Department of Taxes 2017 Parcel Summary by Town, Wardsboro had approximately 5,074 acres of land (26.43% of overall town acreage) enrolled in the Use Value Program. This included 41 parcels, 1,467 acres Homestead, and 3,607 Non Residential. Of the acres enrolled, the vast majority were enrolled as forested acres.

In the 1970s, zoning and land use district boundaries were routinely established by using specified distances back from roads. Wardsboro's current zoning districts are no exception. The underlying principle was to allow development to be concentrated along roads for ease of access and proximity to services and outside of the less accessible interior undeveloped areas. In some instances, no consideration was given to environmental, infrastructure, and other land use factors. Last updated in 2008, the Wardsboro Zoning Regulations provide the following Land Use Districts:

- Conservation (CN)
- Resource Residential (RsR)
- Rural Residential District (RR)
- Village-Commercial District (V)

Proposed Land Use

The proposed land use areas, defined below and found on the Proposed Land Use map, are a guide for the growth and development in the Town of Wardsboro. The land use areas provide for a variety of residential, commercial, and recreational opportunities; these are, however, limited by environmental constraints and local development patterns. The Town Plan is the basis for the Wardsboro Zoning Regulations; therefore the Zoning

Regulations should be modified when found to be inconsistent with the stated Land Use policies and future vision for the Town.

An explanation of the criteria, purposes, and suggested development intensities for each land use area follows.

Conservation

Conservation areas are large, essentially undeveloped areas without access to an improved public road and to necessary facilities and services. They are predominantly forested with substantial physical limitations to development characterized by shallow soils, bedrock, wetlands, and steep slopes. These areas are important aquifer recharge areas and contain significant wildlife habitat. The segment between Stratton-Arlington Road and VT 100 has access to public roads but has been designated as Conservation due to the steep slopes and the close proximity to important habitat and travel corridors for bear.
Conservation areas shall be used for forestry, low-intensity recreation and open space.

Resource Residential

Resource Residential lands comprise Wardsboro's working lands as well as areas with substantial physical limitations to development. The working landscape consists of farm, field and forest lands that are being used in a manner that provides an economic benefit. Many of these working landscapes provide a scenic backdrop for the community and serve to maintain contiguous tracts of open space. It is of primary importance to the Town to maintain these forested and open space areas and to preserve the working farms.

Many Resource Residential lands have topographic constraints that make development difficult. Few roads access these areas and new ones are not desired. Resource Residential lands should continue to be used for agriculture, forestry, low-intensity recreation and open space. Residential development shall occur only at low densities. Careful planning is needed to ensure that development does not prevent or infringe upon existing or potentially productive working lands and does not generate excessive municipal service demands such as road maintenance, septic disposal systems, water supply systems, and the provision of fire service.

Rural Residential

Rural Residential areas are those which are already committed to moderate density rural residential development, easily accessible from the existing road system, or which may be capable of being developed at low to moderate density. Some of the lands in the rural residential district have slight to moderate physical limitations to development.

Rural Residential areas shall be used to accommodate a major portion of the growth of year-round residences and vacation homes and associated uses. The development of rural areas shall not damage the natural environment and shall not ignore the physical limitations to development. Agriculture, forestry, open space and recreational uses should be maintained and encouraged. Road construction shall be carefully planned so as to

respect the natural environment and to promote the clustering of houses on appropriate sites.

Village-Commercial

Village-Commercial areas include the existing villages of Wardsboro and West Wardsboro as well as additional lands that appear suitable for future village growth. These additional lands are convenient to the existing villages, offer few or slight limitations for development, and can be developed for village uses without causing undue damage to resource values. Appropriate village uses include residential and commercial uses, public buildings and public facilities, and associated services. Small, light industrial uses may be accommodated as well, but they shall be carefully planned to minimize undesirable impact on village character.

Village-Residential

South Wardsboro and Bucketville, existing historic clusters of residential development, are designated as village-residential areas. These areas will allow land uses that are consistent with the traditional village settlement pattern and that will not unnecessarily duplicate services offered in the village-commercial areas. Appropriate uses provide an area for rural residential growth. Consideration shall be given to a somewhat higher residential density, as long as the capacity of the soil to handle wastewater is not exceeded.

Areas of Special Concern

The following areas, which are highlighted on the proposed land use map, have been identified as Areas of Special Concern. These areas should be considered by landowners in their own planning as well as further studied by the Planning Commission to determine if regulatory approaches are warranted.

Bear Corridor

Black bear travel corridors, according to the Vermont Agency of Natural Resources, are forested habitats that are regionally important and are used by large numbers of bears to access critical seasonal foods or to link bear ranges and sub-populations. It is important in this area to maintain and protect the functional integrity of all mast stands, especially beech and therefore, development shall be avoided in this area. Any uses proposed in this area must respect the sensitive nature of this corridor and be designed to enhance the natural resource value of this corridor.

Surface Water Resource Area

The Surface Water Resource Area comprises areas that include a system of streams, wetlands, ponds and hydric soils that together serve important functions for wildlife habitat, natural communities and improved water quality. Regardless of the land use district, new uses that are proposed must respect the sensitive nature of the system and must be designed to enhance the values of the area.

Riparian Area

Riparian areas have value as wildlife habitat and travel corridors and serve important functions, such as protecting the physical and scenic quality of streams. Riparian corridors include areas subject to flood hazards, of both inundation (FEMA/NFIP) and fluvial erosion (FEH) nature. Regardless of the land use district, new uses that are proposed must respect the sensitive nature of the stream corridor and sites must be designed to enhance the values of the riparian corridor.

Forest Blocks & Habitat Connectors

Forest blocks have value to wildlife, plants, water quality and supply, as well as to humans. A high degree of diversity and connectivity is needed to maintain healthy forests. Habitat Connectors are critical in linking forest blocks. These connectors can be land, water, or road crossings. Regardless of the land use district, any uses that are proposed must respect the sensitive nature of forest blocks and habitat connectors and must be designed to enhance the values of forest blocks and habitat connectors.

Scenic Viewsheds

Scenic viewsheds are areas that are prominent from a number of important view points in town as illustrated on the Proposed Land Use map. The viewsheds are the highest land areas visible from the valleys. Regardless of the land use district, development shall be carefully sited because development and removal of vegetation in these areas, if not done sensitively, will alter the character of the town.

Policies

1. Concentrate future commercial development in or near Wardsboro and West Wardsboro Villages.

2. Development along existing roads shall be conducive to the best use of available land without leading to strip development.

3. Commercial and light industrial development shall share access and parking facilities (where possible), maintain adequate buffers between non-commercial/industrial lots and neighboring land uses, and provide adequate landscaping and planting in keeping with the character of the surrounding area.

4. Create a walkable community by working toward safe and convenient pedestrian access to all portions of the Villages.

5. Allow home-based and land-based businesses throughout the Town that will not adversely impact neighboring properties and the quality of the natural environment.

6. Allow both infill development and appropriate reuse of vacant or underused existing structures in the Villages. Carefully plan new development so as not to affect the existing carrying capacity with respect to septic systems and water supplies.

7. Facilitate landowner access and understanding of State, Federal, and non-governmental incentive programs for structure rehabilitation and historic preservation.

8. Use innovative land saving techniques to protect the working landscape.

9. Target federal, state, or private funding to support infrastructure improvement needs identified by the Town.

10. Allow the retention and acquisition of public or private conservation lands to promote recreation, reforestation, water conservation and suitable forestry practices.

11. Prohibit development on lands where soil conditions and topography may cause failure of waste disposal systems or where development activity may cause pollution or contamination to ground or surface waters.

12. Encourage participation in land preservation programs such as Current Use and conservation easements.

13. Target public conservation efforts to the Areas of Special Concern to restrict development in these areas.

14. Protect and preserve the functional values of riparian areas, forest blocks, and habitat connectors.

15. Prohibit large-scale (greater than 57,600 gpd) commercial groundwater extraction that involves interbasin transfer of water.

Recommendations for Action

Near Term:

1. Enforce ordinances that prohibit unsightly trash and discarded vehicles on all properties, especially those along Wardsboro's roadsides. (Selectboard)

2. Review the existing Wardsboro Zoning Bylaw to: (Planning Commission)
   - Refine and implement the Proposed Land Use Map;
   - Adopt change-of-use and/or adaptive re-use procedures to streamline re-development in the Village area.

3. Investigate ways to protect Areas of Special Concern. (Planning Commission)

4. Investigate uses of regulatory and non-regulatory tools to protect the working landscape. (Planning Commission)

5. Investigate regulatory and non-regulatory tools to define and protect fluvial erosion hazard (FEH) areas. (See Natural Resources chapter) (Planning Commission)

6. Investigate regulatory and non-regulatory means to protect groundwater resources, especially from commercial extraction. (See Natural Resources section) (Planning Commission)

Natural Resources

Goals

1. Promote sound stewardship of Wardsboro's public and private lands.

2. Protect the ecological health and stability of Wardsboro's surface and ground waters, air, wildlife, and land resources as development occurs.

3. Encourage and support the continued use of lands for agriculture, forestry, wildlife habitat, and diversified recreation that will not interfere with wildlife management.

4. Maintain and improve the ecological integrity of intact forest blocks.

5. Maintain and improve forest blocks that are large enough to support working forests.

6. Maintain and improve the ecological integrity and functionality of habitat connectors.

Topography and Slopes

The Green Mountains are the principal element of the physical geography of Wardsboro. As such, the landscape is dominated by mountains and hills, with the highest elevations being located in the southern portion of town.

In recent history, most development in Wardsboro has occurred in the valley areas of town, along the stream and road corridors. Some development has occurred on higher terrain. The landscape is dominated by steep slopes. As slopes increase, the suitability of the land for development decreases. While the development constraints of building on steep slopes can be overcome, the environmental risks remain. In areas of steep slopes, the velocity of runoff and, therefore, the erosion potential, increases. The ability of the soil to filter septic system leachate is decreased. According to the U.S. Natural Resources Conservation Service, slopes of less than 8 percent are generally the most suitable for building. The erosion potential of such slightly sloping land is low, their ability to absorb runoff is high, and soils are usually of adequate depth and composition for septic systems. Exceptions are extremely flat areas, some of which may be classified as wetlands, where drainage is poor.

In addition to the potential for sedimentation and erosion, development on steep slopes is likely to be more visible from a greater number of locations throughout town. In

Wardsboro, high elevation land serves as the background for most of the town's most important scenic views.

Water Resources

Watercourses and Shorelines

Most of Wardsboro's watercourses (including Pike Hollow, Dover, Waite and South Wardsboro Brooks) drain to the West River through Wardsboro Brook. The West River, in turn, drains into the Connecticut River, which eventually reaches the Atlantic Ocean through Long Island Sound. Wardsboro's watercourses sustain wild populations of brook and brown trout, and the main stem of Wardsboro Brook and select tributaries are used in an effort to revitalize the salmon fishery of the West River Watershed.

The resource value of watercourses and shorelines can be diminished or destroyed by improper development activity. Maintaining undisturbed naturally vegetated buffer strips along streams provides many functions, including stabilizing streambanks (by reducing erosion); providing food and shelter for fish and wildlife; filtering and absorbing pollutants such as silt, fertilizers and livestock wastes prior to reaching surface waters; maintaining cool water temperatures required to support fisheries; reducing flood and ice damage to streambanks and adjacent structures, as well as preserving the natural character of the water. Road crossings of streams with culverts may block fish migration as well as result in loss of stream habitat. Construction of in-stream ponds often has similar impacts, and may degrade water quality downstream by increasing water temperatures and discharging sediment. The town has implemented a minimum setback requirement of one hundred feet from the normal high water mark for streams that have a drainage area of one square mile or more.

Riparian Areas

Riparian areas are instrumental in protecting the water quality of surface waters. Forested riparian areas regulate water temperatures through shading of surface waters and infiltration of overland runoff, increasing dissolved oxygen levels in the water. Storing overland runoff also moderates stream flows, reducing peak flows and maintaining base flows during the drier months. Naturally vegetated riparian areas are effective in trapping sediments in overland runoff, reducing inputs of sediment to waterbodies, as well as reducing the load of nutrients and other contaminants bound to those sediments. The deep roots of riparian vegetation also bind together streambank soils, minimizing erosion and again reducing sediment loads to surface waters.

Riparian areas function as both buffers and corridors. A riparian area that is unmowed, undisturbed, and naturally vegetated buffers the waterbody and riparian ecosystem from the impacts of adjacent land uses. Buffer functions include protecting water quality and providing for aquatic and terrestrial habitats. As corridors, riparian areas provide travel and dispersal routes for wildlife and plants and sustain long-term river and stream channel functions, such as lateral channel migration and floodwater dissipation. These corridor functions help to maintain habitat connectivity and stream function

longitudinally throughout the landscape. When planning for and implementing riparian conservation and restoration strategies, it is important to consider both the buffer and corridor functions of riparian areas.

Water Quality

Riparian areas are not only important plant and animal habitat, but also contribute to the health of the waters near them. The downed wood, leaves, and other organic material that riparian areas contribute to aquatic systems are important components of the food base and habitat structure in Vermont's waterbodies. Mature trees in riparian areas also shade aquatic habitats, reducing water temperatures, and filter overland runoff, protecting water quality. Riparian vegetation also stabilizes lakeshores and streambanks, preventing excessive erosion and sediment buildup in aquatic habitats.

Riparian areas protect water quality for drinking and recreation, protect investments from flood and ice flow damage, and provide for recreation, education, and sense of place.

Maintaining forested riparian buffers adjacent to surface waters is one of the most effective ways to prevent sediment and associated pollutants from reaching waterbodies. Unmowed, undisturbed, naturally vegetated riparian buffers can effectively trap sediment by slowing overland runoff, allowing for absorption and retention of sediments in the riparian area. The leaf litter, duff layer, and vegetation of riparian buffers obstructs overland runoff, slowing it down and thereby allowing water to infiltrate into the soil, depositing sediment on top of the ground instead of in the waterbody.

In addition to trapping sediments from overland runoff, riparian vegetation decreases sedimentation into waterbodies by stabilizing streambanks. Streambank vegetation dissipates stream energy such that channel and shoreline scour is reduced. Soils bound together by roots have greater tensile strength than unvegetated soils, and thus have greater resistance to the erosional forces of moving water. Riparian vegetation also traps and stores fine sediments in the floodplain during high flow events, reducing the overall volume of sediments deposited in the channel as floodwaters recede.

Channel Stability

To fully understand these riparian functions it is important to also understand how streams naturally evolve in their landscapes over time, and how this determines effective riparian corridor widths for maintaining stream stability. Stream stability may be defined as: the ability of a stream channel, over time and in the present climate, to transport the flow, sediment, and debris of its watershed in such a manner that it maintains its dimension, pattern, and profile without aggrading or degrading its bed.

Riparian areas provide for channel stability in the following ways:

- Flood attenuation - riparian areas allow floodwaters to spread out horizontally over the land, thereby reducing the force with which the floodwaters move downstream.
- Reduced effects of storm events - riparian vegetation and soil obstruct surface runoff, slowing it down and allowing it to infiltrate into the ground, reducing the volume and rate at which surface runoff enters stream channels

- Bank and shoreline stabilization - soils and vegetation in riparian areas obstruct and slow down floodwaters, and reduce floodwater volume through absorption, thus reducing the energy applied to stream bed and banks, reducing the scouring ability of high flow events

and

- Ice damage control - forested riparian corridors trap ice slabs and other floating debris, reducing the potential for ice jamming, which can result in backwater and flooding upstream, and can lead to channel instability and property damage

Wetlands

Wetlands are marshy or swampy areas which store and gradually release surface run-off after heavy rains. Wetlands help to maintain surface and ground water flow and quality and are valuable as wildlife habitats.

Currently, the Vermont Wetland Rules regulate development within and adjacent to wetlands areas. Under the rules, three classes of wetlands were established to determine the level of protection. They are as follows:

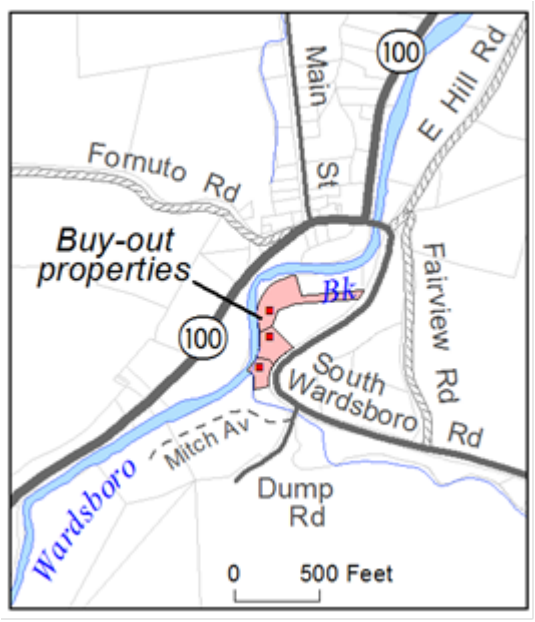
- ***Class One***: These wetlands are considered to be exceptional or irreplaceable in their contribution to Vermont's natural heritage and merit the greatest amount of protection. The Wetland Rules establish a 100-foot buffer around all Class One wetlands and also establish conditional uses allowed within the wetlands and buffer areas. To date, no Class One wetlands have been identified in Wardsboro.
- ***Class Two***: These wetlands are protected under the Wetland Rules due to their significance alone or in conjunction with other wetlands. The Wetland Rules establish a 50-foot buffer around all Class Two wetlands and also establish conditional uses allowed within the wetlands and buffer areas. Class Two wetlands are depicted on Vermont Significant Wetland Inventory Map.
- ***Class Three*:** These wetlands have not been determined to be significant enough to merit protection either because they have not yet been evaluated or because they were determined not to be so.

To comply with the above sections, the Town may require buffers to protect wetlands. The Vermont Wetlands Office is required to review projects that are proposed to be done in a wetland or buffer area. Many activities such as hunting, fishing, hiking, boating, bird watching, scientific and education research or activities, and wildlife, fisheries, or silvicultural management do not require state or federal review provided that they do not influence the water levels in a wetland and do not involve draining, filling, or grading.

Flood Hazard Areas

After Tropical Storm Irene, the Town chose to participate in a property buy-out program offered by FEMA, whereby the Town acquired three damaged properties. Funding for the purchase of these properties came from FEMA and a Community Development Block Grant. These properties will become permanently protected publicly owned open space

and it is proposed that the area directly adjacent to the stream become a flood bench to help mitigate damage in future flooding. All of these three properties will be riparian areas. For further detail on flood resilience in Wardsboro see the following Flood Resilience section.



Groundwater

Groundwater is an extremely valuable natural resource in the Town of Wardsboro because it provides the primary source of potable drinking water for residents. Groundwater is water that has infiltrated the soil through sand, gravel, or rock. The area where groundwater is stored is called an aquifer. Groundwater occurring in fractured bedrock is highly susceptible to contamination. Failed or inadequately designed septic systems are potential sources of groundwater pollution. Mapping from the 1970s provides a general picture of groundwater potential in Wardsboro.

Another concern is the potential for commercial extraction of groundwater for sale (e.g., "bottled water") to significantly diminish the resource. Although the state recently decreed groundwater to be a "public trust" of the people of Vermont, current regulations may not adequately protect the resource. Given the limited resource and the small watersheds resupplying Wardsboro's groundwater, the town strongly opposes commercial extraction and export of groundwater from Wardsboro.

Since 1985, Public Water Source Protection Areas have been delineated for all sources of public community water systems. While there are no public water supplies in Wardsboro, a portion of Dover's Mountaindale Wellhead Protection Area extends into southwestern Wardsboro. This is identified on the Natural Resources Map.

In 2008, the Vermont legislature enacted Act 199, the Vermont Groundwater Act. This law does several things: it declares groundwater to be a public trust resource, it sets up a

permitting and reporting program for large withdrawals, and it gives towns new power to manage groundwater in their communities.
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.

Wardsboro values groundwater as a vital resource that must be protected from degradation to protect its values including protecting the ecological functions of wetlands, ensuring adequate streamflow, and maintaining potable water supplies for future generations, while avoiding adverse impacts associated with the commercial development of groundwater resources (e.g., trucking, etc.).

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 Wardsboro to protect groundwater through its Town Plan, and the Town's concerns about the adverse effect of large groundwater withdrawals the 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 Wardsboro. Wardsboro is rich in groundwater and has numerous springs and seeps that provide water for Wardsboro's wetlands, streams, rivers, 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 Wardsboro residents. Accordingly, the Town declares that groundwater in Wardsboro 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 Wardsboro'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 Wardsboro. Other large groundwater withdrawals are allowed only if they will not adversely affect surface waters fed by groundwater or drinking water supplies for Wardsboro residents.

Soils

Soils are one of the most important environmental factors that govern the use of land in rural areas. A soil's depth to water table, susceptibility to flooding, depth to bedrock,

stone cover, and permeability present potential constraints on the construction of roads, buildings, and septic systems.
The Natural Resources Conservation Service has developed soil septic suitability ratings based on Vermont regulations. Concentrations of soils that are well-suited to support septic systems are found along the Route 100 corridor as well as along the other established roads in Wardsboro. Soils that are least likely to be suitable to support septic systems typically correspond to the areas of steep slopes in Wardsboro.

Earth Resources

As of the writing of this Plan, there were no known earth extraction activities occurring in Wardsboro. Soils data indicate that there are likely sand and gravel resources along the Wardsboro Brook. There is a concern that the extraction process will have negative impacts on the natural, physical and social environment of the community. Nonetheless, the Town recognizes that these are important resources for the town and the region. Additionally, the Town recognizes that other resources from the earth in Wardsboro may at some time be sought for extraction. Extraction activities and transportation of any earth resource must be done in an environmentally safe way and regulated so as not to adversely affect neighborhoods and the environment. The town requires the reclamation of extraction areas in order to ensure a safe, attractive and useful condition.

Wildlife Habitat and Endangered Species

Many wildlife species, including moose, deer, black bear, bobcat and various avian species, require large wooded habitats. These large habitat areas are further enhanced when interconnected by wooded stream corridors. At the present time, Wardsboro is fortunate to maintain large tracts of forest that support these and other wildlife species. Poorly planned development could, however, unnecessarily fragment these habitats, diminishing their wildlife value.

In addition to the large remaining forest blocks, other important wildlife habitat areas include the woodland, wetlands, and surface waters of Wardsboro. Relatively unfragmented wildlife habitat areas are located in the wetlands, floodplains, and woodland areas adjacent to Dover Brook, Wardsboro Brook, and the stream and wetland system that runs through South Wardsboro Village. Although the undeveloped land adjacent to these streams and brooks is sometimes narrow, these areas serve as important wildlife corridors (habitat connectors) that link various wildlife habitat together.

Deer Yards

Deer annually migrate to areas that provide protection from harsh winter conditions. These areas are generally found in moderate elevations, are characterized by a southern or western exposure containing stands of softwoods, and are subject to minimal human disturbance during the winter. These wintering areas or "deer yards" may provide shelter for deer from large areas and are often used for generations. Development within or adjacent to these wintering areas ultimately decreases the ability of the land to support deer. Deer wintering areas which have been identified in Wardsboro to date are generally located along stream corridors as shown on the Town's Natural Resources Map.

Bear Habitat

The Vermont Department of Fish and Wildlife has mapped two types of black bear habitat areas in the state: 1) bear production habitat, and 2) seasonal bear habitat. Approximately 52% of the land area in Wardsboro (9,894 acres) has been identified as bear production habitat. An additional 2,492 acres is mapped as seasonal bear habitat. Bear production areas are described as generally contiguous and remote forestland, containing habitats critical for bear survival. Production areas support relatively high densities of cub-producing females. Seasonal bear habitats are regions frequently used by bears, including some cub-producing females. These habitats often contain critical seasonal feeding areas and vital travel corridors.

As noted above, Wardsboro is fortunate to have several areas of large, relatively unbroken habitat. This land is important for its black bear habitat and also because the steep ridge on the southern side of the land provides the only known connection (known as the Route 100 Corridor) between core bear habitat in Somerset, Glastonbury, and the Lye Brook Wilderness and habitat in the towns of Dover, Newfane, and Marlboro east of Route 100. Bear travel corridors are particularly important since food sources and supplies vary from season to season and year to year. New roads, guardrails, the construction of homes and other development, and indiscriminate timber cutting endanger both the quantity and quality of these important habitats.

Another important area for bear habitat is Mundal Hill in northwestern Wardsboro. This area was documented in the *Stratton Mountain Black Bear Study* (Vermont Agency of Natural Resources, Department of Fish and Wildlife, 2002) as being part of the home range of many black bears. Home ranges can vary in size and generally correspond to the areas that bear travel for food gathering, mating, and caring for young. In addition the study documented that hard mast, both beech and oak, as well as numerous black bear den sites were found in the area around Mundal Hill.

Bobcat Habitat

The bobcat, or *lynx rufus*, provides us with an excellent marker, or "flagship" species that affords us a way to properly understand and protect our Town's natural habitat and biodiversity. Loss of bobcats results in an unregulated increase in rodents, squirrels, raccoons, skunks and the like. Significant bobcat habitat is found on steep cliffs and overhangs, especially those facing south and west, and provides a safe refuge as well. When bobcats pass through people's backyards, they do so only as a pathway to wooded edges where they can find their preferred prey animals. Dens in the region have been sighted in Jamaica on the Wardsboro town line and in nearby Stratton. The fact that they have been seen locally is a good sign of their being active in the area, but they are quite probably being displaced by recreational trails, activity on which represents a threat to the remote and undeveloped habitat required by these valuable animals and their supporting prey.

Agricultural Resources

The US Department of Agriculture Soil Conservation Service has identified soil types that are best suited to crop production based on soil quality, growing season and moisture

supply. These areas, called prime agricultural soils, are likely to produce the highest crop yields using the least amount of economic resources and causing the least environmental impact. Wardsboro has scattered pockets of agricultural soils that could be classified as either prime or statewide. They are generally located along the major streams.

Identifying data for towns specifically is a challenge as the Agricultural Census works with zip code areas rather than town specific boundaries. Some information is withheld and counted cumulatively for the State rather than zip codes which accounts for the time lapse in data availability. According to the 2007 Agricultural Census, there were approximately 10 farms in Wardsboro[2]. Of the nine surveyed in 2002 (last available data) eight ranged in size from 50 to 999 acres. Eight of the farms reported that the principal operator lived on the farm and that farming was the primary occupation of the principal operator. The value of the agricultural products sold for all nine farms was less than $50,000. The farming activity in Wardsboro includes livestock, sheep, and poultry farms as well as maple sugaring and haying.

Agricultural lands are an important resource that serves many functions including providing local seasonal produce and planting materials; serving as an educational resource; and contributing to the rural character of the Town.

Forestry Resources

The total acreage of forestland in Wardsboro is estimated to exceed 16,700 acres, nearly 89% of the town. This includes woodland associated with existing residential uses. The forestland of Wardsboro serves many functions including timber production, wildlife habitat, and recreation.

According to the Vermont Department of Taxes, Wardsboro has 41 parcels, including 1,467 Homestead acres and 3,607 Non-Residential acres for a total of 5,074 acres enrolled in the Use Value Appraisal Program, also known as Current Use. For forest land to be eligible, participating owners must have a minimum of 25 contiguous acres to enroll in the program (not counting the 2 acres surrounding any dwelling) and must manage the forest land according to the provisions of a ten-year forest management plan.

With such a large percentage of Wardsboro's land cover comprising forestland, careful consideration must be given to the sustainability of this resource in the town planning process. While it is important to track the resources or potential resources in each forest parcel, it is also critical to look beyond parcel lines and understand the forest landscape without divisions. Below are the important aspects that Wardsboro must protect.

- ***Forest based industry***
  Wardsboro has a sustainable forest resource which can and does provide quality forest products. A forest-based economy supports employment and provides landowners with financial returns through planned timber harvesting.

[2] Agricultural Census data is categorized by Zip Code and therefore it may not correspond to town boundaries. Furthermore, the Census withholds information for categories with one to four farms and only counts them in the State total.

- ***Wildlife habitat***
  Diversity of forest type is essential in preserving wildlife habitats. It is important to evaluate existing wildlife habitats and to consider those in the forest planning process so as to avoid forest uses that conflict with wildlife preservation. Discussed further below in discussion on forest blocks and habitat connectors.
- ***Recreation***
  Wardsboro's natural environment is an outstanding resource for outdoor recreation. Residents have enjoyed the use of forest land belonging to many private landowners and the Green Mountain National Forest. Recreational use requires tracts of connected land. Wardsboro's forested land offers recreational opportunities such as camping, hunting, and fishing. Informal and formal trails provide for hiking, biking, skiing, snowmobiling, and other recreational pursuits. The bull monument hiking trail from Wardsboro to Dover can be accessed from a trailhead off Upper Podunk Road.

- ***Aesthetic Values***
  Scenic landscape is an important resource for the town. Important aesthetic criteria that should be considered include the following: distance, including foreground, middle, and background; topography, including slope, ridgelines, and contrasts providing shape and texture; forest cover; special features; visibility; and protective screening

Forest Blocks and Habitat Connectors

Background

State Planning Goal

To maintain and improve the quality of air, water, wildlife, forests, and other land resources.

Section C of the State Planning Goal

Vermont's forestlands should be managed so as to maintain and improve forest blocks and habitat connectors.

Town Plan requirement in State Statutes

A land use plan, which shall consist of a map and statement of present and prospective land uses, that:

> Indicates those areas proposed for forests, recreation, agriculture (using the agricultural lands identification process established in 6 V.S.A. §8), residence, commerce, industry, public, and semi-public uses, and open spaces, areas reserved for flood plain, and areas identified by the State, the regional planning commission, or the municipality that require special consideration for aquifer protection; for wetland protection; **for the maintenance of forest blocks, wildlife habitat, and habitat connectors;** or for other conservation purposes.
>
> **Indicates those areas that are important as forest blocks and habitat connectors and plans for land development in those areas to minimize forest fragmentation and promote the health, viability, and ecological function of**

forests. A plan may include specific policies to encourage the active management of those areas for wildlife habitat, water quality, timber production, recreation, or other values or functions identified by the municipality.

Definitions

- **Forest block:** a contiguous area of forest in any stage of succession and not currently developed for non-forest use. A forest block may include recreational trails, wetlands, or other natural features that do not themselves possess tree cover, and uses exempt from regulation under subsection 4413(d) of this title.

- **Forest fragmentation:** the division or conversion of a forest block by land development other than by a recreational trail or use exempt from regulation under subsection 4413(d) of this title.

- **Habitat connector:** land or water, or both, that links patches of wildlife habitat within a landscape, allowing the movement, migration, and dispersal of animals and plants and the functioning of ecological processes. A habitat connector may include recreational trails and uses exempt from regulation under subsection 4413(d) of this title. In a plan or other document issued pursuant to this chapter, a municipality or regional plan commission may use the phrase "wildlife corridor" in lieu of "habitat connector."

Although forests cover 74% of the state today, at the time of European settlement, forests covered almost all of Vermont. Wide-scale clearing began in the early 1800s and reached its peak in the mid to late 1800s and reduced forest cover to about 35% of the state. Over the last century, westward expansion, the decline of the sheep industry, and reduced timber harvesting have contributed to the steady regrowth of Vermont's forests. Today's forests are the result of a major reforestation.

At present, reforestation is slowing as commercial and residential development increases. For the first time in a century, Vermont is experiencing an overall loss of forest cover. While it is hard to pin down the exact amount of acreage, a US Forest Service report indicates Vermont may have lost up to 69,000 acres of forest land between 2010 and 2015.

Forest Blocks

A look at the larger pattern shows our forests are being fragmented by rural sprawl. It occurs incrementally, beginning with cleared swaths or pockets of non-forest within an otherwise unbroken expanse of tree cover. Over time, non-forest pockets tend to multiply and expand. Eventually the forest is fragmented and reduced to scattered, disconnected forest islands. The remnant forest islands resulting from this fragmentation are surrounded by land uses that threaten the health, function, and value of them for animal and plant habitat, and for human use. As forest fragments become smaller, practicing forestry can become operationally impractical, economically nonviable, and culturally

unacceptable. In turn, we lose the corresponding and significant contributions that forestry makes to our economy and culture.

Forests provide Vermonters with enormous benefits and a range of critical goods and services. A thriving forest economy, functioning natural systems, and Vermont's quality of life rely on maintaining healthy forests across our landscape. Forests benefits include water supply and water quality protection, flood control and protection, wildlife habitat and biodiversity, clean air, carbon sequestration, outdoor recreation, and scenic beauty. Forests also provide cultural, spiritual, and intellectual enrichment benefits. All of these benefits are known as ecosystem services because of the value they provide. Without forests, these services would need to be replaced and potentially at a great expense.

Forest pattern addresses the configuration of forest blocks and habitat connectors. The pattern is the degree to which forest blocks and habitat connectors connect across the landscape or within a particular town. A healthy forest pattern is one where a town's largest forest blocks connect to one another via smaller forest blocks and riparian areas. These large blocks also connect to large forest blocks beyond the town boundaries. This healthy forest pattern is a network of contiguous streams and forest blocks that extends across town, interrupted only by a few roads or non-forest land cover.

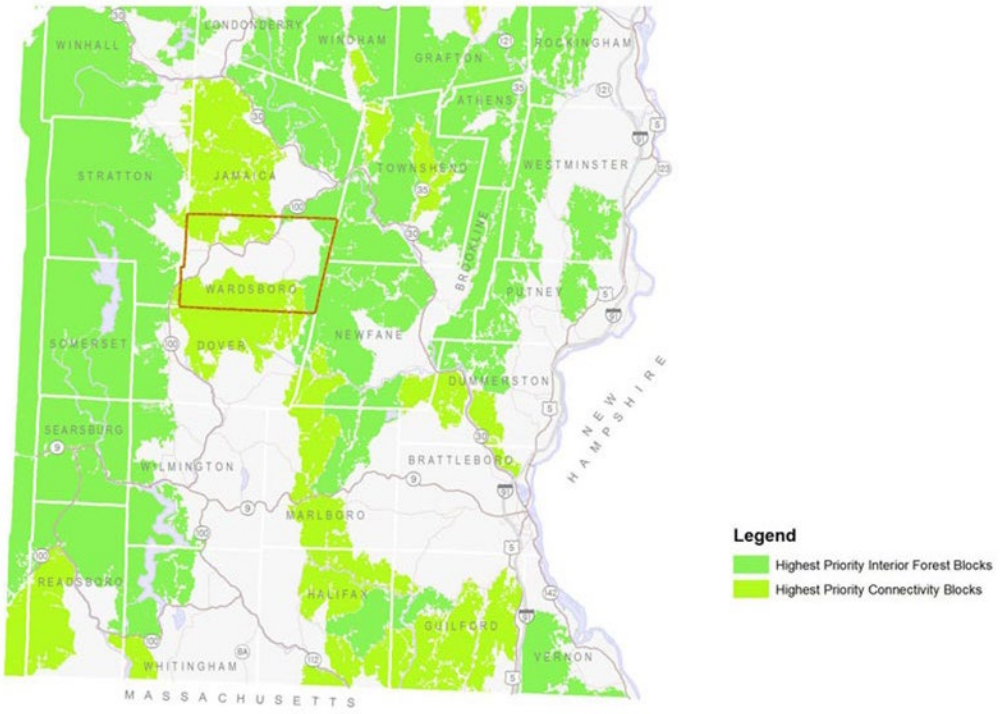
Habitat Connectors

Habitat connectors refers to land or water that links larger patches of habitat within a landscape to allow for the movement, migration, and dispersal of animals and plants. They can be a forest block, riparian area, or a specific road crossing that wildlife repeatedly use. Examples include small habitat blocks that serve as stepping stones between core forest, riparian habitat along streams and rivers, strips of forest cover between developed areas, hedgerows, or fencerows. Sizes can range from a fraction of an acre to one or two hundred acres.

Movement of animals from one habitat patch to another is the most common function attributed to habitat connectors. This is true for both wide and small ranged animals. Bobcats and black bears might use connections quite frequently, whereas spotted salamanders might use them only a few nights each spring to move from hibernation sites to breeding pools.

Habitat connectors should be considered at two scales: **landscape** and **local. Landscape scale** connectivity is important for connecting populations of wildlife over large areas or within a region. This allows for genetic variability and ensures migration. Examples of a large forest pattern that includes forest blocks and habitat connectors are the connections between the Green Mountains of Vermont and the White Mountains of New Hampshire. The habitat connectors between both mountain ranges allow for diverse and abundant wildlife populations that are able to withstand the effects of disease or other significant impacts. At this large scale, there is some overlap between forest blocks and habitat connectors. Very small forest blocks of minimal habitat or forestry value can function as

connecting habitat. These smaller blocks serve an important connectivity role at a large landscape scale.



This map shows the highest priority interior forest blocks and highest priority connectivity blocks in our region, as identified on BioFinder, an online mapping tool developed by the Vermont Agency of Natural Resources and partners.

Habitat connectivity at the **local scale** occurs where roads overlap with the network of connected habitat. In some cases, fish and wildlife movement associated with specific road crossing areas is seasonal, as evidenced by salamander spawning migrations in early spring. In other cases, movement could be simple happenstance of an animal curious for new food sources on the other side of the road. Many species of wildlife are selective to specific habitat conditions along roads and are faithful to crossing them in the same place as long as those habitat conditions persist.

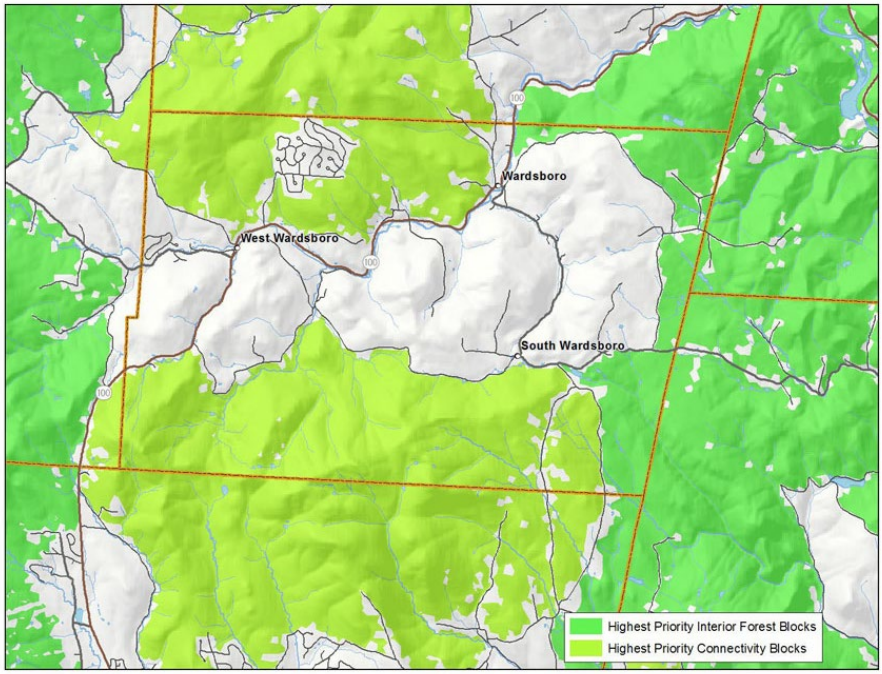
Forest Blocks and Habitat Connectors Working Together

The effects of forest fragmentation are minimized by maintaining an ecologically functional landscape. In Vermont, an ecologically functional landscape is one with large areas of connected forest, riparian areas, wildlife habitat and natural communities. A high degree of diversity and connectivity is needed to be resilient to shifts in ecological processes and to allow species to access required habitat.

The degree of ecological functionality and connectivity varies with landscape condition. Conservation of only narrow threads of vegetative cover within a developing landscape will not maintain an area's ecological values, biological diversity, or plant and animal

habitat needs. However, vegetative corridors can serve as habitat connectors. Conservation of vegetative corridors in conjunction with the maintenance of forest blocks with diverse habitat conditions will assist in supporting ecosystem functions and related public benefits.

An ecologically functional landscape is especially important in the context of climate change. Populations of species are already adjusting their home ranges to adapt to new conditions. Northward migration is occurring in response to warming temperatures, as well as in response to more complex changes in soil moisture and micro-climates. Movement resulting from climate change may also occur in more than one direction. Therefore, the overall network of connected lands and waters made up of forest blocks and habitat connectors in Vermont and throughout the northeast region is instrumental in allowing for migration of both plants and animals as our climate changes.



This map shows the highest priority interior forest blocks and highest priority connectivity blocks in Wardsboro, as identified on BioFinder, an online mapping tool developed by the Vermont Agency of Natural Resources and partners.

Scenic Resources

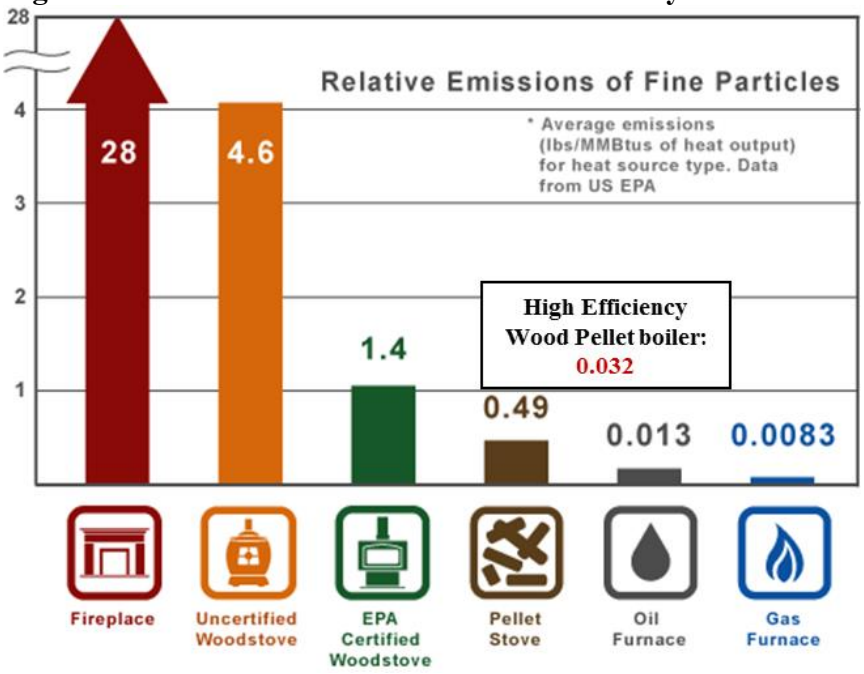
Wardsboro has numerous scenic vistas of surrounding mountains and valleys, which contribute to its visual character. The higher elevations in Wardsboro are visually prominent. The Proposed Land Use Map (map 2) shows five scenic viewsheds in which development shall be carefully sited because development and removal of vegetation in these areas, if not done sensitively, will alter the character of the town. Three of the important scenic areas are visible while traveling on Route 100. The remaining two areas - the view southeast from Upper Podunk Road and the view south from Potter Road - are

principally located within the lands owned by the Green Mountain National Forest. However, some of the foreground views are in private ownership.

Air Quality

Air quality is a challenge not easily addressed as the emissions are not necessary local. Regional urban hubs emissions travel beyond political borders to more rural settings like Wardsboro. Besides the large scale regional air quality patterns, Wardsboro does have local emissions it can address. The largest contributor to air quality locally is inefficient burning usually for heat. Outdoor chunk wood boilers and old wood stoves and fire places have high particulate matter emissions therefore contributing to air quality concerns. Upgrading wood heating systems to automated wood heat and EPA certified stoves decreases these emissions significantly as shown in below graphic.

Figure 11: Relative Emissions of Fine Particles by Source



(Source: Burn Wise EPA, 2018)

Policies

Topography and Slopes

1. Allow development in areas with slopes of 8 percent or less.

2. Limit development on lands with slopes greater than 15 percent and on lands greater than 1800 feet in elevation.

3. Prohibit development in areas dominated by slopes greater than 25 percent and on lands greater than 2500 feet in elevation.

Watercourses, Shorelines, and Riparian Areas

1. Maintain undisturbed, naturally vegetated buffer strips along riparian corridors to minimize soil erosion, stream siltation and damage to water quality.

2. Require that construction, road maintenance, forestry and agricultural practices follow state approved guidelines for protecting water quality, e.g. logging and road salt application. Follow and apply approved Management Plans and Accepted or Best Management Practices.

3. Protect Wardsboro's surface and ground water by restricting development in the following areas:
    a. Watersheds of upland streams;
    b. Watersheds characterized by steep slopes and shallow soils;
    c. Areas supplying large amounts of recharge waters to aquifers;
    d. Watersheds of public supplies.
    e. Riparian Areas

4. Maintain or enhance the chemical, physical and biological quality of Wardsboro's surface waters.

Wetlands

1. Naturally vegetated buffer strips around significant wetlands shall be left undisturbed.

Flood Hazard Areas

1. Devote lands within the flood hazard areas, both NFIP and FEH, to agricultural and open space uses whenever possible. Structures and fill shall not be allowed in the floodway and should be avoided in the floodplain and FEH zones.

Groundwater

1. Any new water supply system or waste disposal system shall not deplete or contaminate any existing water supply system.
2. Any groundwater extraction for commercial purposes shall not interfere with existing water supply systems, nor shall it deplete the resource to the detriment of neighboring land uses or the environment.
3. Prohibit large-scale (greater than 57,600 gpd) commercial groundwater extraction that involves interbasin transfer of water.

Soils

1. Avoid development on wet soils and steep slopes.

Earth Resources

1. Extraction activities and transportation of earth resources must be done in an environmentally safe way and regulated so as not to adversely affect neighborhoods and the environment.
2. Minimize conflicts between current land uses and extraction of mineral resources.
3. Require the reclamation of extraction areas in order to ensure a safe, attractive, and useful condition.

Wildlife Habitat and Endangered Species

1. Protect Wardsboro's wildlife habitat and restrict the fragmentation of large forest blocks.

2. Conserve areas designated as Bear Production Habitat.

Agricultural and Forest Lands

1. Primary agricultural soil should be devoted to farming or to uses compatible with the maintenance of such soils for agricultural use.

2 Protect the economic and ecological vitality of Wardsboro's forestry and agricultural resources.

3. Encourage the sale or gift of land rights to land trusts or private conservation groups to maximize prime forest land and contiguous forest tracts.

Forest Blocks and Habitat Connectors

1. Development that takes place within identified forest blocks shall be located at the edges of the blocks in order to reduce fragmentation of the blocks by roads, clearing, and development. If there is no land that is physically suitable for development at the edge of the blocks, the development must be located in order to minimize fragmentation of the blocks.

2. Roads, driveways, and utilities shall be designed to avoid the fragmentation of identified forest blocks.

3. Roads longer than 1,000 feet are prohibited within the forest blocks, as identified on Wardsboro's Proposed Land Use Map as Conservation and Resource Residential areas, unless a longer road reduces impacts on natural resources.

4. When land is subdivided, provision shall be made to ensure access for forest management and shall avoid potential conflicts between land uses.

5. Where development takes place within a habitat connector, as identified on the inset map of Highest Priority Interior Forest Blocks and Highest Priority Connectivity Blocks on page 36, development shall be located at the edges of the connector area in order to facilitate wildlife travel through the area. In the event that there is no land

that is practical for development outside the wildlife connector, the development's design must minimize impacts on the continued viability and use of the corridor.

6. Roads, driveways, and utilities shall be designed to avoid the fragmentation of identified habitat connectors.

Scenic Resources

1. The scale, siting, design, and management of new development shall maintain or enhance the landscape and protect high quality scenic landscapes and scenic corridors.

2. Consider the potential visual impacts on scenic vistas. Discourage exterior illumination on prominent physical features and landscapes. Any such illumination shall not significantly reduce the natural appearance of the nighttime landscape and will not be obtrusive in the viewsheds.

3. Enforce ordinances that prohibit unsightly trash and discarded vehicles on all properties, especially those along Wardsboro's roadsides. (Selectboard)

Recommendations for Action

On-Going:

1. Keep informed as to the quality and characteristics of Wardsboro's surface waters through the Agency of Natural Resources individual water body reports, planning for Basin 11 and, where appropriate, recommend classification or designation changes corresponding to the provisions of the state system. (Planning Commission)

2. Review and update where necessary standards regulating the extraction of mineral resources, impacts on adjacent uses, and the reclamation of the site. (Planning Commission)

3. Work with local and state land trusts to encourage land acquisitions and conservation easements to preserve Wardsboro's agricultural and forestry lands in perpetuity. (Planning Commission, Selectboard)

4. Restore and maintain natural indigenous vegetation, including trees, on municipal land in riparian buffers. (Selectboard)

Near Term:

1. During Site Plan review, evaluate erosion and sedimentation control measures in areas where development occurs on slopes greater than 8%. (Planning Commission)

2. Review development of ridgelines and hillsides for its visual impacts, and delineate an overlay district to reduce the impact of development on ridgelines and steep slopes. (Planning Commission)

3. Review land use and development controls to ensure that development along stream banks and shorelines is controlled to prevent point and non-point pollution, minimize adverse aesthetic impacts, and protect riparian habitats. (Planning Commission)

4. Identify critical habitat areas within the broader areas identified on the bear habitat maps. (Planning Commission)
5. Develop and implement zoning and subdivision techniques to preserve agricultural and forestry resources. (Planning Commission)

6. Evaluate the effects development could have on the designated scenic areas and take steps to ensure that development occurs responsibly, in context with the environment. (Planning Commission)

7. Research feasibility of undertaking groundwater mapping in Wardsboro. (Planning Commission)

8. Explore funding mechanisms for groundwater mapping. (Planning Commission)

9. Develop and implement Zoning Bylaw provisions to prohibit large-scale commercial groundwater extraction. (Planning Commission, Selectboard)

10. Explore the possibility of parking spaces near hiking trails. (Planning Commission)

FLOOD RESILIENCE PLAN

Goal

Encourage Wardsboro to become a more flood resilient community.

Background

In 2013 Vermont enacted Act 16, "An act relating to municipal and regional planning and flood resilience," which requires that all municipal plans effective after July 1, 2014 include a flood resilience element pursuant to the purposes of and consistent with the state planning goals specified in 24 V.S.A. § 4302:

> *To encourage flood resilient communities.*
> *(A) New development in identified flood hazard, fluvial erosion, and river corridor protection areas should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.*
> *(B) The protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion should be encouraged.*
> *(C) Flood emergency preparedness and response planning should be encouraged.*

Act 16 amended 24 V.S.A. § 4382 - The plan for a municipality - adding a twelfth required element, a flood resilience plan, to the requirements for a municipal plan:

(A) A flood resilience plan that:

(i) identifies flood hazard and fluvial erosion hazard areas, based on river corridor maps provided by the Secretary of Natural Resources pursuant to 10 V.S.A. § 1428(a) or maps recommended by the Secretary, and designates those areas to be protected, including floodplains, river corridors, land adjacent to streams, wetlands, and upland forests, to reduce the risk of flood damage to infrastructure and improved property; and

(ii) recommends policies and strategies to protect the areas identified and designated under subdivision (12)(A)(i) of this subsection and to mitigate risks to public safety, critical infrastructure, historic structures, and municipal investments. (emphasis added)

(B) A flood resilience plan may reference an existing local hazard mitigation plan approved under 44 C.F.R. § 201.6.

Fluvial Erosion

By statutory definition, "fluvial erosion" means the erosion or scouring of riverbeds and banks during high flow conditions of a river. Much of the flooding damage experienced in Vermont is from the power of moving water causing the erosion of stream banks supporting roads and buildings and the sudden destruction of under-sized culverts and bridges. Providing a river the room it needs to slow its flow can, over time, allow it to function as a responsive system and avoid repeated losses to public infrastructure and investments.

Rivers, streams, and their channels are changing constantly in response to the inputs of water, energy, sediment and debris that pass along them. Erosion (and deposition) along a stream or river is natural. Sometimes, efforts to stop this process in one place can make it worse in others. Every few years a stream fills to bankfull and the shape of the channel responds to this force by cutting deeper into some streambanks and also by depositing sediments in the quiet inside bends. This process is visible as an "S" shaped form that slowly changes position.

If the stream cannot spill out of its banks, the power of the trapped water increases and the channel either digs down or cuts out further to the sides. Where there are roads and buildings nearby these adjustments to the channel's shape can become dramatic and costly.

A river is in geomorphic equilibrium when its inputs of water, energy, sediment, and debris are in balance. In this condition, a river is neither building up sediment in the channel nor losing sediment from its bed. Importantly, a river in equilibrium has not become overly deep and can continue to overflow onto its floodplains. The water that spills onto the floodplain slows down, and the velocity of the water still in the channel does not become excessively powerful.

In order to protect roads and buildings it is important to be sure that the river is able to function as well as possible upstream and downstream. We need functional streams and rivers with room to adjust (river corridors) and intact floodplains to moderate the impact of high water events.

River corridors and floodplains

River corridors and floodplains are different but frequently closely related. The river corridor is the area that provides the physical space that a river needs to express its energy and meander without it having to dig down or out. The state-designated river corridor includes a 50-foot buffer on either side of the fluvial erosion hazard area to prevent disturbance in this area and allow for bank stabilization. Statute defines it as: *"River corridor" means the land area adjacent to a river that is required to accommodate the dimensions, slope, planform, and buffer of the naturally stable channel and that is necessary for the natural maintenance or natural restoration of a dynamic equilibrium condition and for minimization of fluvial erosion hazards, as delineated by the Agency of Natural Resources in accordance with river corridor protection procedures.*

A floodplain is the area where water flowing out over a river bank can spread out and slow down. The floodplain as defined by FEMA is the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or, most commonly, the 100-year flood.

River corridors and floodplains overlap a great deal. One on top of the other there might be 60 – 90% overlap. However, there are areas in the river corridor that will be eventually shaped by the activities of the channel - although they may be high and dry - and other areas in the floodplain that will be under water during a large flood, but which the river channel may not need to access to maintain its geomorphic equilibrium.

The extent of a river corridor is based on calculations including such things as the meander belt of the stream, soils, watershed size and gradient, and channel width. The extent of floodplains is based on calculations such as a stream's peak flow history and frequency.

Regulatory Flood Hazard Designations

There are two types of regulatory flood hazard designations and two sets of official maps that identify those flood hazards in Vermont: inundation hazard areas are identified by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs): fluvial erosion hazard areas are identified by the VT Agency of Natural Resources on river corridor maps.

Wardsboro has land, homes and businesses that are susceptible to the two types of flooding impacts: inundation and fluvial erosion. Inundation flooding occurs during high water events on the Wardsboro Brook. Fluvial erosion occurs in areas both in and out of the flood hazard area (floodplain) as mapped by the FEMA. Both inundation flooding and fluvial erosion are potential hazards along the Wardsboro Brook, Dover Brook and

South Wardsboro Brook, as well as along the streams that drain watersheds extending to our border with Jamaica, Dover, Newfane, and Townshend.

Inundation Hazard

Towns participating in the National Flood Insurance Program (NFIP) must regulate development in areas designated on the FIRMs that show the floodplain that FEMA has calculated would be covered by water in a 1% chance annual inundation event, also referred to as the "100 year flood" or base flood. This area of inundation is called the Special Flood Hazard Area (SFHA). FIRMs may also show expected base flood elevations (BFEs) and floodways (smaller areas that carry more current). FIRMS are only prepared for larger streams and rivers. The Town of Wardsboro has areas of inundation hazard flood risk mapped by FEMA.

Fluvial Erosion Hazard

A significant portion of flood damage in Vermont occurs outside of the FEMA-mapped floodplain areas and along smaller upland streams, as well as along road drainage systems that fail to convey the amount of water they are receiving. Vermont ANR's river corridor maps show the area needed to address the fluvial erosion hazards, which may be inside of FEMA-mapped areas, but often extends outside of them. River corridor maps delineate areas where the lateral movement of the river and the associated erosion may be more of the threat than inundation by floodwaters. Elevation or floodproofing alone may not be protective of structures in these areas, as erosion can undermine structures. ANR released statewide river corridor maps in January 2015. The Town of Wardsboro has areas of river corridor mapped by ANR.

Flood Hazard Regulation

Inundation

For federal flood insurance to be available to property owners though the NFIP, a municipality must adopt and administer flood hazard area regulations. These can be within local zoning regulations or adopted as a free-standing bylaw. A community's flood hazard regulations must apply to at least the Special Flood Hazard Areas (SFHAs) identified by FEMA. They regulate new structures and place restrictions on other types of activities, such as placing fill within the floodplain. They specify land, area and structural requirements to be adhered to within the SFHA.

Erosion

To address Act 16, to protect citizens, infrastructure, and the environment, and to qualify for maximum Emergency Relief and Assistance Fund state match in the event of a disaster, a town must adopt and administer River Corridor protection standards as part of its flood hazard area regulations. These can be within local zoning regulations or adopted as a free-standing bylaw.

Emergency Relief and Assistance Fund

The Emergency Relief and Assistance Fund (ERAF) provides State funding to match Federal Public Assistance after federally-declared disasters. Eligible public costs are reimbursed by federal taxpayers at 75%. For disasters after October 23, 2014, the

State of Vermont will contribute an additional 7.5% toward the costs. For communities that take specific steps to reduce flood damage the State will contribute 12.5% or 17.5% of the total cost. Towns that participate in the NFIP and regulate SFHAs, and also meet several other state requirements, can achieve a 12.5% state share of the required 25% state/local match for federal disaster relief funds. As of 2018, Wardsboro qualifies for the 12.5% match. Towns that regulate river corridors can obtain an additional 5% ERAF match, reducing the town's required local match to 7.5%.

Addressing flood resilience
This plan identifies flood hazards as the Special Flood Hazard Areas (SFHAs) shown on the NFIP FIRMs and identifies fluvial erosion hazard areas as those shown on the ANR River Corridor maps. Further, this Plan designates both those identified areas as areas to be protected, including floodplains, river corridors, and land adjacent to streams, wetlands, and upland forests, to reduce the risk of flood damage to infrastructure and improved property. In addition, this plan incorporates by reference the town's Local Hazard Mitigation Plan approved under 44 C.F.R. § 201.6. Finally, this plan recommends the following policies and strategies to protect the designated areas to mitigate risks to public safety, critical infrastructure, historic structures, and municipal investments.

Policies

1. Foster the protection and restoration of river corridors, floodplains, wetlands, and upland forested areas that attenuate and moderate flooding and fluvial erosion.

2. Protect floodplains, river corridors, land adjacent to streams, wetlands, and upland forests through adoption and administration of flood hazard area regulations governing development in designated Special Flood Hazard Areas and River Corridors, in order to reduce the risk of flood damage to infrastructure, improved property, people, and the environment.

3. Avoid new development in identified flood hazard, fluvial erosion, and river corridor protection. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.

4. Encourage the protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion.

5. Encourage flood emergency preparedness and response planning.

Recommendations for Action

1. Be familiar with up-to-date ANR river corridor maps that delineate the land area adjacent to streams and rivers that are required to accommodate a stable channel. (Selectboard, Planning Commission, Zoning Administrator)

2. Be familiar with Flood Insurance Rate Maps (FIRMs) that delineate areas that could be covered or inundated by water during flooding. (Selectboard, Planning Commission, Zoning Administrator)

3. Regulate any new development in identified flood hazard areas, fluvial erosion hazard areas, and/or river corridors to ensure that development does not exacerbate flooding and fluvial erosion, and extend these provisions to development activities that might increase the amount and/or rate of runoff and soil erosion from upland areas. (Planning Commission, Zoning Administrator)

4. Update the Flood Hazard Area Regulations to include regulation of river corridors, and include provisions for advance notification of and specific limits on new development activities in identified flood hazard areas, fluvial erosion areas, River Corridors and/or upland forested areas based on regulatory templates developed by the ANR Department of Environmental Conservation Rivers Program. (Planning Commission)

5. Pursue a flood resilience management approach whose essential components are to identify and map flood hazard areas, fluvial erosion hazard areas, and river corridor protection areas based on stream geomorphic assessment studies and maps provided by the Vermont ANR Rivers Program, and designate those areas for protection to reduce the risk of flood damage to infrastructure and private property. (Planning Commission, Selectboard)

6. Provide information to citizens regarding individual and community preparedness for emergencies. (e.g. flooding and power outages) (Selectboard, Planning Commission)

COMMUNITY FACILITIES AND SERVICES

Goals

1. Provide public facilities and services to ensure the public's health and safety and to improve the quality of life in the community.

2. Make new investments in schools, libraries, recreational, and cultural facilities in a manner that will serve community needs.

3. Ensure that public investments, including the construction or expansion of infrastructure, reinforce the general character of Wardsboro and support planned growth at a rate and in locations that Wardsboro can accommodate.

4. Encourage collaboration of individual residents with regional services to encourage and promote home based businesses.

Town Government

The official business of the Town is conducted at the annual March meeting. The Wardsboro Selectboard conducts most of the business of the Town between town meetings. Other elected or appointed officers with administrative and planning responsibilities include the Town Clerk, Town Treasurer, Listers, Trustees of Public Funds, School Directors, members of the Planning Commission and Board of Adjustment. Administration of the town government has become more costly and complex in recent years. The Town Office is located in Wardsboro Village; the building meets the current needs of the Town.

The Selectboard oversees the Public Works Department, which maintains the town garage located on Dump Road. It houses the town highway maintenance equipment which includes three dump trucks, a one-ton dump truck, a road grader, a bucket loader, an excavator, and a wood chipper. For winter road maintenance, the Town maintains a sand pile and a small covered salt shed. The Public Works Department completed a road, bridge and culvert inventory in 2014. These inventories qualify the Town for an additional amount of bridge, culvert and paving monies when such grants become available from the State. The town is participating in the Municipal Roads General Permit program to meet standards for road drainage and improve water quality in compliance with Vermont's Clean Water Act.

The Department anticipates that some equipment will need to be replaced in the next five years. The Transfer Station has an attendant's shed and containers for recycling, trash, and construction debris.

Cultural Facilities and Services

Town Hall

The Wardsboro Town Hall, located in Wardsboro Village next to the Town Office, is an important historic structure in Wardsboro. Built in 1907 and rebuilt in 1928 following a fire, and listed on the Vermont Register of Historic Sites, the Town Hall is still used today for public functions and meetings. In order to make the building compliant with the Americans with Disabilities Act, improvements have included adding an entrance ramp and a lift to the second floor. In addition, paved parking has been provided at the entrance. A small charge is assessed for private functions.

Library

The Library moved from a single room in the Town Hall to the Gloria Danforth Building in 2001. This old farmhouse was purchased and renovated by the Friends of the Wardsboro Library. A handicap accessible ramp was added to the main entrance in 2004. The renovated barn space for library was completed in 2013. Membership is free for use of library materials including books, audios, movies, and computers. The Library offers extensive programs for the town's children and adults. In addition to story and craft hours, the library also sponsors several themed programs throughout each summer. Many children's programs are in collaboration with Wardsboro Elementary School. For adults, programming includes displays by local artists, presentations on travel and wildlife, and

visits by local authors, as well as a book club, and a local history program in collaboration with the Wardsboro History Group. The Library Trustees sponsor events throughout the year to raise funds to operate the library including purchase of books, supplies, programs, phone bills, and technology items, including 24/7 open high-speed WiFi. The major fund raisers sponsored by the Library Trustees are the Book Sale on July 4th and the Santa Event with craft booths in early December. The yearly town budget support has provided the major part of the salaries for the library staff, plus some funds toward heating.

The Gloria Danforth Building that houses the library is owned and maintained by the Friends of the Wardsboro Library, a 501c3 non-profit begun in 1999. They hold annual fundraisers to help raise funds to support the library financially as well as providing social and cultural activities for the community. These events include The Gilfeather Turnip Festival, Silent Auction, Plant & Bake Sale, and an annual raffle known as "The Best Raffle Ever".

Community Organizations and Events

A variety of cultural and community service organizations are active and make contributions to the community by organizing and sponsoring local projects, activities, celebrations, and civic events. These groups include Wardsboro Curtain Call; Cub Scouts; Brownies; Friends of the Wardsboro Library; The History Group; and the Community Lunch Program. The Wardsboro Yoked Parish includes the Baptist Church in West Wardsboro, the Congregational Church in South Wardsboro and the Methodist Church in Wardsboro. The churches and their congregations also sponsor a number of community events and outreach programs that include the July 4th Street Fair & Parade, Flags along Route 100, and the Jamaica/Wardsboro Food Pantry located in the Vestry in Wardsboro Village. Most of the events and happenings are published in the *Bucketville News,* which is a free, monthly, community-wide newsletter.

The July 4th Street Fair and Parade has been held annually since 1949 and is the oldest, continuously celebrated July 4th celebration in the State of Vermont. Annually this major event involves large numbers of community volunteers and regularly attracts about 4,000 people.

Recreation Facilities and Services

The McMichael Town Park is located next to the Library in Wardsboro Village. Recreational facilities at the park include a skateboard park, basketball court, children's softball field, children's play equipment, picnic tables and barbecue grills. The skateboard area can be flooded in the winter for skating if volunteers set up the necessary equipment. Established recreational groups include a hiking club, Little League baseball and girls softball, soccer, basketball, and an active snowmobiling club. Wardsboro offers a wealth of recreational opportunities that its natural environment supports, particularly with the large expanse of Green Mountain National Forest that exists in town. Hiking, biking and snowmobiling are just a few of those activities.

Waste Disposal

Wastewater

At present, most waste disposal is by private septic tanks and drain fields, subject to regulation under the State of Vermont Wastewater System and Potable Water Supply Rules. Soil conditions and topography in some areas of Town are not favorable for on-site septic tanks and leach fields.

Solid Waste

In 2004, Wardsboro voted to become a member of the Windham Solid Waste Management District (WSWMD), bringing the town into compliance with state regulations. The WSWMD is a special purpose agency that was established in 1988. The District is overseen by a Board of Supervisors representing its member towns. WSWMD includes member towns in its Solid Waste Implementation Plan, operates a 'convenience center' allowing residents of member towns to access the transfer station. It also provides education, hazardous waste collection and state mandated recycling of electronics and paint. There are 18 member towns in the WSWMD.

In 1987 the Town of Wardsboro adopted a Solid Waste Disposal Ordinance. The ordinance regulates use of the Wardsboro transfer station and unlawful deposits on land and water. The town operates a transfer station which is located on Dump Road. Services that are provided through the WSWMD include materials recycling, food scrap collection for composting, and hazardous waste collection days.

Public Safety

Police Protection

Police services are provided on an "on-call" basis from the State Police. The Town annually elects a Constable.

Fire Protection

Wardsboro is served by a voluntary fire and rescue department located in Wardsboro Village. The department's equipment currently includes:

- Two pumper-tankers each capable of pumping 1250 gallons per minute and carrying a full complement of firefighting equipment. One of these two trucks was delivered new in March of 2007.
- One 4WD, 300 gallon per minute, brush truck. This unit is primarily used for forest/brush fires in the summer, is used to tow the off-road rescue unit, and is used in other non-fire situations.
- A 4WD Rescue Unit that carries a full complement of Advanced Life Support equipment. The Off-Road Rescue Unit consists of an enclosed trailer, snowmobile, ATV and rescue sled for assisting and recovering patients from areas not accessible by other vehicles. The rescue sled carries Advanced Life Support equipment. There are three trailers; one for snow and two with wheels.

- Twelve self-contained breathing apparatuses and new gear for firefighters were purchased in 2016 with a large grant. In addition, there are two multi-gas meters and 30kw generator to supply back-up power to firehouse.

The Department is a member of Southwestern Mutual-Aid for dispatching and assistance. The department recently purchased a thermal imaging camera. The department also responds to calls in portions of Stratton and Jamaica. As part of the mutual aid agreement, the department will also respond to any community that requires assistance. Wardsboro Fire & Rescue responds to approximately 110 calls per year, of which two-thirds are rescue related.

The Rescue Truck was replaced with a unit that is capable of carrying more equipment. The Department seeks to replace one fire truck. Future challenges include fund-raising to support equipment upgrades, development of water supplies, and sufficient staffing.

Emergency Medical Services

Wardsboro Fire and Rescue are first responders at the advanced level. Ambulance service is provided by Rescue, Inc. in West Townshend. The Town is fully connected to the statewide Enhanced 911 emergency calling system.

Emergency Planning

Wardsboro is actively involved in emergency planning and disaster preparedness. Planning and preparedness may help to reduce risk to life and health, damage to public and private property and the environmental damage that often occurs as a result of a disaster. Also, this encourages the Town to prepare calmly and realistically for likely emergencies; to know the location of resources and equipment that will be needed; to inform residents of the potential dangers and ways to avoid these potential dangers; and to quickly arrange for help when it is needed. Wardsboro currently has in place both Basic Emergency Operations Plan and Single Jurisdiction Hazard Mitigation Plan. Wardsboro participates in the National Flood Insurance Program (NFIP), has adopted town road and bridge standards and has conducted a Bridge and Culvert inventory. A generator was installed at the Wardsboro Elementary School so the building can be used as an emergency shelter.

The Town has assembled a Rapid Response Team that would be responsible for coordinating the early stages of response in the event of a disaster. This team includes the Fire Chief, Selectboard Chair, Town Clerk, Rescue Coordinator, Road Foreman and the Vermont State Police.

Education

Elementary education in Wardsboro is provided by the Wardsboro Elementary School. A comparison of enrollment figures, as well as some other education trends is shown in Table 6. The student/teacher ratio has become smaller in recent years due to decreasing student enrollment. The state-wide student/teacher ratio was 10.57 in 2017.

Table 6: Wardsboro Elementary School Education Trends

	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Total School Enrollment	64	61	58	58	53
Student/Teacher Ratio	12.43	11.87	8.29	9.35	8.55
Average Teacher Salary	$53,541.17	$57,174.71	$51,708.71	$57,260.81	$55,194.68

(Source: Vermont Agency of Education)

The Wardsboro Elementary School is comprised of four classrooms, a gymnasium-type multi-purpose room, a home-style kitchen, a library, a small two-room office, 5 smaller rooms for special instruction and other uses, three restrooms, an art supply closet, and a storage room for custodial supplies. A large, level field on the school property, one of the few in the Town, provides space for baseball, soccer, and other outdoor sports. There is also a "jungle-gym" complex and basketball court on site outdoors. Most students are transported to and from school by a contracted bus service. At the present school site, restrictions imposed by the septic system's type and size limit occupancy of the building to a maximum of 115 persons (pre-K-6 and staff). There is a lack of storage space in the school and several rooms have to serve multiple functions.

Since Wardsboro does not belong to the Leland & Gray district, families with children in grades 7-12 have been able to choose any secondary school for their children to attend. The Town has paid up to the amount of tuition set by Leland and Gray Union High School.

Table 7: Wardsboro Education Financial Expenditures (Elementary & Secondary)

	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015	Fiscal Year 2016	Fiscal Year 2017	Fiscal Year 2018
TOTAL EXPENDITURES	$2,133,923	$2,260,744	$2,298,483	$2,306,734	$2,273,575	$1,983,726
Spending Per Equalized Pupil	$13,550	$14,150	$14,598	$14,733	$15,357	$15,524

(Source: Wardsboro, Vermont Annual Reports)

In May 2015, Act 46 legislation became law in Vermont; requiring towns to merge their schools or establish an alternative governance structure. The first school year of the newly merged schools will be the 2019-2020 school year. Wardsboro and Dover schools are merging to form the River Valleys Unified School District (RVUSD). The Board of Education for the RVUSD, consisting of citizens from both Wardsboro and Dover, began holding regular meetings to plan for the first school year as RVUSD.

Child Care

In addition to education for school-aged children, child care and early childhood education are important components of the Wardsboro community and its future.

Ensuring accessible, affordable, quality child care is vital. Availability of child care services in Wardsboro has a direct effect on the vitality of the Town by encouraging young families to locate and remain in Wardsboro. With the number of families in which both adults work outside the home increasing, the demand for child care services has also increased.

The local demand for child care services is difficult to measure, but the following statistics might shed light on the possible need for child care in Wardsboro. In 2010, 24.4% of the population was between the ages of 18 and 6 with 8.7% under the age of six. The American Community Survey estimates that in 2016, the population between 18 and 6 decreased slightly while the population below 6 dropped to 4.2%. This drop is visible in Figure 12 below. In 2010, 242 families resided in Wardsboro and 40.9% (99) of these families have "own" (as differentiated from "related") children under the age of 18. That number has been estimated to have decreased to 36.8% - 88 actual families.

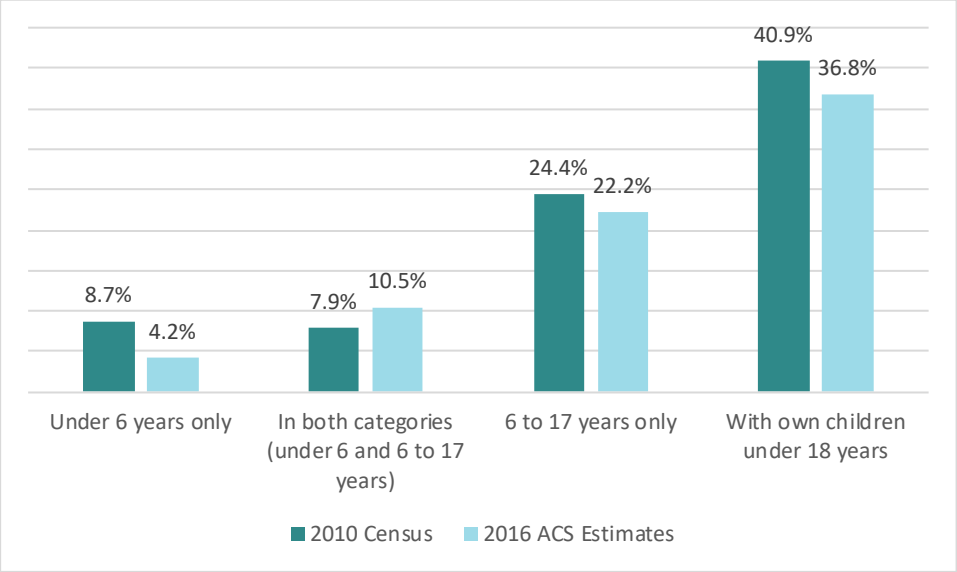
Note that Data published in 2016 are 5 year estimates and do not reflect actual counts like population, age, or sex. These estimates are useful when analyzing trends in small populations, but should be used cautiously when making direct comparisons; they are estimates over a period from 2012 to 2016 and have a relatively large margin of error. The American Community Survey is conducted year round to gather "period" data, unlike the decennial census which is only conducted every ten years and collects "point-in-time" data. The following table summarizes some of the statistics in relation to the 88 families in Wardsboro that have children under the age of 18.

Table 8: Families with Children under the age of 18 in Wardsboro

Family Units with own Children	Percentage of Families	Actual # of families
Under 6 years only	4.2 %	10
In both categories (under 6 and 6 to 17 years)	10.5 %	25
6 to 17 years only	22.2 %	53
Total families with own children under the age of 18	**36.8 %**	**88**

Note: The percentage values are not cumulative and are based off of the total number of families in Wardsboro beyond these three selected categories. *(Source: **U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates**)*

Figure 12: Population Demographics with Children under the age of 18 in Wardsboro



Although there has been a decrease in the number of children under the age of 5, there has been an increase in the number of residents since 1990. In addition, compared to the national average, Vermont has a larger percentage of women in the work force.[3] If these trends continue it is likely there will be more working parents moving to Wardsboro and a possible increase in the number of families needing child care.

The Vermont Department for Children and Families Bright Futures Child Care Information System directs people looking for child care services in Windham County to the Winston Prouty Center for Child and Family Development. The Prouty Center's Referral and Eligibility Specialists can refer parents to child care programs in Windham County that are regulated by the State of Vermont.

Adult Education

Adult education opportunities for Wardsboro residents are available both locally and regionally. Computer classes for adults were offered annually by the Wardsboro Elementary School, and are currently being offered through the Town Library. Up to 15 people per session may attend these classes. The Community College of Vermont has learning centers in Bennington and Brattleboro and offers associate degrees, career-related certificates, and credit and non-credit training programs.

Health and Social Services

Health Care

Grace Cottage Hospital, located in Townshend, is the hospital closest to Wardsboro. Grace Cottage Hospital provides emergency room and inpatient medical services.

[3] Windham County, Vermont Child Care Needs Assessment, June 2002, pg 9.

Outpatient services include physical, occupational and speech therapy, mental health, and pharmacy services. Many Wardsboro residents also receive health services from Brattleboro Memorial Hospital and Dartmouth Hitchcock Medical Center in Lebanon, New Hampshire.

In addition to health services in Townshend, senior housing is available through Valley Cares West River Valley Independent and Assisted Living, a non-profit organization. Health and social services for seniors, caregivers, and their families can be accessed through Senior Solutions (Council on Aging), located in Brattleboro and Springfield,

Social Services

Health Care & Rehabilitation Services of Southeastern Vermont (HCRS) is a private, non-profit community mental health center serving residents of Windham and Windsor counties. HCRS services include emergency services, outpatient mental health and substance abuse services, developmental services and children's programs, including school programs. In Windham County, centers are located in Brattleboro and Bellows Falls. The closest women's crisis center is located in Brattleboro. We understand that there are residents in need of these services that are not able to access them for any number of reasons, including transportation.

Senior Services

As a small, rural town, Wardsboro depends on regional services to offer opportunities for its seniors. Some of the services that they can take advantage of include:

- **Meals on Wheels** – Other than a monthly senior luncheon, no community meals are held in Wardsboro. Residents can take advantage of meals in Newfane, Townshend, and Williamsville. The Council on Aging for Southeastern Vermont (COASEV) also coordinates home delivery of meals by volunteers that bring meals to clients five days each week.
- **Transportation** - Local transit services for transportation to adult day care, meal sites, medical appointments, shopping or social services are provided through Southeast Vermont Transit (SEVT). Some trips are to scheduled destinations on set days of the week, while other trips are tailored for individual needs using volunteer drivers who drive their own private vehicles. Seniors not receiving Medicaid services who need free transportation tailored to their needs may call SEVT at 802-460-7433. Green Mountain Express (GME) provides rides for seniors receiving Medicaid services. Seniors receiving Medicaid services who need free transportation may call GME at 802-447-0477.
- **Housing** – There are no subsidized senior housing facilities in Wardsboro. Opportunities for senior housing are available in the Windham County towns of Brattleboro, Londonderry, Townshend, and Rockingham.

Cemeteries

The Town maintains cemeteries, most under the supervision of the Cemetery Commission. There are seven cemeteries in Wardsboro: Smead, West Wardsboro, Fairview, East Hill on Townshend Dam Road, Duncan, and South Wardsboro.

Historic Resources

The following are listed on the Vermont State Register of Historic Sites and Structures Survey and are identified as having significant historical value, and as such, deserving of protection and continuing maintenance so that they may continue to contribute to the Town character and quality of life:

1. Baptist Church, Cross Road, West Wardsboro
2. Rest-A-While, 5100 Route 100, West Wardsboro
3. Congregational Church, Cobb Reed Road, South Wardsboro
4. Methodist Church, Main Street, Wardsboro
5. Town Hall, Main Street, Wardsboro
6. Bull Monument, West Wardsboro (not listed on State Register but of significant historic importance and deserving of protection.)
7. Samuel Hammond Gravesite in West Wardsboro Cemetery

In addition, the Town recognizes the historical, and in some cases legal importance of old cemeteries, stone walls, and cellar holes.

Achieving Village Center Designation for the villages of Wardsboro, also known as North Wardsboro, and West Wardsboro will help provide state tax credits and access to certain grants to help preserve historic sites and properties. It will further the following statewide goal in Title 24 §4302:

> (5) To identify, protect and preserve important natural and historic features of the Vermont landscape, including
>
> > (D) important historic structures, sites or districts, archaeological sites and archeological sensitive areas.

Communications

The WPC town survey indicates the need for greater broadband and cell phone service in Wardsboro. Many residents in Wardsboro rely on satellite service (DirectTV and Dish Network) for television. High speed internet service (DSL) has recently been made available to some of the most densely populated parts of Wardsboro and coverage is being expanded over time by Consolidated Communications. However, many parts of town must still rely on a dial-up connection. Telephone service is currently provided by Consolidated Communications, which is the largest local phone company in Vermont. VTel has placed two cell towers in Wardsboro as of the writing of this town plan.

Federal and State law regulate the placement of cellular towers in a given community. However, emphasis has been placed on balancing the need for telecommunications infrastructure with a community's desire to maintain community character. The Federal Telecommunications Act of 1996 preserved state and local regulatory authority for the placement, construction or modification of wireless facilities. In response to this Act, Wardsboro adopted a telecommunications ordinance that is part of the Zoning Bylaw. Currently, wireless service is unavailable in most parts of town and signal quality is unreliable in others.

Community Economic Development

As a rural community the Town of Wardsboro has a local economy based primarily on local services and home occupations. The Community Profile section identifies income and wage data as well as commuting patterns of local residents.

Home occupations, services and resource industries (agriculture and forestry) are located throughout the town. Home occupations continue to serve an important role in Wardsboro by allowing for local economic development, encouraging the creation of new businesses, and providing flexible or accessible working conditions for residents.

According to the 2007 Wardsboro Community Survey, approximately three-quarters of the respondents felt that the amount of home and service based businesses should either remain the same or grow. Additionally, two-thirds of the respondents felt that the number of industrial businesses should not grow beyond the current level. As development occurs in Wardsboro the most preferred types would be small crafts/artisans, agricultural activities, home based businesses and professional services. The Community Survey also indicated a strong desire by the respondents to limit most commercial development to Wardsboro Village, limiting development in West Wardsboro, Bucketville and South Wardsboro. Also, all development should occur in such a manner as to have minimal impact on the environment.

Achieving Village Center Designation for the villages of Wardsboro, also known as North Wardsboro, and West Wardsboro will help provide state tax credits and access to certain grants to help preserve historic sites and properties. It will further the following statewide goal in Title 24 §4302:

> (1) To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside
>
> > (B) Economic growth should be encouraged in locally designated growth Areas employed to revitalize existing village and urban centers, or both, and should be encouraged in growth centers designated under chapter 76A of this title.

Issues related to economic development include:

- Education – Both the need for higher academic education (Community College of Vermont, 4-year institutions, and online learning), and the need for increasing skills in trades and crafts.
- The need for high-speed internet access and cell phone service. Some limited areas of the Town began receiving access to broadband communications in late 2007, but a large proportion of the Town still does not have access to high-speed.
- Networking – Providing opportunities for local businesses to share and exchange information and best practices. These efforts could include promoting membership in nearby Chambers of Commerce (Mt. Snow Valley C of C) and a clearing house in Town for local business information.

Policies

1. Support economic development that meets the social and economic needs of its residents while preserving the environment's ability to support it.

2. Achieve Village Center Designation to advance historic preservation and economic development objectives as noted in the Historic Resources and Economic Development sections of this plan.

3. Use the capital planning process to identify and prioritize investments in facilities and infrastructure.

4. The town shall not accept privately owned infrastructure, including but not limited to private water supply, waste water, or stormwater management facilities, unless the cost of maintaining such facility is in conformity with the Town's capital budget and program and unless adequate surety or endowment is provided by the private owner to ensure the Town's ability to maintain the facility.

5. Provide a variety of cultural and recreational opportunities for all Wardsboro residents.

6. Protect land and water areas of high outdoor recreational potential from development that would reduce the recreational use of those areas.

7. Manage Wardsboro's solid waste in an efficient, effective, affordable and environmentally sound manner.

8. Provide effective fire protection, police protection and emergency medical service for Wardsboro.

9. Prepare for and respond effectively to an emergency situation through the appropriate use of community resources.

10. Maintain and improve the availability of education and vocational training opportunities and resources to develop the full potential of our citizens.

11. Require residential development of substantial size to be evaluated relative to Wardsboro's school capacity and related financial impact.

12. Support town and regional efforts to increase the availability and affordability of child care.

13. Support regional physical and mental health services as well as social service facilities and programs, including access to transportation.

14. Preserve the character and appearance of the Town while allowing adequate wireless communications services to be developed by requiring measures such as off-ridge siting and appropriate camouflaging measures.

15. Restrict tower and antenna proliferation by requiring the sharing of existing and new communications facilities, towers and sites.

16. Protect, maintain and encourage the use of Wardsboro's historic structures, including cemeteries, stone walls, and cellar holes.

17. Encourage and support the State's Telecommunications Authority initiative to provide high-speed internet access to all parts of rural Vermont.

18. Suggest formation of a group of residents looking to collaborate with regional associations or Chambers of Commerce to strengthen home based businesses

Recommendations for Action

On-Going:

1. Participate in appropriate state and local development reviews to enhance the Town's ability to manage development in a way that minimizes impacts on public infrastructure and facilities. (Selectboard or its designee, Planning Commission)

2. Apply for Village Center Designation to help Wardsboro be more competitive for certain grants to support economic development and preserve historic sites and properties.

3. Update the Road, Bridge and Culvert inventory as necessary (Public Works)

4. Continue to provide a wide array of programming at the Wardsboro Library and explore the expansion of service as demand requires. (Library Board of Trustees, Library Staff)

5. Develop plans to ensure compliance with Act 148, Vermont Universal Recycling Act. (Selectboard)

6. Continue to work with State and local emergency preparedness organizations. (Selectboard and/or its appointees, Fire Department)

7. Continue to support the adequate provision of health care and social services for Wardsboro residents, and to promote awareness of State programs. (Selectboard)

Near Term:

1. Review the need for local ordinances regulating snowmobile and all-terrain vehicle use in Wardsboro. (Selectboard)

2. Identify the supply and demand for child care in Wardsboro. (Planning Commission)

3. Review new models of telecommunication bylaws as they become available and update, when necessary, Wardsboro's regulations. (Planning Commission)

4. Investigate methods for extending high speed internet service and other communication services to all of Wardsboro. (Selectboard, Planning Commission, or Special Committee)

5. Sponsor a meeting to initiate a local Business/Services Network Group. (Planning Commission)

6. Publish a listing of businesses and services in the Town. (Bucketville News, Planning Commission)

7. Institute mandatory recycling and determine how best to pay for trash disposal and minimize illegal dumping. (Selectboard)

8. Review and amend as necessary the Town's solid waste ordinance. (Selectboard)

Long-Term:

1. Ensure the adequacy of municipal offices and storage. (Selectboard)

2. Plan a system of trails for hiking, cross-country skiing, horseback riding, bicycling, and snowmobiling. (Selectboard or committee appointed by the Selectboard, Pathfinders Snowmobile Club)

3. Explore options to maximize the effectiveness of law enforcement services. (Selectboard)

4. Review School's overall facilities relative to space and septic requirements for the next ten years. (School Board)

5. Appoint a committee comprising representatives of the School Board, Planning Commission, Library Trustees and Selectboard to determine the need for additional educational, social, and other opportunities in Wardsboro and to determine and recommend to the appropriate body uses for the present school facility outside normal school hours. (Selectboard, School Board)

6. Monitor remaining space available in all cemeteries based upon projected need and continue efforts to restore, repair, and maintain old cemeteries. (Cemetery Commission)

7. Promote grant opportunities and state programs, in cooperation with community organizations, to continue to protect and preserve Wardsboro's historic resources. (Selectboard, Planning Commission)

8. Consider nominating sites in Wardsboro on the State Register of Historic Sites and other significant historic sites to the National Register of Historic Places, and develop a list of these and other sites of historic significance to Wardsboro. (Planning Commission)

9. Consider developing design review overlay districts in the Zoning Bylaw as a means of protecting historic buildings. (Planning Commission)

Energy

Goals

1. Reduce total energy use by promoting energy conservation and efficiency measures, while reducing long-term energy costs in Wardsboro and ensuring protection of public health and safety, and the natural environment.
2. Reduce transportation energy demand/use while providing for safe, convenient, economic, and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and accommodations for pedestrians and cyclists.
3. Create land use patterns and development densities that result in conservation of energy.
4. Establish renewable energy generation in Wardsboro based upon criteria outlined in policies in this plan.

1. Importance of Enhanced Energy Planning

Introduction

Energy planning is important to Wardsboro because it can help us individually and collectively reduce our long-term energy costs. It could also help us improve our local economy as jobs become available in the growing field of renewable energy and its installation. Though Vermont's energy transformation may take years to implement, it will enhance the vitality of the state and local economy by reducing money spent on fuels pumped, mined or generated elsewhere, improve our health through reduced emissions and increased bicycle and pedestrian mobility options, and improve the quality of our local and global environment through reduced greenhouse gas emissions. This robust energy plan is used as a tool to advance the economic and environmental well-being of Wardsboro, thereby improving the quality of life for its residents. Furthermore, these energy goals will reduce Wardsboro's vulnerability to energy-related economic pressures and, in the long-term, climate change-related natural disasters, and promote long-term community resiliency in a variety of contexts.

The cost of energy in Wardsboro, including residential, commercial and governmental use (for heating, electricity, transportation, etc.) is estimated to be $2,743,631 per year (see *Energy Costs & Expenditures* section). Because a large majority of this energy is imported from outside of the town and Windham Region, most of the money spent on energy does not directly benefit the local economy. Efforts to reduce the use of energy sources from outside the town, or shift reliance to locally produced energy, can improve household financial security and strengthen the local economy.

From an environmental perspective, petroleum and other hydrocarbon-dependent energy is a significant cause of localized environmental damage where those fuels are produced and refined, and the emissions from their use is responsible for human-induced climate change, related climate-change disasters, and ecological degradation. Any efforts to reduce the use of non-renewable energy and shift to more environmentally-sound energy sources will benefit the town's environment by potentially limiting the number, severity, and frequency of intensely destructive storms. Shifting to renewable energy sources can reduce pollutants that negatively impact the quality of our air and rivers.

While Wardsboro can do little to shift the broader state or federal policies, we can influence energy use and production on a local level. In this energy plan, we hope to address Wardsboro's local actions for increasing our energy efficiency and promoting renewable energy generation, and overall pathways to become more resilient.

Long-Term Vision & Petroleum Dependence

There is a trend toward factoring the "societal costs" into the price of energy; society pays for health costs associated with pollution, environmental clean-up, military protection of petroleum sources, and the continued failure of the Federal government to address the disposal of radioactive wastes. And in the long-term, communities who depend on fossil-fuels are vulnerable to risks associated with their price and production volatility.

These challenges may significantly increase the cost of conventional energy sources within the next ten to twenty years. As a result, Wardsboro will seek to establish reliable energy resources for townspeople and municipal operations, to hedge against the increasing volatility of hydrocarbon prices, and to reduce the environmental impact of our energy use. The role of clean, alternative energy sources will be expanded and supported.

2. Wardsboro's Current Energy Use

The following paragraphs describe Wardsboro's current estimated energy demand in detail. These current use estimations provide a starting point from which the town can develop informed energy policies that directly address its current context and opportunities going forward.

In order to provide a more accurate picture of the energy planning requirements in Wardsboro, energy consumption, generation targets, and efficiency targets need to be broken down into three distinct energy sectors. Those sectors are *electricity, transportation*, and *heating*.

Figure 13: Wardsboro's Annual Energy Consumption by Sector

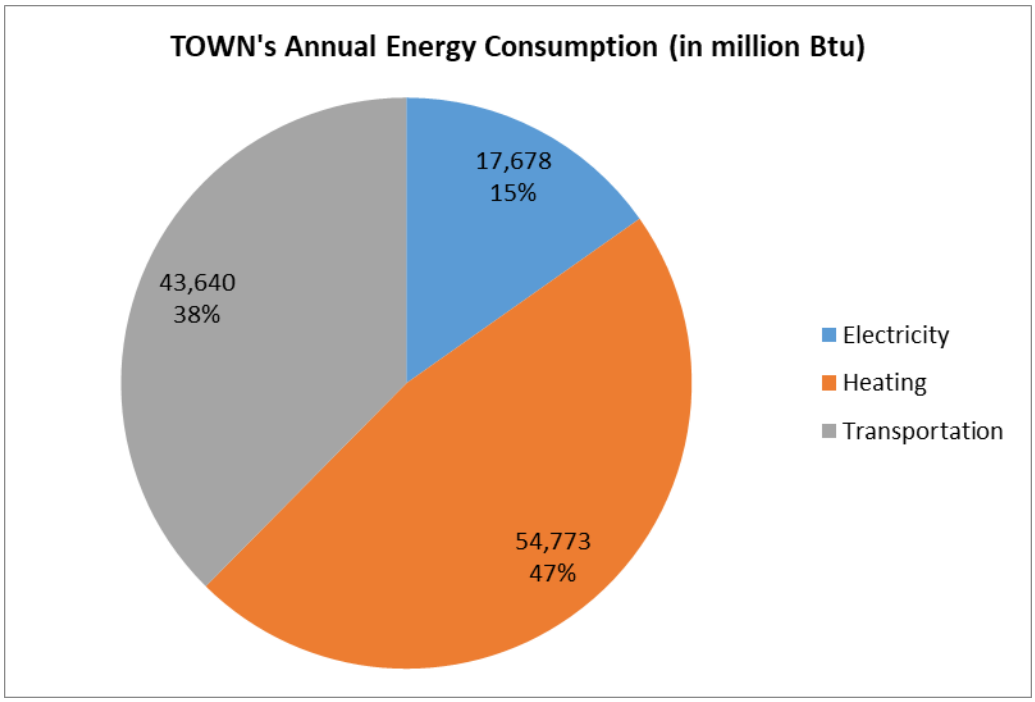


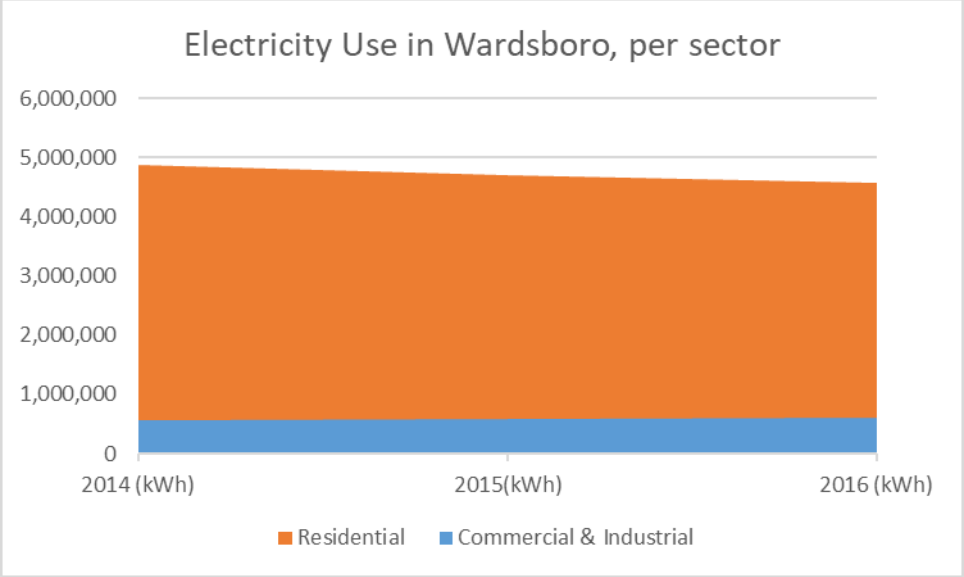
Figure 13 shows how energy consumed in the town is divided among these sectors. The sections below break down the calculations and describe the assumptions made to arrive at these final demand figures.

Current Electricity Demand

Wardsboro's electric energy supply comes from Green Mountain Power. There are no electric transmission lines within Wardsboro's boundaries. Three phase power lines in Wardsboro run along state highway Route 100 from East Jamaica to West Wardsboro and along Townshend Dam Road. There is also a 3 phase power line along Sheldon Hill Road.

Electricity consumption data from Efficiency Vermont was produced for each town in the state, and is the primary source of this information. This data set combines the energy supplied from all potential electricity providers to that town. It also separates the usage for both the *residential* and *commercial or industrial* sectors (see Figure 14 below).

Figure 14: Cumulative Electricity Use in Wardsboro by Residential and Commercial and Industrial



As the graph above shows, residential use of electricity is greater in Wardsboro than commercial/industrial use. The total electricity consumed in Wardsboro in 2016 is about 18,000 million Btu.

To translate this energy demand into dollar amounts, we can estimate a cost of $0.1435 per kilowatt-hour (Vermont state average for electricity costs across all sectors in 2015). Based on the above data, residences in town paid almost $660,000 dollars in 2016 for 4,582,220 kWh. Commercial and industrial facilities paid just under $86,000 dollars for their 598,626 kWh of electricity. The total combined estimated electricity cost is about $744,000. In Wardsboro, electricity usage costs are less than the individual cost of energy for transportation and for heating.

Current Transportation Use

According to 2010 U.S. Census Bureau data, Wardsboro has 374 primary housing units, (not vacant or used for seasonal/recreational purposes). Based on that number of households, it can be estimated that there are 642 light-duty vehicles on Wardsboro's roads, which consume just over 330,000 gallons of fossil fuel each year. Below is a table summarizing the averages and estimates used to arrive at those figures.

Table 9: Assumptions for Wardsboro Energy Usage

374	Number of primary housing units.
642	Number of fossil-fuel burning light-duty vehicles (LDV).
12,500	Estimate of the average annual number of miles travelled by an LDV in the area (for Vermont as a whole, total vehicle miles traveled per registered vehicle was around 12,500. The vast majority of LDV in Vermont can safely be assumed to drive between 9,000 and 15,000 miles annually).
22	Estimate of the average fuel economy of fossil-fuel burning LDV fleet in the area, in miles per gallon (state-wide average fuel economy).
332,025	**Estimated number of gallons of fossil fuel consumed annually, calculated from the values above.**
121,259	Number of Btu in a gallon of fossil fuel, computed as a weighted average of the individual heat contents of gasoline (95%) and diesel (5%).
43,043	**This is the estimated total annual energy consumption of internal combustion vehicles in the area, in millions of Btu.**

To estimate the cost of this consumed energy, we assumed a cost of $2.34 per gallon (Vermont state average in 2015). In Wardsboro, consumers spent over $777,868 on transportation related fuel costs alone.

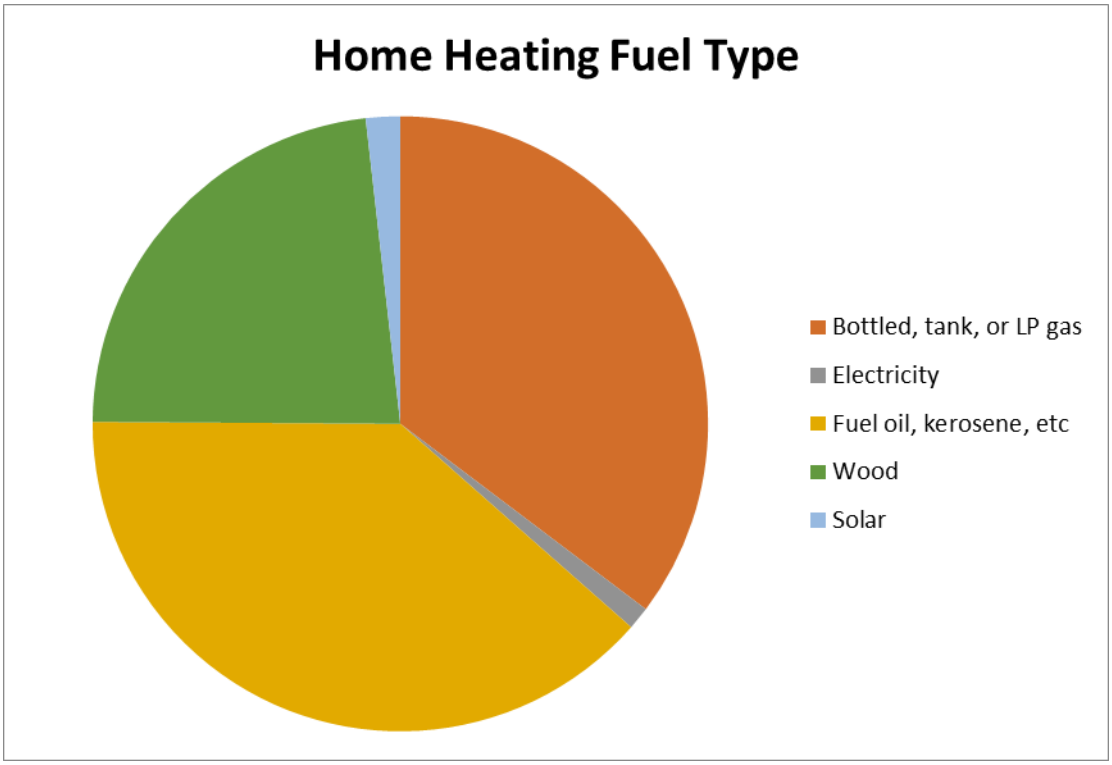
Current Heating Demand

To account for the different building types and their respective uses, the following estimates divide thermal energy demand by either residential or commercial use (industrial building thermal demand is not included).

For residential buildings, it was assumed that average annual heating load of area residences is 110 million Btu, for both space and water heating (Vermont state average). With 374 primary housing units in the town, this arrives at an estimated 41,140 MMBtu annual total heat consumption.

Furthermore, census data also provides information on the home heating fuels used for both owner-occupied and renter-occupied housing units (both are considered "occupied"). Figure 3 below shows a comparison of fuel types used by owner and renter-occupied housing units according to the census data.

Figure 15: Home Heating by Fuel Type in Wardsboro



For both housing unit ownerships, an estimated total of just over $1.0 million was spent in home heating (roughly $918,000 from home owners and $86,000 from renters). This cost is a significant expense for homeowners and renters each year.

In Wardsboro, there is also a high percentage of seasonal homes (44% of housing units are primary/"occupied" homes, while 56% are seasonal/"vacant" homes). Based on the energy model projections from the state (created by the LEAP, or Long-Range Energy Alternatives Planning model), it can be assumed that seasonal homes only use about 15% of the energy of a primary home, due to more occasional use and a presumed higher energy efficiency. As such, seasonal homes in Wardsboro are estimated to consume about 7,854 MMBtu annually (compared to the 41,140 MMBtu for primary residences).

For commercial establishments, it is estimated that the total heating load is 6,740 MMBtu each year. For the state, the average is in the range of 700 MMBtu to 750 MMBtu per year but the average for any given area is very likely to be significantly higher or lower, as the mix of businesses from region to region is highly variable. Based on the types of commercial buildings in Wardsboro, the heating load was calculated to be less than the state average. With 14 commercial establishments, there is an estimated thermal energy demand of 5,779 MMBtu. These businesses pay about $129 thousand each year in heating expenses. 3 of these establishments are home businesses therefore their heating expenses have been accounted for. As these calculations are based on estimates, census data, and some statewide averages, there is an assumed margin of error with these heating

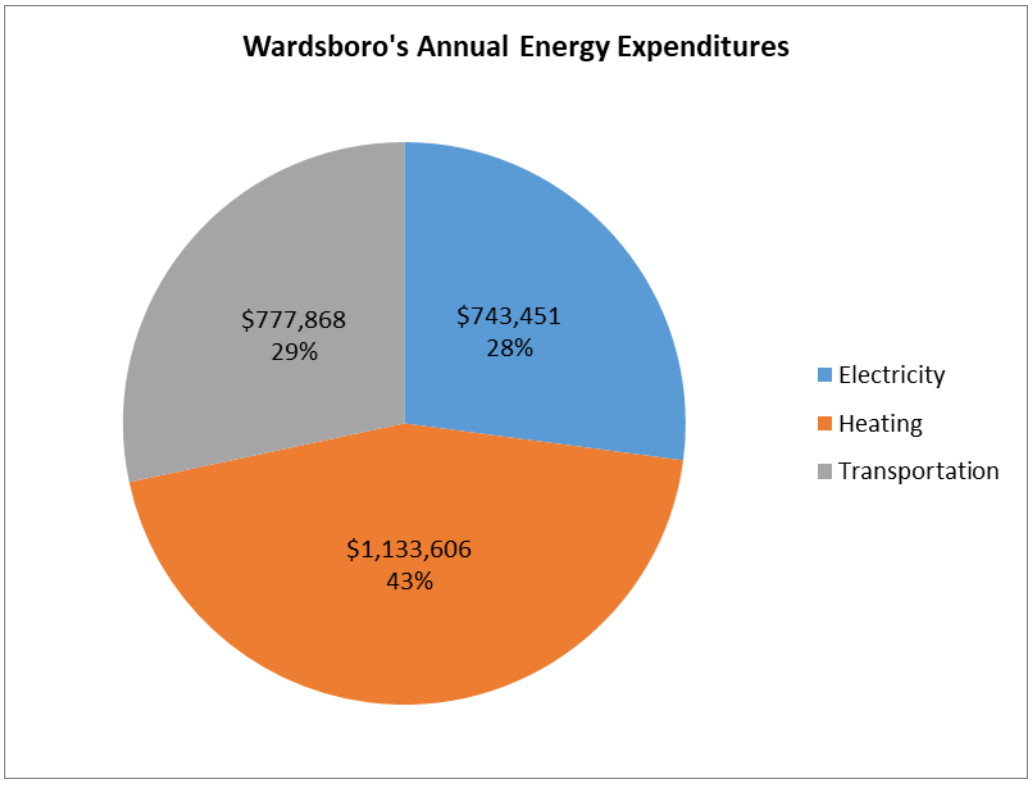
numbers. Though they may not be exact, they are representative of Wardsboro's population.

The total cost of residential and commercial heat consumption in Wardsboro is about $1.13 million annually.

Total Energy Costs

In sum, Wardsboro pays a staggering amount in energy across the three use sectors. The total estimated cost to the town for electricity, heating, and transportation is roughly $2.7 million dollars each year. There are real financial incentives for the town to move toward energy efficiency, on behalf of both the residents and its business owners (see section "*4. Energy Scarcities, Challenges, and Strategies*" of this plan for more detail about energy efficiency and conversion targets).

Figure 16: Wardsboro's Annual Energy Expenditures



3. Wardsboro's Resources, Constraints, & Potential for Energy Generation

Energy resources within Wardsboro are all renewable resources: wood, solar, hydro, and wind. In order to reduce dependence on conventional energy sources, of which the costs

and availability are outside residents' control (see the section above), the use and generation of alternative energy sources is encouraged.

Any commercial or utility scale development for renewable energy generation in Wardsboro shall be guided by the energy goals and policies in this plan and all other pertinent information, goals, and policies in both the Wardsboro Town Plan and the Windham Regional Energy Plan. When a generation facility is proposed, the presence of all natural resources on site shall be verified as a part of the application.

Resource Mapping Process and Policy Tool

Maps used for energy planning were provided by Windham Regional Commission and are included in this plan. These maps show data required by Vermont's Act 174 Energy Planning Standards. Energy resources and constraints for renewable energy generation are identified by the Vermont Public Service Department in their Act 174 Energy Planning Standards.

The Wardsboro Planning Commission used these maps and criteria for preferred energy generation sites provided by the Vermont Public Utility Commission Rule 5.100 to develop policies and recommendations for action regarding renewable energy generation in Wardsboro.

Solar Resource Maps

The map of solar energy potential in Wardsboro indicates areas best suited for capturing solar energy, while also factoring known and possible constraints. The areas shown on the map as best suited for capturing solar energy are primarily southern facing slopes. Known constraints for energy generation in Wardsboro include FEMA flood hazard areas, vernal pools, wetlands, hydric soils, agricultural soils, protected lands such as private conservation lands and Green Mt. National Forest, deer wintering areas, and Vermont Conservation Design Highest Priority Forest Blocks.

According to the mapping analysis, there are 1,788 acres of prime solar (land with no constraints) within Wardsboro.

There are no electric transmission lines or substations in Wardsboro. 3 phase electric power lines run along state highway Route 100 in Wardsboro from East Jamaica to West Wardsboro, from Route 100 up Sheldon Hill Road, and along Townshend Dam Road from Townshend to South Wardsboro-Newfane Road. The nearest electric transmission lines are in Townshend beyond the northeast corner of Wardsboro.
Currently there are no commercial or utility solar generation facilities in Wardsboro. There are fewer than 5 residences with approximately 17.5 kW of solar power total capacity.

Wind Resource Maps

The map of wind energy potential in Wardsboro indicates areas best suited for capturing wind energy, while also factoring known and possible constraints. Of the areas shown on the map as best suited for capturing wind energy, one area runs primarily along the eastern side of Wardsboro. If 3 parallel lines were drawn from east to west on the wind energy potential map of Wardsboro, dividing the town into thirds, the center section contains the other large areas identified as prime wind energy resource. Known constraints for energy generation in Wardsboro include FEMA flood hazard areas, vernal pools, wetlands, hydric soils, agricultural soils, protected lands such as private conservation lands and Green Mt. National Forest, deer wintering areas, and Vermont Conservation Design Highest Priority Forest Blocks.

According to the mapping analysis, there are 5,117 acres of prime residential scale, 3,369 acres of prime small commercial scale, and 816 acres of utility scale wind.

There are no electric transmission lines or substations in Wardsboro. 3 phase electric power lines run along state highway Route 100 in Wardsboro from East Jamaica to West Wardsboro, from Route 100 up Sheldon Hill Road, and along Townshend Dam Road from Townshend to South Wardsboro-Newfane Road. The nearest electric transmission lines are in Townshend beyond the northeast corner of Wardsboro.

Currently, there are no commercial or utility wind generation facilities in Wardsboro. There are no residences generating wind power.

Wardsboro's Preferred Locations

Since development in Wardsboro is mostly residential and the terrain mountainous, the preferred type of renewable energy generation is rooftop solar panels (photovoltaic systems). According to the data and calculations for Wardsboro in the LEAP model, Wardsboro has the potential to generate sufficient renewable energy for the town with photovoltaic systems.

Commercial and utility renewable energy generation proposals for Wardsboro need to consider proximity to electric transmission lines, 3 phase power lines, location near the end of utility distribution lines for grid support, existing road infrastructure, known and possible constraints, current and proposed land use, health and environmental impacts, and criteria outlined in Vermont Public Utility Commission Rule 5.100. See policies under energy goal 4 in this town plan for criteria regarding preferred locations for renewable energy generation.

Areas Unsuitable for Renewable Energy Siting

Given the data in Wardsboro's energy maps, current infrastructure, and terrain of the natural environment in Wardsboro, hydro power generation does not seem to be practical

or cost-effective here. Also, there is no existing infrastructure for the generation of hydro power in Wardsboro.

Areas unsuitable for commercial and utility scale renewable energy generation in Wardsboro are those areas identified as having known constraints such as FEMA flood hazard areas, vernal pools, wetlands, hydric soils, agricultural soils, protected lands such as private conservation lands and Green Mt. National Forest, deer wintering areas, and Vermont Conservation Design Highest Priority Forest Blocks.

4. Wardsboro's Energy Targets and Conservation Challenges

The Windham region was given an overall renewable energy generation target, as determined by the Department of Public Service, based on its percentage of the state's population (which directly affects its share of statewide consumption). The Windham Regional Commission (WRC) then determined energy generation targets for each of their member-towns, based on both the resource availability in town and its population. The resulting town generation targets are an average between those two characteristics.

Energy Generation Targets

In Wardsboro, it is estimated that 1,864 megawatt-hours of renewable energy should be generated each year. This figure is an average of 899 MWh (based on the town's share of the regional population), and 2,829 MWh (based on the percent of regional resource availability). This estimated generation target serves as a starting point from which the town can develop policy to address its energy needs.

To translate this figure into what kinds of installations would be required, 1,864 MWh of renewable energy each year would require a total of 1,434 kilowatts of solar photovoltaic installations (using the assumption that only solar energy would contribute to the overall energy generation target, not any other generation sources).

On the landscape, this could mean that the town identifies 86 acres of solar-capable land. This is a very conservative figure; assuming that each mega-watt of energy requires 60 acres (on average, solar installations produce a single mega-watt over 8 acres). Using the 60 acres/megawatt energy production rate is for contingency; meaning that it reserves space for landowner, grid, or spatial constraints that may limit development. This ensures enough space would be delineated. The Town's prime resource more than adequately accommodates this target given that the acreage of prime solar identified is 1,788.

If other renewable energy sources were to be used, this amount of solar photovoltaic installations would decrease.

Although renewable energy generation can occur in the town and supply its residents with reliable, affordable, and clean power, the town is challenged by the current amount of energy being consumed. In order to minimize the amount of energy generation

required, the town must first develop strategies to reduce the amount of energy consumed.

The municipal government has taken steps to conserve energy and make all municipal buildings more energy efficient. Energy audits were conducted at all municipal buildings and the elementary school in town. In December 2009, Hand Energy Services performed energy audits on the town garage, town office, and town hall.

Insulation was added to the town hall and the school. The town garage is a relatively new building. In September 2011, Farnum Cellulose Insulators insulated the walls and ceiling of the town hall which cost a total of $10,308. The Town received two grants totaling $7,602. to offset the cost.

Fluorescent light fixtures in the town office, town hall, and town garage were upgraded with more energy efficient fixtures and all fluorescent tubes were replaced with recyclable bulbs. In March 2010, Rise Engineering was hired to perform the lighting changes in all three municipal buildings and the lights at the town's MacMichael Park.

The street lights in town are now LED lights. In November and December 2016, Green Mountain Power changed the street lights that did not already have LED bulbs; 11 units which Efficiency Vermont paid for at an estimated cost of $578. The Town's savings for the first year was estimated to be $547.

In addition, the Selectboard passed a no idle policy for public works vehicles.

The town is also participating with other towns in the region to have a solar array system installed in Brattleboro. Each participating municipality will benefit from a percentage of the power generated at this installation.

Projected Energy Use: LEAP Model Results

To help inform the town's policies on energy conservation measures, the town used guidance from the LEAP (Long-Range Energy Alternatives Planning system) model, conducted by the Vermont Energy Investment Corporation as part of the state's comprehensive energy planning initiative.

The LEAP model is used to guide the state's regions towards reducing the amount of greenhouse gas emissions and consuming 90% renewable energy by 2050 (referred to as the "90x50" goal). To accomplish the state's energy goals, there are several interim benchmarks built into the LEAP model which ensure a progressive pace in attaining that "90 x 50" goal. The state energy goals are:

- Greenhouse gas reduction goals of 50% from 1990 levels by 2028 and 75% by 2050.
- 25% of energy supplied by renewable resources by 2025 (25 x 25).
- Building efficiency of 25% of homes (80,000 units) by 2020.

Incorporating those goals into the model produced energy generation, conservation, and fuel conversion targets for benchmark dates for all regions in the state, and is informed by the region's current energy profile. The WRC received the results from this model and was tasked with making those results relevant to its member-towns. The WRC therefore divided its region-wide benchmark targets among its towns based on their population (which is assumed to most directly impact the amount of energy the towns consume).

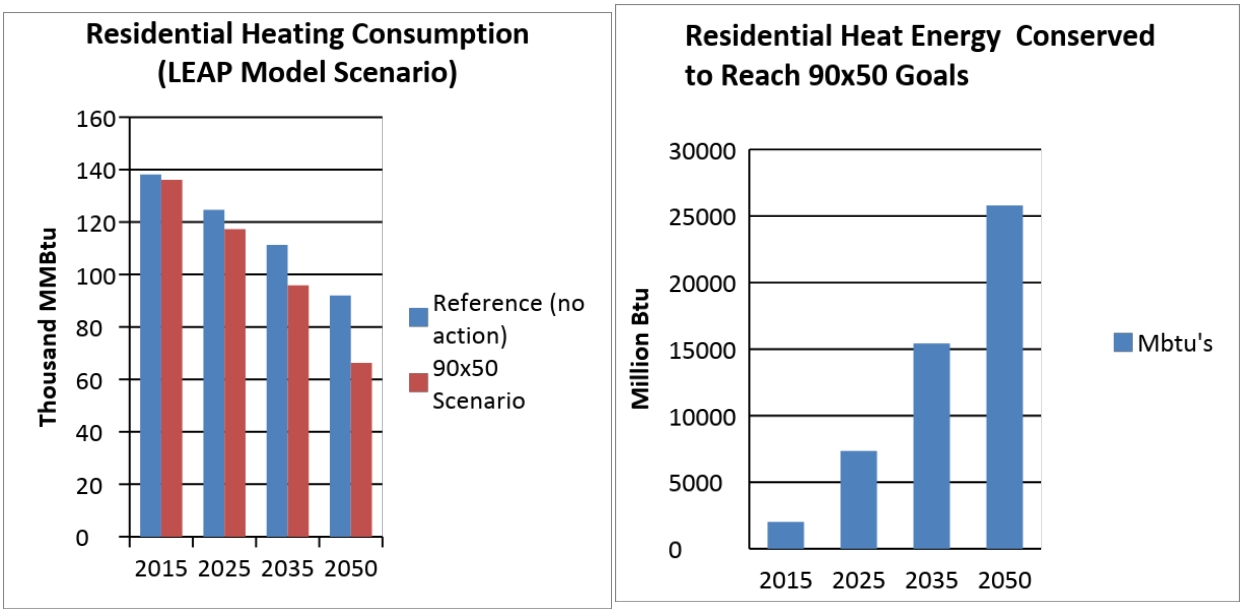
The following paragraphs and figures show Wardsboro's LEAP model results, and how much energy could be conserved in order to reduce the burden of energy generation facilities in the region.

Residential Heating Conservation & Fuel Conversion

In order to determine how much energy would have to be conserved or how much fuel conversion to renewable energy, the LEAP model produced both a "Reference" and "90x50" scenarios. The Reference scenario is meant to depict energy use over decades if no major changes were made in our energy profile. It is the "business as usual" scenario. The "90x50" scenario shows one pathway that communities can adopt in order to reduce greenhouse gas emissions, conserve energy, and generate renewable energy so as to meet the state's goals. This pathway is translated to Wardsboro's use, and is shown below. It is another data estimate that serves to help inform the town to develop its own policies for energy conservation and fuel conversion.

Figure 17 below shows the LEAP results for Wardsboro's residential heating sector. In both the Reference and 90x50 scenarios, energy consumption is modeled to decrease (on account of technological improvements, building innovation, and home efficiency improvements).

Figure 17: Modeled Residential Heating Consumption and Conservation in Wardsboro Through 2050



However, the 90x50 scenario shows a sharper increase in the amount of energy conserved in residential heating. Table 13 on page 76 shows how much energy should be conserved, through 2025, 2035, and 2050, to help the town arrive at these energy goals. Not only would energy need to be solely conserved by building efficiency measures, but fuel conversion to more efficient energy sources would be promoted. Wood for heating is available in Wardsboro. Those who are using old wood heating systems should upgrade to newer, more energy efficient wood heating systems if continuing to use wood as fuel for heating. Those who use fossil fuels should convert to renewable energy sources for heating, which can include heat-pump systems.

In order to attain the renewable energy goals, the following cumulative targets have been established for Wardsboro for years 2025, 2035, and 2050.

Table 10: Thermal Efficiency Targets through 2050

Thermal (Heat) Efficiency Targets at Benchmark Years			
Use/Sector	**2025**	**2035**	**2050**
Residential thermal (increased efficiency and conservation): Percent of municipal households to be weatherized over benchmark years to meet efficiency targets.	9%	17%	34%
Residential thermal (increased efficiency and conservation): Estimated number of municipal households to be weatherized.	72	141	290
Commercial thermal (increased efficiency and conservation): Percent of commercial establishments to be weatherized over benchmark years to meet efficiency targets.	9%	16%	30%
Commercial thermal (increased efficiency and conservation): Estimated number of commercial establishments to be weatherized.	2	5	8

Additionally, the following fuel conversion targets are set for heating fuel types used, with an emphasis towards shifting to more renewable heat sources and using more efficient sources (such as heat pumps).

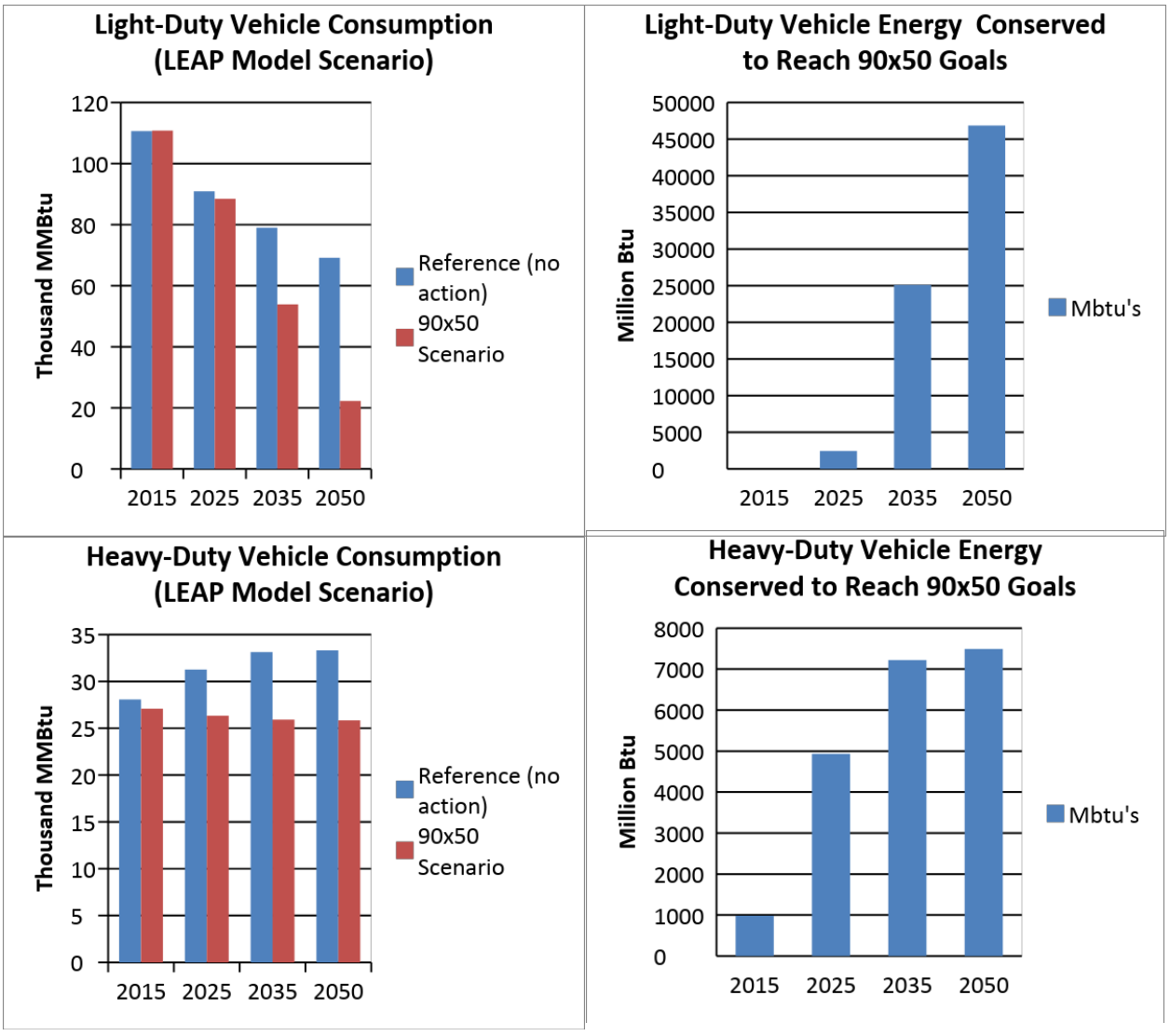
Table 11: Targets for Thermal Fuel Switching Through 2050

Heating Fuel Switching Targets			
Use/Sector	**2025**	**2035**	**2050**
Residential and Commercial Thermal Fuel: Estimated **new efficient wood heat systems overall** (in units) in the LEAP 90x50 scenario (this includes both wood stoves and wood pellet burners for homes and businesses). *This number may decline over the target years, which indicates an overall trend toward energy conservation and building weatherizing, which reduces the demand on heating systems.*	218	208	208
Residential and Commercial Thermal Fuel: Estimated **new wood pellet systems only** (in units) in the LEAP 90x50 scenario.	85	93	117
Residential and Thermal Fuel: Estimated **new heat pumps** (in units).	67	133	188

Transportation System Changes

The LEAP model created benchmark targets for both light and heavy duty vehicles, assuming a difference in residential and industrial energy needs and changes over time. Below are the two interpretations of these sector's efficiencies over time.

Figure 18: Modeled Vehicle Consumption and Conservation for Light Duty and Heavy Duty Fleets by 2050



Light-duty vehicle consumption represents a larger portion of the total amount of energy consumed by the transportation sector, and there is a large amount of energy conservation required. The LEAP model projects much of this conservation of energy comes from the electrification of the vehicle fleet, especially as market demand changes and technology improves. This reduction in gasoline consumption and electrification of the car motor comes in addition to increased cluster developments and other land use changes that

improve the efficiency of our community's transportation network. It will be difficult for our community to convert to electric vehicles unless prices become more affordable and public charging stations become more available. The following targets for the years 2025, 2035, 2050 are set for the town's transportation fuel conversion:

Table 12: Targets for Fuel Switching in Transportation in Wardsboro

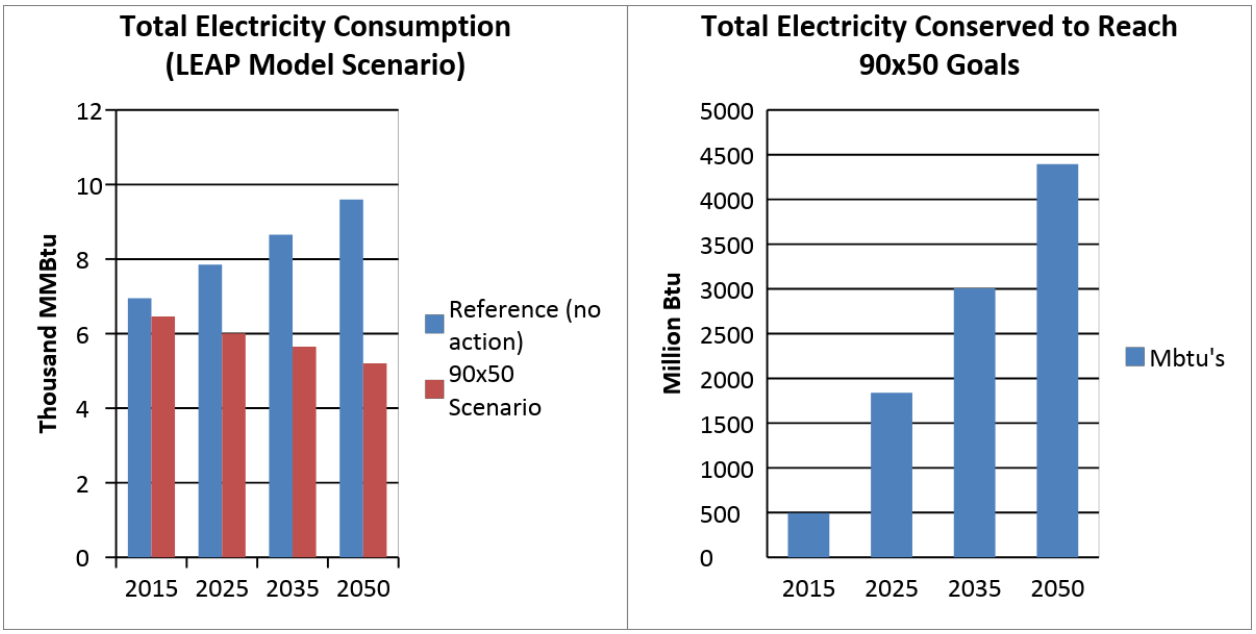
Transportation Fuel Switching Targets			
Use/Sector	**2025**	**2035**	**2050**
Transportation Fuel: Estimated number of **new electric vehicles, in town.**	47	329	694
Transportation Fuel: Estimated number of **biodiesel-powered vehicles, in town.**	71	136	263

Heavy-duty vehicle consumption doesn't show the same curves as per light-duty vehicles, since commercial and industrial applications for this vehicle fleet isn't anticipated to change as much. However, efficiency in this sector is achieved by changing the fuel type for these vehicles from diesel to bio-diesel. It will be difficult for our community to convert to biodiesel unless it becomes more available and affordable. In addition, biodiesel needs to be viable in terms of engine function, performance, and maintenance.

Electricity Conservation

Over the benchmark years, electricity rates are anticipated to increase in the Reference scenario, due to a combination of more amenities, appliances, and motors being supplied by electric power, and an increase in the number of people using those products. The 90x50 scenario promotes electricity conservation in the form of energy-efficient appliances, lighting, and heating/cooling.

Figure 19: Modeled Electric Consumption and Conservation by 2050



Pursing these upgrades, the town is targeted to save the following in electrical conservation measures for target years 2025, 2035, 2050:

Table 13: Electric Sector Efficiency Targets in Wardsboro

Efficiency Targets at Benchmark Years			
Use/Sector	**2025**	**2035**	**2050**
Electricity: Number of kilo-watt hours to be conserved, annually, over the target years.	159,900	261,300	382,200
Electricity: Percentage of number of homes and buildings that will have been upgraded with electric efficiency improvements.	42%	68%	100%

Conservation and Efficiency Strategies

With total energy expenditures in the Town about 2.7 million dollars, there is considerable opportunity for savings from various energy conservation and improved efficiency measures. Because most of the energy use in Wardsboro is for private uses (home heating, commuting, etc), savings would accrue primarily to residents. Public education is one of the most effective strategies to bring about savings through energy conservation and improved efficiency, though there are some specific policies that can also move the community in that direction.

Most new construction in Wardsboro is required to meet or exceed the Vermont Building Energy Standards (for both residential and commercial buildings) through the use of insulation, heating systems, and weatherproof windows and doors. Current building codes provide basic energy efficiency requirements for buildings; however, technology advancements have generated higher standards such as net-zero energy construction standards in which buildings generate as much energy as they consume. Green construction and LEED Construction (Leadership in Energy and Environmental Design) standards promote the use of natural, recycled and durable building materials, as well as energy efficiency. These efficiency standards are also applied to landscaping, advocating for native plantings that are low maintenance.

The siting, design, and construction of buildings strongly influences the amount of energy needed for heating as well as the amount of electricity needed for lighting. Proper subdivision design, building orientation, construction and landscaping provide opportunities for energy conservation such as less vehicular travel, and by designs incorporating passive solar space and domestic hot water heating, natural lighting and photovoltaic electricity production.

Energy savings can be realized by retrofitting existing buildings with insulation, installing high-performance windows and doors to reduce heat loss, weather-stripping, replacing incandescent lights with fluorescent and LED lights, and using energy efficient appliances. The following programs are available to residents of Wardsboro:

- Southeastern Vermont Community Action (SEVCA): SEVCA is the service provider in Windham County that runs the Weatherization Assistance Program. Weatherization services, which include an energy audit, diagnostic tests, analysis and installation measures, are available at no cost to income-eligible homeowners and renters. SEVCA is also available to help in the event of a heating emergency. They can help purchase oil, kerosene, propane or wood. In addition, they also work with electric companies in order to prevent disconnection and help negotiate payment plans.
- Efficiency Vermont: Efficiency Vermont is the State's provider of energy efficiency services. They provide technical and financial assistance to electrical consumers for the purpose of improving the efficiency of existing and new facilities.
- ENERGY STAR Home Rebates: Energy Star Homes meet strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and U.S. Department of Energy. Efficiency Vermont provides free financial, design, and technical to help build an ENERGY STAR qualified home. Benefits of being an ENERGY STAR home include financial incentives such as product rebates; utility savings; higher resale value; increased comfort and air quality; and other environmental benefits.
- Vermont Housing Finance Authority's Energy Saver Loan Program: Administered by Windham & Windsor Housing Trust, this program offers low interest loan funding for homeowners for an energy audit and improvements specified in the audit.

Transportation-related efficiency strategies are a very significant part of Wardsboro's efforts, since it represents a significant portion of the energy demand. Simple changes, such as ride-sharing, combining trips and using alternative transportation, will conserve fuel and reduce wear and tear and maintenance costs on individual vehicles. Fuel efficient and electric cars will use less gasoline and emit less pollution.

Effective land use planning can promote energy conservation. Targeting new development toward areas located close to the community's major roads and existing settlements will minimize the energy consumed by residents commuting, and will reduce the energy required to deliver essential services to residents and businesses.

5. Energy Goals, Policies, and Action Steps

Goal 1
Reduce total energy use by promoting energy conservation and efficiency measures, while reducing long-term energy costs in Wardsboro and ensuring protection of public health and safety, and the natural environment.

Policies

1. Maintain and improve as needed the energy efficiency of municipal buildings.
2. Inform town residents, businesses, and organizations of energy goals and conservation measures.
3. Promote increased use of renewable energy sources and heat pumps for heating.
4. New construction, including additions, should comply with residential and commercial building energy standards. Existing buildings that undergo alterations, renovations, and repairs should also comply with residential and commercial building energy standards.
5. Promote energy efficiency measures for existing buildings.

Recommendations for Action

1. Establish an energy committee for Wardsboro or a joint energy committee with neighboring town/towns to help keep the town informed of all significant energy issues and communicate the issues with residents effectively. (Planning Commission, Selectboard)
2. Provide list of existing utility and other efficiency and conservation programs and/or contact information to citizens, including programs that conduct energy audits and/or provide weatherization services for existing homes; and encourage citizens to use them. (Energy Committee)
3. Encourage owners of structures to utilize energy efficient lighting fixtures and appliances. (Energy Committee)
4. Determine Town activities where municipal energy use can be reduced and implement a program to provide measureable results. (e.g. municipal buildings, coordinate public transit opportunities to major events in Wardsboro) (Selectboard, Planning Commission)
5. Provide informational materials to owners or builders at the time a Zoning Permit is issued to inform property owners about available energy programs such as Efficiency Vermont and SEVCA. (Zoning Administrator)

6. Maintain a process for considering energy use and efficiency when making municipal investments and expense decisions. (Selectboard)
7. Make available known sources of funding for energy conservation and efficiency measures. (Energy Committee)
8. Provide opportunities that inform and demonstrate efficient use of renewable energy sources for heating. (Energy Committee)
9. Provide literature in a variety of ways to citizens about energy goals, energy conservation, reasons for utilizing renewable energy sources and generating them locally. (Energy Committee)
10. Encourage the institution of an energy awareness curriculum in schools. (Planning Commission)
11. Develop guidelines for energy conservation to be used in site plan or conditional use review. (Whenever possible, development should be encouraged only in areas with characteristics most suitable for maximum energy conservation, including southern orientation and protective wind barriers.) (Planning Commission, Bylaw Revision Committee)
12. Consider requiring a reimbursable fee (as part of a zoning permit) to ensure that developers properly file their Residential Building Energy Standard Certificate. (Planning Commission, Zoning Bylaw Revision Committee, Selectboard)
13. Consider waiving building permit fees for new homes designed for net-zero buildings. (Planning Commission, Zoning Bylaw Revision Committee, Selectboard)
14. Explore opportunities for an online wood marketplace for community members to access locally-source and renewable wood products. (Energy Committee)

Goal 2

Reduce transportation energy demand/use while providing for safe, convenient, economic, and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and accommodations for pedestrians and cyclists.

Policies

1. Promote strategies to reduce transportation energy use whenever possible by supporting bicycle/foot paths as a means to encourage non-automobile travel, carpooling, ride-sharing, public transit, private multi-passenger service, and infrastructure that encourages telecommuting.
2. Encourage the use of hybrid and electric vehicles, and vehicles powered by other means not involving fossil fuels, as they become reasonably available to the public.
3. Promote the installation of electric vehicle charging infrastructure. (e.g. at gas station, school, and public parking lots)

Recommendations for Action

1. Inform citizens of the *Go! Vermont* website (www.connectingcommuters.org) and examine ways to facilitate car and van pools and ride-sharing. (Energy Committee)

2. Provide opportunities that inform and demonstrate vehicles powered by electricity and other means not involving fossil fuels; and information regarding charging electric vehicles at home. (Energy Committee)
3. Support the state of Vermont to work with other states and auto manufacturers to produce practical energy efficient vehicles. (Planning Commission, Selectboard)
4. Inform vehicle dealers in the region of goal to shift to non-fossil fuel vehicle availability. (Energy Committee)
5. Examine ways to facilitate public and/or private multi-passenger services. (Planning Commission)
6. Continue efforts to bring new, improved, and affordable internet services to Wardsboro. (Selectboard, Planning Commission)
7. Work with neighboring municipalities and Windham Regional Commission to explore the feasibility of establishing a West River Valley public transportation service, and restoration of public transportation to the Deerfield Valley; and including satellite parking lots. (Planning Commission)
8. Investigate funding opportunities to develop roadside pathways in the villages for pedestrians to walk safely along main thoroughfares and to the school. (Planning Commission)
9. Purchase energy efficient municipal vehicles when practicable. (Selectboard)

Goal 3
Create land use patterns and development densities that result in conservation of energy.

Policies
1. Concentrate future commercial development in or near Wardsboro and West Wardsboro Villages.
2. New development shall consider energy conservation by concentrating growth near the village centers, clustering development, siting buildings for solar gains, and minimizing road construction.
3. Development along existing roads shall be conducive to the best use of available land without leading to strip development; including U.S. Post Office building locations being in or near Wardsboro and West Wardsboro villages.
4. Create a walkable community by working toward safe and convenient pedestrian access to all portions of the Villages.
5. Allow home-based and land-based businesses throughout the Town that will not adversely impact neighboring properties and the quality of the natural environment.
6. Allow the retention and acquisition of public or private conservation lands to promote recreation, reforestation, water conservation, and suitable forestry practices.
7. Require that public/commercial utilities and transmission facilities share the use of corridors in order to minimize the impact on the environment and to maintain desired development patterns.
8. Require that commercial renewable energy projects adhere to defined land use purposes and criteria and be sited to minimize visual impact.

9. Do not consider as commercial use, residential connection of individual wind energy and photovoltaic systems to the electric power grid under "net-metering".
10. Encourage landowners with woodlots to participate in sustainable management programs that emphasize full utilization of fuelwood resources as well as the production of high grade saw timber. Cordwood for domestic use is an important by-product of better forest management.
11. Require that environmental integrity and traditional district settlement density patterns be considered in developing sites for new housing.
12. Where appropriate, promote mixed-uses in the Village-Commercial District.
13. Preserve village character through appropriate design and scale of commercial, residential, transportation infrastructure, and community structures and uses.

Recommendations for Action

1. Update Wardsboro Zoning Bylaw to coincide with changes in the Wardsboro Town Plan. (Planning Commission, Zoning Bylaw Revision Committee)
2. Provide opportunities that inform and demonstrate how passive solar can be used to provide heat, as well as light, in homes. (Energy Committee)

Goal 4

Establish renewable energy generation in Wardsboro based upon criteria outlined in policies in this plan.

Policies

1. Encourage the efficient use of energy and the development of renewable energy resources such as wood, solar, and wind.
2. Promote the installation of roof-top solar panels by residents and businesses in Wardsboro.
3. Criteria for preferred energy generation sites:
   Per Vermont Public Utility Commission Rule 5.100
   a. Rooftops
   b. Parking lot canopies
   c. Historic impervious surfaces with no adverse ecological impact from development
   d. Brownfield sites
   e. Landfills
   f. Gravel pits
   g. Municipally designated "preferred sites"
   h. National priorities listing, otherwise known as a Superfund site
   i. Contiguous member of Group Net-Metered system consuming greater than ½ system total output for 10 years

   Criteria for qualifying "preferred sites" under letter g above:
   1. Proximity to transmission lines and 3 phase power lines to reduce utility infrastructure expansion
   2. Location near the end of utility distribution lines for grid support
   3. Lack of viewshed impact for those objecting to the appearance of the development

4. Existing road structure suitable for installation and maintenance
5. Minimal impact upon agricultural use of high quality soils
6. No disruption of wildlife travel corridors or living habitat
7. South facing slopes having low quality agricultural soils which allow higher density solar arrays
8. Location on agricultural soils only with facility design compatible with continued agricultural use
9. No interference with riparian buffers, aquifer recharge areas, and forests used for wood products.

Recommendations for Action

1. Consider no property tax and/or no permit fee or no permit needed for residential roof-top solar installations. (Selectboard, Planning Commission)
2. Provide opportunities that inform and demonstrate photovoltaic systems, wind generating systems, and net-metering for homeowners and small businesses. (Energy Committee)
3. Consult with Snow Mountain Farms Association regarding the association's rules/codes and Wardsboro's energy goals and policies. (Planning Commission)

Transportation

Goals

1. Provide for safe, convenient, economic and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and accommodations for pedestrians and cyclists.

2. Maintain convenient and safe transportation commensurate with need.

3. Preserve the scenic beauty of the Town's transportation corridors to assure that Wardsboro remains attractive to both residents and visitors who are important to the area's economy.

Existing Transportation System

Wardsboro is a rural town with much of its development along the banks of the Wardsboro Brook historically known as The Branch. It is not surprising, then, that the Town's main arterial highway, Vermont Route 100 (VT 100), runs alongside Wardsboro Brook from the west border with Stratton to the border with Jamaica in the north. Other major town roads tend to follow some of the smaller watercourses. VT 100, a state-maintained road of 7.4 miles in Wardsboro, provides regional access to the town's network of 46.8 miles of Town-maintained roads. Approximately 4.8 miles of road in the Town are classified as Class 4. No state appropriation is made for maintaining Class 4 roads.

Table 14: Town and State Road Mileage in Wardsboro

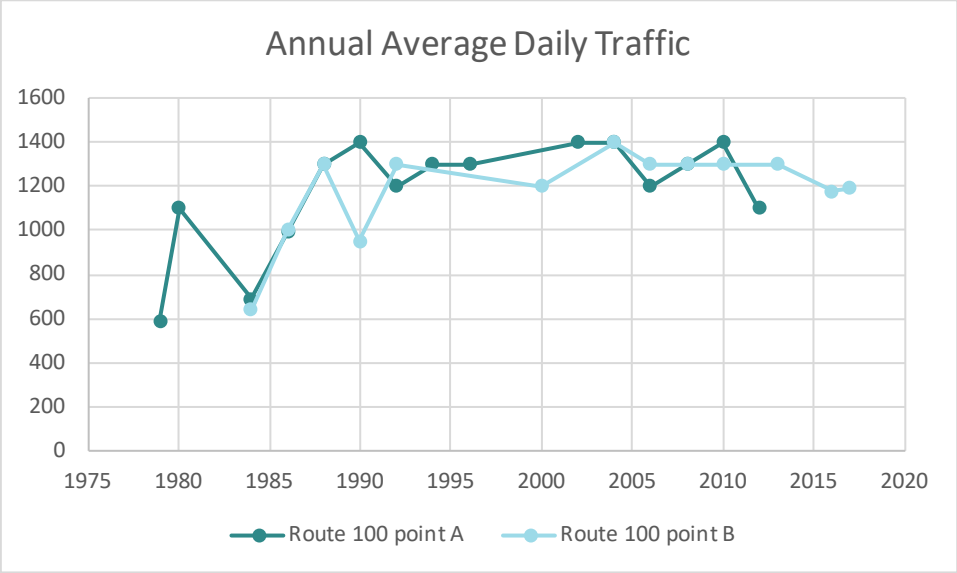
Town				State
Class 1	Class 2	Class 3	Class 4	State Highway
0.0	6.4	40.4	4.8	7.4

(Vermont Agency of Transportation, 2009)

Of the town maintained roads just over 7 miles are paved. The surface of the remaining 40 miles is a mix of gravel and dirt. Unpaved roads tend to limit the amount of traffic and discourage speeding, thereby promoting vehicle and pedestrian safety and, at the same time, helping to preserve the rural character of the town.

Annual average daily traffic (AADT) is the total volume of vehicle traffic divided by 365 days. The Vermont Agency of Transportation (VTrans) and Windham Regional Commission (WRC) collect traffic volume data in Wardsboro at dozens of locations throughout the town. Data collected multiple times from the same location offer the most insight into changes in traffic patterns over time. Two of the collection points along Route 100 have over a dozen counts each, with data collected from the late 1970s to the present. Point A is located just east of Fitts Roads and point B is south of Stratton-Arlington Road. In 1984, the AADT for both points was less than 700, followed by a sharp increase to an AADT of 1,300 for both points by 1988. Traffic volume continued to climb at a slower rate to a peak of 1,400 in the early 2000s. Since then, the volume has gradually decreased to an AADT of just over 1,100.

Figure 20: Annual Average Daily Traffic on Route 100



Traffic counts on local roads in Wardsboro have been less frequent, but also suggest that recent years have seen only minor variation in the AADT. Main Street had an AADT of 307 as recently as 2016, down from 330 in 1979. On South Wardsboro Road, the AADT has gradually but steadily increased over the years- from 210 in 1978, to 300 in 1995, to

the most recent count in 2018 of 310. Future counts in Wardsboro will focus on collecting additional data on local roads for more detailed analysis.

The town has a multi-year plan to reclaim and repave town highways on a rotational basis. Tropical Storm Irene damaged most town highways in Wardsboro and some major repairs remain to be completed.

In 2007, the Town of Wardsboro, with assistance from Windham Regional Commission, conducted an infrastructure inventory. This inventory included the following: locating all culverts and bridges and determining the exact location of each one through a Global Positioning System receiver (GPS); assessing the condition, size, type, and material of each culvert; and assessing the road condition of all Class II and Class III town highways through the Road Surface Management System (RSMS). The Public Works Foreman updates all culvert installations every summer to keep the town up to date with the state inventory list.

Wardsboro participated in the *VT Route 100 Corridor Study* (Windham Regional Commission, January 2002) which documented lack of access controls, speed, and volume of traffic and safety issues along the corridor. Of particular concern to the Town were the following issues:

<u>Wardsboro Town</u>

- Shoulder width and pavement condition overall is fair with some poor conditions in the higher elevations between West Wardsboro and Stratton.

- Several pull-off areas occur on sharp curves or near a steep change in grade and cause hazardous conditions for vehicles parking or exiting the area. Some of these are locally popular fishing and swimming areas and could be improved to protect public access.

- Residential driveway connections occur at two sharp bends in the roadway, located approximately 1 mile and 3 miles south of Wardsboro Village. Access to the homes is dangerous with traffic coming around the curves at high speeds with little warning for turning vehicles. Warning signs or a caution light might improve this situation.

<u>West Wardsboro</u>

- The Wardsboro Brook Bridge (#68) was replaced in 2017. The bridge still has a sharp curve in the road on each side. This works as traffic calming for the village; but can be dangerous if vehicles traveling in opposite directions are not adequately prepared to navigate the bridge. The speed limit is lower in West Wardsboro village than the 50 MPH along Route 100 outside of the village. The nose-in parking along the shoulder is especially a problem where it occurs near the already dangerous bridge at Wardsboro Brook.

- The village could use some pedestrian pathways and off-street parking if it is going to provide a suitable environment for attracting visitors. The post office is isolated from

the village and there is no obvious place for pedestrians to walk except along the narrow shoulder. A Pedestrian Warning sign is located east of the post office; however, there is no suitable place for them to walk. A pathway on the south side of Rt. 100 would provide a wonderful way to appreciate the brook running along the village edge.

Wardsboro Village

- The geometry of the South Wardsboro Road bridge intersection with VT 100 is such that trucks turning north onto VT 100 often cut into the bridge railing. The next time this bridge is rehabilitated or replaced, this entire intersection could be modified to handle trucks better and make it safer for turning vehicles.

- There are several problems with access management around the VT 100 intersection with Main St. The Post Office, barn/store, restaurant, and adjoining residences are lacking adequate space for access and currently no clear access is defined. Visitors tend to park on both sides of VT 100 causing an effective narrowing of the already constrained travel lanes.

- There are no sidewalks or crosswalks in this village. The sharp curves at each edge of the village serve to calm traffic naturally but are hazardous because they create poor sight distance for motorists, who are likely to surprise a pedestrian crossing the road.

- Just north and south of each end of the village would be an appropriate location for traffic calming gateway treatments. Cross-walks would enhance safe village walk-ability. A crosswalk from the general store parking lot to the post office would provide better visibility for pedestrians accessing these two popular locations.

- The school-zone speed limit north of Wardsboro Village was reduced to 40 MPH in late 2008, but there is no pedestrian access to the school. Although within easy walking distance, the school is isolated from the village. A pathway from village to school would make another good project for the town. There is an informally used trail existing between the village and school through the woods.

Route 100 in Wardsboro has been designated a 'scenic byway'. Signage indicating this designation will be installed. The description is intended to attract visitors to local businesses and points of interest.

There are, at present, no crosswalks, bike paths or marked hiking trails in the Town. However, some groomed snowmobile trails, noted in the Recreation Section of this Plan, are well traveled in winter.

A public bus service, known as the MOOver, is operated by Southeast Vermont Transit (SEVT) and serves riders free of charge along the Route 100 corridor. However, in early 2008, MOOver service to Wardsboro was eliminated due to funding issues. Available statistics show that several Wardsboro residents were regular riders, even if it were to

ride only between Wardsboro and West Wardsboro. The Town believes that this is a service that should be restored as soon as possible.

SEVT provides volunteer drivers who drive their own vehicles to transport elderly or disabled riders. Green Mountain Express (GME) provides rides for people receiving Medicaid services.

A privately funded service known as the "Bette Boop" bus runs service to Brattleboro from Wardsboro.

Access Management

Heavy truck traffic, speeding vehicles, and lack of pedestrian safety are concerns that have been expressed by Wardsboro residents. All of these concerns have a negative impact on the quality of life and potentially on the structural integrity of some of the Town's historical buildings. The Town realizes that a number of businesses are dependent on traffic along Routes 100 and as the number of curb cuts or driveways increases, so does the rate of accidents.

Access management is a process for controlling access to roadways such that the function and safety of the transportation system is preserved while reasonable access is provided for the development of land. Developing access management guidelines would improve safety conditions along Route 100, promote desirable land use patterns, reduce traffic congestion and improve pedestrian safety. These guidelines will act as a planning tool and help cross the boundaries between land use and transportation planning.

Some techniques of access management that the Town could implement include the following: requirements for minimum separation distance between driveways; minimum distance for driveways to be located away from intersections; driveways that serve more than one lot; parking areas that serve more than one lot/business; circulation/access between two lots; providing access from secondary streets rather than main arterials, where this is an option; development of parallel streets or frontage roads to provide access off the main street.

Future Transportation System

Wardsboro as a rural town will continue to rely on motor vehicles as the predominant form of transportation. Existing roads in the town will continue to be maintained as they are currently and no new town roads are planned.

Bicycling and walking as a form of transportation will be enhanced in Wardsboro. Where feasible, along VT 100 and the Stratton Arlington Road the road shoulders should be expanded to accommodate bicycling. To make it safer for people to walk from Wardsboro Village to the school, a pathway along VT 100 or some alternate route should be considered. In both the Villages of West Wardsboro and Wardsboro, where appropriate and feasible, pathways, crosswalks, parking and traffic calming treatments should be considered.

Public transportation should be reinstated to and from Wardsboro along VT 100. If feasible, a new bus service should be added to serve the West River Valley, including Wardsboro, to and from Brattleboro. Transportation for the elderly and disabled should be continued and enhanced. Carpooling as a possible alternative to driving alone should be encouraged as an energy saving measure.

Policies

1. Exercise extreme care with road maintenance and repairs so as to preserve scenic and historic features of the landscape and avoid adverse impact on watercourses, beaver dams, trees, stone walls, historical landmarks and other features considered important locally.

2. Ensure that development along private rights-of-way is consistent with this plan and zoning as though the rights-of-way were public. Furthermore, if private rights-of-way do not meet this standard they cannot be considered for conversion to public roads.

3. Development along Route 100 and other main thoroughfares shall be conducive to the best use of available land without leading to strip development.

4. Work with the Agency of Transportation on measures to reduce speeding vehicles on Route 100 as they pass through the villages.

5. Pursue the development of pathways, crosswalks, parking and traffic calming in the villages of Wardsboro and West Wardsboro.

6. Require that all new public and private roads and driveways be properly constructed so they do not contribute to the damage of Town roads from runoff. Driveway permits are required.

7. Pave roads only when traffic counts and road use dictate a clear economic advantage in doing so. The road base and drainage should be properly constructed to ensure the longevity of the pavement and public travel safety.

8. Encourage a strong policy of fiscal management and budgeting for transportation systems within the Town.

9. Preserve and encourage creation of Right of Way for future linkages connecting village center to adjacent amenities.

Recommendations for Action

On-Going:

1. Continue to implement proper capital budgeting and planning for ongoing management and maintenance of the town's highways to include bridge/culvert repair and maintenance, ditching, paving, etc. (Selectboard)

2. Develop criteria regarding the paving of Town roads. Utilize resources such as those found at vermontlocalroads.org. (Selectboard and Public Works Department)

3. Follow environmentally and economically sound road maintenance practices through the use of such programs as Vermont Better Back Roads and Cost-effective Solutions to Protect Water Quality near Vermont Town Roads. (Public Works Department)

4. Review zoning bylaw and update where necessary to address the provision of off-street loading facilities and shared parking areas in any development along the Town's thoroughfares. Avoid unnecessary new road intersections or curb cuts by sharing driveway access. (Planning Commission, Zoning Bylaw Revision Committee, Selectboard, Public Works Department)

5. Designate parking areas to improve safety on Town roads. These parking areas should not be sited to interfere with drivers' vision and will not impair the architectural or historical significance of the village centers. (Planning Commission and Selectboard)

6. Continue Town financial support of the various agencies that provide transportation for Town residents to medical appointments, shopping, work, etc. (Selectboard)

7. Annually meet with the Selectboard to discuss transportation planning issues and related ordinances. (Selectboard and Planning Commission)

8. Periodically update the culvert and road inventory data. (Selectboard and Public Works Department)

Near-Term:

1. Develop an enforceable program for the responsible use of the Town's unimproved class 4 roads and legal trails, designed to emphasize to users the delicate nature of these resources. (Selectboard)

Long-Term:

1. Work with the Agency of Transportation on traffic calming measures for Wardsboro and West Wardsboro sections of Route 100, specifically including gateway-type structures noted in the Vermont Route 100 Corridor Management Study. (Selectboard)

2. Improve existing roads, and design culverts and bridges to carry a 25-year flood event without damage. (Selectboard and Public Works Department)

3. Work with neighboring municipalities and Windham Regional Commission to explore the feasibility of establishing a West River Valley public transportation service, and restoration of public transportation to the Deerfield Valley. (Selectboard and Planning Commission)

4. Develop access management standards and guidelines. Zoning Permit Application review processes shall include review of highway access designs and may require adherence to standards as conditions for approval. (Selectboard and Planning Commission)

5. Investigate funding opportunities to develop roadside pathways in the villages for pedestrians to walk safely along main thoroughfares and to the school (Selectboard and Planning Commission).

Housing

Goal

Promote safe and affordable housing for all segments of Wardsboro's population.

An adequate supply of year-round housing that offers varieties of size, cost, and location is essential to the economic and social health of Wardsboro. Communities benefit when employees are able to live close to their workplace, young adults are able to buy or rent in their hometowns, and elderly residents are able to remain in the community where they have family, friends, and history.

As with other towns located near vacation and resort areas, affordable housing availability has been a problem for Wardsboro. At times, second home construction has boomed in this area, using up much of the land available for home sites and generally increasing the prices of real estate. Even when those second homes become available for year-round resident housing, the eventual sale price is likely to be the seller's offering price, or more, resulting in a cost that is usually higher than a local family can afford. This imbalance makes it very difficult for local families to find adequate, affordable housing or land on which to build.

Existing Conditions

The Community Profile section of the Plan provides information and statistics about housing in Wardsboro. Between 2000 and 2010, the Town's population increased by 46 people, a 5.4% increase. Previously, the 2000 figure of 854 was up 31% over the 1990 figure.

Table 3 provides a summary of Wardsboro's housing in 2000 and 2010. From 2000 to 2010, an additional 83 dwellings were added to the housing unit stock (11%). In 2010, 92% of Wardsboro residents lived in single family detached dwellings. Two or more family dwellings account for 4% of all housing units and mobile homes (3%) are the next most prevalent accommodation types.

Populations with Extenuating Circumstances

For the purposes of a housing analysis this population includes single parent households, physically and mentally impaired persons, the elderly and the homeless. In addition to

requiring certain services that differ from the typical single-family households, i.e., physical accessibility, assisted living, these groups also tend to be in the lower income category.

The 2010 Census indicated that Wardsboro had 106 householders living alone, 30 of whom were over the age of 65. There were 13 female householders in Wardsboro in 2010 with no husband present who had children living with them under 18 years of age. At the same time there were 14 male householders with no wife present with children under 18. The 2000 figures represented an increase from 1990, indicating that Wardsboro's population with extenuating circumstances was growing, which could result in an increased demand for lower rents and more affordable housing. This trend continued for 2000 to 2010.

Housing Affordability

Affordable housing is an average price new home or older home in good condition that a person with an average income ought to be able to buy or rent. Affordable housing is defined as housing that is owned or rented by its inhabitants whose gross annual income does not exceed 80% of the county median income and housing costs should be no more than 30% of a household's income. For rental housing this includes rent and utilities. For homeownership this includes mortgage (principal and interest), taxes, and property insurance.

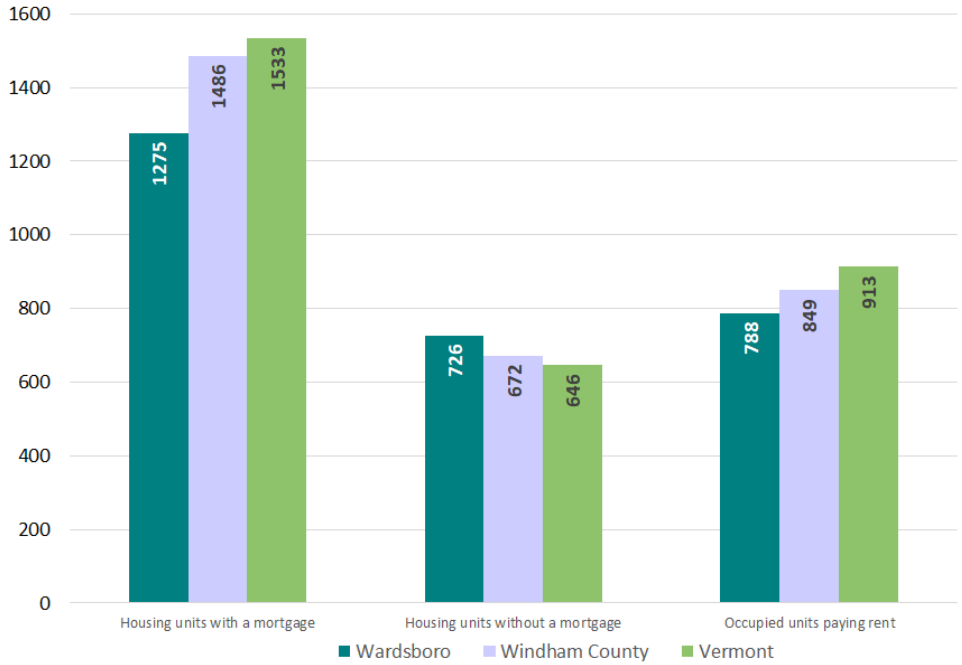
The 2012-2016 American Community Survey indicated that 28.5% of all renters and 52.6% of all owners spent more than 30% of their household income on housing. At the other end of the spectrum, 12.2% of all renters and 31.7% of all owners spent less than 20% of their household income on housing costs. Household costs for renters tend to consume a larger percentage of household income, as renters generally have lower incomes than homeowners and have a larger representation of individuals over the age of 65 living on a fixed income and under the age of 25 whose salaries, if they are not students, are proportionate to length of time in the workforce.

The median monthly housing cost for renters and homeowners in Wardsboro is illustrated in Figure 21. The median costs in Wardsboro for owners with a mortgage and renters were lower than county and state levels.

According to the Vermont Housing Awareness Campaign, in order for housing to become more affordable, home prices would need to fall significantly, interest rates would need to stay low, and Vermonters would need to see increases in their income.[4]

[4] *Between a Rock and Hard Place: Housing and Wage in Vermont, 2005 Update*, Vermont Housing Awareness Campaign.

Figure 21: Median Monthly Housing Costs in 2016



(Source: 2012-2016 American Community Survey 5 Yr Estimates)

Currently, housing affordability is addressed through the activities of non-profit agencies in the area. Brattleboro Area Community Land Trust provides affordable rental housing to low and moderate income households, including families and individuals, persons with disabilities or extenuating circumstances, and the elderly. The Land Trust can also provide income-eligible homebuyers with a subsidy towards the purchase of a qualifying home. In addition, homebuyers under this program have access to below market rate mortgages as well as financial assistance with closing costs. Southeastern Vermont Community Action Agency (SEVCA) can provide information and referral to area shelters, landlord lists, and assistance in completing applications for affordable housing possibilities. West River Habitat For Humanity (WRHFH) builds simple, affordable, houses together in partnership with families in need. In 2004, WRHFH completed their first house in Wardsboro.

The town of Wardsboro has a Home Improvement Program. This program was developed for the benefit of those income-eligible homeowners who need low cost, flexible and readily available financing for repairs that will allow them to continue to live in their own homes and for landlords to be able to repair and maintain rental housing for income-eligible tenants

Future Housing Needs

Regardless of the means of projecting population growth it is probable that by 2020 there will be additional residents in Wardsboro. Continued growth will require additional

housing in an already restricted market. Housing, when developed, should take into consideration the landscape and existing settlement patterns.

Wardsboro's population with extenuating circumstances is growing and if this trend continues, it could result in an increased demand for lower rents and more affordable housing. In the future, to continue to address the need for affordable housing the town should continue to work with federal, state, local and non-profit organizations. In addition, the town should develop options for owners to rehabilitate neglected structures and in-fill development of small lot single family homes as well as small scale (2-3 units) multi-family units to return to the active housing supply.

Policies

1. The Town of Wardsboro shall not exclude housing for persons of moderate to low income.

2. Require that environmental integrity and traditional district settlement density patterns be considered in developing sites for new housing.

3. Support housing locations that are in close proximity to village centers.

4. Invite collaboration with non-profit housing organizations, government agencies, private lenders, developers and builders in pursuing options to meet the housing needs of local residents.

5. Require that the zoning bylaw permit a wide variety of housing options both as to location and type.

6. Expect the use of acceptable trade standards for all construction.

7. Expect rehabilitation and enhancement of buildings that are considered neglected.

Recommendations for Action

Near-Term:

1. Consider appointing an Affordable Housing Committee. (Selectboard)

Long-Term:

1. Inventory housing types in Wardsboro to identify those available for occupancy by income-eligible and at-risk elderly owners. (Affordable Housing Committee and Listers)

2. Develop options for owners to rehabilitate neglected structures for return to the active housing supply. (Selectboard, Affordable Housing Committee and appropriate organizations)

3. Publicize availability and disseminate financing information concerning housing for potential Wardsboro owners. (Affordable Housing Committee)

4. Inform homeowners about the changes to state law to encourage development of accessory apartments. (Affordable Housing Committee)

5. Work with the Windham Regional Commission on the housing needs assessment for the Region. (Planning Commission)

6. Work to implement energy section's conservation and weatherization goals. (Affordable Housing Committee)

COMPATIBILITY WITH OTHER PLANS

When Vermont's Growth Management Law, Act 200, was passed in 1988, Vermont set up a system for communities to work in concert with their neighbors, and with agencies of state government, to shape the future. As envisioned, decisions on local growth issues are to be made by the local communities; decisions of regional significance are to be made by the region's communities acting in consort. Town Plans are to be compatible with the regional plan and compatible with approved plans of other municipalities in the region.

Compatibility with Adopted Town Plans

Wardsboro shares borders with Dover, Jamaica, Newfane, Stratton and Townshend. Wardsboro relies directly on its neighbors and the other towns in the Windham Region to provide many of the services on which townspeople depend. Therefore, this plan strives to strengthen the relationships with the neighboring towns, as Wardsboro shares rivers, roads, solid waste and recreation facilities, as well as education and safety services with its neighbors.

Dover (May 3, 2016): Wardsboro shares its southern border with Dover. A large portion of this border is in the Green Mountain National Forest and designated as a Conservation area. The remaining land in Wardsboro at this border is proposed to be Conservation area, except for the area along the East Dover Road which remains Rural Residential. The Dover Town Forest is located on the border and abuts the Green Mountain National Forest in Wardsboro. Dover's vision for land along the border is Resource Conservation. This is compatible with Wardsboro's intent for this area, except for the area along the East Dover Road in Wardsboro. Dover and Wardsboro should discuss their vision for the area along the East Dover Road.

Jamaica (November 13, 2017): Wardsboro shares its northern border with Jamaica. Jamaica's vision for this area emphasizes conservation and rural resource lands. Some of the land along the northeast corner of Wardsboro is proposed to be a Conservation area. More than half of the land in Wardsboro along the border with Jamaica is proposed to be Resource Residential. This vision of working landscape and low density development is compatible with Jamaica. Smaller sections along the border in

Wardsboro are proposed to be developed at a moderated density (rural residential). The towns of Jamaica and Wardsboro should further discuss their vision for the areas along this small section of the border.

Newfane (July 22, 2013): Wardsboro shares a border with Newfane on the southeastern edge of the Town. Newfane's vision for this area emphasizes resource lands as well as watershed protection. Wardsboro's vision for this part of Town is a Conservation area. There is some compatibility in the vision for both towns. However, the towns of Newfane and Wardsboro should discuss their visions in more depth.

Stratton (October 27, 2014): Wardsboro shares its western border with Stratton. Wardsboro's vision for the southern half along the border is conservation with low density development and includes concern about a bear corridor and scenic viewshed. Stratton along this same area emphasizes a small area of conservation and primarily residential development. The towns of Stratton and Wardsboro should further discuss their vision for the areas along this section of the border.

Townshend (September 26, 2017): Wardsboro shares a border with Townshend along the northeastern edge of Town. Townshend's land at this border is a Resource district. Townshend advocates protecting the resources of this area and does not support the extension of services into the area. Wardsboro's vision for this part of Town consists of areas designated as Conservation and areas along the Townshend Dam Road as Resource Residential. Generally, these designations are compatible, but Townshend and Wardsboro should discuss their vision for the area along the Townshend Dam Road.

Compatibility with the Regional Plan

The Regional Plan is intended to provide guidelines for the planning and coordination of change and development which will, in accordance with present and future needs and resources, best promote the health, safety, and welfare of the citizens of the Region. As proposed, the Wardsboro Town Plan is compatible with the Windham Regional Plan (2014)

IMPLEMENTATION

The Wardsboro Town Plan is a comprehensive guide concerning the manner in which the town wants to accommodate future growth while maintaining the features that make the community special. Implementation of the Town Plan is a local responsibility and must be accomplished through a continued commitment on the part of the community. The Plan serves as the framework for the Planning Commission's work.

To implement the vision for the Town of Wardsboro, both regulatory and non-regulatory techniques need to be employed. Regulatory approaches include such actions as adopting zoning bylaws, subdivision regulations, impact fees, curb cut permits, health ordinances, noise ordinances and junkyard ordinances. This Town Plan provides direction for zoning changes and the Wardsboro Planning Commission will evaluate policies and

recommendations and propose changes as necessary. Non-regulatory approaches can include but are not limited to infrastructure projects, community development, historic preservation, planning and conservation.

Many of the Recommendations for Action are, in and of themselves, a way to implement this Plan. Furthermore, the Town will:

1. Participate in regional and state planning activities such as Act 250 hearings and Section 248 Public Service Board hearings.

2. Participate in reclassification hearings involving waters in the Town of Wardsboro.

3. Continue to maintain a central filing system for all town records and publish in one booklet all town ordinances, regulations and standards.

4. Plan in advance for the expansion or creation of those town facilities or services which will be required by future development.

5. Improve understanding of and compliance with town ordinances and regulations.

6. Implement this plan by example.
7. Coordinate planning with surrounding towns.

8. Consider the Town Plan when designing public work budgets and capital improvements.

9. Encourage citizen involvement.

10. Continue to encourage participation in workshops and seminars to update and expand knowledge of all facets of town government.

11. Seek grants as a means for funding actions discussed in the Town Plan. State funding opportunities include, but are not limited to the following: Municipal Planning Grants, Community Development Block Grants, VTrans Transportation Enhancement Grants, and Vermont Recreational Trails Grants. In addition, there are several private foundations and federal government entities that finance projects.

TOWN PLAN MAPS AND EXPLANATION

A series of maps has been prepared to assist planners, public officials and citizens to understand the Town of Wardsboro and to assist in the planning process, as well as to provide input for governmental and business decisions. These maps are for planning purposes only. The goals, policies, actions, and associated narrative discussions in the body of the Town Plan prevail as the guidelines for the Town's future growth.

Existing Land Use

This map gives an indication of how the land in Wardsboro is used. This map includes forests, from the 2006 National Land Cover Database, buildings, from E911 data, wetlands, roads, public lands, and conservation lands (private lands with a conservation easement).

Proposed Land Use

This map displays the five land use areas--Conservation, Resource Residential, Rural Residential, Village Commercial and Village Residential--which provide guidance for Wardsboro's zoning regulations. The general categories and locations for future land uses are shown on this map. The categories and their delineations are general guides. Complete descriptions of these future land use categories are included in the Land Use section.

Also displayed on this map are areas of special concern, including FEMA's Special Flood Hazard Areas, a bear corridor, a surface water resource area, a riparian corridor, and scenic viewsheds.

Energy

The "Energy Potential" maps are the Constraints data (show state-level land constraints likely to hinder development) layered on top of Resources (where solar resources and wind resources exist based on GIS modeling of slope, azimuth, elevations, wind patterns, etc.) to give a rough idea of the generation potential in the town. The maps do not dictate where the siting of renewable energy will specifically occur. Rather, they should be used as a reference to the policies on preferred, suitable, and unsuitable sites.

Natural Resources/Water Resources

These maps display a variety of natural resource data. Included are deer yards, wetland areas, sand/gravel resources, seasonal bear habitat, bear production habitat, bear corridor, high elevation areas, and groundwater source protection areas. These maps also identify those stream segments that have a drainage area of one square mile or more. A separate map of Water Resources is included.

Transportation and Community Facilities

This map shows the transportation system and the location of community and Town-owned facilities, including cemeteries.