# Demographics

Introduction

This following provides a profile of the Montachusett region through various sets of data, i.e., the U.S. Census and the American Community Surveys (ACS), as well as various MRPC reports developed in accordance with local studies and contracts.

Through the tables, charts and analyses presented, an understanding of the population that comprises the Montachusett region and its unique features and characteristics can be gained. The various data sets presented highlight the continued changing face of the region and help provide some background to the relationship that exists between the communities and their needs.

It should also be noted that between the last RTP completed in July of 2019 and this update, the Region, Commonwealth, the nation, and the world experienced an unprecedented situation in the form of the COVID19 pandemic. In an attempt to limit the spread and effectiveness of the virus, many policies, restrictions, and mandates were implemented by all levels of government. From mid-2020 to late 2022/early 2023, the most heavily impacted COVID years, these mandates had a significant effect on every business and employment sector and individual in the Region.   These impacts may be reflected in some of the demographic data presented.

Background and History

Comprised of 22 communities located in north central Massachusetts, the region measures approximately 685 square miles in size. Of this area, approximately 654 square miles (or approximately 95%) is land.
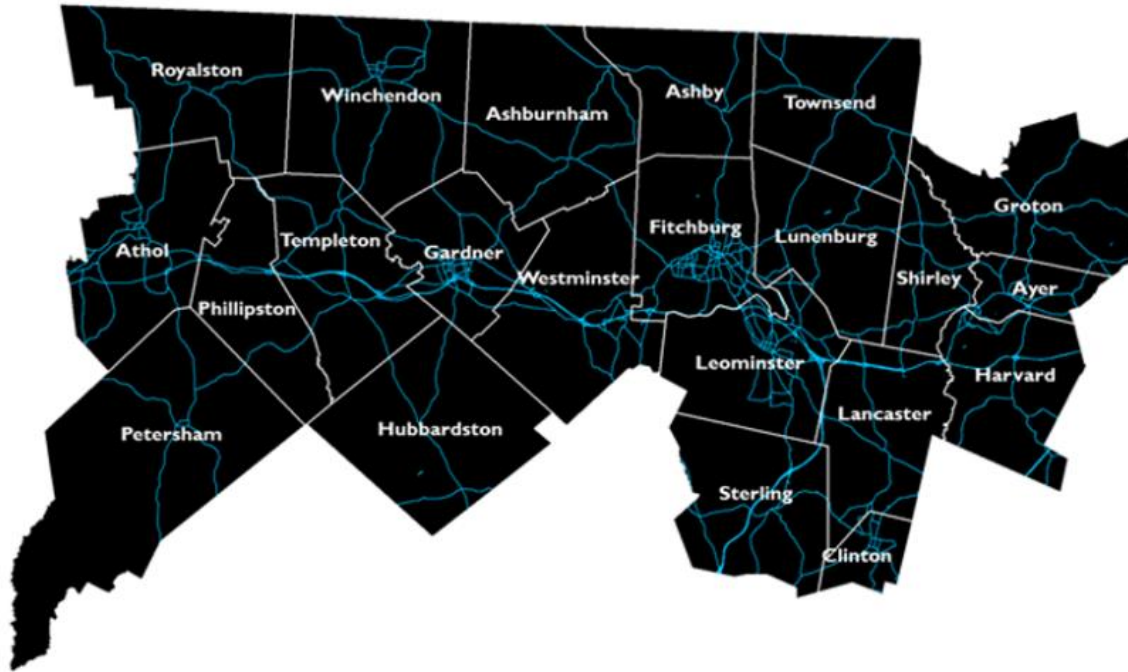
The Montachusett Region's earliest settlements were founded as trading outposts. By the second half of the eighteenth century, most communities in the region were settled. Originally, local economies focused on agriculture but, since farming provided a poor return, manufacturing quickly became the dominant economic force in the region.

Montachusett communities harnessed streams and rivers for water-powered manufacturing originally allied with agricultural production. By the mid-nineteenth century, the production of lumber and wood products became the region's largest industry, and the City of Gardner was known internationally as a major center of chair manufacturing.

Growth in the region was accelerated by railroad connections enabling the easy transport of materials, goods and people. Communities with an industrial base prospered and expanded with the influx of migrants both foreign and US born. Smaller towns did not see the same widespread growth.

The 20th Century saw a period of economic decline caused by the migration of industries to southern states and the Great Depression. The smaller industrialized communities suffered severely and recovered slowly. Local economies, recognizing the instability of the region's industrial base, are undergoing a transition away from specialization in manufacturing industries. One successful foray has proven to be tourism with the creation of Johnny Appleseed theme marketing and the Johnny Appleseed Trail Association, Inc. (JATA) especially visible in Phillipston and Leominster.

Regional Analysis

The following section identifies and highlights several key demographics for the Montachusett Region. From a review of this information, a series of regional trends and developments are identified. These trends, combined with input from the general public and local officials, will help to establish the future growth of the Montachusett Region. Again, it must be noted that the COVID pandemic years of 2020 to 2022 impacted a lot of the happenings in the Region and consequentially will have affected the trends and developments identified when compared to where the Region stood in 2019 at the development of the last RTP.

A. Population

The Montachusett Region witnessed a 5.6% increase in its population from 2010 to 2021, welcoming an estimated 13,274 new residents during this time (see Figure 4 -1). As of 2021, the Region boasts a population of 249,749 residents across its 22 communities.

Figure 4.1-1: Population Change in the Montachusett Region (2010 to 2021)
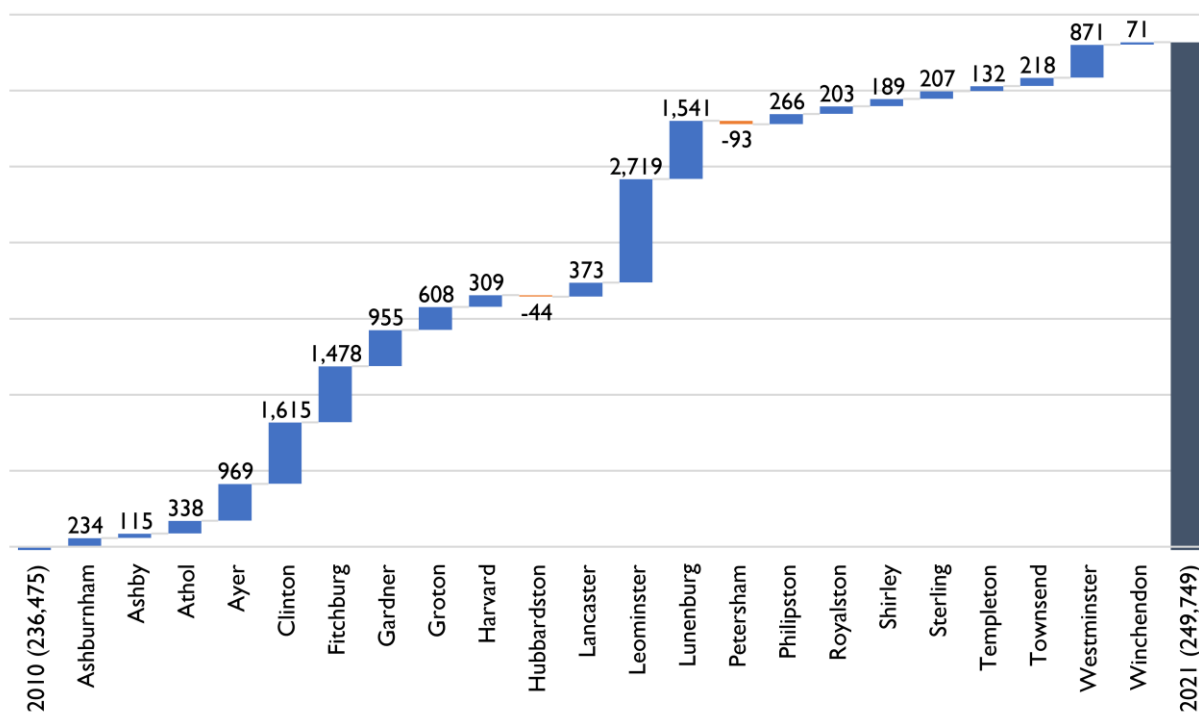
Source: US Census, American Community Survey (2017-2021) 5-Year Estimates

Leominster saw the largest population increase in recent years with approximately 2,719 new residents (a 6.6% increase from 2010). The majority of communities saw more modest population increases, while two communities – Hubbardston and Petersham – experienced a slight decline in population (-1% and -7.5% respectively).

Figure 4.1-2: Population by Community
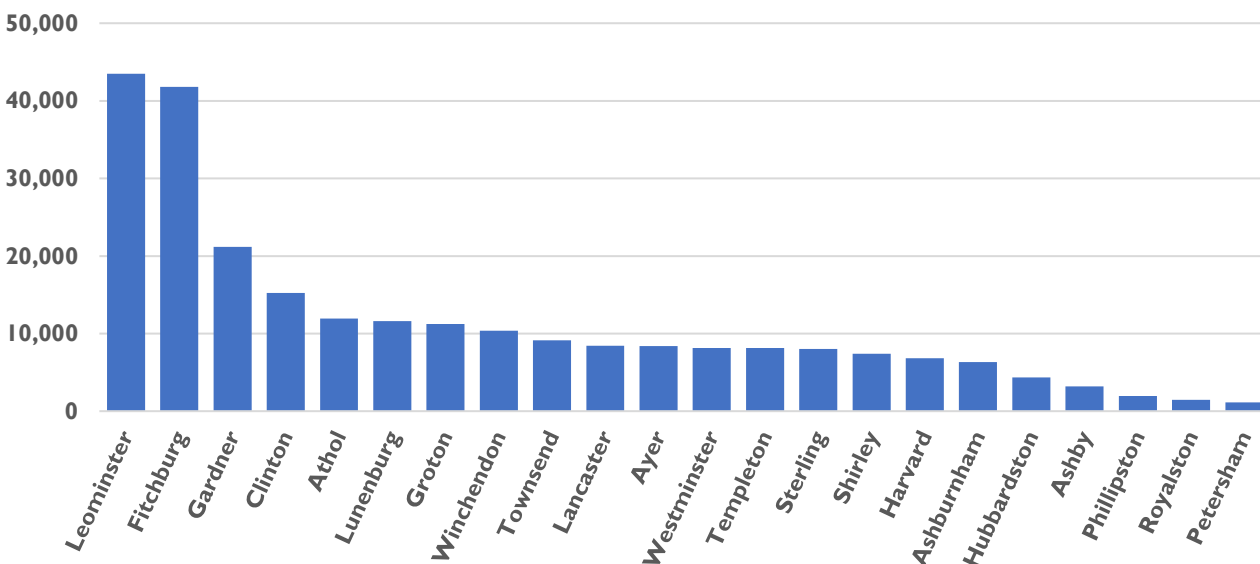
B. Age

The Montachusett Region is considerably older than the state or nation as a whole (see Figure 4 - 3), a trend that has been steadily rising in recent decades. In 2021, 19 of the Region's 22 communities had a higher median age than Massachusetts, up from just eight in 1990. According to the most recent data from the American Community Survey (ACS), slightly under one-quarter (22.7%) of Montachusett residents are between the ages of 45 and 59 years old.

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Figure 4.1-3: Age Distribution by Gender, Montachusett Region

Age Group	Male	Female
85 years and over	1,902	2,774
80 to 85 years	1,733	2,181
75 to 79 years	3,132	3,557
70 to 74 years	5,387	5,370
65 to 69 years	7,612	7,427
60 to 64 years	10,418	9,888
55 to 59 years	10,009	9,859
50 to 54 years	8,785	8,647
45 to 49 years	8,881	7,836
40 to 44 years	7,657	6,678
35 to 39 years	7,715	7,989
30 to 34 years	8,343	7,573
25 to 29 years	8,859	7,452
20 to 24 years	8,143	7,153
15 to 19 years	7,739	6,745
10 to 14 years	8,020	6,700
5 to 9 years	6,980	6,987
Under 5 years	7,138	6,480

■ Male ■ Female

Source: American Community Survey (2017-2021) 5-Year Estimates

The large proportion of residents nearing retirement age poses a number of planning challenges for the Region, including ensuring accessibility to health care services, public transportation, senior housing, as well as generational shifts in employment and succession in the workforce.

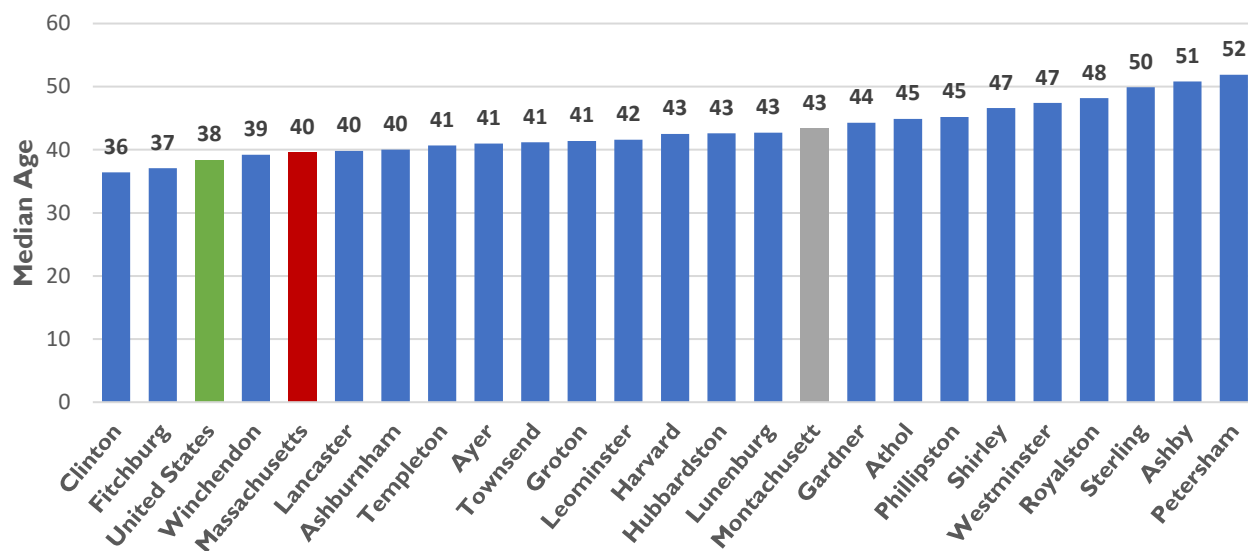**Figure 4.1-4: Median Age in Montachusett Communities Compared to Massachusetts and the US**
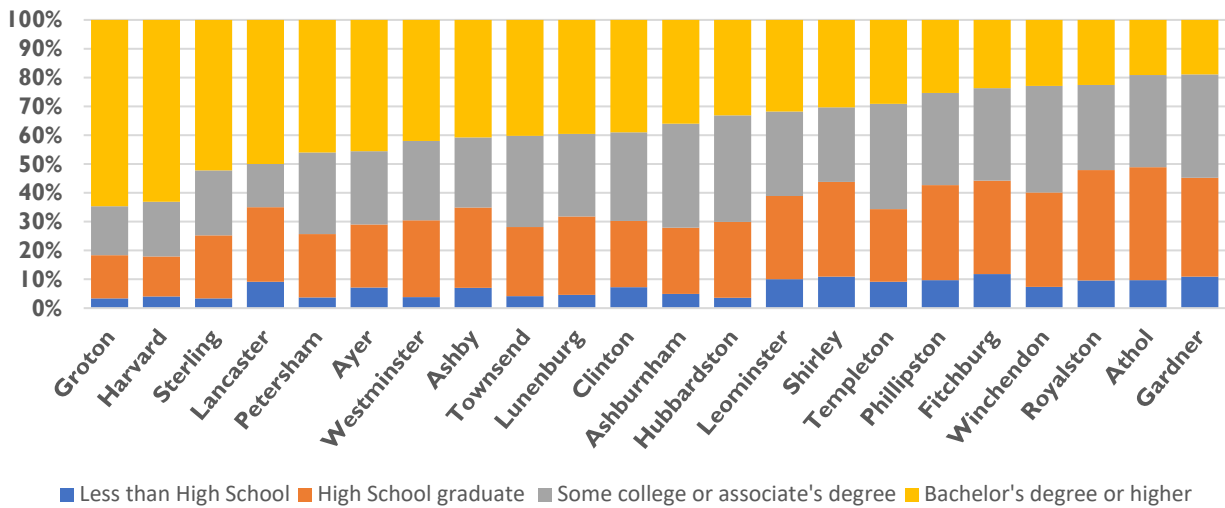

Source: American Community Survey (2017-2021) 5-Year Estimates

C. Educational Attainment

Montachusett communities range considerably in terms of highest level of educational attainment (see Figure 4.1-5).

Figure 4.1-5: Highest Level of Educational Attainment, Montachusett Region

Groton boasts the highest percentage of residents with a bachelor's degree or higher with 64.6% of residents holding a bachelor's or post-graduate degree (nearly 3.5 times that of Gardner).

In Table 4 - 1, we see flatlining levels of educational attainment across the board for those aged 25 to 34 years old. Graduation rates between 2000 and 2021 grew for both males and females for both high school and bachelor's degrees and higher. Most significantly, we witnessed a 25% increase in the proportion of women aged 25 to 34 years old with a bachelor's degree or higher.

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Table 4-1.1: Highest Level of Educational Attainment (Aged 25 to 34 years)

| Highest Level of Educational Attainment	Male		Female	
	2000	2021	2000	2021
High school degree or higher	85.3%	90.1%	90.7%	93.3%
Bachelor's degree or higher	21.2%	23.3%	27.3%	32.0%

Source: US Census, American Community Survey (2017-2021) 5-Year Estimates

Still, educational attainment in the region remains lower than the state as a whole. In 2021, it was estimated than 92.1% of men and 94.4% of women aged 25 to 34 in Massachusetts received a high school degree or higher, while 46% and 55.8% received a bachelor's degree or higher. The trend toward having a more educated population is valuable as the economic sustainability of the region depends on ensuring a robust workforce that includes young professionals and careers to support their success.

D. Race

The Montachusett Region remains a predominantly white region but is trending toward increased diversity. The Region currently has a higher proportion of residents who identify as "white alone" when compared respectively to the state and nation as whole (see Figure 4.1-6).

Figure 4.1-6 Race in the Montachusett Region Compared to Massachusetts and the United States
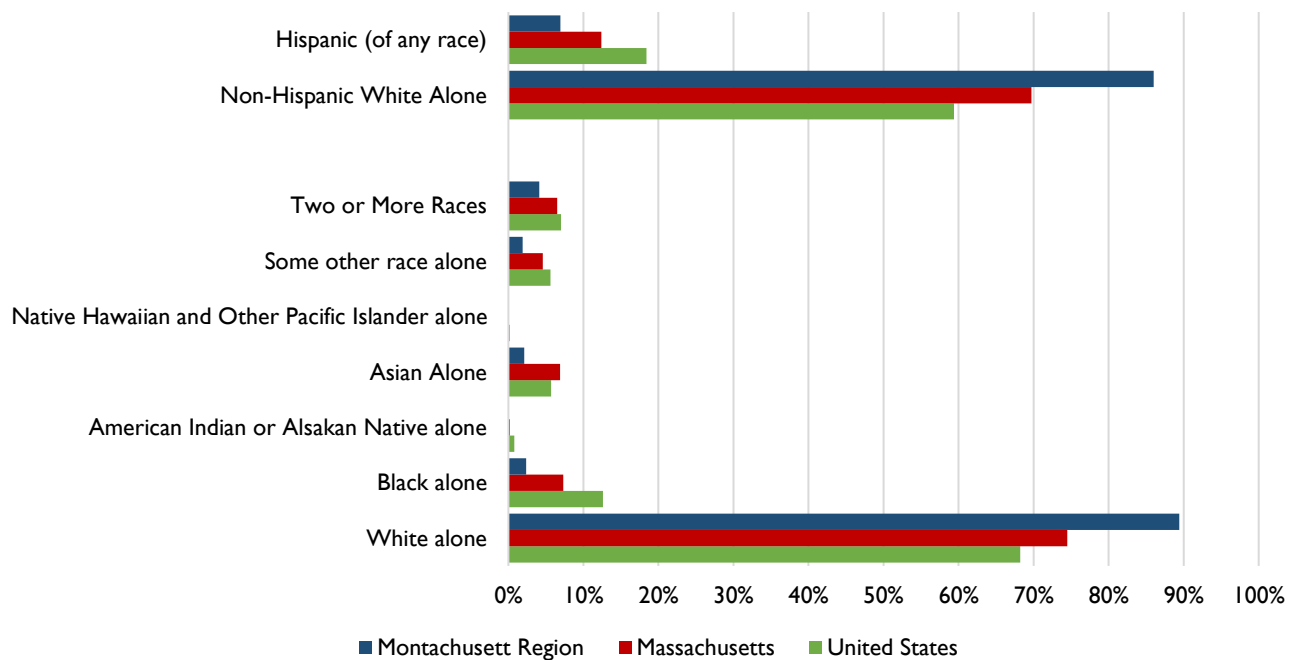
Source: American Community Survey (2017-2021) 5-Year Estimates

However, in the period between 2000 and 2021, we observed the following demographic changes as they pertain to race:

1. The number of Hispanic residents grew from 15,672 to 30,156 (+92.4%)

2. The number of residents who self-identified as Black or African American alone grew from 6,127 to 13,082 (+113.5%)

3. The number of Asian residents grew from 4,098 to 8.368 (+40.1%)

4. The number of residents who identified as two or more races increased from 4,127 to 14,575 (+65.4%)

Figure 4.1-7 Race in the Montachusett Region (2000 to 2021)

2000

2021

- White alone
- Black alone
- AIAN alone
- Asian Alone
- NHPI alone
- Some other race alone
- Two or More Races

90%

85%
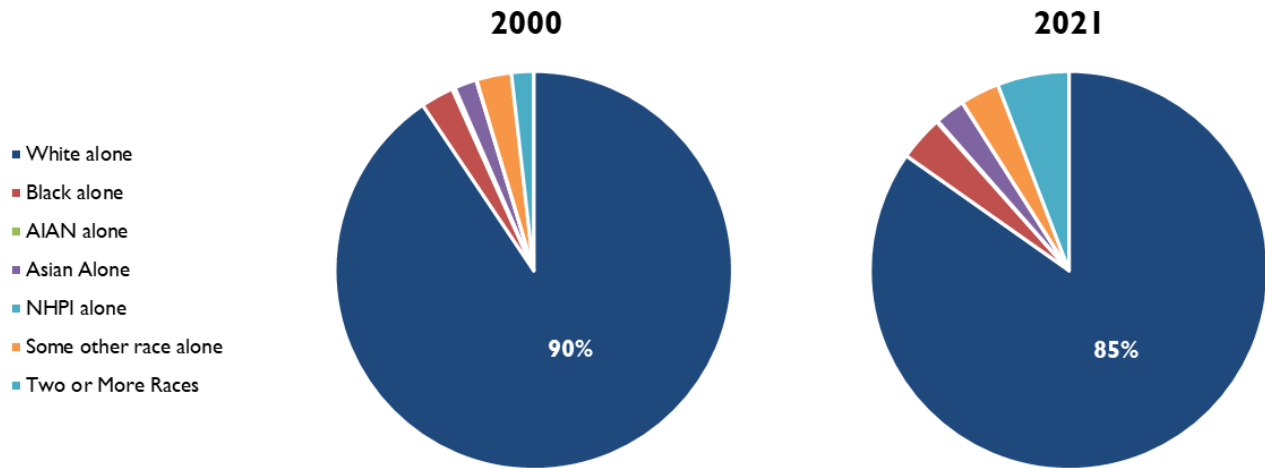
Source: US Census, American Community Survey (2017-2021) 5-Year Estimates

E. Disability

In Massachusetts, 11.6% of total individuals report having a disability (ACS 2021). A disability refers to difficulty hearing, vision, cognitive, ambulatory, self-care, and/or living independently.

Seven Montachusett communities have a higher proportion of residents managing a disability than the state as a whole (Figure 4 - 8), with Athol, Fitchburg, and Gardner topping the list. Among other important planning considerations, the comparatively high percentages of residents with disabilities, and a steadily aging population, emphasizes the importance of multimodal transportation access. Access to transportation services through the Montachusett Regional Transit Authority (MART) offers a vital lifeline for many to ensure equitable access to employment, education, as well as social and healthcare services.

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Figure 4.1-8: Individuals with a Disability, Montachusett Region
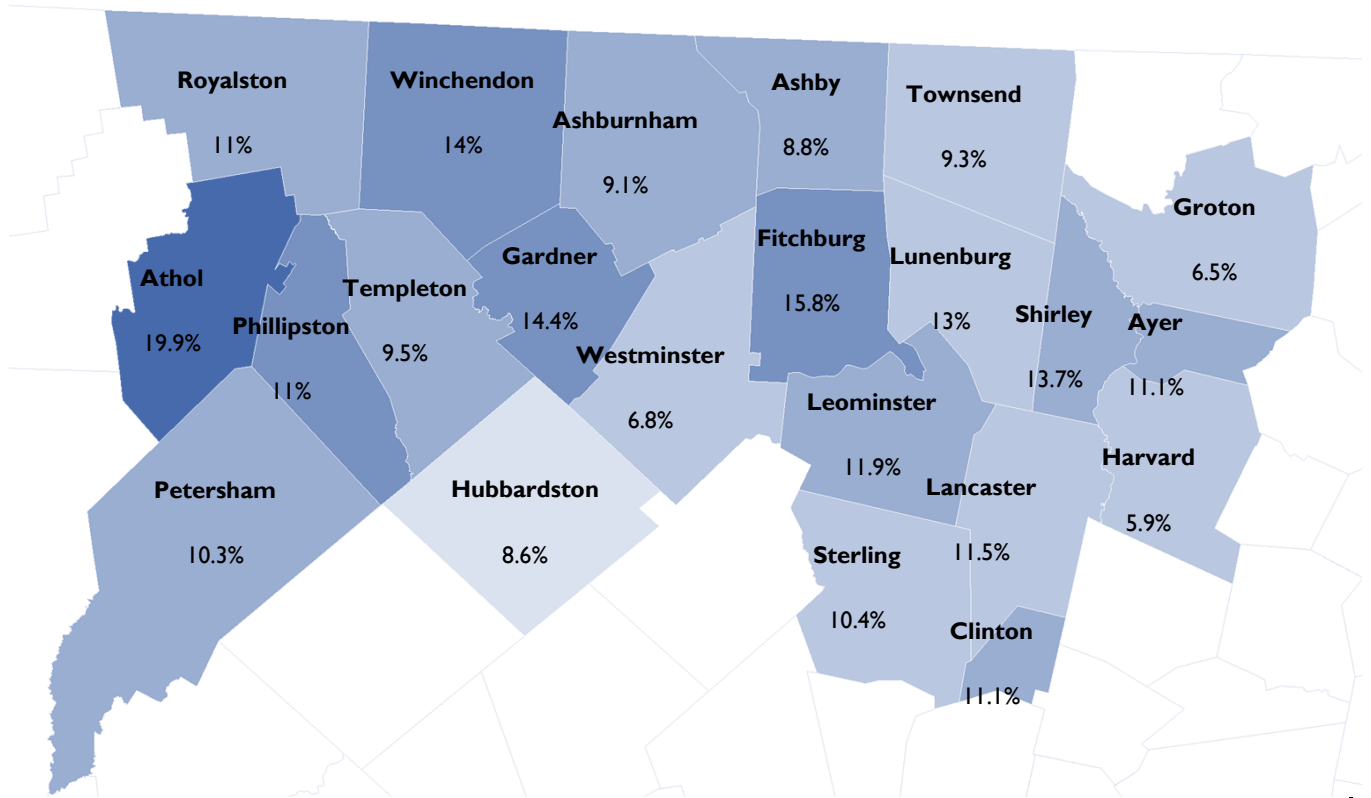
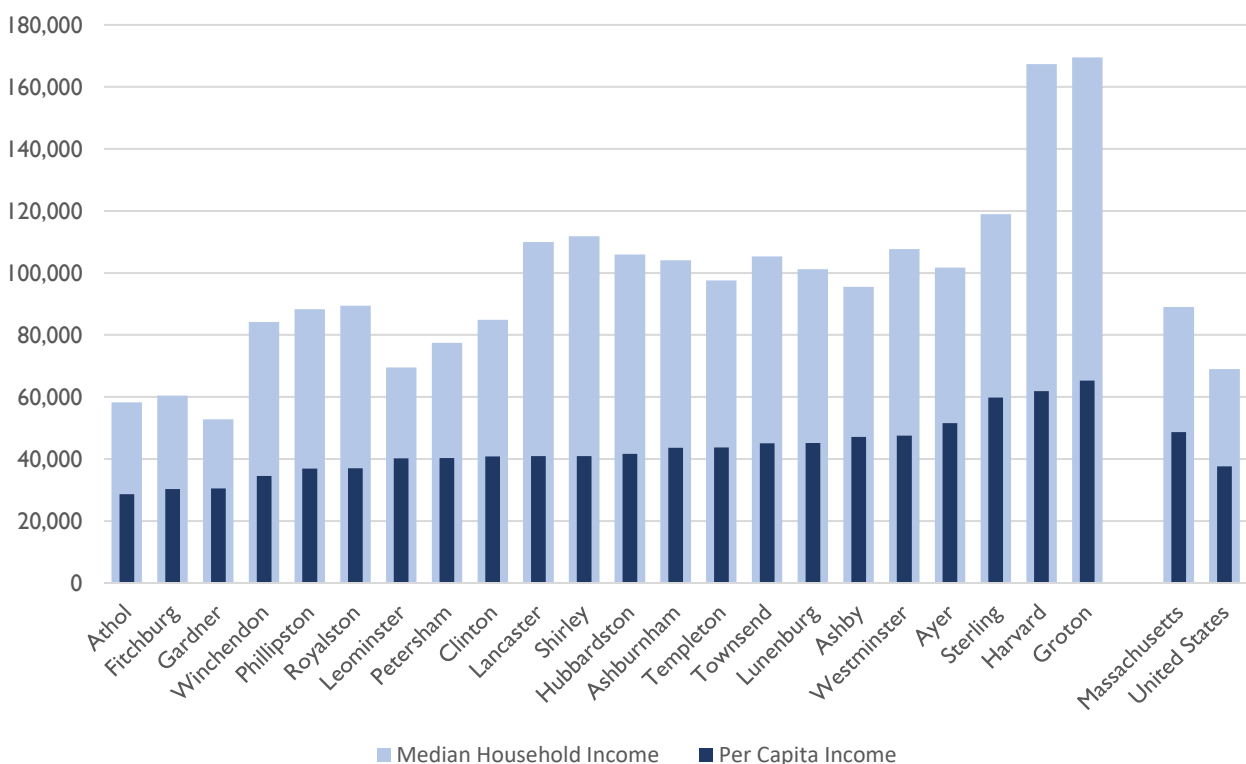Source: American Community Survey (2017-2021) 5-Year Estimates

MART currently offers ADA Eligible Paratransit Service to transportation-disabled individuals. Service is provided by lift-equipped vans and is available in the areas that MART provides fixed route bus service. Under the ADA regulations, there are three categories of persons who are eligible for ADA Paratransit Service:

1. Is unable as a result of physical or mental impairment, to get on, ride, or get off an accessible vehicle on the public transit system: or

2. Needs the assistance of a wheelchair lift or other boarding assistance device and is able, with such assistance to get on, ride and get off an accessible vehicle, but such vehicle is not available on the route when the individual wants to travel; or

3. Has specific impairment-related condition including vision, hearing or impairments causing disorientation which prevents travel to or from a station or stop on the system.

F. Income

The ACS collects income and poverty data, and presents both across a range of different categories, including age, gender, race, family structure, occupation, etc. The ACS defines per capita income as the mean money income received in the past 12 months computed for every man, woman, and child in a geographic area. It is derived by dividing the total income of all people 15 years old and over in a geographic area by the total population in that area. (Note: income is not collected for people under 15 years old, even though those people are included in the denominator of per capita income. This measure is rounded to the nearest whole dollar.). In addition to per capita income, median household income is presented here in Figure 4 - 9 for each Montachusett community, as well as the state and nation.

**Figure 4.1-9: Per Capita Income and Median Household Income**

Eighteen (18) of the region's 22 communities have a lower per capita income than the state ($48,617), while eight rank below the state when examining median household income (Figure 4 - 9).

G. Poverty

Poverty is calculated as a percentage of the population below the poverty threshold. The Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, that family and every individual in it is considered to be in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using the Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps).

Figure 4.1-10: Individuals Living in Poverty, Montachusett Region
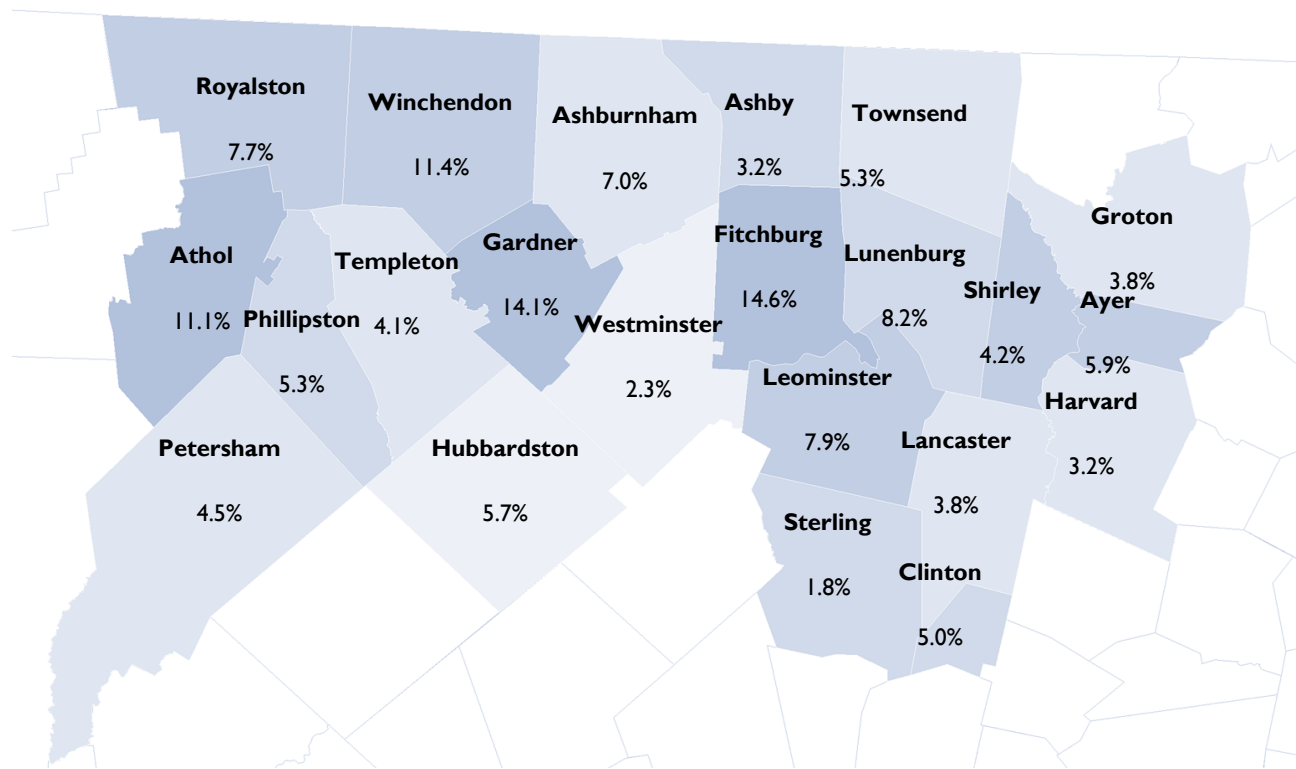
Source: American Community Survey (2017-2021) 5-Year Estimates

An estimated 9.9% of individuals are living in poverty within the Commonwealth of Massachusetts. Six Montachusett communities have a higher concentration of poverty than the state as a whole, with Fitchburg (14.6%) and Gardner (14.1%) also exceeding the national poverty rate of 11.3% (Figure 4 - 10).

Between 2020 and 2021, poverty rates in both the region and the state showed a marginal increase, while the nation demonstrated a nominal decrease (Table 4 - 2).

Table 4.1-2: Poverty Rates

Area	2020	2021	1-Year Change
Montachusett Region	5.9%	6.4%	.5%
Massachusetts	9.8%	9.9%	0.1%
United States	12.8%	12.6%	-0.2%

Source: American Community Survey 5-Year Estimates

H. Title VI and Environmental Justice (EJ)

Transportation and social equity through Title VI and Environmental Justice (EJ) all play a key role in the quality of life in the region by shaping access to jobs, housing, services and recreational opportunities and is essential to addressing poverty, unemployment and other equal opportunity goals. It is based on the principle that all people have a right to be protected from harmful or burdensome investments/projects, to live in and enjoy a clean and healthful environment and ensure that these identified communities do not bear a disproportionate burden of obtrusive projects and also share in positive and beneficial investments.

Annually, during the development of the Transportation Improvement Program (TIP) and the Unified Planning Work Program (UPWP), an analysis is conducted on projects and work tasks to assess burdens and benefits on identified Title VI and EJ communities. For these analyses, the 2017-2021 American Community Survey 5-year estimates were utilized. For some of the data, census estimates were only available at the Census Tract level. This data dealt with Foreign Born, Disabilities and Non-English Spoken at Home. The remaining census data estimates were available at the Block Group level. The tables below list the ACS data sources as well as whether they were broken down to the Census Tract or

Block Group level. These tables, therefore, were used to determine Environmental Justice (EJ) and Title VI designated areas.

I.   Housing Characteristics

To serve their aging populations as well as attract young professionals and working families, Montachusett communities will need to offer a variety of housing options. For many individuals, housing needs changes over a lifetime as household size and income decreases. Ensuring available housing near importance services (e.g. healthcare facilities, public transit, grocery stores) becomes more important as the ability and willingness to drive may decrease as well. Balancing the housing needs of seniors, students, and working families and individuals of all ages represents an ongoing challenge for each of our 22 communities.

Like the state as a whole – but to an even further degree – the majority of housing units in the Montachusett Region are single detached units (Figure 4.1 - 11).

Figure 4.1-11: Housing Units by Building Type
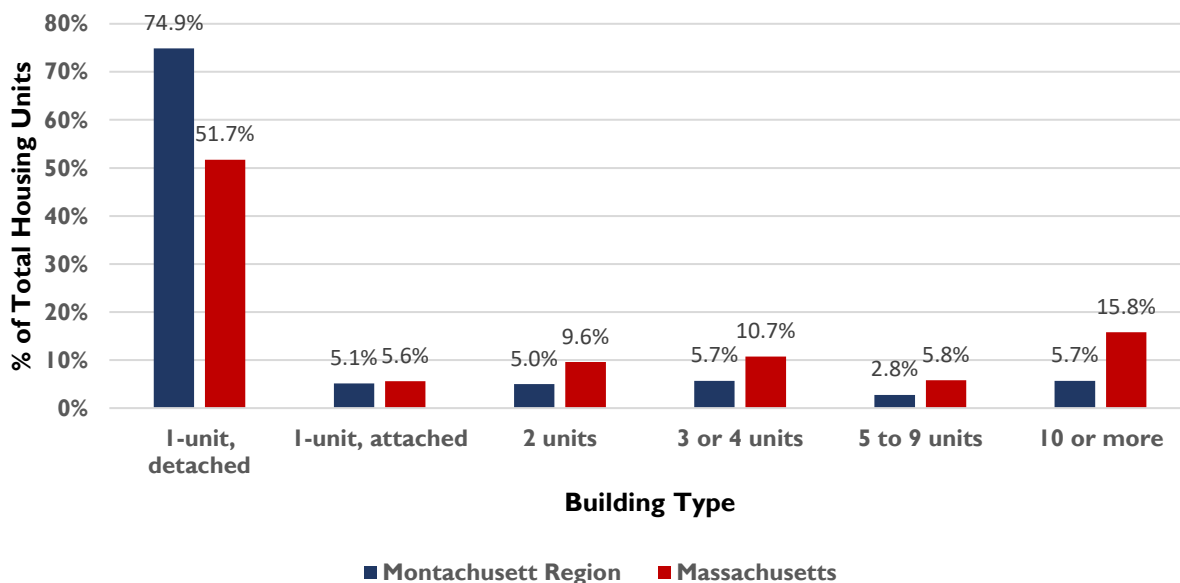
Source: American Community Survey (2017-2021) 5-Year Estimates

The ages of homes in the Montachusett Region are akin to much of New England, with nearly a third of all homes having been built prior to the second World War (Figure 4 - 12). All homes built prior to 1978 (when lead-based house paint was discontinued in the United States) are likely to contain some levels of

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lead. Today, the Massachusetts Lead Law requires the removal or covering of lead paint hazards in homes built before 1978 where any children under six live, regardless of their blood lead level.

Figure 4.1-12: Proportion of Total Housing Units by Year Structure Was Built
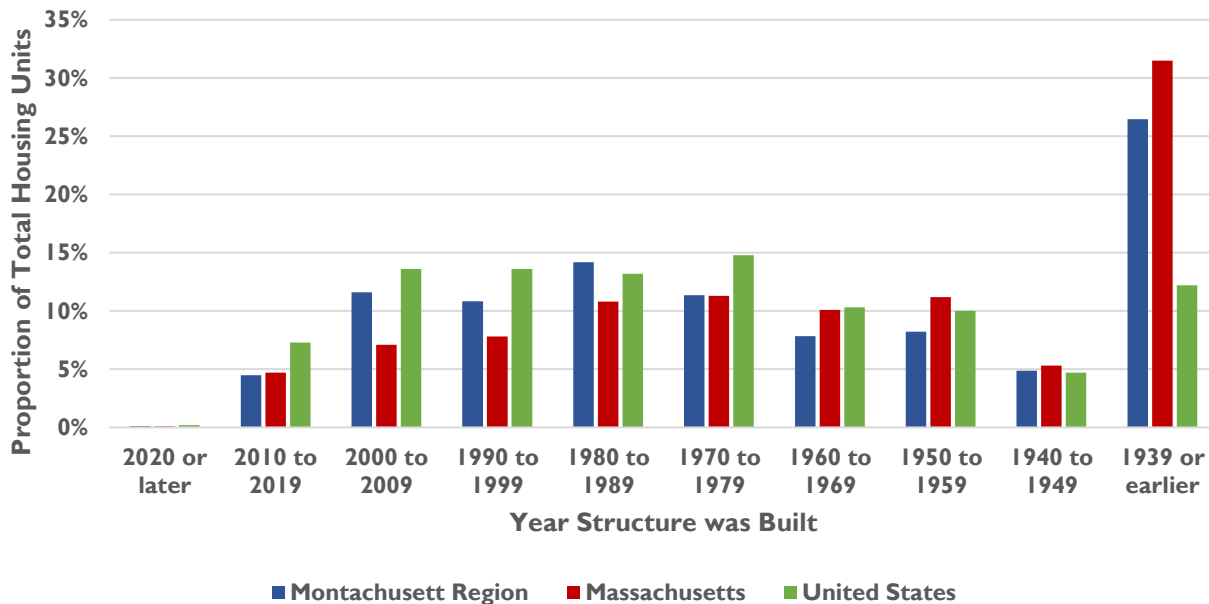
Source: American Community Survey (2017-2021) 5-Year Estimates

Housing occupancy is highly variable between communities in the region (Figure 4 - 13), with homeowner occupancy ranging from as high as 90% in Harvard to as low as 51% in Clinton (compared to 57% in both the state and the nation).

Figure 4.1-13: Housing Occupancy Status
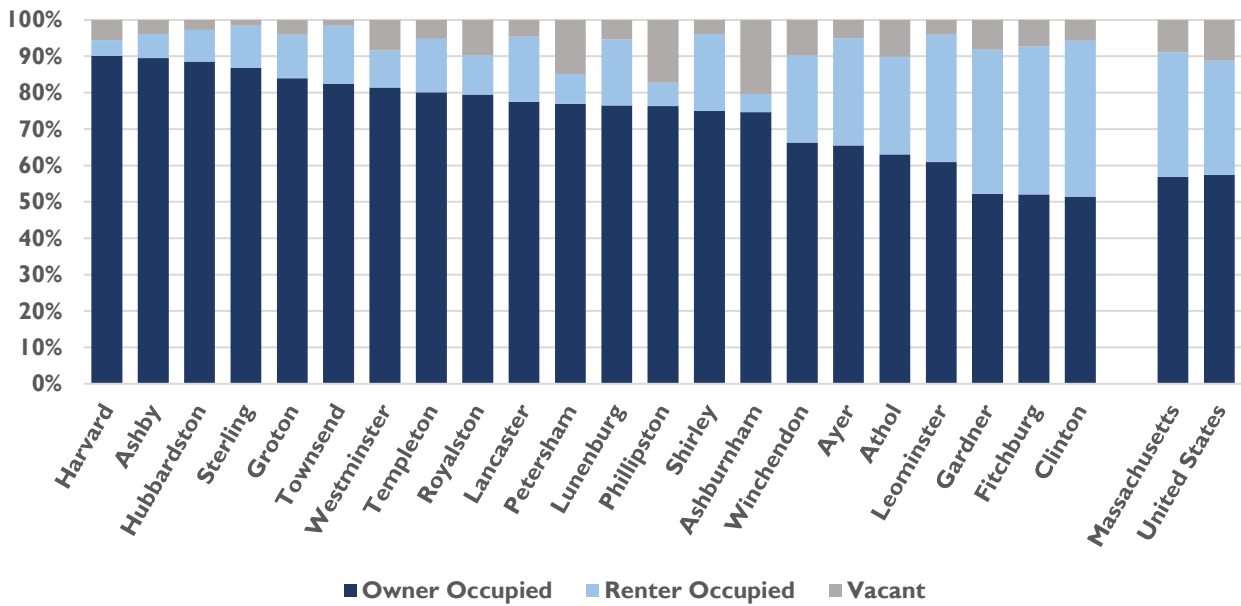
Source: American Community Survey (2017-2021) 5-Year Estimates

In 2010, the region witnessed a spike in housing production which helped break the trend of declining construction which began in 2005 (Figure 4 - 14).

Figure 4.1-14: Number of Housing Units Permitted in the Montachusett Region (2000 to 2020)
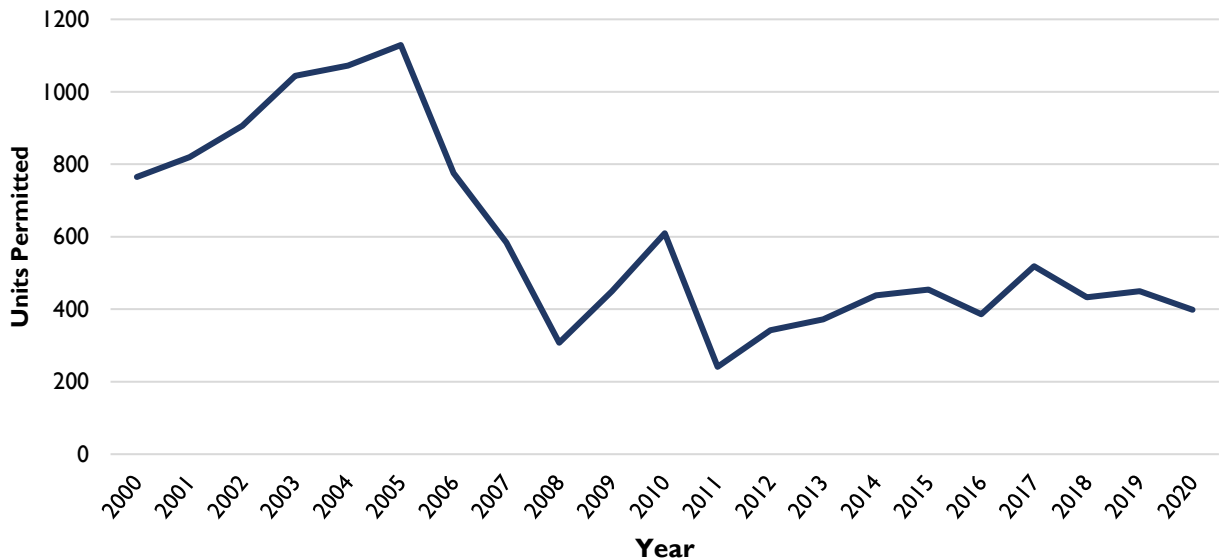
Source: US Census Bureau – Annual Building Permit Survey

More than half of the building units permitted in 2010 were concentrated in the community of Lunenburg who supported the production of 308 units that year (of the total 610 in the entire region), including seven housing complexes with an estimated 186 total housing units.

It is generally accepted that a household can afford a home valued up to 30% of the household's annual income before becoming "cost burdened". Those households who pay a higher percentage of their income on housing may – according to the US Department of Housing and Urban Development – "have difficulty affording necessities such as food, clothing, transportation, and medical care". An estimated 16,082 owner-occupied households and 12,309 renter-occupied households are cost burdened throughout the Montachusett Region (Table 4 - 6).

Table 4.1-6: Cost Burden Severity by Community and Housing Occupancy

Community	Number of owner-occupied households that are cost burdened	% of owner-occupied households that are cost burdened	Number of renter-occupied households that are cost burdened	% of renter-occupied households that are cost burdened
Ashburnham	438	28.1	68	59.7
Ashby	266	28.2	10	13.5
Athol	845	34.5	788	58.8
Ayer	573	29.2	398	36.6
Clinton	833	31.0	992	34.4
Fitchburg	2,883	45.8	3,572	50.9
Gardner	1,498	43.1	1,642	45.8
Groton	587	21.8	206	52.7
Harvard	333	23.3	38	60.3
Hubbardston	244	20.3	49	47.6
Lancaster	524	29.7	232	54.8
Leominster	2,874	34.1	2,602	41.6
Lunenburg	896	33.5	350	47.3
Petersham	133	47.3	9	23.7
Phillipston	158	31.5	10	27.8
Royalston	120	33.2	30	65.2
Shirley	407	28.6	202	39.3
Sterling	582	35.7	131	39.3
Templeton	666	35.5	124	29.3
Townsend	712	32.0	196	39.2
Westminster	738	36.2	217	62.3
Winchendon	492	21.8	443	47.0

Source: American Community Survey (2017-2021) 5-Year Estimates

Almost twenty-eight percent (27.3%) of owner-occupied households are considered cost-burdened throughout Massachusetts; all but four communities in the Montachusett region exceed this figure. Although fewer total renters experience being cost burdened when compared to homeowners, their rate of burden is significantly higher. Specifically, 49.4% of renter-occupied households spend more than 30% of their income on living expenses across the state, while 8 of 22 Montachusett communities exceed this rate.

Another indicator of housing affordability is the median home value of the region. As a general trend, housing values are highest along the eastern edge of the Montachusett Region in those communities with greatest accessibility to Boston and major employment centers (Figure 4 - 15).

Figure 4.1-15: Median Household Value for Owner-Occupied Households
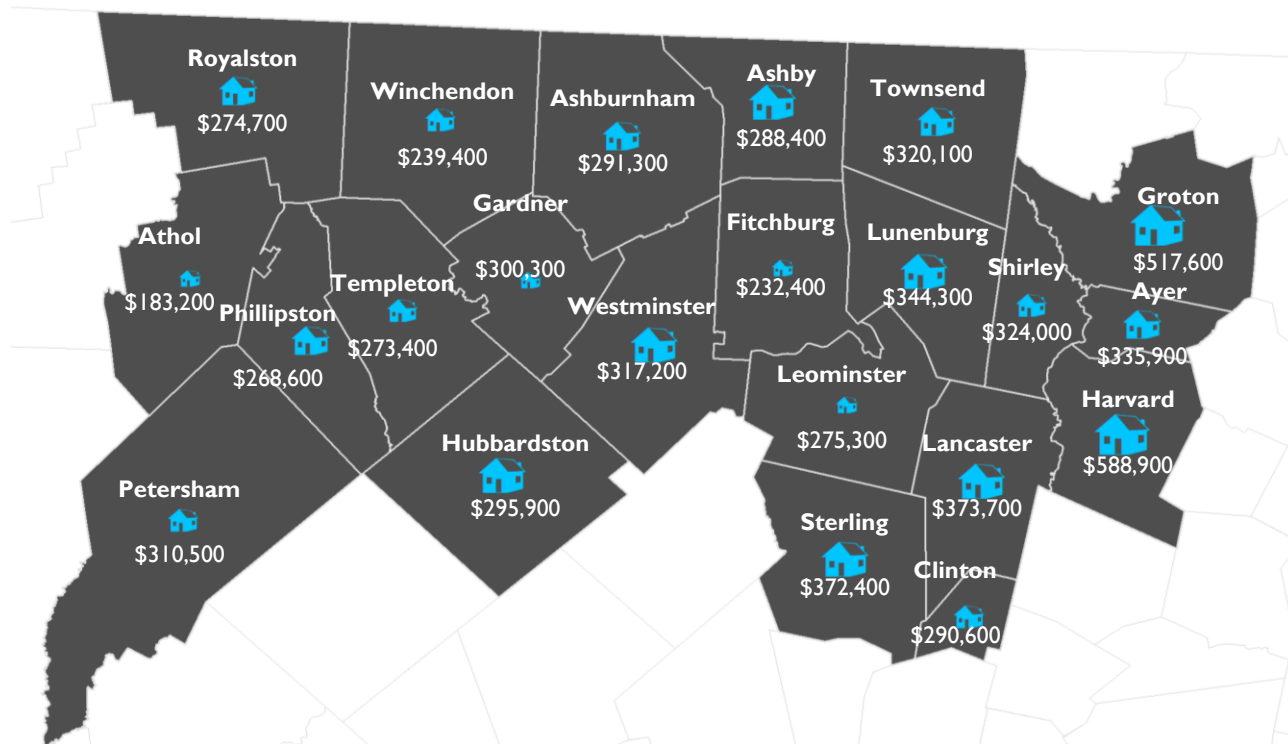
Source: American Community Survey (2017-2021) 5-Year Estimates

To project future household values, Zillow.com compiles the past six years of home sales data and forecasts ahead a single year (Figure 4 - 16). Housing values are projected to hold steady or slightly increase in every Montachusett community over the next year; in particular, Harvard (4.7%) and Sterling (4.6%) are expected to see moderate growth in their housing markets in the near future.

Figure 4.1-16: One-Year Household Value Projections
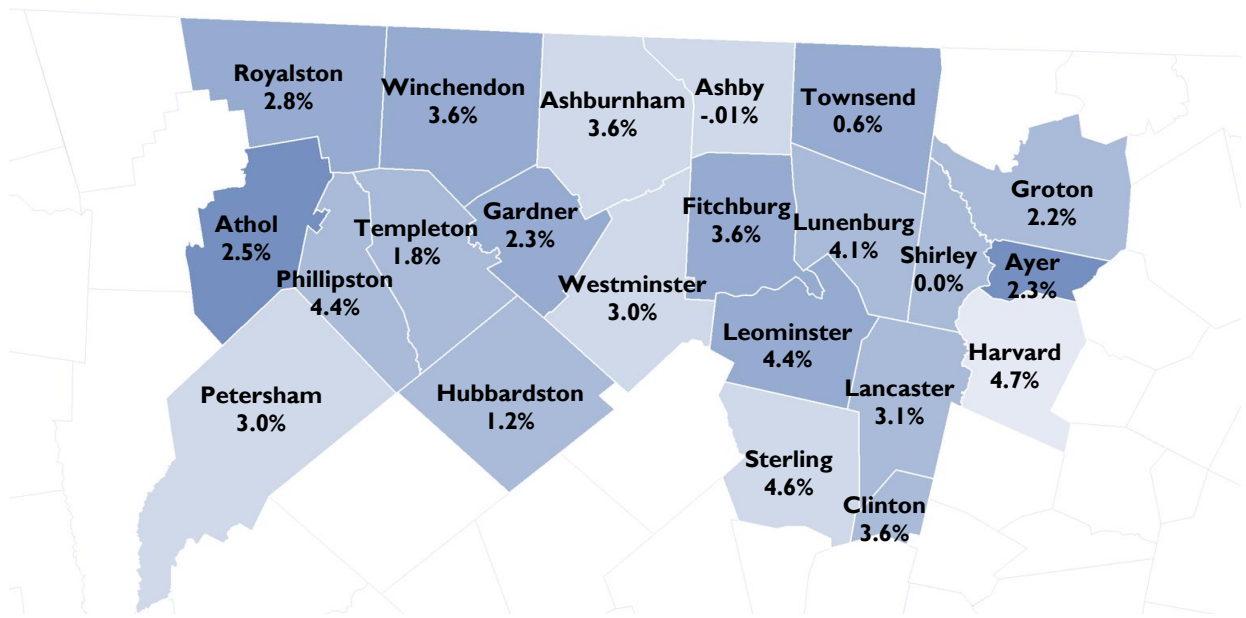
Source: Zillow Research 2023

J.   Labor Force and Employment

Labor force and employment data were collected and compared across multiple sources, including American Community Survey estimates, ESRI's Business Analyst Online (BAO), and Massachusetts Office of Labor and Workforce Development. Overall, despite significant disruptions since before 2000, manufacturing remains the largest (NAICS 2-digit) employment sector in the region (15.7% of total employees) and integral to the economic health of many communities.

Table 4.1-7: Businesses and Employment by Industry (ESRI BAO 2022)

Industry	Businesses		Employees	
By NAICS Codes	Number	Percent	Number	Percent
Manufacturing	404	4.8%	14,699	15.7%
Health Care & Social Assistance	692	8.2%	14,047	15.0%
Retail Trade	1,096	13.0%	11,243	12.0%
Educational Services	249	3.0%	9,292	9.9%
Accommodation & Food Services	516	6.1%	8,256	8.8%
Other Services (except Public Administration)	1,310	15.6%	5,992	6.4%
Public Administration	466	5.5%	5,774	6.2%
Construction	782	9.3%	4,194	4.5%
Wholesale Trade	322	3.8%	3,929	4.2%
Professional, Scientific & Tech Services	651	7.7%	3,796	4.0%
Arts, Entertainment & Recreation	161	1.9%	2,588	2.8%
Administrative & Support & Waste Management & Remediation Services	298	3.5%	2,020	2.2%
Finance & Insurance	257	3.1%	1,980	2.1%
Real Estate, Rental & Leasing	380	4.5%	1,660	1.8%
Transportation & Warehousing	169	2.0%	1,612	1.7%
Information	181	2.1%	1,399	1.5%
Unclassified Establishments	382	4.5%	550	0.6%
Agriculture, Forestry, Fishing & Hunting	65	0.8%	322	0.3%
Management of Companies & Enterprises	12	0.1%	277	0.3%
Utilities	21	0.2%	172	0.2%
Mining	7	0.1%	71	0.1%
Total	8,421	100.0%	93,873	100.0%

Source: ESRI Business Analyst Online (BAO) 2022

When aggregated (as is done for the American Community Survey estimates), educational services, and health care and social assistance together represent the largest employing industry in the Montachusett Region, as we see in the state and nation as a whole.

Figure 4.1-17: Employment by Industry
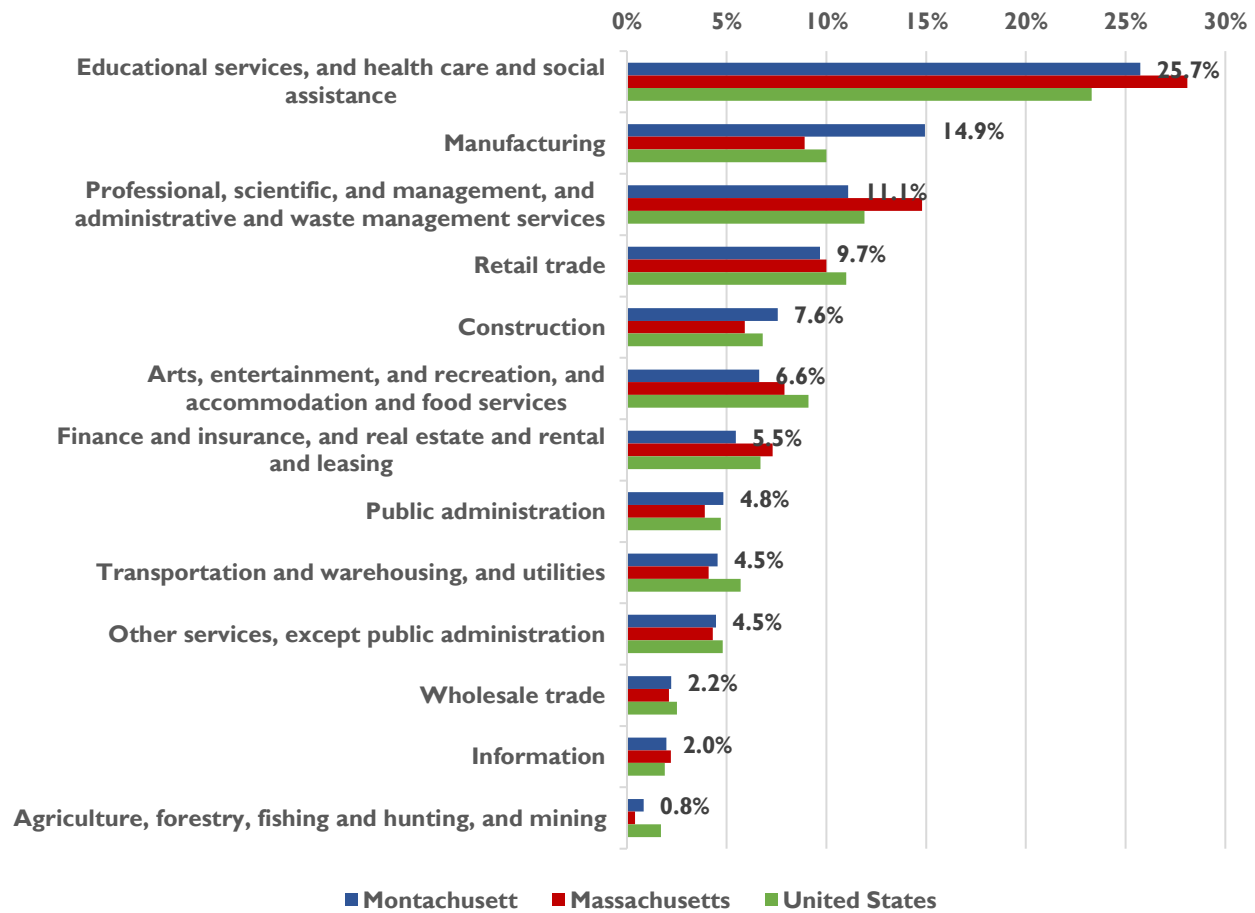
Source: American Community Survey (2017-2021) 5-Year Estimates

The level of manufacturing-based employment – despite declines in recent decades – continues to dwarf that of both the state and country. While efforts continue toward diversifying the regional economy into other growing sectors of the economy, including service sectors, the region's comparative advantage of an experienced manufacturing workforce and legacy industrial space will ensure manufacturing is maintained as a cornerstone in the region's economy.

Figure 4.1-18: Shift in Employment by Industry as a Share of the Regional Economy, Montachusett Region (2000 to 2021)
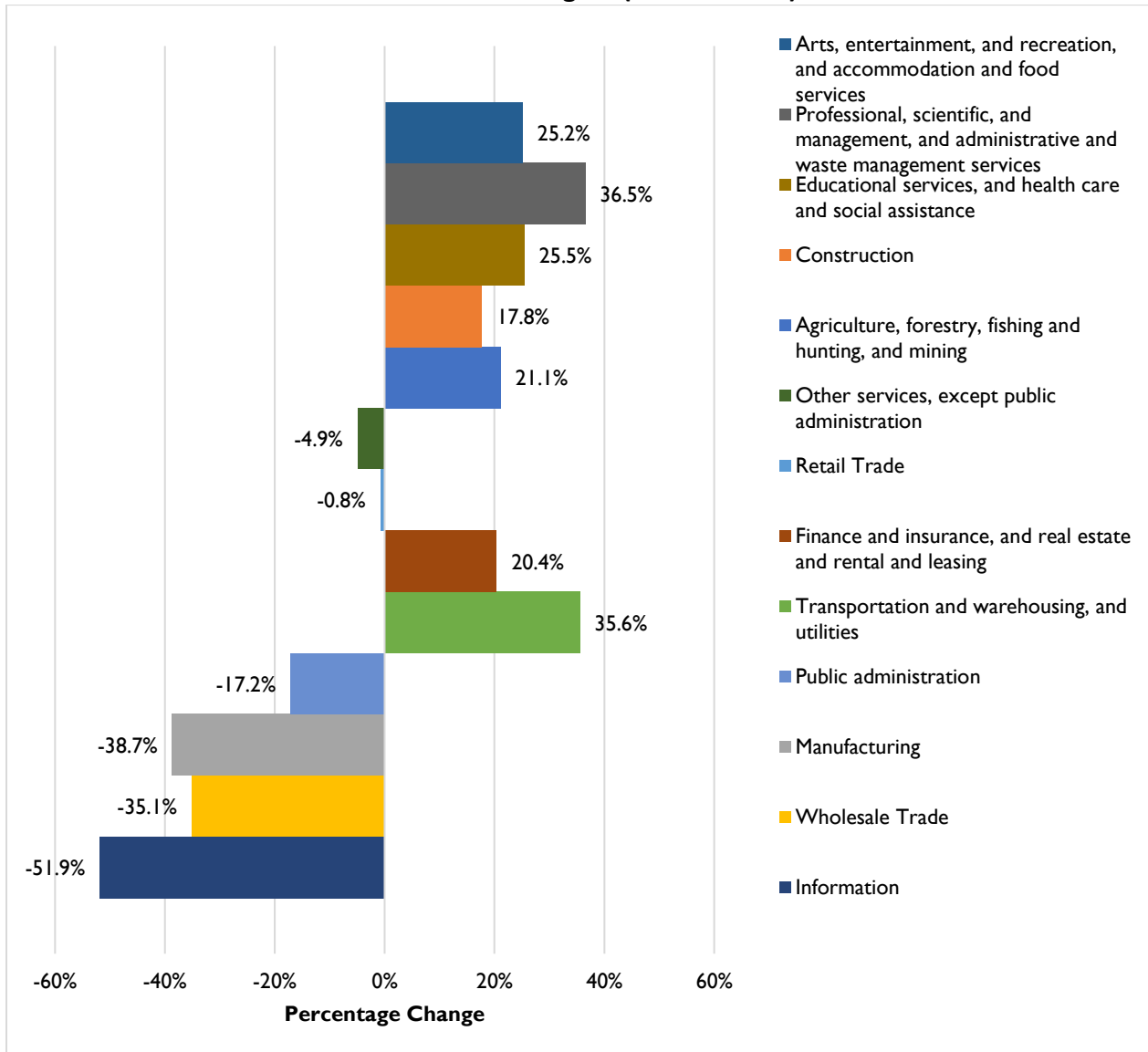
Source: US Census, American Community Survey (2017-2021) 5-Year Estimates

Between 2000 and 2021, the region witnessed some notable shifts in the total employment share by each industry. Arts, entertainment, and recreation, and accommodation and food services – although still modest in its total employment, with 9,054 jobs in 2021 – has increased its share of total employment in the region by 25.2% since 2000. Other industries which witness such a boost included professional, scientific, and management, and administrative and waste management services (36.5%,); educational services, and health care and social assistance (25.5%); and construction (27.8%).

While two of the greatest declines in total employment share occurred in the information (-51.9%) and wholesale trade (-35.1%) sectors, together these sectors are responsible for less than 4% of jobs in the region in 2021. Manufacturing, on the other hand, accounts for an estimated 14.5% of the region's employment and is down from 23.7% in 2000 (and a net loss of 7,885 jobs during that time).

According to the Massachusetts Executive Office of Labor and Workforce Development, the fastest growing occupation in the Montachusett Region is Maids and Housekeeping Cleaners (see Table 4 - 8). Nurse practitioners are also going to be needed in higher supply to help continue to meet the care needs of the region's growing senior population.

Table 4.1-8: Fifteen (15) Fastest Growing Occupations in the Montachusett Region

Title	Employees 2020	Projected Employees 2030	Numeric Change	Percent Change	2021 Mean Annual OES Wage
Maids and Housekeeping Cleaners	354	739	385	108.8%	$34,622
Cooks, Restaurant	565	1,025	460	81.4%	$30,609
Fitness Trainers and Aerobics Instructors	164	290	126	76.82%	$58,227
Nurse Practitioners	128	220	92	71.87%	$119,143
Bartenders	305	503	198	64.91%	$36,720
First-Line Supervisors of Housekeeping and Janitorial Worker	108	175	67	62.03%	$56,088
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	168	256	88	52.38%	$31,292
Waiters and Waitresses	877	1,284	407	46.40%	$35,943
Industrial Machinery Mechanics	237	340	103	43.45%	$59,146
Dishwashers	200	286	86	43.00%	$31,127
Passenger Vehicle Drivers, Except Bus Drivers, Transit	674	959	285	42.28%	***
Chemists	249	351	102	40.96%	$107,177
Coaches and Scouts	101	142	41	40.59%	$49,133
Self-Enrichment Education Teachers	165	231	66	40.00%	$50,138
First-Line Supervisors of Food Preparation and Serving Workers	519	723	204	39.30%	$43,633

Source: Massachusetts Executive Office of Labor and Workforce Development 2023

K. Travel Means & Times

This section provides commuting information for workers aged 16 or over. This data comes from the American Community Survey (ACS) from the US Census Bureau.

Figure 4.1-19: Means of Travel to Work, Montachusett Region

Drive alone	Carpool	Public transit	Walking	Other means	Work at home
78%	7%	1%	2%	1%	11%
Massachusetts 66%	*Massachusetts* 7%	*Massachusetts* 8%	*Massachusetts* 5%	*Massachusetts* 2%	*Massachusetts* 12%
United States 73%	*United States* 9%	*United States* 4%	*United States* 3%	*United States* 2%	*United States* 10%
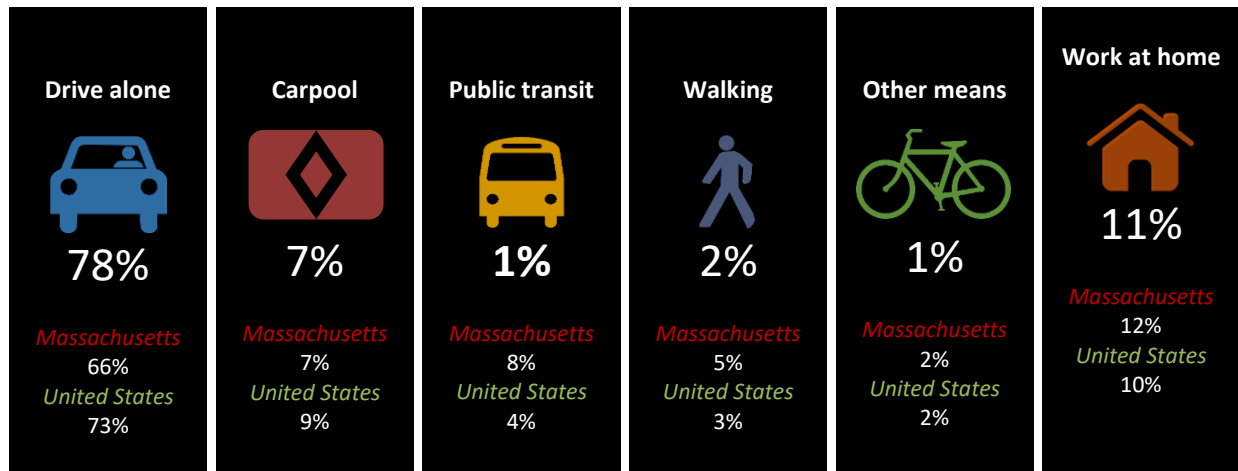
Source: American Community Survey (2017-2021) 5-Year Estimates

Montachusett Region commuters are more auto-reliant for than the state or nation, with 85% of workers either driving alone or carpooling to work (compared to 75% of workers in Massachusetts, and 82% of workers in the country). We also recognize Montachusett residents are significantly less reliant upon public transit and a few residents are able to walk to their place of employment.

Figure 4.1-20: Travel Time to Work
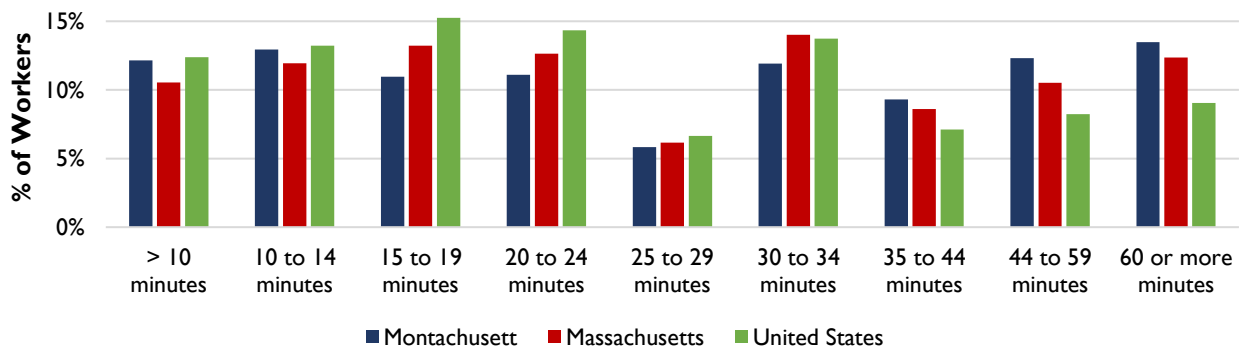
Source: American Community Survey (2017-2021) 5-Year Estimates

Interestingly, a higher proportion of Montachusett residents have *both* less than a 10-minute and more than a 45-minute commute to their place of employment when compared to Massachusetts.

Figure 4.1-21: Means of Travel to Work by Community

Community	Car	Walk	(red)	Bicycle	Bus	Home
Ashburnham	75%	2%	5%	2%	2%	15%
Ashby	78%	2%	7%	0%	0%	13%
Athol	76%	5%	12%	2%	1%	5%
Ayer	84%	0%	3%	1%	3%	9%
Clinton	75%	2%	10%	1%	0%	11%
Fitchburg	74%	5%	10%	2%	2%	7%
Gardner	75%	2%	12%	2%	1%	8%
Groton	69%	1%	9%	0%	2%	19%
Harvard	61%	0%	6%	0%	5%	27%
Hubbardston	80%	2%	4%	0%	0%	14%
Lancaster	64%	1%	2%	2%	1%	30%
Leominster	82%	0%	7%	1%	1%	9%
Lunenburg	80%	0%	6%	0%	3%	11%
Petersham	79%	4%	10%	0%	0%	7%
Phillipston	82%	1%	7%	1%	0%	10%
Royalston	80%	0%	10%	4%	0%	5%
Shirley	83%	1%	4%	1%	1%	10%
Sterling	83%	0%	5%	0%	6%	6%
Templeton	82%	3%	5%	2%	0%	8%
Townsend	87%	2%	4%	1%	1%	6%
Westminster	81%	0%	5%	1%	2%	12%
Winchendon	76%	3%	11%	1%	1%	8%
Massachusetts	73%	3%	9%	2%	4%	10%
United States	66%	5%	7%	2%	8%	12%

Source: American Community Survey (2017-2021) 5-Year Estimates

Projections for the Montachusett Region

MassDOT worked in 2021 with the UMass Donahue Institute (UMDI), the Central Transportation Planning Staff (CTPS) of the Boston Region MPO), the Metropolitan Planning Commission (MAPC) and the state's other Regional Planning Agencies (RPAs), to again update and revise population, households, and employment projections for the Commonwealth's MPOs to use as part of their 2024 RTP. This was a repeat of efforts begun in 2017 that resulted in the development of projections for 2010 to 2040 for the 2020 RTPs. These projections were titled "Vintage 2018". Working with a Socioeconomic Projection Committee that included all of these individuals, UMDI compiled projections, in 10 year increments out to 2050, for the development of these RTP updates. These new projections are entitled "Vintage 2022" or V2022.

The complete methodology and development process can be found in detail at UMDI's website, Massachusetts Population Estimates Program. A methodology report on V2022 entitled "Long-Term Population Projections for Massachusetts Municipalities and Regional Planning Areas" is also available that outlines the projections process. Within this report, UMDI makes an important statement regarding limitations of the projections:

> It is important to note that modeled projections cannot and do not purport to predict the future, but rather may serve as points of reference for planners and researchers. Like all forecasts, the UMDI projections rely upon assumptions about future trends based on past and present trends which may or may not actually persist into the future. The V2022 series employs a status-quo model approach to predict future population change. It assumes that recently observed trends in the components of population change, including birth, death, and migration rates, will persist in future years. It is also a demographically-based model, assuming that population change is driven by births, deaths, and the persistence of historic migration rates into the future.

> As suggested by the demographic-accounting framework, the V2022 projections are based on demographic components of change to the exclusion of other factors, such as housing or transportation development initiatives, large-scale institutional changes, cultural shifts, and public policy revisions. To the extent that geographically-specific birth, death, and migration trends from the last ten years reflect the development that occurred in that place over the past ten years, the V2022 projections should serve as reasonable reflections of future development should development continue at the same relative pace in that geography. Should a region's economic development outlook change dramatically, relative to other places in the state or the U.S., then the migration component in the model may no longer reflect the migration that may be anticipated in

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future years. An important counterpoint to the very likely possibility of future changes in migration, however, is that the strongest predictor of future population in almost all places is the population residing there today.

Factors specific to the timing of this series may also greatly impact the accuracy of the V2022 projections. For one, the projections are based on trends unfolding during what may be described as an off-trend period. The COVID-19 pandemic drastically shifted short-term trends in births and deaths -- two of the main components used as direct inputs in the UMDI population projections method -- not only in Massachusetts but around the U.S. as a whole. Secondly, the pandemic altered typical migration and immigration patterns, with an already declining trend in immigration exacerbated by the global pandemic and with a shift in domestic migration out of urban and into more rural and seasonal areas. While population data from 2020 are incorporated into the launch populations in our projections models, it is still too early to tell whether 2020 residency choices will persist into future years as the "new normal" or whether they will revert to pre-pandemic tendencies, or, if something in-between, to what extent they will persist or rebound.

Another major consideration affecting our ability to produce accurate population projections in 2022 relates to the release schedule of detailed Census 2020 data. As of the date of this report, the only decennial Census data available for 2020 are the total combined male and female populations by race and ethnicity for two large age cohorts: under-18 and 18-plus years of age. While detailed count data by specific five-year and single-year age cohorts are usually available to researchers by this time in the Census cycle, due to both pandemic and methodological-related delays within the U.S. Census Bureau, the UMass Donahue Institute Economic and Public Policy Research 11 release of five-year age cohorts is now not anticipated until May of 2023.1 The decennial Census counts published every 10 years by the U.S. Census Bureau are typically considered the "gold-standard" against which other estimates and rates may be evaluated or produced. In the V2022 estimates series, UMDI must instead rely on age distributions extrapolated from a Census 2010 base which, though reasonable, lack the precision of an actual recent count.

For all of these reasons, researchers should use caution when planning initiatives around the V2022 population projections, and be thoughtful about the data sources, methods, and assumptions that underpin the series. This methodology report represents UMDI's efforts to provide transparency and clarity on the inputs, methods, and assumptions used in the series so that potential users may be well informed on the components used to generate the final V2022 results.

For a complete and detailed discussion and a review of the overall methodology, various components and data sources of the V2022 projections, please see the UMDI methodology guide linked above.

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Based upon the work conducted by UMDI and MassDOT as outlined on the UMDI report, a series of projections were calculated for the Montachusett Region. These projections were provided as regional totals and then disaggregated to the 22 communities that comprise the region.

A. Population

The population of the Montachusett region is expected to shrink gradually from 2020 until 2050 (Refer to the following Figure 4.1 - 22). From 2020 to 2050, the expected population for the region is projected to shrink by -8.51% while the population of Massachusetts is projected to increase by 3.39%.

Figure 4.1-22: Population Projection

TOWN	Census 2000	Census 2010	Census 2020	Population 2030	Population 2040	Population 2050
Ashburnham	5,546	6,081	6,315	6,195	5,931	5,582
Ashby	2,845	3,074	3,193	3,554	3,732	3,760
Athol	11,299	11,584	11,945	11,706	11,195	10,581
Ayer	7,287	7,427	8,479	9,128	9,424	9,353
Clinton	13,435	13,606	15,428	14,974	14,248	13,471
Fitchburg	39,102	40,318	41,946	41,614	41,193	40,305
Gardner	20,770	20,228	21,287	19,625	17,655	15,604
Groton	9,547	10,646	11,315	12,494	13,622	13,955
Harvard	5,981	6,520	6,851	6,964	7,144	6,945
Hubbardston	3,909	4,382	4,328	4,615	4,570	4,283
Lancaster	7,380	8,055	8,441	8,277	7,922	7,305
Leominster	41,303	40,759	43,782	41,404	38,098	34,581
Lunenburg	9,401	10,086	11,782	11,756	11,370	10,839
Petersham	1,180	1,234	1,194	1,108	963	839
Phillipston	1,621	1,682	1,726	1,674	1,540	1,346
Royalston	1,254	1,258	1,250	1,206	1,080	911
Shirley	6,373	7,211	7,431	8,476	9,258	9,803
Sterling	7,257	7,808	7,985	7,678	7,302	6,556
Templeton	6,799	8,013	8,149	8,926	9,511	9,915
Townsend	9,198	8,926	9,127	8,856	8,116	7,118
Westminster	6,907	7,277	8,213	7,932	7,541	7,019
Winchendon	9,611	10,300	10,364	10,285	9,824	9,135
TOTAL	228,005	236,475	250,531	248,447	241,239	229,206
Statewide	**6,349,097**	**6,547,629**	**7,029,917**	**7,195,346**	**7,263,082**	**7,267,961**

B. Households

Like population, the number of households in the region is expected to follow a negative trend through 2050. As shown in Figure 4.1-23 below, the region is projected to see a decrease from 96,886 in 2020 to 95,883 in 2050 (-1.09%). Statewide, projections show an increase in households from 2,749,225 in 2020 to 2,946,290 in 2050 (7.17%)

Figure 4.1-23: Household Projection

TOWN	Census 2000	Census 2010	Census 2020	Households 2030	Households 2040	Households 2050
Ashburnham	1,929	2,148	2,330	2,267	2,273	2,195
Ashby	978	1,105	1,160	1,134	1,123	1,087
Athol	4,487	4,656	4,862	5,008	4,997	4,849
Ayer	2,982	3,118	3,591	3,973	3,971	3,864
Clinton	5,597	5,831	6,581	6,550	6,483	6,297
Fitchburg	14,943	15,165	16,143	16,904	16,804	16,231
Gardner	8,282	8,224	8,720	8,750	8,583	8,259
Groton	3,268	3,753	3,972	4,141	4,153	3,974
Harvard	1,809	1,893	2,108	2,756	2,826	2,729
Hubbardston	1,308	1,566	1,684	1,632	1,621	1,554
Lancaster	2,049	2,409	2,619	2,897	3,104	3,019
Leominster	16,491	16,767	17,873	18,189	18,102	17,520
Lunenburg	3,535	3,835	4,546	4,136	4,122	3,970
Petersham	438	493	479	553	550	530
Phillipston	580	633	674	673	679	655
Royalston	449	498	514	559	566	549
Shirley	2,067	2,264	2,486	2,841	2,893	2,810
Sterling	2,573	2,810	2,994	3,037	3,073	2,974
Templeton	2,411	2,882	3,039	2,985	2,940	2,830
Townsend	3,110	3,240	3,460	3,356	3,347	3,223
Westminster	2,529	2,716	3,079	2,920	2,965	2,843
Winchendon	3,447	3,810	3,972	4,054	4,020	3,871
TOTAL	85,262	89,816	96,886	99,315	99,195	95,833
Statewide	**2,443,580**	**2,547,075**	**2,749,225**	**2,870,730**	**2,932,930**	**2,946,290**

C. Employment

Employment growth in the region is expected to have peaked in 2020 at 83,885 persons, followed by a period of slow decrease -0.85% (-710 persons) in 2030 and an additional -2.41%(-2,006 persons) in 2040 and -3.67% (-2,980 persons) in 2050. This is opposite of a projected increase in employment statewide as growth in the ten-year periods of 2020 to 2030, 2030 to 2040 and 2040 to 2050 are projected at 2%, 1.1% and 1.2%, respectively.

Figure 4.1-24: Employment Projection

MRPC Region	2020	2030	2040	2050	
	83,885	83,175	81,169	78,189	
		Change 20-'30	Change 30-40	Change 40-'50	Change 20-'50
		(710)	(2,006)	(2,980)	(5,696)
		-0.85%	-2.41%	-3.67%	-6.79%
Statewide	2020	2030	2040	2050	
	3,633,367	3,704,952	3,744,092	3,788,585	
		Change 20-'30	Change 30-40	Change 40-'50	Change 20-'50
		71,585	39,140	44,493	155,218
		2.0%	1.1%	1.2%	4.3%

Trends

Through the development and analysis of the demographics and projections for the Montachusett region, the following trends were identified and noted. Following these trends, a series of recommendations are presented for the region.

- Current growth expected to stall and begin a steady period of decline in future projections.
- The population in the region is aging faster than in the state or nation. This trend is also reflected in the 2030, 2040 and 2050 projections where the overall growth in the population of the region is expected to slow and decline. This aging of a large proportion of the population poses a number of planning challenges for the Region, including accessibility to health care and elderly services, public transportation, senior housing. In addition, there will be generational shifts in employment sectors and the workforce.
- Educational attainment rates are increasing in the regions male and female populations. However, they still remain lower than state averages. Efforts are needed in the Region to retain this increasing educated population and subsequently help to address shifts in the employment sectors.

- Seven Montachusett communities have a higher proportion of residents with a disability than the state as a whole. Athol, Fitchburg, and Gardner top the list. Among other planning considerations, the high percentages of residents with disabilities, coupled with a steadily aging population, only help to emphasize the importance of multimodal and

  functional transportation network.

- Eighteen (18) of the region's 22 communities have a lower per capita income than the state ($48,617), while eight rank below the state when examining median household income.

- An estimated 9.9% of individuals are living in poverty within the Commonwealth of Massachusetts. Six Montachusett communities have a higher concentration of poverty than the state as a whole, with Fitchburg (14.6%) and Gardner (14.1%) also exceeding the national poverty rate of 11.3%. Between 2020 and 2021, poverty rates showed a marginal uptick in the region, rising from 5.9% to 6.4%, still well below the state rate of nearly 10%. In order to reverse these trends, additional opportunities to create a more diverse employment sector is needed. Along with this, is the need for improved access to these jobs at a reasonable cost for those in the lower income strata.

- Based on an analysis of current and past transportation and highway projects versus identified Environmental Justice and Title VI populations, there does not appear to be an undo benefit or burden on these populations.

- Housing in the region trends toward single family homes. This along with a rising median home values can affectively price individuals out of the Montachusett Region. This can be especially harmful to younger, more highly educated individuals, which in turn can exasperate the aging population situation. In order to serve the regions changing population characteristics, i.e. aging, diversified, and low income, affordable housing units (either as single or multiple units) need to be an emphasis for the region's officials. Additionally, where appropriate direct tie ins to available transportation options should be a major factor for local officials in this area.

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- Manufacturing continues to remain the largest employment sector in the region (nearly 16% of total employees) and integral to the economic health of many communities. The level of manufacturing-based employment, despite the decline in recent decades, continues to out strip that of both the state and country. While efforts continue toward diversifying the regional economy into other growing sectors, including the service sectors, the region's comparative advantage of an experienced manufacturing workforce and industrial space will help keep manufacturing as a cornerstone in the region's economy.

- Montachusett Region commuters are more auto-reliant than in the state or the nation. Eighty-five percent (85%) of workers either drive alone or carpool to work as compared to 75% of workers in Massachusetts, and 82% of workers in the country. Montachusett residents are also significantly less reliant upon public transit. The longer commute times and distances of Montachusett individuals tend to put more emphasis on the traditional commuter roads in the region, i.e. Route 2, I-190, Route 117, Route 119, Route 140, Route 12, etc. The potential for increased public transit usage exists if expansion and costs can be implemented in a reasonable fashion. In addition, these segments of commuters are also likely to be impacted by technological changes in travel modes, i.e. autonomous vehicles, rideshare options and alternative energy vehicles. With a greater demand or usage of these technologies, critical support infrastructure is needed from long term parking areas for autonomous vehicles, to charging stations, to incentive programs.

Recommendations

The following is a series of recommendations based upon the identified trends related to the demographic profile of the Montachusett Region. It should not be viewed as a complete and finite list but rather a starting point for the continued review of the needs of the region.

1. The aging of the region's population requires that several issues be addressed:
   a. Expanded transit options to vital services for elderly. Expansion to needed services such as medical and shopping should remain a priority. Additionally,

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connections between communities should be examined and implemented where feasible.

      b. Upgrades, expansion and improvements to the pedestrian network in the core centers of communities and in and around identified service areas, i.e. medical facilities, shopping centers, etc. Safer sidewalks and pedestrian corridors will also serve other segments of the population beyond the elderly.

      c. Safety improvements along the road and pedestrian/bicycle networks need to be expanded and prioritized to help deal with the aging population as well as assisting with other segments with their activities.

2. Identification and prioritization are needed for projects that assist the disabled community throughout the region. This would include better sidewalks, improved access to transit options, and eliminating gaps in the network that prevent or discourage usage (ex. incomplete or non-existing sidewalks on fixed route transit lines).

3. Expansion of employment opportunities are needed in order to retain and expand the regional workforce. As the educational level continues to rise in the region, without adequate employment options, the population will continue to age as younger individuals seek better paying jobs outside of the region. Network improvements are needed to assist and encourage employers to remain in the region. This would involve infrastructure improvements to support industries, multiple travel options to bring employees to and from work, and expansion of outreach efforts to all segments of the population. Continued emphasis on maintaining pavement conditions and reducing bridge deficiencies will allow for greater marketing by municipalities of available industrial and commercial areas.

4. Expansion of mode options for commuters needs to also be a priority for the region. This would also involve the region's trail/pedestrian/bicycle networks. These systems can be improved and expanded in order to provide additional walking and biking mode options.

5. Additional planning is needed to address future technological advances in transportation as they occur and become more and more feasible. This would include issues such as:

    a. Autonomous vehicles. Where will they "park" when riders have reached their destinations? Is there a need for special lots or facilities? Are there potential congestion issues at the start and end of work shifts? Will "peak hours" increase because the autonomous vehicle may be making additional trips to desired locations (i.e., one trip in and one trip out in both the AM and PM (4 trips) as opposed to a driver that has one trip in and one trip out in the AM and PM (2 trips))?

    b. Electric vehicles. Where should charging stations be located? How many facilities exist, and do they adequately serve the population now? Environmentally, are there any drawbacks associated with batteries, etc., that need to be addressed?

    c. Ride share options. Can these systems be expanded to address the needs of the elderly, low income and disabled populations? Can the systems expand to the more rural communities to serve these areas without viable transit options?

6. The population is getting more and more diverse in terms of minority populations and language. Additional efforts are needed to draw these individuals into the transportation planning process to ensure adequate representation and service.