

## **II. REGIONAL PROFILE**

This chapter provides a historic review of the demographic, economic, and social factors that have influenced the Region. Data profiles are an important tool in the planning process as it gives insight to current conditions along with historic patterns of change and those areas that will need particular attention in the future. This chapter will also provide the framework for other chapters in the Regional Plan where each topic will be discussed more thoroughly.

### **A. Background of the Region**

The Region is comprised of ten towns including their villages, hamlets, and dispersed populations. The member towns are Andover, Baltimore, Cavendish, Chester, Ludlow, Reading, Springfield, Weathersfield, West Windsor, and Windsor. The Region is located in southeastern Vermont, along the Connecticut River, with Windham County to the south, Rutland County and the Green Mountains to the west, and the remainder of Windsor County to the north. The climate is generally temperate with moderately cool summers and cold winters; as in the rest of Vermont, it creates ideal conditions for summer and winter recreation, spectacular fall foliage, and springtime sap runs. Average annual precipitation is around 42 inches, and snowfall generally ranges from a low of 70 inches along the Connecticut River to as much as 200 inches in the Green Mountains. The growing season can range from 100 to 140 days depending on location, with the first frost generally occurring in early October and the last frost in late May or early June. The weather is unpredictable, and large variations in temperature, precipitation, and other conditions may occur both within and between seasons.

### **B. Physiographic Characteristics**

Tectonic impact and glaciation have contributed to the physiographic diversity of the Region. The land is hilly and wooded with moderate to steep slopes. Southern Windsor County contains a broad range of landforms, from the rocky, acidic soils, spruce-fir forests and beech stands of the Green Mountains, to the fertile, sandy soils and white pines of the Connecticut River valley, and the hill farms, orchards, woodlots, and sugarbushes in between. The shallow upland soils tend to be dominated by bedrock, with small, dispersed sites containing “enriched” organic deposits. Soils along the Connecticut are deeper and more fertile, having been deposited by rivers of glacial melt, or by Lake Hitchcock, which covered a large part of the valley ten to twelve thousand years ago.

Much of the Region remains undeveloped or sparsely developed due to the physical constraints imposed by the terrain. Rivers and streams are interspersed throughout the Region, draining south and east to the Connecticut River. The combination of mountains, streams, valleys, and rocky land has resulted in areas with outstanding geologic features such as Cavendish Gorge and various other peaks, gorges, cascades, and waterfalls. The three principal rivers are the Connecticut River, the Black River, and the Williams River. The broad Connecticut valley holds fertile agricultural land (discussed further in the Plan’s Land Use, Natural Resources, and Cultural and Aesthetic Resources chapters), while the narrower

and steeper Black and Williams valleys have traditionally been home to sawmills, woolen mills, gristmills, and small hydroelectric power dams. Numerous lakes, ponds, and wetlands comprise the remainder of the Region's surface water features.

Dominant physiographic land features in the Region include two mountains - Okemo Mountain (in Ludlow and Mount Holly) and Mt. Ascutney (shared by Windsor, West Windsor, and Weathersfield) - with elevations over 3,000 feet above sea level. Mt. Ascutney is an example of a monadnock, an isolated mountain of erosion-resistant rock rising above a surrounding area worn flat by water and ice. In addition, Terrible Mountain in Andover is over 2,800 feet in elevation and Hawks Mountain, shared by Cavendish, Baltimore, and Weathersfield, is nearly 2,100 feet above sea level.

## C. Population

Vermont's earliest settlers, such as the Woodland Peoples and the Algonquin Indians, lived and traveled according to the contours of the landscape and sources of food. Archeological evidence of Indian settlements along the Connecticut River shows that the river was an important resource in this Region. Over the years, transportation improvements and settlement patterns shifted in response to technological improvements and changing economic resources.

The following sections provide a detailed picture of population changes in the southern Windsor County Region since 1970.

### 1. Population Growth

According to U.S. Census figures (see **Table 2.1** below), the general population in Region grew at a faster pace during the 1970s than during the 1980s. Overall growth between 1970 and 1990 was 2.6%, from 23,903 to 24,524 residents. The Region experienced population gains during the 1970s and losses during the 1980s, registering a net gain of 621 people over the twenty-year period. The Towns of Ludlow, Springfield, and Windsor experienced net population losses. Factors contributing to decreased population included the loss of major employers (especially those in the machine tool industry), reductions in the average household size, and the rising cost of living.

U.S. Census figures for 2000 reflected continued growth in the general population of the Region in every town except Springfield, most likely due to the additional loss of major employers in that area since 1990. The growth experienced in the rest of the Region contributed to a net gain of 581 people from 1990 to 2000. Overall growth from 1970 to 2000 was 5%, from 23,903 to 25,105 residents. Following losses in previous decades, the Towns of Ludlow and Windsor have experienced recent population gains. Contributing factors could include growth at Okemo Mountain Resort in Ludlow and the combined growth in jobs and tight housing availability in the Upper Valley.

Table 2.1 – Regional Population Trends: 1970-2000							
Town	1970	1980	1990	2000	1970-1990 % Change	1970-2000 % Change	2007 Population Estimate
Andover	239	350	373	496	56.1	107.5	548
Baltimore	170	181	190	250	11.8	47.1	260
Cavendish	1,264	1,355	1,323	1,470	4.7	16.3	1,391
Chester	2,371	2,791	2,832	3,044	19.4	28.4	3,031
Ludlow	2,463	2,414	2,301	2,499	6.5	0.6	2,654
Reading	564	647	614	707	8.9	25.4	712
Springfield	10,063	10,190	9,579	9,078	4.8	9.8	8,666
Weathersfield	2,040	2,534	2,674	2,788	31.1	36.7	2,842
West Windsor	571	763	923	1,067	61.6	86.9	1,099
Windsor	4,158	4,084	3,714	3,756	10.7	9.7	3,633
Region	23,908	25,309	24,524	25,105	206	5.0	24,836

Source: U.S. Census Bureau (1970-2000)

## 2. Age Characteristics

Between 1970 and 1990, the Region experienced a decline in the proportion of total residents represented by those under the age of 18 (school age and younger). In 2000, the U.S. Census applied a different distribution for these age groups, which included persons under the age of 20. Nevertheless, this younger group continued to decline from 1990 to 2000, although at a much slower rate.

The 18-64 age group (U.S. Census changed this to 20-64 in 2000), which represents the labor force, has remained relatively stable since 1980. From 1990 to 2000, only Springfield and Windsor experienced declines in this age group, again probably due to subsequent employment losses.

Regionally, the 65 and older age group, representing the retired and elderly, continued to increase from 1990 to 2000, but at a slower rate than the previous two decades. Springfield lost 110 residents from this group from 1990 to 2000.

## 3. Population Distribution

Certain aspects of population density have remained consistent since 1970 (See **Table 2.2**). Springfield, Windsor, and Ludlow have remained the most densely populated towns in the Region. This is to be expected, as they feature extensive infrastructure and support a large, diverse employment base. Transportation access has also been a contributing factor, since these towns are located along major transportation corridors. Andover and Reading continue to be the only towns with fewer than 20 persons per square mile. Data on population density variations by town provide only a rough indication of population distribution changes. Residents are not typically dispersed evenly throughout a town but tend to cluster in villages, hamlets, and neighborhoods of varying density. In general, population densities increase or decrease in relation to proximity to the core of these settlement areas.

<b>Table 2.2 – 1970-2000 Population Density Comparison (persons per sq. mile)</b>									
<b>Town</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>Growth 1970-80</b>	<b>Growth 1980-90</b>	<b>Growth 1970-90</b>	<b>Growth 1990-00</b>	<b>Growth 1970-00</b>
Andover	9.3	12.8	13.0	17.2	37.6%	1.6%	39.8%	32.3%	84.9%
Baltimore	34.1	42.9	40.4	53.5	25.8%	-5.8%	18.5%	32.4%	56.9%
Cavendish	32.2	34.2	33.4	37.1	6.2%	-2.3%	3.7%	11.1%	15.2%
Chester	43.8	50.1	50.7	54.5	14.4%	1.2%	15.8%	7.5%	24.4%
Ludlow	72.4	67.2	64.3	69.4	-7.2%	-4.3%	-11.2%	7.9%	-4.1%
Reading	13.4	15.6	14.8	17.0	16.4%	-5.1%	10.4%	14.9%	26.9%
Springfield	228.3	207.1	194.3	184.1	-9.3%	-6.2%	-14.9%	-5.2%	-19.4%
Weathersfield	51.7	58.4	61.1	63.7	13.0%	4.6%	18.2%	4.3%	23.2%
West Windsor	24.8	32.3	37.4	43.2	30.2%	15.8%	50.8%	15.5%	74.2%
Windsor	235.3	217.2	189.5	192.1	-7.7%	-12.8%	-19.5%	1.4%	-18.4%
Region	74.5	73.8	69.9	73.2	-1.0%	-5.3%	-6.2%	4.7%	-1.8%

Source: U.S. Census Bureau (1970-2000)

#### 4. Seasonal/Second Home Population

The scenic and recreational assets associated with the towns in the Region are well known to visitors and residents. Increased emphasis on tourism and recreation, combined with the growth in the second home market, resulted in significant fluctuations in the seasonal population between 1980 and 1990. Based on estimates that assume 2.5 persons per unit, if the 3,096 seasonal units in the Region were occupied at a given time, the total population would increase by over 7,700 people.

The RPC has made rough estimates of seasonal fluctuations in population based on statistics provided by the U.S. Census Bureau, and the results of a Travel Industry Survey conducted by the Vermont Agency of Commerce and Community Development and the Vermont Department of Employment and Training. Longer-term population increases, based on occupancy of seasonal homes, are thought to be larger in the summer months. Short-term increases in population, resulting from the influx of people on day trips or weekenders staying in commercial lodging establishments, are almost certainly highest on peak winter weekends. Many of these short-term visitors pass through southern Windsor County on their way to destinations in other parts of the state, and contribute to the Region’s traffic congestion problems.

### D. Economy

#### 1. Economic Trends

Southern Windsor County belongs to a region which earned the nickname "Precision Valley" early in the twentieth century. The large numbers of companies specializing in precision manufacturing created wealth and a high standard of living. Opportunities were available to anyone willing to invest the time and energy to master requisite skills up through the 1970s. Precision Valley formerly employed thousands of workers in machine shops large and small, and was known as the "Machine Shop of New England." Consistent, however, with the overall trend of the latter half of the 20<sup>th</sup> century, manufacturing entities were bought up by absentee owners.

At the same time, globalization, automation and national economic mismanagement conspired to move manufacturing away from achieving efficiencies through economies of scale to improving profits by increasingly strong waves of cost reduction. The result in Springfield, Windsor, Claremont and Bellows Falls was that many of the large machine tool firms sold off their industrial sites or abandoned them in bankruptcy reorganizations. Despite economic development measures and programs, and the fact that the "Precision Valley" is located near institutions of higher education and has infrastructure more conducive to manufacturing, it has yet to recover.

Along with the national and global factors that influence the Region's economy, there are several regional factors that also affect how the local economies fare. These factors are thought to be unique to the Region. They are characteristics that can either be: (1) targeted as assets and used to enhance positive change, or (2) issues that may lead to continued impairment and need to be addressed by policy.

- The strong influence of nearby northeast metropolitan areas offers opportunities for tourism and economic development.
- The area has a substantial amount of facilities and assets that are available for development without adversely impacting open land.
- As an area undergoing economic change, the Region has experienced an increasing number of home businesses. Economic development policies should look at this as a positive opportunity.
- The average age and the rate of aging of the Region's population, as well as the State, are both higher than the national average. In this environment, identifying where new workers will come from in the future and attempting to retain and train our young people is essential.

What this review of the Region's economic performance means from an economic development perspective is that:

- Successful economic development strategies for the Region are likely to reflect a mix of development and re-development initiatives.
- It is likely that a significant period of time will be needed to reverse this overall decline.
- There is a need for a constant and consistent commitment to long-term economic development strategies and an extraordinary level of regional patience waiting for real and sustainable results of implemented policies to emerge.
- Strategies that work to assist in improving the quality of life and the perception of an improving quality of life will be key to work force recruitment and retention.

## 2. Poverty and Wages

Although poverty rates have decreased between 1989 and 1999, data indicates that job quality is eroding. This suggests that the relatively high-wage manufacturing jobs lost in recent decades are being replaced by lower-paying employment opportunities.

According to the US Census, there has been a significant decrease in the number of persons (22%) and families (19%) living in the Region below poverty level between 1989 and 1999. Wages in the State of Vermont have historically fallen, and continue to fall, far below the national average. The average wage has fallen in Vermont due, in part, to the changing structure of the State's economy from manufacturing to service-related jobs and to the proportional increase in nondurable goods-related jobs within the manufacturing sector itself.

Median adjusted wages decreased by an average of 12.3% throughout the Region between 1990 and 2000. With a reduction in the average family median income, combined with the increasing health insurance and housing costs, a low- to moderate-income family will likely struggle to make ends meet. The second largest investment in many people's lives is buying and maintaining an automobile. This becomes more and more difficult to do given these economic realities. Unfortunately, in most communities, having access to a reliable car is the sole means of access to quality employment.

**Table 2.3** illustrates the economic downturn throughout the Region since the late 1970's.

Table 2.3 – Residents Employed by Industry Type							
Industry by Sector	1980		1990		2000		1980-2000 % Change
	Employed	% of Total Industries	Employed	% of Total Industries	Employed	% of Total Industries	
Services	3,539	31.7	4,305	37.0	2,879	22.2	-18.6
Manufacturing	4,363	39.0	2,753	23.7	2,273	17.5	-47.9
Trade	1,484	13.3	2,058	17.7	1,709	13.2	15.2
Construction	597	5.3	1,089	9.4	904	7.0	51.4
Finance/Ins./Real	308	2.8	503	4.3	501	3.9	62.7
Tran/Util./Comm.	540	4.8	470	1.0	760	5.9	40.7
Ag./Forest/Min.	344	3.1	461	4.0	319	2.5	-7.3

Source: US Census 2000.

## E. Housing

### 1. Housing Unit Growth

According to U.S. Census data, there were 14,205 housing units in the Region in 2000, which represented less than a 3% increase from the number of housing units in 1990 (13,697). The majority of housing units in the Region are single family homes (65%), with multi-family units comprising another 28%, and mobile homes representing the remaining 7%. Almost all towns in the Region experienced an increase in housing units between 1990 and 2000 with the exceptions of Springfield, West Windsor and Windsor who experienced 7%, 3% and .4% decreases, respectively. **Table 2.4** below illustrates how growth in total housing units in the Region's ten towns has varied.

Town	1990		2000		Change 1990-2000	
	Housing Units	% of Region	Housing Units	% of Region	Total	%
Andover	292	2.2	350	2.5	58	19.9
Baltimore	91	.7	113	.8	22	24.2
Cavendish	782	5.7	852	6.0	70	9.0
Chester	1,529	11.2	1,611	11.3	82	5.4
Ludlow	2,677	19.5	3,001	21.1	324	12.1
Reading	390	2.9	404	2.8	14	3.6
Springfield	4,250	31.1	4,232	29.8	-18	-4
Weathersfield	1,249	9.1	1,315	9.3	66	5.3
W. Windsor	768	5.6	716	5.1	-52	-6.8
Windsor	1,647	12.0	1,611	11.3	-36	-2.9

Source: U.S Census 2000.

## 2. Vacation and Second Home Development

In 2000, there were 3,043 seasonal housing units in the Region. **Table 2.5** breaks down this number by town. Out of the 508 additional housing units added to the Region between 1990 and 2000, 274 were seasonal. While Okemo Mountain Resort and the lakes region are largely responsible for Ludlow's 13.6% increase (226 units), surprisingly, Springfield showed

Town	1990	2000	Total	%Change 1990-2000
Andover	135	110	-25	-18.5
Baltimore	7	3	-4	-57.2
Cavendish	223	195	-28	-12.6
Chester	304	261	-43	-14.1
Ludlow	1,647	1,871	224	13.6
Reading	115	94	-21	-18.3
Springfield	100	150	50	50.0
Weathersfield	149	103	-46	-30.9
W. Windsor	374	226	-148	-39.6
Windsor	42	30	-12	-28.6

Source: US Census 2000.

a 50% increase in seasonal units from 1990. The remaining towns all had decreases with West Windsor showing the greatest decrease in numbers of units. This number is expected to dramatically increase with the recent sale of Ascutney Resort with its new owners planning on developing future seasonal units. While the Region's and also surrounding resorts continue to expand their facilities, vacation housing continues to be an influence throughout the region, accounting for 21.4% of the housing stock.

## F. Energy

Back in August 2006, the Vermont Council of Rural Development held a Summit that addressed Vermont's concerns about global climate change, oil dependency, "peak oil," and perceptions of the growing challenge of national energy policies. Paralleling global and national security concerns were questions regarding Vermont's future energy supply (re-licensing the Vernon (now Vermont Yankee) Nuclear plant, future Hydro-Quebec contracts, and the high cost of gasoline and heating oil). The Summit was not organized to answer these challenges, but rather to consider ways to expand energy as an economic sector providing major opportunities in rural Vermont.

U.S. Senator Patrick Leahy opened the Summit, and called for a pro-active national policy to promote renewable energy and end America's dependence on foreign oil. At the state level, Governor Jim Douglas spoke of the importance of renewable energy to the future of the state and outlined the strong initiatives Vermont would be undertaking to address climate change, support biomass and agricultural generation, and advance efficiency and conservation. He supported Vermont's goal of producing 25% of its energy needs from renewable farm and forest resources by 2025.

It's been over two years since the Summit, and Vermont, as well as the Region, is still facing the same challenges. In addition, with recent dramatic increases in fuel and heating oil costs, Vermonters (as well as the nation) saw how such dependency on these resources affected their lives dramatically. The purpose of the energy chapter of the Regional Plan is to look at the Region's current energy consumption, conservation methods and initiatives member towns can take, and the numerous alternative energy resources that are available when considering future energy resources. There is no one solution that will solve all of the future energy challenges that we face as a region, state or a nation, however, exploring all options will hopefully provide more answers to fulfill our responsibility to the future.

## G. Transportation

### 1. Transportation Trends

Vermont, being largely a rural state, is heavily dependent upon the automobile to meet the transportation needs of the state (see **Table 2.6**). All categories related to more motor vehicle use show significant increases between 1980 and 2000, outpacing general population growth and far outpacing increases in roadway miles. Automobile registrations increased by 53% while population grew only 19% in that twenty year period, suggesting that car ownership per person is increasing. A more than 76% increase in vehicle miles traveled, with only a 1.5% increase in miles of roads, indicates roads are experiencing much more use. The resulting wear and tear from this increased roadway traffic will be expensive to address. Preliminary reports suggest that travel in Vermont is decreasing since the price of gas reached \$4.00 a gallon in 2008.



Category	1980	1990	2000	% Change 1990-2000	% Change 1980-2000
<b>Population</b>	511,456	562,758	608,827	8.19	19.04
<b>Motor Fuel Use (gallons)</b>	N/A	337,267,000*	411,065,000	21.88	N/A
<b>Total Vehicle Miles Traveled</b>	3,718,100,000	5,864,800,000	6,553,996,076	11.75	76.27
<b>Automobile Registrations</b>	254,849	326,997	388,773	18.89	52.55
<b>Truck Registrations</b>	68,3335	114,114	137,611	20.59	101.38
<b>Total Motor Vehicle Registrations</b>	391,829	531,313	637,671	20.02	62.74
<b>Total Miles of Highway</b>	14,066	14,126	14,275	1.05	1.49

Sources: US Census 2000, FHWA, VTTrans.

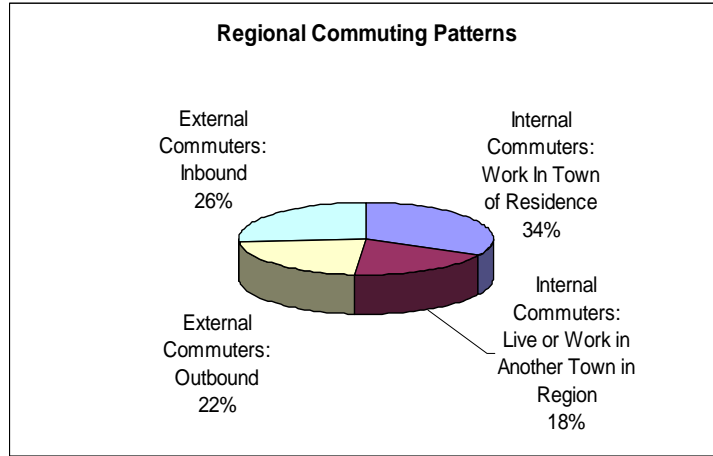
\*Note: Motor fuel use for year 1991

For the regional economy to remain strong and continue to grow, the transportation system must accommodate the mobility needs of commuters and businesses in a safe and efficient manner. This means maintaining good access to major market areas by keeping existing infrastructure in good working condition. Freight, commuter and tourist travel should be made more efficient through intermodal connections; for example, “ski train” connections between Amtrak and/or the Green Mountain Railroad with express bus services.

As the regional economy lags behind economic growth in Vermont and in the Upper Valley, increasing numbers of commuters will travel outside of the Region for employment. As that trend increases, so too will single-occupant vehicle use increase unless other modes are incentivized. Other modes should be marketed and made available to employees by businesses. Infrastructure improvements, such as expanded or new park-and-ride lots and increased fixed-route transit service, would help provide commuters with cheaper and more efficient travel options.

## 2. Regional Commuting Patterns

According to the U.S. Census Bureau, there were 15,743 commuters in this region in 2000. This number includes residents who live and work in the Region (52%), residents who live in the Region but commute to work outside the area (22%), and non-regional residents who commute into the Region for employment (26%)(see **Fig. 2.1**). The traffic generated by these workers, particularly during peak hours, provides insight into the Region's commuter traffic patterns. Public transportation providers within the Region have noted that since 2000, commuting has increased particularly between Springfield/Weathersfield and the Upper Valley.



Source: U.S. Census Bureau, 2000.

**Fig. 2.1 – Regional Commuting Patterns (2000)**